Critical Thinking and the GEP

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Broad Outline

I. The Place of Critical Thinking in the GEP
II. Difficult Questions and (Possibly) Difficult Answers
III. What Critical Thinking Is and an Assessment Rubric
IV. Challenges and Solutions

I. The Place of CT in the GEP

Or

"If You're Feeling Confused, Frustrated, or Overwhelmed, there's a Reason."

GEP Program Outcomes

The General Education Program (GEP) seeks to develop these qualities of global citizenship in four distinct ways. After completing the general education curriculum, students will:

- Demonstrate critical thinking, quantitative, and communication skills necessary to succeed in a rapidly changing global society.
- Demonstrate broad knowledge of the physical, social, and cultural worlds as well as the methods by which this knowledge is produced.
- Recognize that responsible global citizenship involves personal accountability, social equity, and environmental sustainability.
- Apply their knowledge and skills, working in interdisciplinary ways to solve problems.

http://www.uwsp.edu/acadaff/Pages/generalEducation.aspx

How Might Skills be Taught?

- Centrally dedicated courses (Centralized Model)
  - Skill development is a principal learning outcome in at least one particular, required, course.
  - Includes explicit instruction in skill.
  - Includes explicit assessment of skill.
- Partially dedicated courses (Distributed Model)
  - Skill development is one learning outcome among others in multiple courses across the curriculum.
  - Includes explicit instruction in skill.
  - Includes explicit assessment of skill.
- No dedicated courses (Osmosis Model)
  - Skill development not a learning outcome of any course.
  - No explicit instruction in the skill.
  - Performance of the skill may be subject to assessment.

The Osmosis Model is tempting (but wrong) for Critical Thinking because

- Some people suspect that critical thinking isn't an identifiable, teachable, cross-disciplinary, skill set. (But it is.)
- It allows instructors to opt-out of teaching critical thinking without appearing to default on their obligation to help students develop critical thinking skills. (But maybe not all instructors should shoulder that obligation. There is an analogy with writing.)
- Many of us "picked up" critical thinking skills without explicit instruction. (But we shouldn't assume that our students will learn critical thinking in this way. There is analogy with writing.)

