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

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A Critical Thinking Exercise for the First Year Experience

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The practice and the need it addresses

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?
Introduces the concept that even scientific data must be carefully assessed and applied.

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 0-10 scale based on validity/strength (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) Autism and Vaccines.

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

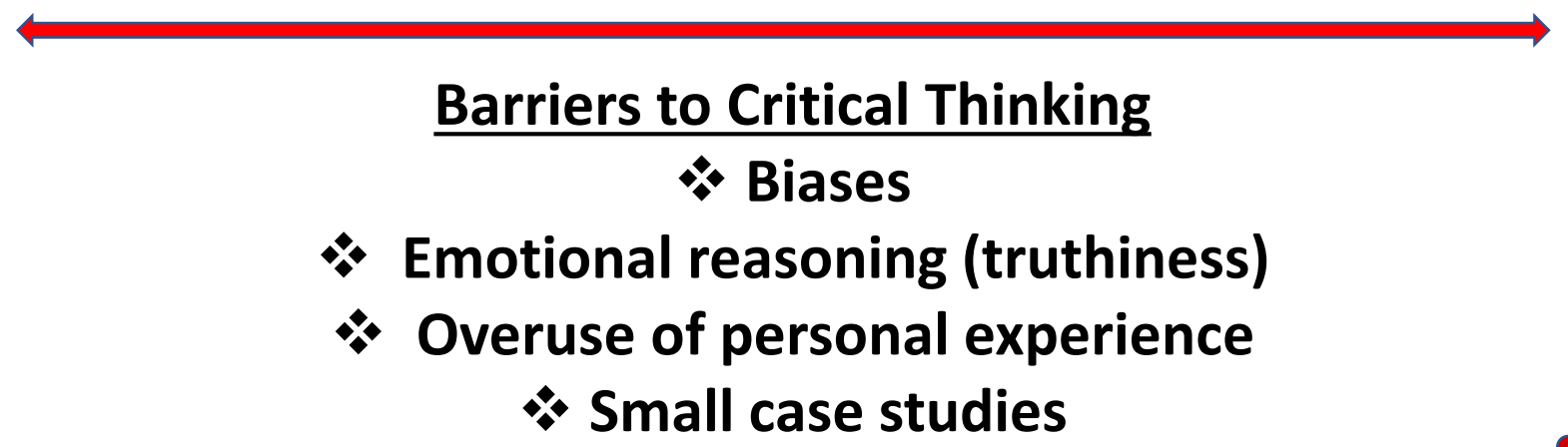
- Debate** Class divides by opinion for/against. Instructions:
- 1) Form small groups; Take 20 minutes to compile the evidence from the group and create a master list.
 - 2) After the lists are made, repost the rating scale for evidence and have the students go back and rate the evidence they are preparing to debate (see figure 1).
 - 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.

Evidence this practice benefits UNLV Students

Pedagogical Benefits:

- 1. The UUOs
We addressed several of the undergraduate learning outcomes.
 - ❖ 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)"



‘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)



Resources and where to find them

Articles

- Burke, B. L., Sears, S. R., Kraus, S., & Roberts-Cady, S. (2014). Critical Analysis: A comparison of critical thinking changes in psychology and philosophy classes. *Teaching Of Psychology*, 41(1), 28-36.
doi:10.1177/0098628313514175
- Krause, S., Sears, S. R., & Burke, B.L., (2013). Is truthiness enough? Classroom activities for encouraging evidence-based critical thinking, *Journal of Effective Teaching*, 13 (2) 83-93. Retrieved from <http://www.uncw.edu/jet/>

Main article

Videos

- CBS (2007). Eye To Eye: Autism (CBS News). [Video File]. Retrieved from <https://www.youtube.com/watch?v=rOGOkS0uXWE>
- Etlinger, S, (2014). Susan Etlinger: What do we do with all this big data? [Video file]. Retrieved from http://www.ted.com/talks/susan_etlinger_what_do_we_do_with_all_this_big_data/
- Phillips, S. (Director). (2005). The word - truthiness [television broadcast]. New York City, NY; Comedy Central.

Scale for Evaluation of Evidence

Grades of Recommendation, Assessment, Development, and Evaluation (GRADE) Working Group (2004). Grading quality of evidence and strength of recommendations. *British Medical Journal*, 328,1490-1494. Retrieved from <http://journals.bmj.com/>

How other UNLV teachers might adopt this practice

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.

| Evaluating Evidence | | | |
|---------------------|---------|---------------------|--|
| Scale | C o d e | Quality of Evidence | Definition |
| 8-10 | A | High | Further research is very unlikely to change our confidence in the estimate of effect. <ul style="list-style-type: none">❖ Several high-quality studies with consistent results❖ In special cases: one large, high-quality multi-center trial. |
| 5-7 | B | Moderate | Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate. <ul style="list-style-type: none">❖ One high-quality study❖ Several studies with some limitations |
| 2-4 | C | Low | Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate. <ul style="list-style-type: none">❖ One or more studies with severe limitations |
| 0-1 | D | Very Low | Any estimate of effect is very uncertain. <ul style="list-style-type: none">❖ Expert opinion❖ No direct research evidence❖ One or more studies with very severe limitations |

Figure 1. GRADE Evidence Rating Scale