CRITICAL THINKING STRATEGIES FOR GRADUATE ASSIGNMENTS

Faculty of Graduate Studies
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Focused on the future of learning.
Agenda

• Roundtable on your perspective
• Working definition of Critical Thinking
• Education perspective
• Information Literacy/Research perspective
• Writing perspective
• Visual organization tips
• Discussion & Reflections
Intended Learning Outcomes

• Provide a working definition of “critical thinking”
• Provide a context in which to discuss strategies that support students’ critical thinking skills for graduate assignments
• Raise awareness on multiple perspectives on critical thinking
• Reflect on strategies to facilitate the use of critical thinking skills for assignments
Your perspective...

• In your discipline/experience as an AU student, what do you understand critical thinking to be?
Poll/survey question

• The following statements are all different dimensions of critical thinking. Which one do you feel is your weakest area?
Working Definition of Critical Thinking

• Critical thinking is a developmental and dynamic mental process which incorporates acts of planning, analysis, evaluation and reflection in applying a set of criteria to solve a problem or answer a question.

Critical thinking is

• A quality of thinking that is characterized by self-regulated deliberations on a challenge situation or task that involve exploring and generating alternatives, and making evaluative judgments. These judgments are based on criteria, which provide justifications for the conclusion, and are applied to meaning, relational, empirical, or value claims (p.11)
Education Perspective

- Evaluation
- Synthesis
- Analysis
- Application
- Understanding
- Knowledge

Higher Order Thinking Skills:
- Evaluation
- Synthesis
- Analysis
- Application
- Comprehension
- Knowledge

Lower Order Thinking Skills:

Athabasca University
Bloom’s Revised Taxonomy

<table>
<thead>
<tr>
<th>Original Domain</th>
<th>New Domain</th>
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</thead>
<tbody>
<tr>
<td>Evaluation</td>
<td>Creating</td>
</tr>
<tr>
<td>Synthesis</td>
<td>Evaluating</td>
</tr>
<tr>
<td>Analysis</td>
<td>Analyzing</td>
</tr>
<tr>
<td>Application</td>
<td>Applying</td>
</tr>
<tr>
<td>Comprehension</td>
<td>Understanding</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Remembering</td>
</tr>
</tbody>
</table>

http://www.nwlink.com/~donclark/hrd/bloom.html
Information Literacy Perspective

• Information literacy is the ability to:
  • Determine the extent of information needed
  • Access the needed information effectively and efficiently
  • Evaluate information and its sources critically
  • Incorporate selected information into one’s knowledge base
  • Use information effectively to accomplish a specific purpose
  • Understand the economic, legal and social issues surrounding the use of information, and access and use information ethically and legally

(Association of College & Research Libraries, 2000, 2-3)
Thinking Critically About the Research Process

- Analysis (planning)
- Evaluation (judgment)
- Synthesis (reflection)
Rethink  

Revise  

Repeat
Self-Reflection on the Research Process

• How do you normally approach a research assignment?
• What strategies work or don’t work?
Thinking Critically About the Research Process

- Strategies for Understanding Assignments
- Research Journal
- Pose Questions
- Taking Notes
Strategies for Understanding Assignments

• What are the key concepts?
• What is your topic really about?
• Restate the research topic in your own words
• Rephrase your topic as a question
• What other words can be used to describe the concepts in your topic?
## Sample Research Journal

### Search Terms

<table>
<thead>
<tr>
<th>Concept 1</th>
<th>Concept 2</th>
<th>Concept 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treating</td>
<td>Children</td>
<td>Autism</td>
</tr>
<tr>
<td>treatment</td>
<td>Child</td>
<td>Autistic</td>
</tr>
<tr>
<td>cure</td>
<td>youth</td>
<td></td>
</tr>
<tr>
<td>therapy</td>
<td>infants</td>
<td></td>
</tr>
<tr>
<td>rehabilitation</td>
<td>kids</td>
<td></td>
</tr>
</tbody>
</table>

### Search Strategies

1. treating and children and autism
2. (Treatment or therapy) and (children or infants) and autism
3. (treatment or cure or rehabilitation) and (child* or youth or kids) and (autism or autistic)

<table>
<thead>
<tr>
<th>Databases Searched</th>
<th>Search Strategy Used</th>
<th># of Results Retrieved</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>PsycARTICLES</td>
<td></td>
<td>1</td>
<td>Large number of results, need to narrow search, results do not seem to be specific enough</td>
</tr>
</tbody>
</table>
Evaluating a Search

• What do I consider a “successful search”?
  – Relevant results on my topic
  – Recent results
  – Appropriate number of peer reviewed sources
  – Results from experts in the field
Evaluating a Search

• How many results were retrieved? Many? Few? What does that mean? (Good/bad search?)

