**Level 5: Evaluate**

Evaluate is the fifth level of Bloom’s taxonomy; typically the Analyze level and other lower cognitive processes are employed to engage in the Evaluate-level thinking. In a courtroom, the judge makes a decision by weighing the evidence and deciding the best outcome or resources. At the Evaluate level, informational sources are examined to assess their quality and decisions are made based on the identified criteria. There are two processes in the Evaluate level: Checking and Critiquing.

**Evaluate-Level: Checking**

*The evidence is presented on both sides. One witness testifies for her mother and persuasively argues that her ex-husband hit her mother, causing major health problems. Health experts explain that the medical condition is due to blunt force trauma. The ex-husband clarifies that the mother refused to leave his house and, after an argument, he hit the mother. Now, it is the jury’s responsibility to examine the facts.*

 Juries are expected to scrutinize information in order to determine if the witnesses are credible and if the testimony is accurate. Anderson and Krathwohl (2001) state, “Checking involves testing for internal inconsistencies or fallacies in an operation or product” (p. 83). A fallacy or internal inconsistency is an error in reasoning where the ideas in an argument do not adequately support the conclusion. Open-mindedness and considering alternative systems of thought are important, but students also need a critical eye when considering alternative views. Students possessing this cognitive ability pursue unsubstantiated claims, question ideas, and demand validation for arguments, interpretations, assumptions, beliefs, or theories.

 When evaluating an argument, first the reader should determine the issue and/or conclusion. The conclusions and the reasons should support the argument. Evidence provides the proof, and the reasons explain why (Browne & Keeley, 2004). One way to help students to evaluate is to teach them to make sure viewpoints are supported with appropriate reasons and evidence. To introduce this skill, students can examine the arguments in a commercial, identifying the claim and deciding whether each claim is supported by reasons and evidence.

 Many students jump to conclusions or accept information without questioning the quality of the information. Students should practice evaluating information and sources. There are spoof websites that look deceptively real but have false information (Bradley, 2001). Using these sites in classroom instruction can teach students to carefully evaluate websites before using their information.

 Many times on the news there are reports of new data. Are appropriate conclusions derived from the data? The common claim by students, “The teacher just doesn’t like me” or by teachers, “Students just don’t want to learn,” can be a topic of conversation to engage students in this cognitive process. Students can examine the sources for credibility by assessing the reasonableness of ideas. Paul and Elder (2005) state that information should be examined based on its “clarity, accuracy, precision, relevance, depth, breadth, logic, and significance” (p. 12). There are many considerations when examining sources, including the following:

* Author qualifications: A work by an author should be considered a credible source if that author has a level of expertise in the area*.* However, even with that expertise, the source may have biases or special interests that distort the message. Additionally, evaluators should determine if the source is a primary or secondary account to assess the level of confidence that should be placed in the source.
* Evidence: A source should be supported by evidence. The reader should consider whether the evidence can be interpreted differently. The evidence should be accurate so as not to distort facts. Sometimes data are used inaccurately; thus the conclusions are inaccurate. When a conclusion or argument is posed, students should examine if the reasons provided support the idea. For example, in the magazine *Consumer Reports*,data are shown to support the recommendations.
* Reliability of sources: Evaluating the reliability of sources means considering whether other authorities agree. Even with a qualified author, more than one expert opinion can validate and corroborate information. Evaluators should determine if the source leaves out key information. The author may purposely include certain sources to support the message. For example, mass media and economic interests can spin messages to address their specific perspective. Also, with the rapidly changing information available, the date of publication can impact the reliability of the source (Chaffee, 2006).

 To assess this cognitive process, students could conduct research on any topic and examine the print and media sources to evaluate whether the sources are credible and whether the conclusions are appropriately drawn from the informational source. Students might be able to draw other conclusions beyond what is mentioned. Most of these types of activities lead to essay or short-answer assessments.

* Social studies: Students can examine historical writings to detect biases and points of view.
* Language arts: In *Charlotte’s Web*,there are two clearly different points of view—the farmer’s and the pig’s. Students can pinpoint the perspectives and biases in the text.
* Math and science: Students can examine reports to determine the purpose for the data collection.
* English and social studies: Students identify which source is the most reliable for a paper on election fraud.
* Science: Students examine if the sources used in a research report are appropriate and reliable.
* English or Physical Education: Students read an article about a famous athlete. They identify one piece of information in the article that fails to support the author’s case that hard work was the main reason for the athlete’s exceptional athletic skills.