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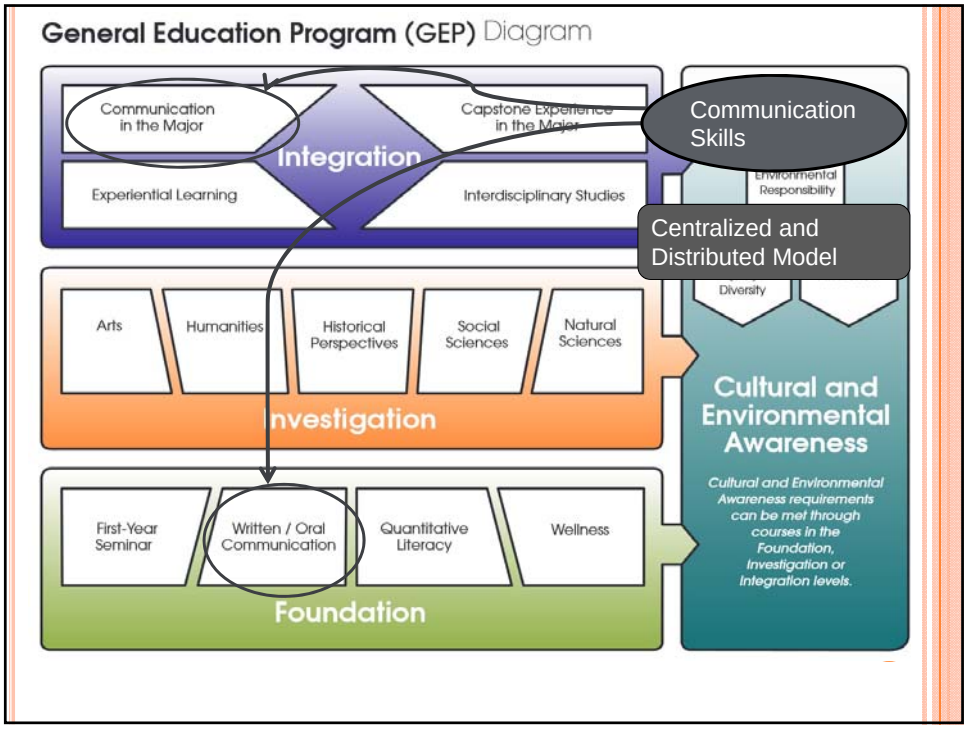
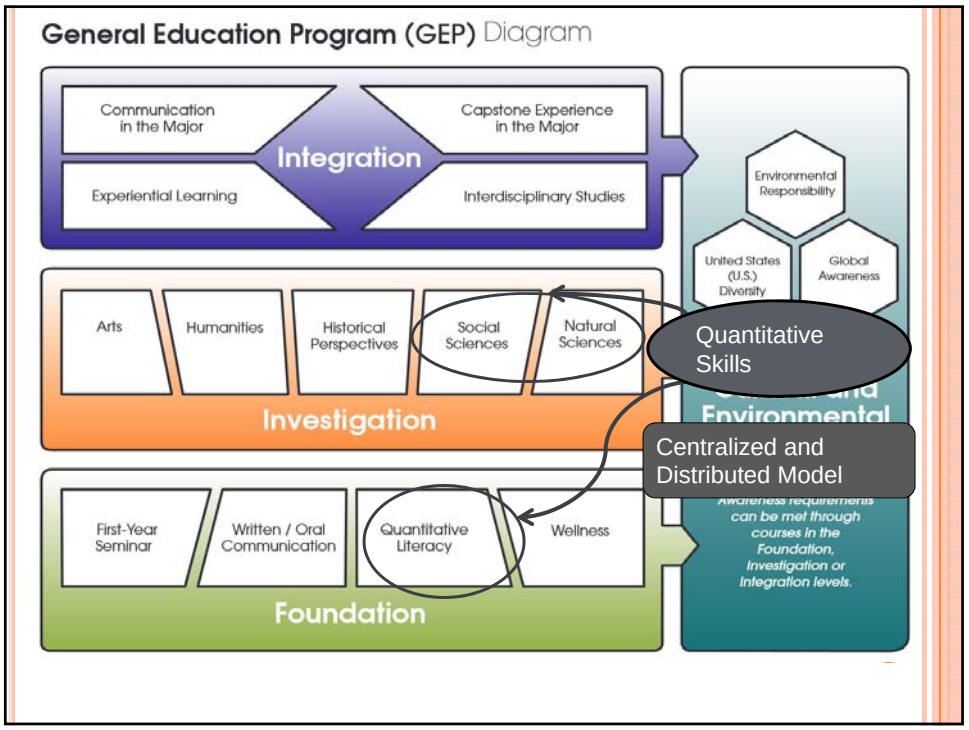

