Truthiness or Evidence-Based Reasoning? A Critical Thinking Exercise for the First Year Experience

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Truthiness or Evidence-Based Reasoning?

A Critical Thinking Exercise for the First Year Experience

The practice and the need it addresses

Evidence this practice benefits UNLV Students

Resources and where to find them

How other UNLV teachers might adopt this practice

**Purpose:** To Improve Critical Thinking Skills

**Procedure:** A 2-day Exercise

**Day One: First Class Period**

**Step 1:** Show Ted Talk Video

Susan Etlinger: What do we do with all this big data?

**Step 2:** Deliver PowerPoint Lecture on critical thinking and truthiness, introduce scale for evaluating evidence

- Critical Thinking: 7 Steps
  1. What am I being asked to believe or accept?
  2. What evidence is available to support the claim?
  3. What alternative ways are there to interpret the evidence?
  4. Rate the evidence/alternatives on a 0-10 scale based on validity/interest (see Figure 1).
  5. What assumptions or biases came up when doing the above steps? (e.g., using intuition/emotion, or personal experience).
  6. What additional evidence would help us evaluate the alternatives?
  7. What conclusions are most reasonable or likely?

**Step 3 In-Class exercises addressing all seven steps.**

1) Do ghosts exist? Evaluate photographs
2) Overuse of personal experience
3) Debate and Moderate - Watch for truthiness and anecdotal reasoning
4) Wrap up: discuss the use of evidence.

**Step 4 Homework Assignment**

Find 3 pieces of evidence for/against the legalization of Marijuana

One piece MUST be a peer-reviewed research article.

Write a two-page (APA-style with proper citations and references) rough draft and bring it and your evidence to class with you.

**Day Two: Second Class Period**

**Debate** Class divided by opinion for/against. Instructions:

1) Form small groups; take 20 minutes to compile the evidence from the group and create a master list.

2) After the lists are made, repost the rating scale for evidence to make decisions or as preferring what one wishes to be true over logical reasoning.

3) Debate and Moderate - Watch for truthiness and anecdotal evidence.

4) Wrap up: discuss the use of evidence.

5) Students turn in a final draft one week later.

**Pedagogical Benefits:**

1. The UULOs
   - Inquiry and Critical Thinking
   - Communication
     - written and oral
   - Citizenship and ethics

2. Great opportunity to discuss the rules of debate and how educated people comport themselves during factious discussions.

3. Active Student Engagement

4. Students researched a topic, worked independently and in groups, engaged in discussion and debate.

**Example Report from Student:** "I like the freedom and some of the assignments we have. (like the discussion on marijuana)"

**Barriers to Critical Thinking**

- Biases
- Emotional reasoning (truthiness)
- Overuse of personal experience
- Small case studies

**Truthiness**

‘Truthiness’ was first coined by Steven Colbert during “The Colbert Report” television show and is defined as using a gut-sense feeling in decision making instead of rational thinking and empirical evidence to make decisions or as preferring what one wishes to be true over logical reasoning.

(Krause, Sears, & Burke, 2013, Phillips, 2005)

**Scale for Evaluation of Evidence**

Grades of Recommendation, Assessment, Development, and Evaluation (GRADE)


**British Medical Journal**, 328, 1490-1494.

Retrieved from http://www.bmj.com/

**Articles**


**Classroom Adoption**

- As demonstrated, this practice is easily adopted into the classroom and clearly translatable across disciplines. Critical thinking is fundamental to mature reasoning and necessary in all disciplines.

- Kraus, et al. (2013) offer nine modules for instructors to choose from. It is possible to tailor this exercise to numerous disciplines and other introductory level courses (FYE or 101 level courses).

- Students were positive and very engaged in this debate. Verbal student feedback was highly positive.

- To maximize student involvement, the final topic should be of pressing interest and I chose legalizing marijuana (which was timely and very relevant to my students), but any hot-button topic may be used, as long as the students are thoroughly engaged.

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**Evaluating Evidence**

- **Scale**
  - 8-10: A High
  - 5-7: B Moderate
  - 2-4: C Low
  - 1-0: D Very Low

- **Quality of Evidence**
  - A: High-quality evidence
  - B: Moderate-quality evidence
  - C: Low-quality evidence

- **Definition**
  - A: High-quality evidence
  - B: Moderate-quality evidence
  - C: Low-quality evidence

- **Explanation**
  - A: Further research is very unlikely to change our confidence in the estimate of effect and is likely to change the estimate.
  - B: Further research is likely to have a more important impact on our confidence in the estimate of effect and may change the estimate.
  - C: Further research is likely to have a more important impact on our confidence in the estimate of effect and may change the estimate.

- **Mitigation**
  - A: High-quality evidence
  - B: Moderate-quality evidence
  - C: Low-quality evidence

- **Conclusion**
  - A: Do not direct research evidence
  - B: Do not direct research evidence
  - C: Do not direct research evidence

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**Figure 1. GRADE Evidence Rating Scale**