Critical Thinking: Never Too Late to Learn!

Week 1

Introduction to Critical Thinking
Instructor: Michael W. Collier

- First career as U.S. Coast Guard officer
  - Deepwater cutter operations & intelligence
  - Retired as a Commander (0-5)
- Second career in Higher Education:
  - Deputy Director for Research & Academic Programs at Florida International University’s Latin American & Caribbean Center
  - Associate Professor of Homeland Security at Eastern Kentucky University & Director of the Bluegrass State Intelligence Community Center of Academic Excellence
- Education:
  - BS, U.S. Coast Guard Academy
  - MS in Strategic Intelligence, U.S. Defense Intelligence College
  - Ph.D. in International Relations (Foreign Policy and Security Studies), Florida International University
This course may challenge your core beliefs on several issues. The intent is not for you to abandon your core beliefs, but to open your minds and learn new techniques for thinking. This will lead to you understanding the full context and differing perspectives on issues. Students should be aware this course might cover material some find disturbing. Students who feel uncomfortable about hearing and discussing sensitive topics should see the instructor.
Optional Texts

- Paul & Elder provide additional information and examples for employing critical thinking in your professional and personal lives

- Critical Thinking Primer available at https://www.wm.edu/sites/cwa/course-info/classnotes/index.php
Course Overview

- Week 1 – Introduction to Critical Thinking
- Week 2 – Getting Started with Your Thinking
- Week 3 – Reaching and Reporting Your Findings

Similar to developing skills in reading, writing, and mathematics, all citizens should have skills in critical thinking. Calls for critical thinking are becoming more frequent in today’s society; however, most people have never been taught how to be critical thinkers.
What We’ll Learn in Week 1

- This lesson provides an introduction to critical thinking using the Foundation for Critical Thinking framework taught in some universities and used in the U.S. intelligence community.
- We will look at why people tend to be poor thinkers, define the characteristics of a good thinker, and introduce the course’s critical thinking framework, including how creative thinking supports better thinking.
Characteristics of Poor Thinkers

• Using intuition to jump directly to a conclusion (the “gut” effect)
• Failure to complete and consider a good information search
• “Satisfice”– or settle for the first conclusion “good enough”
• Use emotions to drive thinking and decision-making
• Confuse “thinking hard & discussion” with real analysis
• Rely on imprecise analogies (one of worst analytic methods)
• Only consider a narrow range of alternatives
• Commit logic fallacies (Red Herring, Ad Hominem Attack, etc.)
• Display unmitigated/unrecognized biases
Characteristics of Good Thinkers

- Raise vital questions and problems, formulating them clearly and precisely;
- Gather and assess relevant & accurate information, using abstract ideas to interpret it effectively;
- Come to well-reasoned conclusions and solutions, testing them against relevant criteria and standards;
- Think open-mindedly within alternative systems of thought, recognizing and assessing, as need be, their assumptions, implications, and practical consequences; and
- Communicate effectively with others in figuring out solutions to complex problems.

The significant problems we face today cannot be solved at the same level of thinking we were at when we created them.

(Albert Einstein)
Hedgehog

…knows one big thing, single central vision (Philosopher Isaiah Berlin, 1953)
…aggressively force their explanations and predictions of every situation into the framework of their one big thing (Philip Tetlock, 2005)
…less likely to update their analyses with new information…less suitable for analyzing complex rapidly evolving events
…attachment to one ideological or methodological framework and tend to discount new information not supporting their findings, inflexible

Fox

…knows many things (Berlin, 1953)
…balanced approach to thinking. more open and flexible to including conflicting considerations into their analyses (Tetlock, 2005)
…best forecasters…open to rethinking their analysis as events evolve and new information emerges (Tetlock, 2005)
…work across differing ideologies and methods, will redefine issues and problems, seek additional information, question their assumptions
What is a Bias?

• “uninformed or unintentional inclination;” as such it may operate either for or against someone or something.