• What types of results were retrieved? Scholarly, peer reviewed, magazines?

• How recent are the results?

• Do any results appear (at first glance) to be relevant?
Evaluating Resources

• Does the resource answer your question or help you to understand it better?
• Does the resource support your point of view?
• Does the resource cover the right time period?
• Is the resource appropriate to your level?
• Does the resource meet the publication date range specified in your assignment?
• Is the resource scholarly or peer reviewed and does it match the requirements of your assignment?
• Does the author of the item appear to be an authority on the topic?
Reading Critically

• What problem or issue is the author addressing?
• Is the problem or issue clearly identified?
• How does the author make their argument (e.g. by appealing to emotion, objectively etc.)
• Is their bias in the argument and what is it?
• How is the argument laid out or structured?
• What contributions does the item make to your specific information need?
• How does this document relate to other literature you have read?
Taking Notes

• Make note of the complete citation!
• Identify where you found the item (e.g. name of specific journal database, AU Library Catalogue, Web, etc.)
• Develop a strategy for identifying your own thoughts in your notes
• If you are capturing important quotes, mark them as such and include the page number
Taking Notes

• What strategies do you use?
Critical Thinking from an Academic Writing Perspective

• A developmental and dynamic mental process, with parallels to the academic writing process, built on intellectual habits of mind,

• characterized by acts of judgment, planning, deliberating, justifying, challenging and self-correcting,

• and aimed at applying a set of criteria to solve a problem or answer a question.

Critical Thinking from an Academic Writing Perspective

• The act of **challenging assumptions** and coming to conclusions through **systematic inquiry**

The Critical Thinking/Academic Writing Connection

Stephen Toulmin’s rhetorical model: one way to a clear thesis

(Data) Evidence Since (Warrant) Claim Conclusion

(Golden, Berquist & Coleman, 1989)
The Critical Thinking/Academic Writing Connection

Stephen Toulmin’s Model of Argument

**Evidence:** more people have rated him positively on “Rate my Doctor”

**Since:** “Rate my Doctor” is a good measure of a doctor’s skills

**Conclusion:** Therefore, Doctor A is better than Doctor B
The Critical Thinking/Academic Writing Connection

Data → Rebuttal → Warrant → Backing → Probably

Unless

Because

Qualifier

Claim

(Golden, Berquist & Coleman, 1989)
The Critical Thinking/Academic Writing Connection

**Data**

**Evidence**: More people have rated him positively on “Rate my Doctor”

**Rebuttal**: Unless some patients were not fair in their comments

**Warrant**: Probably

**Qualifier**: Since “Rate my Doctor” is a good measure of a doctor’s skills

**Backing**: Because research shows that sites like “Rate my Doctor” are reliable sources of information on a doctor’s medical and interpersonal skills

**Claim**: Therefore, Doctor A is better than Doctor B
Dr. A is **probably** a better physician than Dr. B **because** he was rated more highly on “Rate my Doctor” **unless** some patients were not fair in their remarks about Dr. B **since** “Rate my Doctor is a good source of information about a doctor’s skills **because** research shows that sites like “Rate my Doctor” provide a reliable reflection of a doctor’s medical and interpersonal skills.
Critical Thinking and Academic Writing

Processes

Planning/Prewriting
- Asking good questions/Pre-reading
- Identifying biases/underlying assumptions/Identifying key questions
- Identifying problems/issues/questions/

Deliberating/Outlining
- Analyzing and synthesizing ideas
- Drawing original conclusions/
- Formulating a thesis
- Outlining and organizing the text

Justifying/First Draft
- Offering good evidence/ Refining the thesis
- Testing reasons
- Testing conclusions/ Organizing the text

Challenging/Second Draft
- Critically evaluating sources
- Selecting criteria for evaluation
- Asking good questions of the material
- Revising for content/arrangement

Self-Correcting/Final Draft
- Reflecting on the quality of CT
- Refining the thesis
- Assessing the argument
- Tightening the logic/flow
- Editing for grammar/meaning

The Critical Thinking/Academic Writing Connection

• “Although we can think without expressing our ideas, we cannot write well without thinking...[Thinking] provide[s] the substance of composition” (Ruggiero, 1998, p. 233).

