Koppelman School of Business

UNDERGRADUATE CRITICAL THINKING ASSESSMENT

FALL 2015

Critical Thinking Team

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BACKGROUND

During fall 2014 and spring 2015, the Critical Thinking Sub Committee developed and refined conceptual and operational definitions, rubrics, and assessment procedures. The sub-committee consisted of Nakato Hirakubo, Dov Fischer, and Hershey Friedman. The Critical Thinking Plan was submitted to the faculty at large in fall 2014 (Appendix A).

Following from Bloom's taxonomy, critical thinking was defined as:

> …the intellectually disciplined process of actively and skillfully **conceptualizing, applying, analyzing, synthesizing, and/or evaluating information** gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action.

The critical thinking rubric (Appendix B) used in this assessment was adopted from the Value Rubric developed by a committee of faculty from 22 American colleges and universities under the auspices of the Association of American Colleges and Universities and subsequently modified by Washington University faculty. It consists of five 5 criteria with scores ranging from 1 (deficient) to 5 (mastery). The criteria are as follows.

Problem Definition: The extent to which the student articulates the main problem/questions with elaboration, and is able to surface implicit, unstated aspects of the problem.

Perspective: The extent to which the student is able to elaborate their own point of view and the other points of view held by relevant stakeholders and can identify arguments (reasons and claims) put forth by self and stakeholders.

Assumptions: The extent to which the student acknowledge assumptions and biases underlying stakeholders' and own perspective and considers the effects they may have on the analysis.

Evidence: The extent to which the student examines the evidence and questions its accuracy, precision, relevance, and completeness, and consults other sources and interpretations for evidence.

Conclusions: The extent to which the student clearly and logically articulates the link between evidence, inferences, and conclusion and connects evidence to arguments. Where relevant, notes how his or her own values ultimately affect the decision recommended.

The tool used for the assessment of critical thinking was an internally-developed case that was judged to be of high ambiguity and complexity (Appendix B). Further, it had direct relevance to the students as they, themselves, represented one stakeholder group that would be affected by any solution. The case was designed to provide ample opportunity for students to demonstrate their level of competency in critical thinking skills.

Based on the rubric, student work was categorized into 5 distinguishable groups as follows:

Deficient: Student showed minimal evidence of having used elements of a critical thinking process.

Novice Level: Student essay showed rudimentary knowledge and skill of critical thinking process but needs additional practice to effectively apply it to the case at hand.

Journeyman: Student essay displayed competent use of the basics of critical thinking and effectively applies the procedure in a new context

Expert: Student essay demonstrated practiced/proficient/professional (if unremarkable) use of critical thinking skills with elaboration of concepts and views and made judgments based on accepted standards

Master: Student's essay went beyond the fundamentals of critical thinking to identify the implicit and unstated, sought multiple sources of reference including minority views, reflected on own thinking, and organized elements of problem into a new pattern or structure.

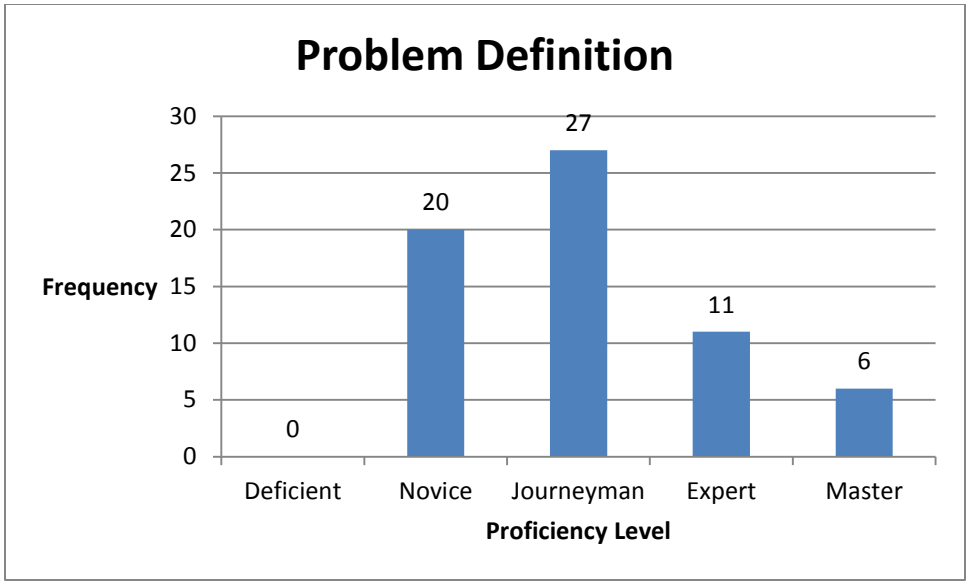
The case was administered in three sections of the capstone business course, Strategy and Policy, in fall 2015. Sixty-four cases were collected and assessed. Two readers (graduate students in the Humanities who were highly recommended). To add validity to the assessment, the readers independently evaluated 5 papers using the prepared rubric. The readers met with the Associate Dean, and differences in assessment scores were discussed until a consensus formed on the score. The correlation of the scores between the two assessors was about 77%.