• An intellectual shortcut

• A preference or inclination that inhibits impartiality and impacts the assumptions we accept; e.g., racial prejudice is an extreme form of bias

• A deviation from the truth
Biases

- We all have biases:
  - Cognitive biases: Inherent in how our brains work; present even if we are aware of them (i.e., how we think)
  - Personal biases: Different for each person; may be minimized if we are aware of their existence (i.e., what we think)
- Biases impact our mindsets
- Mindsets impact our analysis & decision-making
PERCEPTIONS DIFFER

- How We Think or Don’t Think is often driven by Biases & Mindsets

- How many columns are there in this portico?

Blivet or Poiuyt Optical Illusion
Thinking Fast and Slow: We All Do It!

From: *Thinking Fast and Slow*, Daniel Kahneman, Ph.D. in Psychology, 2002 Nobel Prize in Economics

Normally employs 1 or more of 48 different cognitive biases (heuristics)

Helps overcome the effects of cognitive biases
Most Common Cognitive Biases

- **Confirmation Bias** – accepting only evidence that supports a pre-formed point of view (rampant bias in all societies)
- **Anchoring Bias** – focusing on one trait or piece of information (failure to consider other facts or alternatives)
- **Perception Bias** – assuming others will think or act just as you would—i.e., **Mirror-Imaging**
- **Representativeness Bias** – explaining others’ decisions or behaviors based on their ideology or other personal traits (e.g. religion, political views, ethnic group, language, country of origin, etc.)—i.e., **Stereotyping**
Most Common Cognitive Biases (continued)

• **Group Conformity Bias** – agreeing with the recommendations or points of view of the group, even though you may have strong information or analysis on different alternatives or outcomes—i.e., **Group Think**

• **Fundamental Attribution Error Bias** – over-emphasizing the personality based explanations (person’s internal traits such as personality, decision-making tendencies, risk aversion, etc.) over the external structural factors

• **Bias Blindspot** – being unaware of your own biases, even when you can recognize biases in others
The National Association of Colleges and Employers have determined that the top skills employers look for in their new hires include:

- Critical Thinking & Problem Solving
- Oral and Written Communications
- Teamwork and Collaboration
- Application of Information Technology
- Leadership
- Professional and Work Ethics

Source: NACE, 2016
What is Critical Thinking?

- Richard Paul defines critical thinking as “thinking about your thinking, while you are thinking”

- Critical thinking entails using data (evidence), logic, and reasoning to actively and systematically seek the best answer to a question or best solution to a problem

- Main Uses for Critical Thinking:
  - To assess, evaluate, or critique the work of others (written, oral, videos, etc.)
  - As a systematic process for your own thinking leading to oral or written communications
  - For decision-making and problem-solving—in both your personal and professional lives
People Resist Critical Thinking

- Makes them think—cannot use poor thinking (easy) characteristics they have grown up using
- Makes them reflect, think actively, and think systematically—most humans resist structured logical thinking (e.g., widespread US mathphobia)
- Holds them accountable for the results of their thinking—use of assessment guides (intellectual standards, rubrics, Devil’s Advocacy, etc.)

How to overcome these problems?
Time for a 10 Minute Break!
Elements of Critical Thought

The Paul & Elder (Nosich) Critical Thinking Framework from the Foundation for Critical Thinking

Use of this framework helps overcome cognitive biases and other thinking problems previously identified.
Purpose

Definition:
The purpose is your aim, goal, or objective, i.e., what you are trying to accomplish.

Often the “big picture” goal or objective, it is usually too broad to actually study with the time and resources available.

Example: When and where will ISIS next strike?
Question

Definition

The question identifies the specific problem or issue and guides our thinking. The question should be clear and precise enough to productively guide our thinking.

Example: Will ISIS increase its efforts to foster attacks on United States’ persons or interests? (estimative/predictive question)
Information

Definition

*Information* includes the facts, data, evidence, or experiences we use to figure things out. It does not necessarily imply accuracy or correctness.