• Characteristics of substantive composition:
  – Unity
  – Coherence
  – Emphasis
  – Development
Substantive writing through paragraphing

Adapted from “How to Write a Paragraph: The Art of Substantive Writing” by R. Paul and L. Elder. Copyright 2003 by Foundation for Critical Thinking
Example of a substantive paragraph

Although these sites may give some indication of a doctor’s interpersonal skills, research indicates that they do not supply reliable information about a doctor’s medical skills and may actively harm existing doctor-patient relationships.

Not only are the comments on sites like “Rate my Doctor” questionable, some research shows that they could damage the doctor-patient relationship. For example, Smith (2011), in a survey of 300 Canadian physicians concluded... In addition, Brown (2012) demonstrated... This research suggests that if a patient has an existing, good relationship with a doctor, sites like “Rate my Doctor” can lead to mistrust of the physician and noncompliance with treatments.
Conclusion/Thesis: Sites such as “Rate My Doctor” do not supply reliable information about a doctor’s medical skills and may actively harm existing doctor-patient relationships, although they may give some indication of a doctor’s interpersonal skills.”

Intro
Section 1-Why these sites do not supply reliable information
   PARA 1a- They are not reliable because of commentators’ lack of medical knowledge
   PARA 1b- They are not reliable because...
Section 2-How they actively harm existing doctor-patient relationships
   PARA 2a- SAMPLE PARAGRAPH
   PARA 2b- These sites can lead to non-compliance with treatment...
Section 3-Why and how the sites give indication of doctors’ interpersonal skills
   PARA 3a-Why
   PARA 3b-How

Conclusion
Principles for learning CT through writing

• CT feeds well structured, developed, logical writing and vice versa.
• Sharpening the focus and organization of a piece of writing helps to sharpen critical thinking on a topic.
• “Writing to think” and “thinking to write” i.e., focusing on paper’s thesis/conclusion, development, organization and the quality of the argument are mutually supportive skills.
• The development of thinking is evident in the drafting process of a piece of writing.
• Writing is a way of engaging in critical dialogue with oneself and one’s audience.
Checks for demonstrating CT through writing

• Have you used your drafting process to think through to your conclusion systematically, using a system and set of criteria that are appropriate to the discipline and the assignment or writing occasion?
• Have you done multiple drafts, keeping in mind that remember there is no good writing, only rewriting?
• Have you planned enough time for your thinking, reflection, and drafting?
• Have you maintained coherence, unity, development and proper emphasis in your paragraphs and in your sections?
• Have you used an outline (or some kind of prewriting) to check the connections between the sections and your conclusion?
• Do your paragraphs and sections lead your readers closer and closer to your conclusions?
Tips for visual organization of your work

• Use of visual analytical tools to express your ideas:
  – Concept maps
  – Charts
  – Thematic matrices
  – Tables
  – Figures
  – Etc.
## Stages of Teacher Development

<table>
<thead>
<tr>
<th>Activity</th>
<th>Traditional (Instruction)</th>
<th>Extended (Knowledge Construction)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Teacher-centered and didactic</td>
<td>Learner-centered and interactive</td>
</tr>
<tr>
<td>Teacher Role</td>
<td>Fact teller and expert</td>
<td>Collaborator and sometimes learner</td>
</tr>
<tr>
<td>Student Role</td>
<td>Listener and learner</td>
<td>Collaborator and sometimes expert</td>
</tr>
<tr>
<td>Learning emphasis</td>
<td>Facts and replication</td>
<td>Relationships and inquiry</td>
</tr>
<tr>
<td>Concept of Knowledge</td>
<td>Accumulation</td>
<td>Transformation</td>
</tr>
<tr>
<td>Demonstration of Success</td>
<td>Quantity</td>
<td>Quality</td>
</tr>
<tr>
<td>Assessment</td>
<td>Norm-referenced and multiple games</td>
<td>Criterion-referenced and performance portfolios</td>
</tr>
<tr>
<td>Technology Use</td>
<td>Seat Work</td>
<td>Communication, collaboration, information, access, and expression</td>
</tr>
</tbody>
</table>
Figure 1: Conceptual Framework

- Socio-political context
- Social determinants of health
- Management strategies and consequences
- Models of care
- Biomedical model
- ...