RESULTS

Problem Definition

The scores on problem definition, the first dimension of critical thinking, demonstrated that approximately 69% of the students demonstrated proficiency at the journeyman level or above. More specifically, they were able to adequately state and effectively define the problem posed in the case. Of these students, 11 additionally demonstrated an expert level of proficiency in that they also elaborated the problem with examples or details, and 6 additionally surfaced implicit, unstated but important aspects of the problem, earning a score at the mastery level.

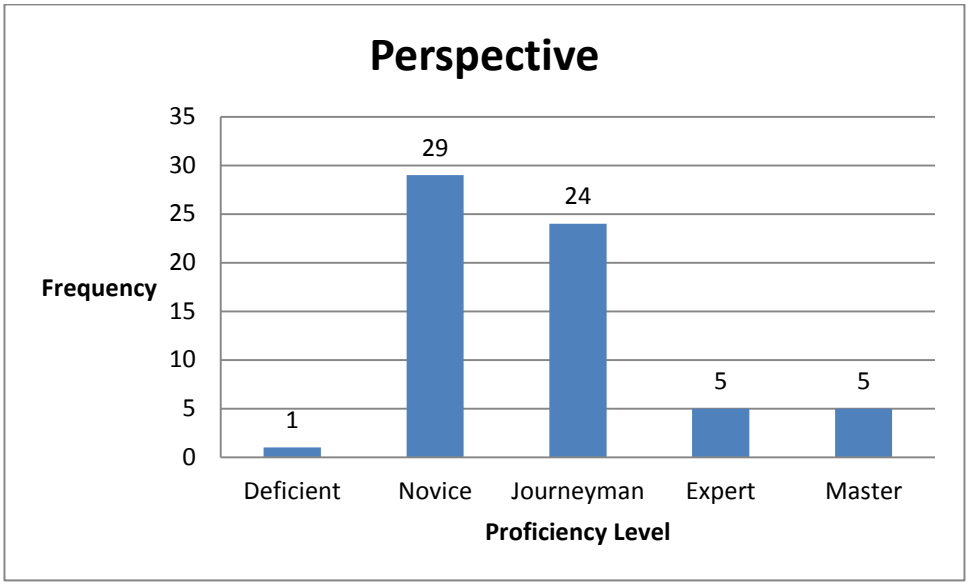
The most common problem with problem definition was a tendency to simply restate verbatim was what was already given in the case. Many students used excessive space to do this. In a number of instances, students spent over half of their essay in defining the problem, but said no more than was presented in the case.



Perspective

The scores on the perspective dimension demonstrated that approximately 53% of the students demonstrated proficiency at the journeyman level or above. More specifically, they stated and elaborated their own point of view and one other major perspective with reasons and claims. Of these students, 5 additionally demonstrated an expert level of proficiency in that they also identified most of the major stakeholders' points of view and stated their arguments, and 5 additionally demonstrated use of outside information to uncover other points of view not available in the case (master level).