General Education Program (GEP) Diagram
Communication in the Major
Capstone Experience in the Major
Integration
Experiential Learning
Interdisciplinary Studies
Arts
Humanities
Historical Perspectives
Social Sciences
Natural Sciences
Investigation
First-Year Seminar
Written / Oral Communication
Quantitative Literacy
Wellness
Foundation
Environmental Responsibility
Diversity
Cultural and Environmental Awareness
Cultural and Environmental Awareness requirements can be met through courses in the Foundation, Investigation or Integration levels.
Communication Skills
Centralized and Distributed Model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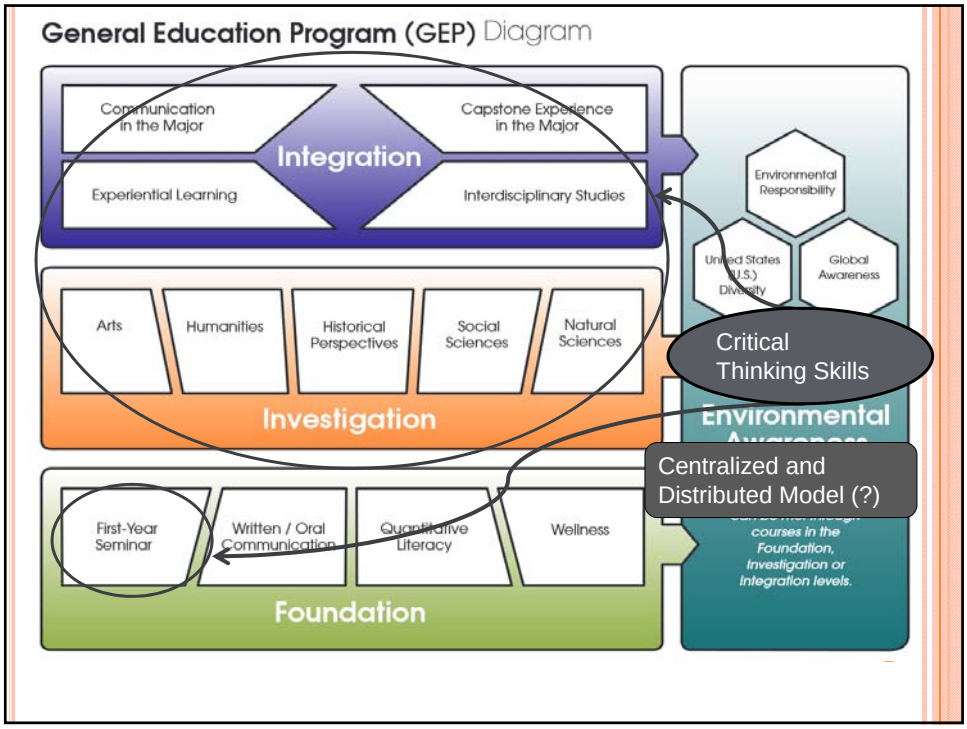
Quantitative Literacy
Wellness
Foundation
Environmental Responsibility
United States (U.S.) Diversity
Global Awareness
Awareness requirements can be met through courses in the Foundation, Investigation or Integration levels.
Quantitative Skills
Centralized and Distributed Model



First Year Seminar Learning Outcomes

- Describe the importance of a liberal education and the ways in which academic study is structured at UWSP.
- Describe the importance of critical thinking and information literacy and apply the associated skills.
- Identify and apply appropriate note taking, test taking, and time management strategies to their academic studies.
- Describe the importance of co-curricular involvement and how it enhances their academic study at UWSP.
- Identify and utilize UWSP programs, resources, and services that will support their academic studies and co- curricular involvement.
- Develop a plan that demonstrates their responsibility for their own education, specifically how it relates to their interests, abilities, career choices, and personal development.

II. Difficult Questions and (Possibly) Difficult Answers

Or

"Why You Might Feel Like Staring at a Wall and How Things Can Get Better."

Difficult Questions

- How can we teach critical thinking in a meaningful way in the FYS when it is one of a legion of learning outcomes?
- How can we teach and assess critical thinking across the entire GEP?

Difficult Answers (Maybe)

- How can we teach critical thinking in a meaningful way in the FYS when it is one of a legion of learning outcomes?
  - Pick a few skills, aim low, and be systematic.
  - Institutional creation of instructional materials for use in FYS*.
- How can we teach and assess critical thinking across the entire GEP?
  - Utilize consistent concepts and terminology across the curriculum. (Including a shared understanding of what critical thinking is.)
  - Provide robust professional development opportunities*.

* Being a good critical thinker no more means that someone can teach critical thinking than being a good writer means that someone can teach writing.
And it's no more the case that everyone needs to teach critical thinking than it is the case that everyone needs to teach writing.

III. What Critical Thinking Is and An Assessment Rubric

Or

"So Exactly What Understanding of Critical Thinking Am I Proposing Anyhow and What Does It Look Like In Practice Already?"

What is Critical Thinking?

