IDEAS AND RESOURCES FOR TEACHING TO ILO#3: QUANTITATIVE LITERACY

INSTRUCTION IDEAS

Assumptions:
1. Instructors should talk more about assumptions in class.
    a. After formative assessment, several group members mentioned their students' knowledge of assumption is limited to assuming the data used in the course is collected properly.
        i. Instructors should introduce critical information literacy by encouraging students to question sources of information
2. Instructors should also be cognizant of what assumptions they are making when they generate assessments.
    a. Talk to the students to determine how to develop culturally sensitive standardized test questions to ensure outcomes can be measured accurately.
        i. For example, "How many times do you eat chocolate during Lent?" makes the assumption everyone knows what Lent means.
3. Instructors should remind students that there are multiple ways to accomplish a task.
4. Ask students whether they are aware of the assumptions they are making when viewing and interpreting data?
5. Application/Analysis is fairly easy if taught, the hard part is teaching Assumptions. They are so trained to just find the answer they don't look at the parts of a problem/issue to make an assumption.

Analysis:
1. Even Middle School students can do Quantitative Literacy if taught and stepped through the process. (BUS)
2. Academic analysis is more than just general information. Can be used to direct &/or detect a perspective. (WR)

ACTIVITIES

Assumption:
1. The instructor provides students with a link to information about dihydrogen monoxide that includes true but misleading information about the dangers of water. Students who rely on the single source often jump to the conclusion that water should be banned. Later, they are asked to reflect on this assumption. (BI)
2. Students are asked to select a town, gather population data, generate a growth curve, and then compare projected data to the actual population. They must use assumptions to explain the difference between the two. (MTH)
3. Raise opposing views and arguments as part of the process before any final writing. (WR)

Analysis:
1. Assumptions about following directions = different results (ART)
2. Students must determine the material composition of a penny. While this takes about five minutes to Google, they have to show and analyze data to support the answer (BI)
3. Basic equations may be a stumbling block for students if they don't really remember from last class or last math class. Assuming that they have the knowledge is not good. Pre lab quizzes help with this. (BI)

4. Students are asked to analyze financial statements to determine how a company is performing (BUS)
5. Students come in. Identify and teach them to use critical thinking. Give them the same quiz at the beginning and end of the term. See growth from their assumptions. Reading-facts. Reading and interpretation. Learning how to reason and change our assumptions through reading facts. (CG)
6. Textbooks include tables, graphs, charts, etc. related to content and it provides opportunities to read and interpret the data. Ask students to make future predictions.(Consumer & Family Studies)
7. Explaining industry-wide vocabulary for quantifying, measuring, and making conclusions with integrity. (CS)
8. Students assume that speaking slowly in another language helps them to be understood, when actually they need to put the stress on certain parts of the word to be understood. (ESOL)
9. Use article of summary, concept maps, overlaying multiple maps, and focus on evidence-based decision-making to support clients (Health Sciences)
10. Teaching students that they don't know what the basic terms mean. They assume that they know. Difference between academic and social norms when discussing government terminology, etc. Students assume cause and effect correctly. Assess students assumptions through class discussion and essays (HST)
11. Social sciences can use analysis to compare trends and stats across history i.e. analyzing how "Patriotic history" trends parallel those of WWII Germany (HST)
12. Analyzing lab results to interpret rationale for patient care (MA)
13. Different equations = different answers. Using different equations and how students assume and or know what equations to use.(MTH)
14. Writing assignments: Students make a claim, use evidence to support the claim, and explain how/why it supports their claim. (Pre-College)
15. Pre lab quizzes so faculty do not assume what students know. (NUR)
16. Can be very difficult to help students to understand difference between article summary and article critique. Summary is easier, critique takes teaching and practice. (NUR)
17. Showing research papers and how to find them, then how to find specific elements/parts of what it contains - what is it actually saying? What is the hypothesis? (SCI)
18. Assumptions are too easy to make (we do it all the time without thought) - get the students to write more analysis- just think about it. (SCI)
19. Sciences - Support students to locate and cite credible sources and websites (SCI)
20. Very applicable for technical writing especially for identifying problems, locating credible sources, interpreting the data, and making conclusions. (WR)

RESOURCES

1. *Freakonomics Radio* episode called "**America's Math Curriculum Doesn't Add Up**" (Ep. 391) https://freakonomics.com/math/ (Steve Levitt investigates whether traditional math instruction is really preparing students for the work of the digital era. What he found was a curriculum that is not teaching data literacy)