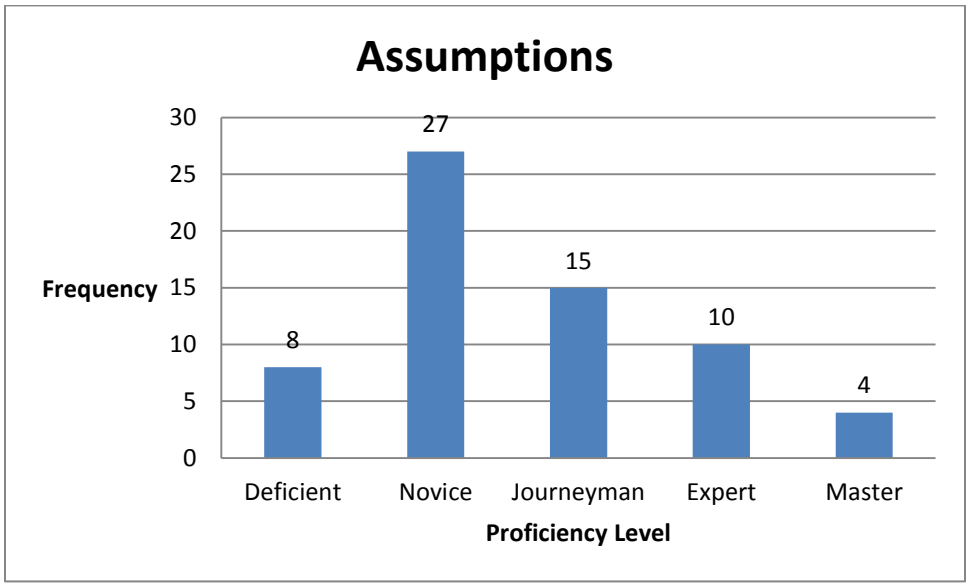
The most common problem on the perspective dimension was that many students identified the important stakeholders but did not present their arguments for a specific position.



Assumption(s)

The scores on the assumptions dimension demonstrated that approximately 47% of the students demonstrated proficiency at the journeyman level or above. More specifically, they identified at least one important assumption/bias underlying their analysis, and considered its effects. Of these students, 10 additionally identified and evaluated assumptions and biases underlying most other perspectives (expert level), and 4 additionally discussed potential ethical issues relevant to the problem (master level).

The assumptions dimension presented students with the most difficulty. It was common for them to make declarative statements that they presented as fact. Some took a position that one stakeholder was "obviously" more important than another without recognizing that this was based on nothing more than an internalized belief (e.g., "faculty must be the priority because they are the most important);" and "The Chancellor should never make more than faculty"). The inherent assumption in such statements was not acknowledged. In addition, a large number of students suggested that a possible solution to the financial crisis was to increase online learning as class size would be bigger reducing the need for faculty, but they did not consider that this was in essence a cost reduction mechanism that would have enormous negative impact on students and faculty.



Evidence

The scores on the evidence dimension demonstrated that approximately 49% of the students performed at the journeyman level of proficiency or above. More specifically, they adequately distinguished between facts, opinions, and values in the case with minimal error. Of these, 7 students additionally interpreted the evidence provided in terms of its depth, breath, and accuracy (expert level), and 2 additionally examined the accuracy, precision, and relevance of the evidence, consulted outside sources, and consulted outside information. (Master level).

The most common error on the evidence dimension was inadequate evidence to support what was presented as fact. For example, a large number of students suggested that a possible solution to the financial crisis was to increase online learning as class size would be bigger reducing the need for faculty. In fact, there is ample evidence that online learning is more costly than in class learning and to be effective class sizes online must be reduced.