Contexts of Care

- Nursing philosophy, discipline, and practice
- Relationship-based
- Caring for and about patients
- Framework for practice thinking
- ...........

Educational philosophy & context
- Adult learner
- Critical reflection
- Meta-cognitive skills
- Learning for and from practice
- ...........

The person and their family
- Experience of health
- Experience of illness
- Cultural understandings of health and illness
- ........
### Context:
Social determinants, political situation, stakeholders power and interests, economic issues (fiscal space, fiscal decentralization), individual level factors (marital status, gender)

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Design</th>
<th>Implementation</th>
<th>Outputs</th>
<th>Outcomes</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Situation analysis</strong></td>
<td>Labour market</td>
<td>Education</td>
<td>Attractiveness</td>
<td>Workforce performance</td>
<td>Improved performance health service delivery</td>
</tr>
<tr>
<td></td>
<td>Organization and management capacity</td>
<td>Regulatory</td>
<td>Intentions to come, stay, leave</td>
<td>Availability</td>
<td>contributing to</td>
</tr>
<tr>
<td></td>
<td>Regulatory systems</td>
<td>Financial incentives</td>
<td>Job satisfaction</td>
<td>Competence</td>
<td>Improved health status</td>
</tr>
<tr>
<td></td>
<td>Resources needs</td>
<td>Management and social support</td>
<td></td>
<td>Productivity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Criteria for choosing interventions</td>
<td></td>
<td></td>
<td>Responsiveness</td>
<td></td>
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<tr>
<td></td>
<td>Feasibility analysis</td>
<td></td>
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<table>
<thead>
<tr>
<th>Indicators (examples)</th>
<th>Design</th>
<th>Implementation</th>
<th>Outputs</th>
<th>Outcomes</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total graduates</td>
<td>Policies on education and recruitment</td>
<td>Atention to stay/leave</td>
<td>Staff ratios</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total health workers</td>
<td>Career pathways</td>
<td>Number of health workers recruited</td>
<td>Waiting lists</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Budget for human resources for health strategy/plans</td>
<td>Regulatory frameworks</td>
<td>Funded positions</td>
<td>Absence rates</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Type/costs of incentives</td>
<td>Stability index</td>
<td>Coverage rates</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>patient satisfaction</td>
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</table>

- Millennium Development Goal indicators
- Health status
- MMR / IMR
Interactive Infographics
Reflections: Critical Thinking Tips
THANK YOU!
Evaluation

• What did you learn today?
• What did you like about the workshop?
• What recommendations do you have for next time?
• What other concerns do you have about teaching and learning at AU that we could address in a workshop?
References: Writing Perspective


References: Information Literacy

http://www.ala.org/acrl/sites/ala.org.acrl/files/content/standards/standards.pdf

http://library.athabascau.ca/help/LitReviewGuide.php


Useful Research Tutorials

Searching the AU Library Catalogue:
http://aupac.lib.athabascau.ca/screens/help_index.html

Finding Journal Articles in the Library’s Collection (AKA AU Journal Title List Tutorial):
http://library.athabascau.ca/help/jportal/ejportal_viewlet.swf.html

AU Library Guide to the Research Process:
http://libguides.athabascau.ca/researchprocess

Internet Searching:
http://libguides.athabascau.ca/internetsearching

Searching Google Scholar for AU Library Resources:
http://library.athabascau.ca/help/tutorials/googlescholar/googlescholar.html

Tips for Searching:
http://libguides.athabascau.ca/booleansearching

Writing a Literature Review:
http://library.athabascau.ca/help/LitReviewGuide.php
Useful Resources: Visualization tools

- Educational Inquiry Concept map:
  http://eddcna.files.wordpress.com/2010/05/bubblus_educational_inquiry.png

- Interactive Infographics:
  http://infogr.am/