

A forum for discussion and tips for advancing teaching and learning at Mona

Teaching for the Development of Critical Thinking Skills



The Centre for Excellence in Teaching and Learning (CETL) is having an ongoing book club and this semester, we are reading and discussing the book, *Teaching at its best: A research based resource for college instructors* written by Linda B. Nilson (2016). One of the many issues in undergraduate teaching raised by Nilson in this book is the issue of teaching for critical thinking. This seems to be of perennial interest to university teachers. Nilson (2016) points out in this book that if we want to teach for critical thinking, we must design our courses with a critical thinking focus. So, in order to teach for critical thinking, start from the beginning by designing the course to focus on the development of critical thinking. Then, teach the course in ways that will lead students to engage in learning activities that are designed at developing critical thinking skills. This calls for the explicit incorporation of critical thinking outcomes as we develop our course objectives or course outcomes.

For Nilson (2016), the literature on critical thinking offers us no easy or straightforward prescriptions for teaching for the development of these essential skills in university students. Instead, this body of literature is fragmented and several different perspectives are discernible.

Special points of interest:

- The Teaching Tips Newsletter is a publication of the Centre for Excellence in Teaching and Learning (CETL) at the UWI, Mona.
- The newsletter is published three times during each semester and once during the summer. It provides tips for improving teaching and learning in higher education and is available online on the CETL page at <http://mona.uwi.edu/cetl> as well as in the office of the CETL.
- If you need additional teaching tips on specific classroom practices, please contact us at cetl@uwimona.edu.jm.

She points out however, that the critical thinking literature provides questions and tasks that give students practice in critical thinking. We want to look at some of these as we again revisit teaching for critical thinking.

In teaching for critical thinking, we might focus on Bloom's (1956) Taxonomy of Educational Objectives. It is a cognitive model that is well known and has yielded fruitful results when conscientiously used. The higher order cognitive operations might be utilised in our teaching in pursuit of the development of critical thinking skills. So we can look at the various lists of higher order verbs that break down these operations into specific skills. Then, we conscientiously include these in our learning outcomes, please see Figure 1 for the cognitive domain of the Bloom's (1956) Taxonomy of Educational Objectives and Figure 2 for the Blooms Revised Taxonomy

Nilson (2016) makes the point that Brookfield (2012) advances the perspective that critical thinking is about identifying our assumptions. He defines critical thinking (in his book *Teaching for critical thinking*):

Critical thinking describes the process by which students become aware of two sets of assumptions. First, students investigate the assumptions held by scholars in a field of study regarding the way legitimate knowledge is created and advanced in that field. Second, students investigate their own assumptions and the way these frame their own thinking and actions. Thinking critically require us to test the assumptions that we hold, by assessing the accuracy and validity of the evidence for these assumptions and by looking at the ideas and actions from multiple perspectives. A person who thinks critically is much better placed to take informed actions; actions that are well grounded in evidence and that are more likely to achieve the results intended. (p.157)

Therefore he underscores the place of identifying assumptions, checking assumptions, recognizing and assessing evidence, assessing if the evidence fits with the real world and then, taking informed action that might be necessary based on the uncovering of ones assumptions. For Brookfield (2012), critical thinking is learned incrementally and in teaching, modelling is one of the best approaches to help students to look at their assumptions and deal with those that are problematic. So, from this perspective, you will want to develop teaching and learning tasks that allow your students to examine their assumptions. This must begin with the outcomes that you have in mind as you design your courses.

Figure 1: Bloom's Taxonomy of Educational Objectives (Cognitive Domain)

Level	Illustrative Verb	Definition	Example
Knowledge	arrange, define, describe, duplicate, identify, label, list, match, memorize, name, order, outline, recognize, relate, recall, repeat, reproduce, select, state	remembering previously learned information	memory of specific facts, terminology, rules, sequences, procedures, classifications, categories, criteria, methodology, principles, theories, and structure
Comprehension	classify, convert, defend, describe, discuss, distinguish, estimate, explain, express, extend, generalize, give examples, identify, indicate, infer, locate, paraphrase, predict, recognize, rewrite, report, restate, review, select, summarize, translate	grasping the meaning of information	stating problem in own words, translating a chemical formula, understanding a flow chart, translating words and phrases from a foreign language
Application	apply, change, choose, compute, demonstrate, discover, dramatize, employ, illustrate, interpret, manipulate, modify, operate, practice, predict, prepare, produce, relate, schedule, show, sketch, solve, use, write	applying knowledge to actual situations	taking principles learned in math and applying them to figuring the volume of a cylinder in an internal combustion engine