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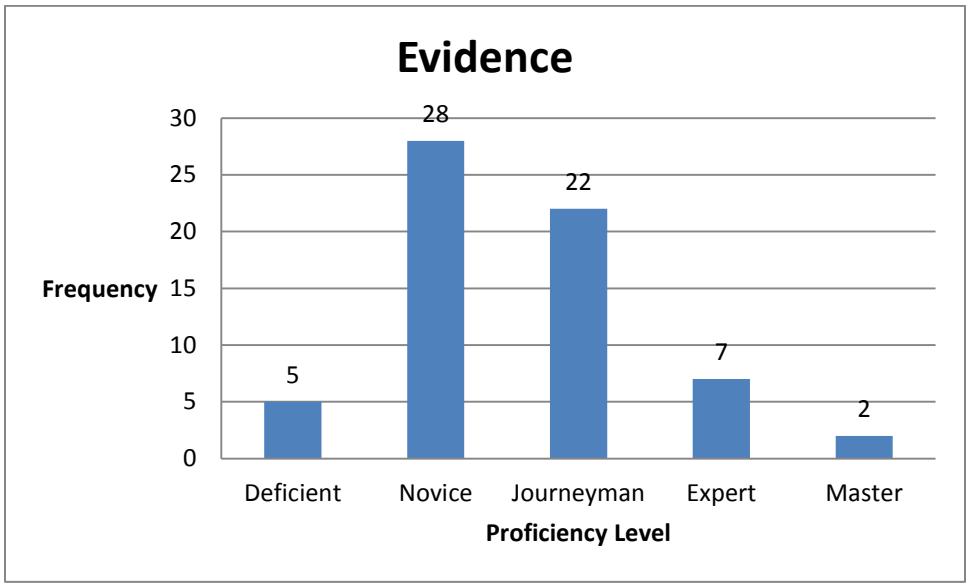
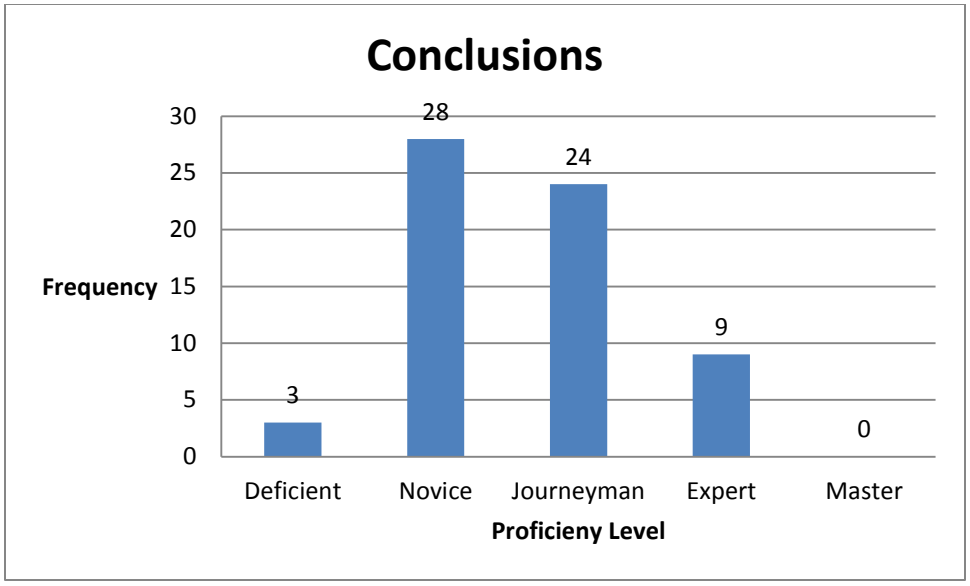


Conclusions

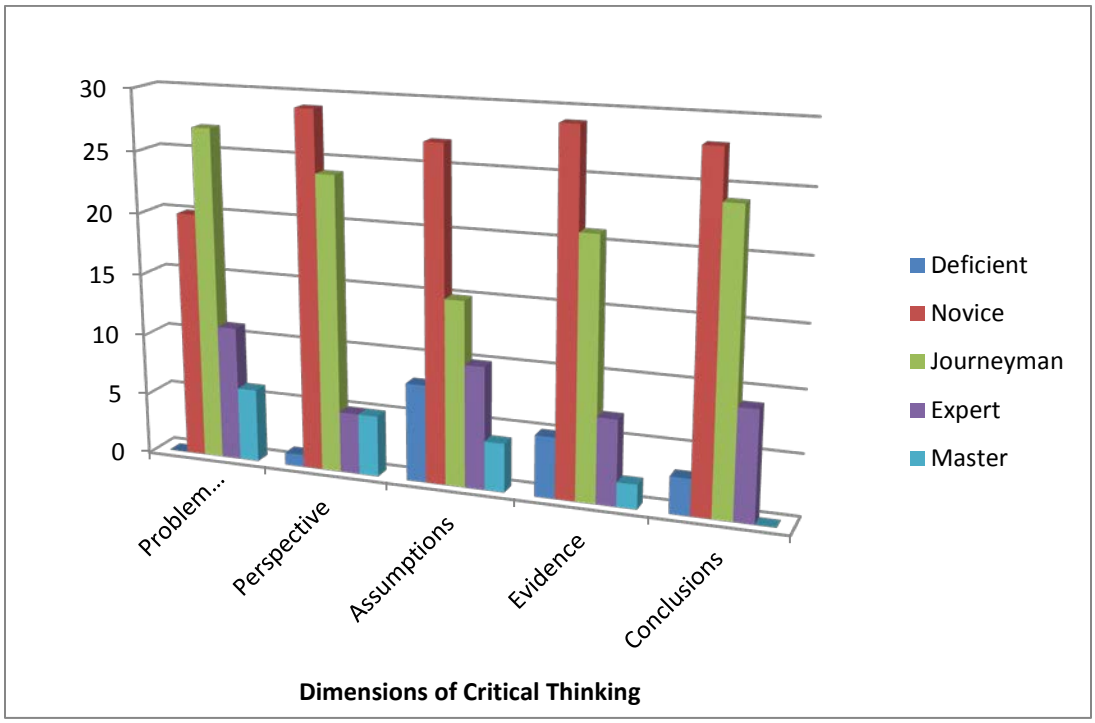
The scores on the conclusions dimension of critical thinking demonstrated that approximately 52% of the students stated a conclusion(s) of their analysis that showed strong effort to define the links among evidence, inference, and conclusion (journeyman level). Of these students, 9 additionally explained differences among the rational conclusion of their analysis and their own values and preferences.