- "Critical thinking is a habit of mind characterized by the comprehensive exploration of ideas, issues, artifacts, and events before accepting or formulating an opinion or conclusion." (AAC&U Critical Thinking VALUE Rubric)
- "[T]here seems to be fair agreement on many types of skills to which educators are referring when they speak about teaching [critical thinking]. Specifically, most agree that one aspect involves the ability to reconstruct, understand and evaluate arguments…" (Harrell, 2011, p. 372).

An argument is a unit of reasoning that attempts to establish that a certain idea is true (acceptable) by citing other ideas as evidence.

Skill	Low Level	Middle Level	High Level
Analyzing an Argument Identifying the ultimate conclusion of the argument	Mistakenly identifies an unimportant statement or an assumption as the ultimate conclusion.	Correctly identifies the ultimate conclusion when it is explicitly stated.	Correctly identifies the ultimate conclusion, even when it is not explicitly stated.
	Regularly fails to identify important claims that are explicitly stated.	Sometimes fails to identify important claims that are explicitly stated.	Correctly recognizes important claims and important unstated assumptions.
Identifying and tracking the logical relationships between ideas in the argument	Regularly fails to correctly track the logical relationships between the ideas, even when those relationships are signaled by expressions like "therefore" and "because."	Sometimes fails to correctly track the relationships between the ideas.	Correctly tracks the relationships between the ideas and unstated assumptions.
Summarizing the argument	Unable to summarize the argument. Instead, "narrates" the article.	Able to summarize the argument, but sometimes focuses upon unimportant points, overlooks important points, or is unclear about the relationships between the ideas.	Clearly summarizes the argument in a way that recapitulates the most important points and articulates the relationships between them.

Skill	Low Level	Middle Level	High Level
Evaluating an Argument Assessing the argument by assessing the premises and inferences Communicating the evaluation of the argument	Regularly accepts assumptions as true without question or disagrees with assumptions without advancing reasons.	Occasionally accepts assumptions as true without question or disagrees with assumptions without advancing reasons.	Thoughtfully engages the starting assumptions and gives reasons for accepting or rejecting them.
	Regularly fails to distinguish between assessing the assumptions and assessing the strength of the reasoning given those assumptions.	Occasionally fails to distinguish between assessing the assumptions and assessing the strength of the reasoning given those assumptions.	Clearly distinguishes between assessing the assumptions and assessing the strength of the reasoning given those assumptions.
	Unable to articulate his or her assessment of the argument beyond vague and general statements like, "It sounds good" or "It makes sense."	Able to identify specific parts of the argument that are strong or weak but can't articulate those strengths or weaknesses.	Clearly articulates the argument's specific strengths and weaknesses.

Skill	Low Level	Middle Level	High Level
Using the Evaluation of an Argument Allowing one's evaluation of the argument to appropriately affect one's attitude toward the ultimate conclusion	Regularly takes the fact that an argument is bad to point toward the falsehood of the argument's ultimate conclusion.	Occasionally takes the fact that an argument is bad to point toward the falsehood of the argument's ultimate conclusion.	Does not take the fact that an argument is bad to point toward the falsehood of the argument's ultimate conclusion.
	Regularly rejects the ultimate conclusion of an argument after assessing the argument as strong.	Occasionally rejects the ultimate conclusion of an argument after assessing the argument as strong.	Takes the fact that an argument is good to point toward the truth of the ultimate conclusion.

Skill	Low Level	Middle Level	High Level
Constructing an Argument Posing a clear research question Offering a clear answer to that research question as the conclusion to be defended Formulating and conveying an argument in support of a that conclusion	Fails to pose any identifiable research question.	Poses a research question, but the question is unclear.	Poses a clear research question.
	Fails to state the conclusion to be defended.	States the conclusion in an unclear or confusing way.	States the conclusion clearly.
	Fails to provide an argument in support of the conclusion and instead talks about the topic in broad, non-evidentiary, terms (e.g. produces a book report rather than a thesis paper).	Provides an argument in support of the conclusion, although the argument lacks clear structure or includes irrelevant points that detract from the thrust of the reasoning.	Provides a well-structured and focused argument in support of the conclusion.
	Ignores potential objections to or problems with the argument.	Recognizes potential objections to the argument but dismisses them prematurely.	Acknowledges potential objections to the argument and thoughtfully engages them.
	Regularly fails to articulate the argument with a degree of clarity that makes the conclusion and supporting argument easy for the audience to discern.	Articulates the argument with some clarity, but there are a number of places where the audience would finds reasoning difficult to follow.	Articulates the argument with such clarity that the audience can easily identify the conclusion and reconstruct the reasoning provided.