**Evaluate-Level Cognitive Process: Critiquing**

*It’s teacher evaluation time! You know the process. You will carefully prepare your lesson knowing an administrator will be evaluating you based on the state teacher standards. At the conclusion of the evaluation form, your strengths and areas for improvement are summarized.*

 Oh, a stressful time for teachers! Teacher evaluations are a good example of the Critiquing cognitive process. Critiquing involves assessing the value of an idea or product based on a set of criteria. The skill of decision-making is used in schools and in daily life to examine and then select from various choices (Sternberg, 2008). In schools, students seem to critique superficially almost every day as they state who is the best teacher (e.g., one that assigns no homework) or what car is the best to buy (e.g., of course, the one that is bright red). Without practice, students often rank choices based completely on personal preferences instead of developing logical criteria, thus making poor conclusions and decisions. Failing to build Critiquing skills leaves students unable to grapple with the complexities of life or to reasonably select the best option.

 It seems the key decisions in life involve Critiquing, whether it is whom to marry, which house to purchase, or which career path to follow. Teaching students how to thoughtfully make reasoned decisions based on weighing the evidence prepares them for real-life situations they encounter. By learning how to evaluate, students can engage in healthy debates arguing a position, which many students enjoy doing. Students must examine the benefits, disadvantages, and potential consequences of each choice.

 To reach this level, first the decision or problem must be defined along with the explicit criteria to evaluate the options. The decision could relate to a professional, personal, or civic problem. It could ask the students the “best” way to do something. What is the best way to solve a multistep real-world problem? Which is the best candidate for the position? The criteria might need to be researched to ensure proper considerations of key areas. Criteria can be based on the effectiveness of the solution, safety, cost-effectiveness, and other factors. Next, options or choices that align to the decisions should be identified. Students must be open-minded and willing to consider other ideas, options, and information in order to develop alternatives (Klaczynski, 2001). It is important to have a classroom climate that is supportive of divergent opinions and solutions so all options are considered. Next, students would explain with reasons how each option meets the criteria. Students might also rank the options or put the ideas on a continuum based on each idea meeting the criteria. Some criteria may be more important than others and thus be given more significant contemplation in ranking the alternatives. Some options might have important long- and short-term consequences to consider. If the options are not evaluated carefully with all pertinent information considered, decisions can be haphazard (Swartz & Parks, 1994). Finally, using convergent thinking, the best solution, idea, or product for a situation is selected.

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| Decision-Making Steps |
| 1. Identify the problem or situation.
2. Secure relevant information.
3. Define criteria for evaluation.
4. Explore options.
5. Prioritize alternatives.
 |

 In schools, Critiquing exercises can be embedded in many areas. To prevent disciplinary infractions, school administrators often implore students to utilize this cognitive process to examine a course of action and whether it is effective. If Jack hits Mark, what are now the long-term consequences? What other options does a student have to deal with the conflict besides violence? Here are some other examples:

* Language Arts or social studies: Prior to the school’s student council election, the students develop criteria for judging candidates for the position of student council president. After listening to candidates’ speeches, students select the candidate that best meets their criteria and defend their decision.
* Language arts and social studies: When studying historical figures or characters in a novel, students could identify who would be their friend based on criteria.
* Science: Students examine if the sources used in a science article posted online are appropriate and reliable.
* English and social studies: Students identify which source is the most reliable for a paper on political parties.
* Math: Students select which senior trip would be the best for students in their school based on established criteria and then develop a budget.
* Using primary sources, critique several American colonial actions that challenged the British government.
	+ Select four colonial actions that showed the colonists’ discontent with British government.
	+ Develop criteria for evaluating the effectiveness of colonial actions in achieving colonial independence.
	+ Using primary sources, explain how each action addressed each criterion for helping the colonists achieve independence.

Another Critiquing instructional task is having students self-assess or peer-assess assignments according to the assignment rubric. This feedback can give students time to revise their assignment before turning it in for a grade while also compelling students to carefully read rubric expectations and utilize their higher-level thinking skills.

Anderson, L. W., & Krathwohl, D. R. (Eds.). (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom’s* Taxonomy of Educational Objectives(complete edition). New York: Longman.

Browne, M. L., & Keeley, S. M. (2004). *Asking the right questions: A guide to critical thinking* (7th ed.). Upper Saddle River, NJ: Pearson Education.

Bradley, P. (2012). *Introduction to fake websites.* Retrieved from [www.philb.com/fakesites.htm](http://www.philb.com/fakesites.htm).

Chaffee, J. (2006). *Thinking critically* (8th ed.). Wilmington, MA: Wadsworth.

Klaczynski, P. A. (2001). Analytic and heuristic processing influences on adolescent reasoning and decision making. *Child Development,* *72*,844–861.

Paul, R., & Elder, L. (2005). *A guide for educators to critical thinking competency standards.* Dillon Beach, CA: Foundation for Critical Thinking.

Sternberg, R. J. (2008). *Cognitive psychology* (5th ed.). Belmont, CA: Thomson-Wadsworth.

Swartz, R. J., & Parks, S. (1994). *Infusing critical and creative thinking into content instruction: A lesson design handbook for elementary grades*. Pacific Grove, CA: Critical Thinking Press and Software.