The most common problem on the conclusions dimension was students' failure to articulate a proposed course of action, or failed to acknowledge fully any sacrifices that might be necessary to achieve it, and failed too articulate their own value judgments inherent in the solution.



Comparison of Dimensions

The following chart depicts how the scores on the 5 dimensions of critical thinking compared with one another. The chart shows that students performed best on problem definition, perspectives, and conclusions. Competency was lowest on assumptions.



CRITERION	DEFICIENT (1)	NOVICE(2)	JOURNEYMAN (3)	EXPERT (4)	MASTER (5)
PROBLEM DEFINITION	Does not attempt to define the problem.	Identifies the main idea or problem but with few or no examples or explanations; or states the main idea or problem verbatim from the text.	States and effectively defines the problem or question, and defines the problem clearly, but provides no examples or description.	Articulates and defines the problem or question at hand effectively and elaborates with adequate examples or details to help crystalize the issue for the reader.	Articulates the main problem/question with elaboration, and surfaces implicit, unstated, but important aspects of the problem.
PERSPECTIVE	Fails to articulate own point of view and/or does so with no argument or discussion of its merits.	States and elaborates own point of view and at least one major alternative perspective, but fails to articulate relevant arguments (reasons and claims).	States and elaborates own point of view and one major alternative perspective, and adequately articulates relevant arguments (reasons and claims).	States and elaborates own point of view and most major perspectives drawn from outside information, and identifies relevant arguments (reasons and claims for each).	States and elaborates own point of view and all major perspectives drawn from outside information, identifies relevant arguments (reasons and claims). Shows evidence of research into relevant minority points of view.
ASSUMPTIONS	Does not show any awareness of own assumptions or potential biases.	Identifies at least one important assumption underlying his or her analysis, but fails to consider the effect, if any, that this might have on the analysis.	Identifies at least one important assumption/bias underlying his or her analysis, and considers the effect it might have on the analysis.	Clearly identifies and evaluates the assumptions and biases underlying own perspective and most other perspectives.	Identifies the assumptions and biases underlying own and all alternative perspectives, considers the effect they may have on the analysis, and identifies potential ethical issues.
EVIDENCE	Accepts points of view as evidence, taking them as truth. Does not distinguish between fact, opinion, and value judgments.	Distinguishes between fact, opinion, and value judgments but fails to provide adequate evidence to support facts.	Distinguishes between fact, opinion, and value judgments, but some minor errors in misinterpretation of evidence.	Accurately interprets the evidence provided; clearly distinguishes among fact, opinion, and value judgments.	Examines the evidence and sources of evidence and questions its accuracy, precision, relevance, and completeness. Consults other sources and interpretations for evidence.
CONCLUSIONS	Fails to state conclusion of analysis and/or simply defends views based on unexamined preconceptions.	States conclusion of analysis but does not make much of an attempt to explicate the links between evidence, inference, and conclusion.	States conclusion of analysis makes a good attempt to explicate the links between evidence, inference, and conclusion but needs further elaboration and development.	States conclusion, clearly articulating the link between evidence, inference, and conclusion. Demonstrates fair-mindedness by following where evidence and reason lead.	Clearly and logically articulates the link between evidence, inference, and conclusion. Follows where evidence and reason lead but notes differences in own preferences and/or values.

STUDENT NAME:_____

Adapted from Washington State U. (http://wsuctproject.wsu.edu/ctr.htm and Facione & Facione, 1994)