Critical Thinking Skills

"Critical thinking relies on content, because you can't navigate masses of information if you have nothing to navigate to." -Dr. Kathy Hirsh-Pasek, Professor of Psychology, Temple University

One of the most sought-after skills in nearly every workplace is critical thinking (Doyle, 2018, October 30). But what is critical thinking, exactly? Better yet … what does it take to think critically? To some, it is the ability to analyze information objectively and make a reasoned judgment; for others, it simply involves thinking "outside-the-box". Either way, to think critically is to possess the unique ability to think reflectively and independently in order to make thoughtful decisions (Figliuolo, 2016, August 2). In other words, critical thinking is not just the accumulation of facts and knowledge; rather, it's a process of approaching whatever is on your mind in order to come up with the best possible conclusion (Patel, 2018, October 24). Figure 1 illustrates the critical thinking process.

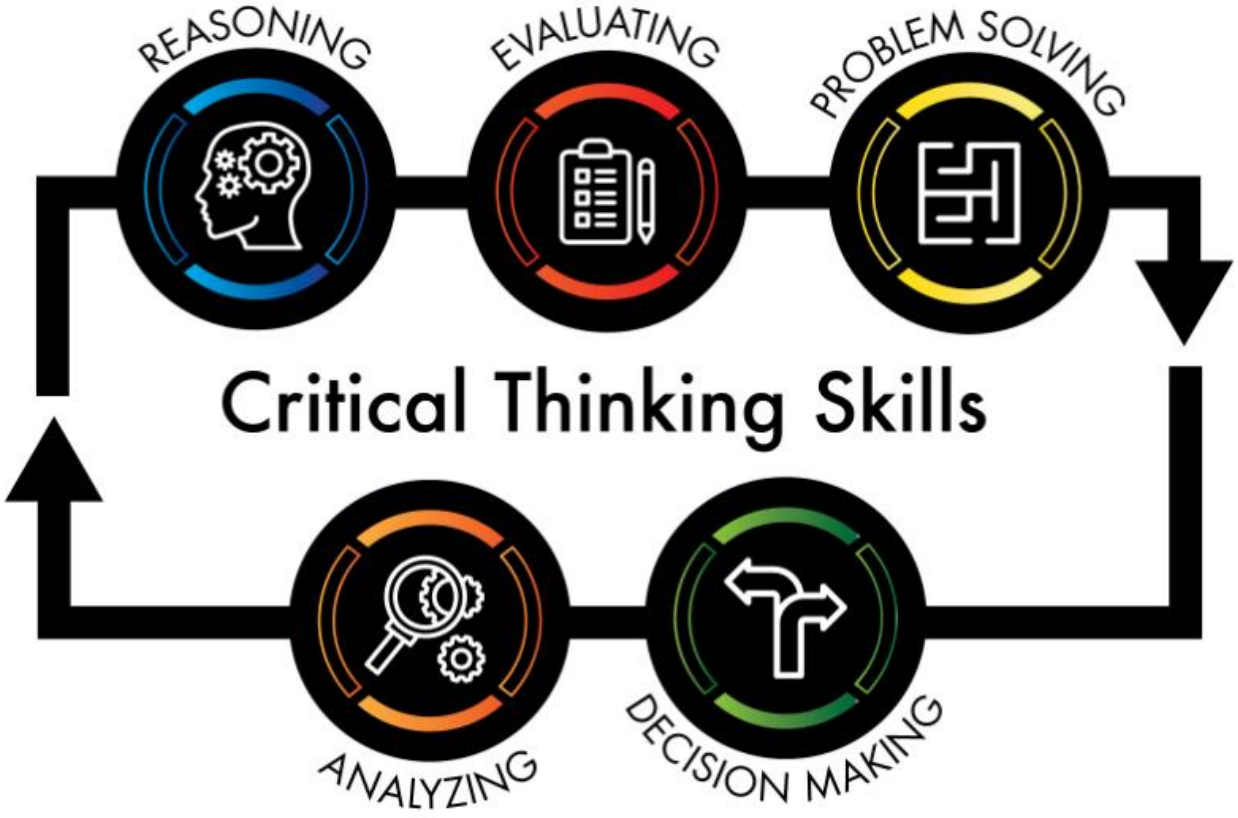

Figure 1. Critical thinking process

To think critically, it begins with three essential skills: (a) linking ideas, (b) structuring arguments, and (c) recognizing incongruences. In order for you to become a better critical thinker, each of the three skills needs to be practiced and applied accordingly. The first skill, linking ideas, involves finding connections between seemly unrelatable,

even irrelevant ideas, thoughts, etc. The second skill involves creating structured practical, relevant, and sound arguments. Lastly, to recognize incongruences is to find the real truth by being able to find holes in a theory or argument (MindValley, n.d.).

Food for Thought

"No problem can withstand the assault of sustained thinking."

-Voltaire, French philosopher

Once you have the three essential skills down, then you can ask yourself six low-level questions that you can use in nearly any situation (TeachThought Staff, 2018, July 29):

1. What's happening? Here, you will need to establish the basics and begin forming questions.

2. Why is it important? Ask yourself why the situation at hand is or is not significant.

3. What don't I see? Ask yourself whether or not there is any important information you might be missing.

4. How do I know? Ponder on not only how you know what you think you know, but how that thought process was generated.

5. Who is saying it? Identify the speaker and their position on the situation, then consider how that position could be influencing that person's thinking.

