Assessment of Critical Thinking

Results and Recommendations
OIT Assessment Commission

Executive Committee 2008-09

- Ralph Carestia
- Chris Caster
- Anji Duchi
- Maria Lynn Kessler (Chair)
- Beth Murphy
- Hallie Neupert
- Gregg Waterman
- Dave Woodall
- Linda Young

Update on Assessment 2007-08

- Addressed NWCCU concerns
- Implemented program assessment
- Strengthened leadership
- Wrote assessment plan and report
- Finalized ISLO definitions
- Assessed and reported on critical thinking
- Created assessment web site
- Increased campus communication

Critical Thinking Assessment

- Assessment of critical thinking in general
- Performance criteria we used
  - Identifying the problem or issue
  - Recognizing stakeholders and contexts
  - Acknowledging perspectives
  - Identifying & evaluating assumptions
  - Identifying & evaluating evidence
  - Identifying & evaluating implications, conclusions, consequences
- Rubric selection

Institutional Process

- Selected classes that emphasize critical thinking
  - HUM 125 Intro to Technology, Society & Values
  - PHIL 331 Ethics: Moral Issues in the Professions
  - WRI 122 English Composition
- Worked with instructors to inform students & collect copies of papers
- 194 students and 175 papers involved
- Trained faculty to assess student papers using the critical thinking rubric

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Faculty Readers

- John Anderson
- Lynda Baker
- Brad Burda
- Maria Lynn Kessler
- Kelly Peterson
- John Puckett
- Matt Schnackenberg
- Shirlee Templeton
- Robyn Wilde
- Linda Young

Data Collection

- Collected student name, ID, and major from class rosters
- Coded papers and student data with case numbers and removed names from papers before assessment
- Assessed 25% of papers by two raters to ensure inter-rater reliability
- Entered all data in a spreadsheet and linked it to other institutional data

Training for Faculty Readers

- Orientation to rubric
- Samples of high and low proficiency on all criteria
- Practice exercise in assessing critical thinking papers
- Comparison and discussion of practice results
- Examples

Overall Results

Performance criteria	% at proficiency or higher
Identifies problem/issue	67%
Identifies context/stakeholder	51%
Acknowledges perspectives	49%
Identifies assumptions	34%
Evaluates evidence	43%
Implications and conclusions	49%
Proficiency on all criteria	21%

Faculty Reflections

- Faculty asked to reflect verbally and in writing on each performance criteria after reading critical thinking papers
- Faculty reflections supported quantitative results

Reflections on Assumptions

". . . a lot of students make assumptions without evaluating them. They just use them as a basis for their argument. Example: 'Genetically engineered foods are bad.' "

"Using personal opinions without evaluation of plausibility or clarity was [a] problem for some."

Reflections on Evidence

"Many times evidence is given haphazardly and without an evaluation. Students seemed to give a lot of evidence, but did not seem to compare evidence on opposite sides of an argument. I most often saw just a list of evidence and citations."

"Most authors presented evidence, but often they failed to evaluate it rigorously. Some assumed that being published meant being valid...."

Student Quote

On genetically modified foods: "It seems a bit crazy that people are trying to look at what risks there can be. In medication, we look at what the medication can do for us and not the side effects. The same thing should apply for GM foods, and that is what my focus is set on."

Student Quote

On welfare: "Tax payers work hard every day in order to pay their own bills, and in return they hope that their taxes will also benefit them and also those around them. . . . Many of these tasks fail to happen, or will never happen due to the tax dollars going towards ungrateful individuals that take advantage of the system."

Student Quote

On immigration: "Over 21 million people in the U.S. are illegal immigrants alone. They use social security, Medicare, and welfare that are paid for through taxes. Compared to other countries that strongly resist immigration, the United States allows thousands to immigrate yearly, giving them special treatments, decreasing places to live, and is creating an economic burden on our nation that will, in the future, impact our youth."

Data Analysis

- PHIL 331 students performed at a higher level than HUM 125 and WRI 122 students.
  - PHIL 331 students primarily juniors & seniors
  - Work in groups
  - May submit papers for feedback prior to final version
- Juniors and seniors performed more strongly than freshmen and sophomores
- Due to small samples, we are unable to draw conclusions by majors or clustered majors.

Additional Data Analysis

- Examined cross tabulations of critical thinking scores with high school GPA, SAT scores, and age
  - Some variables were good predictors on some criteria
  - No action steps evident
- Petition to Graduate data: 4.2 ("substantial") average rating
- IDEA Center faculty evaluation data: no conclusions from this new system

Upper-Division Program Process

- Program faculty selected upper-division activities:
  - Senior level paper or case study
  - Complex problem-solving lab or exercise
  - Controversial issues paper
- Assessment Commission provided
  - Same critical thinking rubric
  - Score sheet
  - Summary sheet
- Results collected and summarized

Program Results

- Varied activities not directly comparable to critical thinking papers
- Results echoed critical thinking papers
- Results uneven
- Weaker overall than expected

Program Results

Percent proficient or higher on all criteria	Number of programs
0% to 24%	8
25% to 49%	3
50% to 74%	8
75% to 100%	4

Commission Recommendations

- Place specific emphasis on assumptions and evidence in HUM 125 and WRI 122.
- Provide training on criteria for HUM 125 and WRI 122 instructors.
- Re-assess selected upper-division classes with same rubric, prompt, and assignment in next cycle.
- Solicit faculty recommendations for improvement.
- Ask CCT to offer training on incorporation of critical thinking in instructional methods.

For Faculty Discussion

How can we increase the ability of students to *identify and evaluate assumptions?* Please suggest a responsibility center.

- Select a recorder and spokesperson.
- Complete the "Critical Thinking Suggestions: Assumptions" form at your table.
- Be prepared to report back to the larger group.

For Faculty Discussion

How can we increase the ability of students to *identify and evaluate evidence*? Please suggest a responsibility center.

1. Select a recorder and spokesperson.
2. Complete the "Critical Thinking Suggestions: Evidence" form at your table.
3. Be prepared to report back to the larger group.

Assessment Web Site

- Three menus at www.oit.edu/provost:
  - Assessment
  - Institutional Student Learning Outcomes
  - Program Student Learning Outcomes
- Search: assessment, islo, or learning outcomes
- The full critical thinking report and this presentation can be found at: www.oit.edu/provost/islo, under ISLO Reports.

Summary and Next Steps