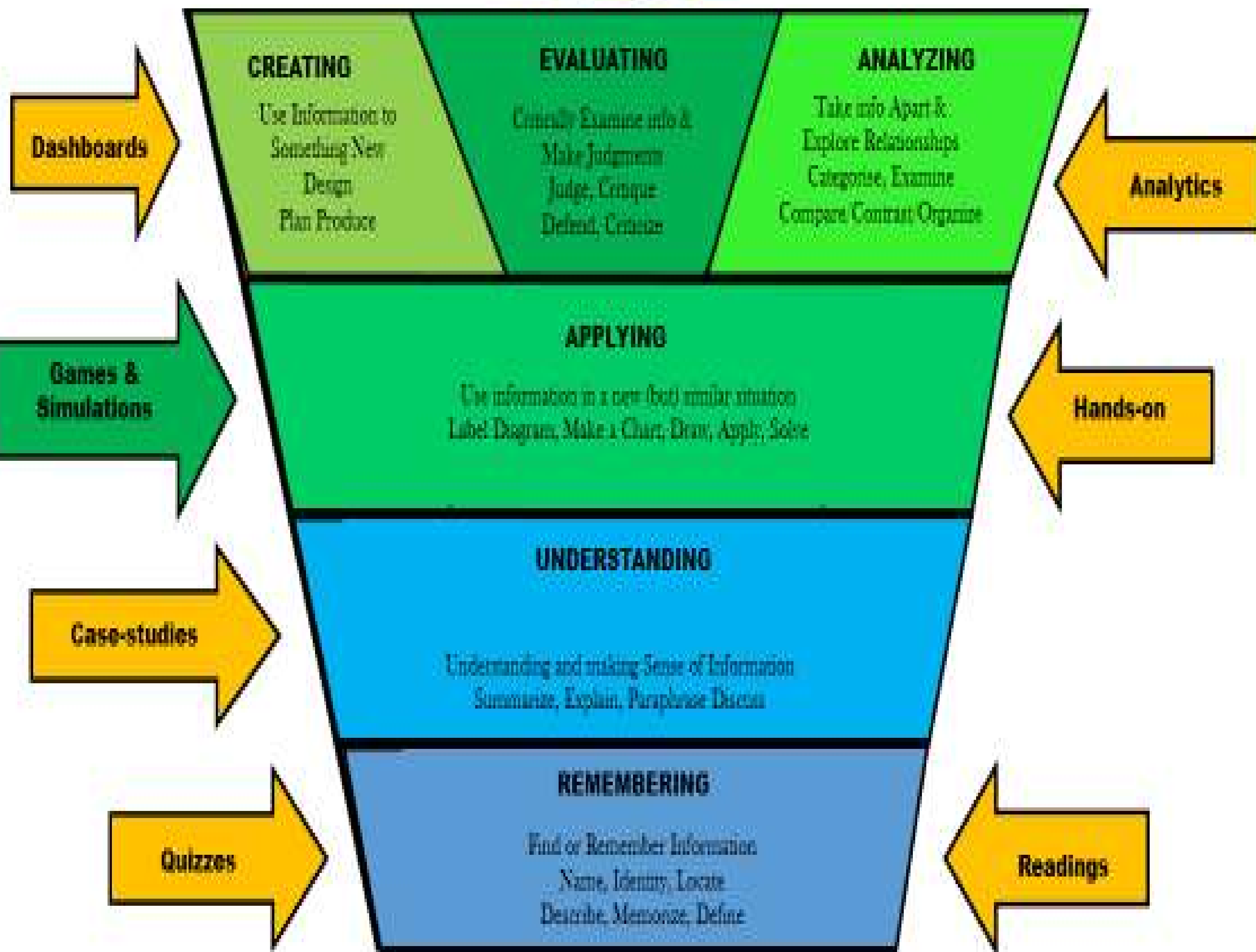
Analysis	analyse, appraise, break down, calculate, categorize, compare, contrast, criticize, diagram, differentiate, discriminate, distinguish, examine, experiment, identify, illustrate, infer, model, outline, point out, question, relate, select, separate, subdivide, test	breaking down objects or ideas into simpler parts and seeing how the parts relate and are organized	discussing how fluids and liquids differ, detecting logical fallacies in a student's explanation of Newton's 1st law of motion
Synthesis	arrange, assemble, categorize, collect, combine, comply, compose, construct, create, design, develop, devise, design, explain, formulate, generate, integrate, manage, modify, organize, plan, prepare, propose, rearrange, reconstruct, relate, reorganize, revise, rewrite, set up, summarize, synthesize, tell, write	making judgments based on internal evidence or external criteria	evaluating alternative solutions to a problem, detecting inconsistencies in the speech of a student government representative
Evaluation	appraise, argue, assess, attach, choose, compare, conclude, contrast, defend, describe, discriminate, estimate, evaluate, explain, judge, justify, interpret, relate, predict, rate, select, summarize, support, value	making judgments based on internal evidence or external criteria	evaluating alternative solutions to a problem, detecting inconsistencies in the speech of a student government representative

[Used with permission, from unpublished Workshop Manual: ABET's Fundamentals of Program Assessment Workshop (FPAW)]

Bloom's (Revised) Taxonomy of Learning

Objective

Presentation



References

Brookfield, S. (2012). Teaching for critical thinking. San Francisco, CA: Jossey Bass.

Nilson, L. B. (2016). Teaching at its best: A research-based resource for college instructors. San Francisco, CA: Jossey-Bass.

Reference

Nilson, L. B. (2016). Teaching at its best: A research– based resource for college instructors (4th edition). San Francisco, CA: Jossey-Bass.

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