IV. Challenges and Solutions

Or

"Why Our Students Might Not Be Terribly Good at Any of That and What We Can Do About It."

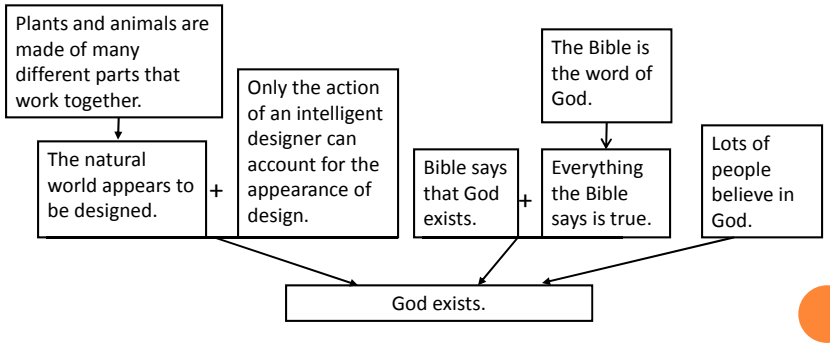
CHALLENGES

- When asked to *locate and summarize the argument* contained in a work, students often
  - state what the work is *about* (e.g. "This book is about the environment").
  - *recount, describe, or narrate* the work (e.g. "The author says that global warming is real and then says that we should have more environmental laws").
- When asked to *respond to an argument*, students often
  - have difficulty disentangling mere opinion from verifiable assertions.
  - have difficulty moving beyond broad, vague assessments such as "It sounds good," and "It doesn't make sense."
- When asked to *write a thesis paper* students often
  - *talk about a topic* instead of defend a position.
  - have difficulty distinguishing between a book report and a thesis paper.

REASONS FOR AND SOLUTIONS TO CHALLENGES

- Many of our students lack a well-developed argument schema.
  - Schemas act as cognitive frameworks to structure and direct our thinking about particular sorts of things. (Sweller, 1994)
  - Students often employ factual, chronological, or causal schemas when reading a text, instead of appealing to the evidentiary schemas that are essential or argumentation.
- K. Anders Ericsson's research demonstrates that deliberate practice (not simply engaging in an activity) is required to raise one's performance to the level of mastery. Deliberate Practice is
  1) undertaken to generate improvement
  2) targeted at specific skills
  3) scaffolded for increasing difficulty
  4) subject to timely feedback
- Research indicates that argument diagramming help students master the argument schema through deliberate practice.
  - Studies demonstrate the general efficacy of diagramming coupled with deliberate practice, either as a stand-alone course in critical thinking (Twardy 2004, van Gelder and Bissett, 2004) or as a curricular supplement to other subjects (Harrell 2011).

"Plants and animals are made of many different parts that work together and so the natural world appears to be designed. But how could this appearance of design have come about? If you think about it, you'll see that only the action of an intelligent designer can account for the appearance of design. Therefore, God must exist. As if that weren't enough, the Bible says that God exists, and everything the Bible says is true because the Bible is the word of God. And finally, we know that God must exist since lots of people believe in Him. "