Proficiency in *information literacy* (locating, assessing, using, and documenting information sources) is critical to proper employment of this element.
Definition

**Context** includes the historical, political, social, economic, cultural, linguistic, scientific, and/or personal setting or background that directly relates to the issue at hand.

Failure to consider context is a major reason that using analogies is a poor analytic method.
Points of View

Definition

A **Point of View** is literally “the place” from which someone views something. It includes what they are looking at and the way they are seeing it.

Assessing **Points of View** requires an investigation of the subject’s, author’s, analyst’s, & customer’s world, political, economic, religious, cultural, and social views—it means uncovering their “**belief systems**.”
Assumptions

Definition

Assumptions are beliefs someone takes for granted. They usually operate at the subconscious or unconscious level of thought.

Assumptions may be characterized as:

Paradigmatic – grounded in points of view (belief systems)

Prescriptive – emerge from ideas of what “ought to be”

Causal – based on facts, information, causal statements
Concepts

Definition

**Concepts** are definitions, ideas, propositions, theories, principles, models, etc., we use in thinking to make sense of things.

Results in hypotheses or scenarios that can be used to reach our findings using the Interpretation/Inference element.
Alternatives

Definition

**(Alternatives)** are other possibilities, options, choices, scenarios, etc., which apply to all the elements. Alternatives are especially important in developing potential answers to your question or potential solutions to your problem.

Important in all analyses, alternatives are crucial in problem-solving and decision-making.
Interpretation and Inferences

Definition

*Interpretations and inferences* are the findings you come to in your analysis. Inferring is what the mind does in figuring something out.

Techniques for developing interpretations and inferences range from qualitative (e.g., logical argumentation) to quantitative (e.g., math, statistical) methods.
Implications and Consequences

Definition

Implications and Consequences are claims or truths that logically follow from your findings or conclusions. Implications follow from thoughts. Consequences follow from actions.

Consequences are often classified as first, second, or third order effects.
What is Role of Creative Thinking?

- Creative thinking is developing “out of the box” alternatives which can be assessed in developing an answer to a question, solution to a problem, or otherwise used in decision-making.
- In the business community, creative thinking is related to innovation. The US economy is driven by innovation.
- Creative thinking results in the development of novel (new, unique) and useful (practical, workable) alternatives.
Left Brain versus Right Brain

Left Brain:
- language
- math
- writing
- science
- facts
- logic
- convergence

Critical Thinking

Right Brain:
- intuition
- artistic
- musical
- insightful
- imagination
- 3D images
- divergence

Creative Thinking
Critical Thinking takes the results of creative activities and inserts them into the Critical Thinking framework.

**Critical Thinking Elements**

- Point of View
- Assumptions
- Implications, Consequences
- Inference, Finding
- Purpose, Question
- Information
- Concepts, Models, Theory

**Creative Thinking Elements**

- Observing, Imagining
- Abstracting, Analogizing
- Empathizing
- Play, Model, Transform
- Dimensional Thinking
- Pattern Recognition
- Body Thinking

**Approaches to Thinking**

- Convergence
- Divergence
- Synthesizing
- Emotion
- Intuition
Elements of Critical Thought

- Point of View
- Purpose
- Implications and Consequences
- Question
- Information
- Assumptions
- Essential concepts
- Interpretation and Inference
- Context
- Alternatives
1962 Cuban Missile Crisis: A Case of Good Critical Thinking

After first day of ExComm discussions the main alternative of invading Cuba was on the table.

After this first day, the Kennedy brothers orchestrated a critical thinking process including a revision to the purpose and question, expanded information search, consideration of Soviet points of view and assumptions, generation of a list of other alternatives (options), and a final decision (naval quarantine, which if not successful would be followed with air attacks and invasion of Cuba). This process achieved the main purpose of preventing a nuclear war.
To become proficient at critical thinking you must use the Elements of Thought in all your significant thought processes, in both your personal and professional lives.
In Week 2 we review the Elements of Critical Thought that help you understand your problem or decision situation.

THE END

ANY QUESTIONS???