6. What else? What if? Think of anything else you be considering when making your decision. In addition, ponder the repercussions of what you've considered that might change/alter the outcome of your decision.

Food for Thought

"Learn to use your brain power. Critical thinking is the key to creative problem solving in business."

-Richard Branson, Entrepreneur

In order to better understand higher-level critical thinking, it helps to be familiar with Bloom's Taxonomy, a classification of educational objectives and skills that educators establish for their students. In Bloom's Taxonomy, there are three overarching domains known as KSA: (a) Knowledge [cognitive], (b) Skills [psychomotor], and (c) Attitudes

[affective]. This taxonomy of learning behaviors is referred to as "the goals of the learning process." In other words, after a period of learning, the student will have acquired a new knowledge, skill and/or attitude (Bloom et al., 1956).

In this resource, we will focus on the Knowledge (cognitive) domain. According to Bloom et al. (1956), the cognitive domain involves the development of intellectual skills. There are six major categories of the cognitive process (Figure 2), beginning with the development with the simplest skills (e.g., remembering basic facts and concepts), through a learning of procedural patterns and concepts that facilitate the development of intellectual abilities, before eventually moving to the highest, most complex skills (e.g., creation of new or original ideas).

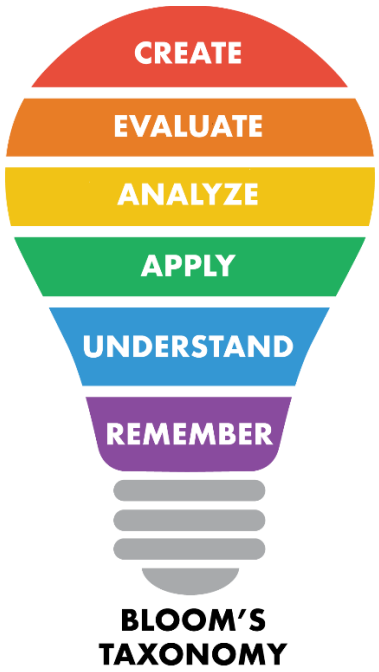

Figure 2. Bloom's Taxonomy

1. To further explain, the first level of Bloom's Taxonomy involves remembering specific information. This includes recalling basic vocabulary, dates, and math facts.
2. Moving up the taxonomy, understanding is demonstrated by a student's ability to comprehend, organize, compare and to verbalize main concepts. At this level, questions require the ability to understand meaning, not just basic facts. For example, a study might be asked to explain the difference between apples and oranges.
3. The third level, application, is being able to actually use the new knowledge. Within this level, questions often require the student taking what s/he just learned, then applying it in a different way. For example, the student may be asked to take a list of food items, then select four items to make a healthy breakfast.

4. The next level, analysis, involves breaking down information into different parts for a more thorough examination. Here, questions require proven facts (evidence) to support the answer. For example, the student is asked to compare and contrast Republicans to Democrats with regard to their views on supporting or repealing the Affordable Care Act.
5. Evaluation, the fifth level, is the ability to make judgments about information by presenting and defending one's own opinions. It is important to note that at this level, questions don't necessarily have a right (or wrong) answer. For example, a student may be asked how s/he would handle observing a friend who cheated on a final exam.
6. The top of the taxonomy involves the synthesis of new information and compiling it in new ways. It is at this level where more abstract, creative, "outside-the-box" thinking comes into play. For example, a student may be asked to design and construct a robot that can walk a certain distance.

While the first three levels of the taxonomy are important to solidify core knowledge, it is within the last three levels – analysis, evaluation, and creativity – that require critical thinking skills. (Anderson et al., 2001).

Practice Activity

In a study by Gottfried and Shearer (2016, May 26), the authors stated that 62% of adults get their news from social networking sites. In fact, the results show that 70% of Reddit users, 66% of Facebook users, and 59% of Twitter users get their news from one or more of these platforms. According to the study, among these three social networking sites, Facebook had the greatest reach with 67% of American adults using the platform. This suggests that the two-thirds of adults who use Facebook to get their news, which amount to 44% of the general population.

Unfortunately, social media platforms don't go through the stringent review process to which most major news outlets are required in order to be in compliance with Federal Communications Commission (FCC) regulations. Therefore, information can be shared publicly without "fact-checking" to make sure that what's being shared is truly accurate. With this in mind, one can't help but ask: What's the truth versus what isn't? Better yet … what's real news and what's fake?

Your task involves the use of Bloom's Taxonomy to decipher "fake news" from real news. Using the eight-step infographic on the International Federation of Library Associations and Institutions (IFLA) website (https://www.ifla.org/publications/node/11174) as a guide, review the following news stories to determine which are real and which are fake. Explain your rationale.

1. Strasbourg market attacker 'pledged allegiance to ISIS' – source.
2. Lawmakers in California propose a new law called the "Check Your Oxygen Privilege Act".

3. Four AI-controlled robots kill 29 scientists in Japan.
4. North Korea says it will not denuclearize until the US eliminates ‘nuclear threat’.
5. Two men found living underneath the Calico Mine Ride at Knott’s Berry Farm.
6. Scientists find a brain circuit that could explain seasonal depression.
7. Amazon customer receives 1,700 audio files of a stranger who used Alexa.
8. NFL fines Pittsburgh Steelers $1M each for skipping National Anthem.
9. FBI raids CDC for data on vaccines and autism.
10. Only 60 of 1,566 churches in Houston opened to help Hurricane Harvey victims.

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