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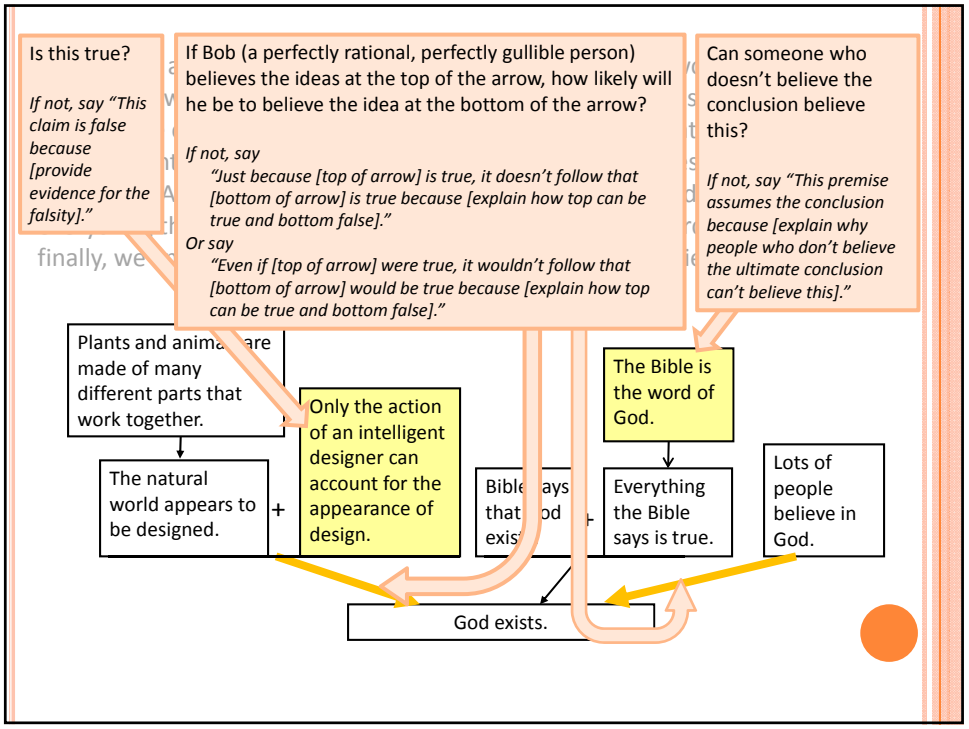
Narrative presentations allow students to focus on sequential associations between ideas. (e.g. In "A because B," "B" *follows* "A" in the passage.)

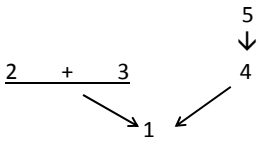
Diagrams compel an application of the argument schema because they disclose the logical relationships between ideas. (e.g. In "A because B," "A" *follows from* "B" in the argument.)

Diagrams also focus the evaluation of the argument...



The diagram snippet:	Means that:	For example:
2 ↓ 1	Idea 2 is a reason to believe idea 1.	"2. Dogs can alert us to danger. Therefore 1. they make good pets."
2 ↓ 3 ↓ 1	Idea 2 is a reason to believe idea 3. Idea 3 is a reason to believe idea 1.	"2. Dogs require us to go on daily walks so 3. they improve our fitness levels. Therefore 1. they make good pets."
2 + 3 ↓ 1	Ideas 2 and 3 must be believed together in order to constitute a reason to believe 1.	"1. Dogs make good pets because 2. they are affectionate and because 3. human beings crave affection."
2 3 ↘ ↙ 1	Idea 2 and idea 3 constitute independent reasons to believe 1.	"1. Dogs make good pets because 2. they are highly intelligent. Furthermore, 3. they allow us to socialize with other dog-owners."

The logical structure of any argument is composed of those basic patterns, variously combined. For example:



"Linda's been wondering if she should get a pet, now that she owns a house. Since 2. there are lots of unwanted dogs at the local humane society, and since 3. Linda has always wanted to rescue an animal, I think that 1. she should get a dog. Besides, 4. a dog would be good for her kids because 5. caring for a dog would help them to learn responsibility."

Contact me. Please! I'm eager to collaborate with people on this, but almost nobody ever takes me up on the offer. I'm starting to get a *complex*!

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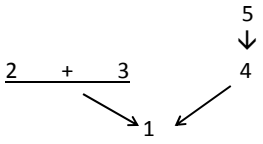

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I would be happy to answer any questions that you have and honored to learn from your experiences in the classroom.

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