

Critical Thinking: A User's Manual

Adapted from Cuesta College, San Luis Obispo CA

Critical thinking underlies reading, writing, speaking, and listening. These are the basic elements of communication. Critical thinking also plays an important part in social change. Consider that the institutions in any society - courts, governments, schools, businesses - are the products of a certain way of thinking.

Any organization draws its life from certain assumptions about the way things should be done. Before the institution can change, those assumptions need to be loosened up or reinvented.

Critical thinking also helps us uncover bias and prejudice. This is a first step toward communicating with people of other races and cultures.

Critical thinking is a path to freedom from half-truths and deception. You have the right to question what you see, hear, and read. Acquiring this ability is one of the major goals of a liberal arts education.

Skilled students are thorough thinkers. They distinguish between opinion and fact. They ask powerful questions. They make detailed observations. They uncover assumptions and define their terms. They make assertions carefully, basing them on sound logic and solid evidence. Almost everything that we call knowledge is a result of these activities. This means that critical thinking and learning are intimately linked.

Critically Evaluating the Logic and Validity of Information

Many articles and essays are not written to present information clearly and directly; instead they may be written to persuade you to accept a particular viewpoint, to offer an opinion, to argue for one side of a controversial issue. Consequently, one must recognize and separate factual information from subjective content.

Subjective content is any material that involves judgment, feeling, opinion, intuition, or emotion rather than factual information. Recognizing and evaluating subjective content involves distinguishing between facts and opinions, identifying generalizations, evaluating viewpoints, understanding theories and hypotheses, weighing data and evidence, and being alert to bias.

Evaluating Various Types of Statements

Distinguishing between Facts and Opinions

Facts are statements that can be verified or proven to be true or false. Factual statements from reliable sources can be accepted and used in drawing conclusions, building arguments, and supporting ideas.

Opinions are statements that express feelings, attitudes, or beliefs and are neither true nor false.

Opinions must be considered as one person's point of view that you are free to accept or reject. With the exception of informed ones, opinions have little use as supporting evidence, but they are useful in shaping and evaluating your own thinking.

* Informed opinion or testimony - the opinion of an expert or authority

Recognizing Generalizations

A generalization is a statement made about a large group or class of items based on observation or experience with a portion of that group or class. It is a reasoned statement about an entire group based

on known information about part of the group. It involves a leap from observed evidence to a conclusion which is logical, but unproven. Because writers do not always have the space to describe all available evidence on a topic, they often draw the evidence together themselves and make a general statement of what it shows. But generalizations need to be followed by evidence that supports their accuracy, otherwise the generalization is unsupported and unusable. A generalization is usable when these two conditions exist:

1. Your experiences are sufficient in number to merit a generalization.
2. You have sampled or experienced enough different situations to draw a generalization.

Testing Hypotheses

A hypothesis is a statement that is based on available evidence which explains an event or set of circumstances. Hypotheses are simply plausible explanations. They are always open to dispute or refutation, usually by the addition of further information. Or, their plausibility may be enhanced by the addition of further information. Critical thinking and reading requires one to assess the plausibility of each hypothesis. This is a two-part process. First, one must evaluate the evidence provided. Then one must search for information, reasons, or evidence that suggests the truth or falsity of the hypothesis.

Ask questions such as:

1. Does the hypothesis account for all known information about the situation?
2. Is it realistic, within the realm of possibility and probability?
3. Is it simple, or less complicated than its alternatives? (Usually, unless a complex hypothesis can account for information not accounted for by a simple hypothesis, the simple one has greater likelihood of being correct.)
4. What assumptions were made? Are they valid?

Weighing the Adequacy of Data and Evidence:

Many writers who express their ideas use evidence or data to support their ideas. One must weigh and evaluate the quality of this evidence; one must look behind the available evidence and assess its type and adequacy. Types of evidence include:

- Personal experience or observation
- Statistical data
- Examples, particular events, or situations that illustrate
- Analogies (comparisons with similar situations)
- Informed opinion (the opinions of experts and authorities)
- Historical documentation
- Experimental evidence

Each type of evidence must be weighed in relation to the statement it supports. Evidence should directly, clearly, and indisputable support the case or issue in question.

Evaluating Persuasive Material

While the main purpose of textbooks is to explain and present information that can be accepted as reliable, other sources may have very different purposes. Some materials are intended to convince or persuade rather than to inform, and these sources need to be carefully and critically evaluated. Persuasive writers use both language and logical argument to exert influence.

Recognizing Persuasive Language

A writer's or speaker's choice of facts and the language used to convey them may influence the reader's or listener's response. Careful choice of details to describe an event shapes a reader's perception of the incident. Selective reporting of details is known as slanted writing. Careful choice of words allows one to hint, insinuate, or suggest ideas without directly stating them. Through deliberate choice of words one can create positive or negative responses. This is often accomplished through manipulation of the connotative meanings.

Identifying Biased and Slanted Writing:

Bias is when a statement reflects a partiality, preference, or prejudice for or against a person, object, or idea. Much of what you read and hear expresses a bias. As you read biased material keep two questions in mind:

1. What facts has the author omitted?
2. What additional information is necessary?

Slanting is when a writer or speaker uses a selection of facts, choice of words, and the quality and tone of description, to convey a particular feeling or attitude. Its purpose is to convey a certain attitude or point of view toward the subject without expressing it explicitly. As you read or listen to slanted materials, keep the following questions in mind:

1. What facts were omitted? What additional facts are needed?
2. What words create positive or negative impressions?
3. What impression would I have if different words had been used?

Evaluating Arguments

An argument is a logical arrangement and presentation of ideas. It is reasoned analysis, a tightly developed line of reasoning that leads to the establishment of an end result or conclusion. Arguments are usually developed to persuade one to accept a position or point of view. An argument gives reasons that lead to a conclusion. Analyzing arguments is a complex and detailed process. The following guidelines are useful:

1. Analyze the argument by simplifying it and reducing it to a list of statements.
2. Are the terms used clearly defined and consistently applied?
3. Is the thesis (the point to be made) clearly and directly stated?
4. Are facts provided as evidence? If so, are they verifiable?
5. Is the reasoning sound? (Does one point follow from another?)
6. Are counterarguments recognized and refuted or addressed?
7. What persuasive devices or propaganda techniques does the author use (examples: appeal to emotions, name-calling, appeal to authority)?

Asking Critical Questions

- *What is the source of the material?* Some sources are much more reliable and trustworthy than others; knowledge of the source will help you judge the accuracy, correctness, and soundness of the material. Articles from professional or scholarly journals are often more useful and reliable than articles in newsstand periodicals. To evaluate a source consider:
 - its reputation
 - the audience for whom the source is intended
 - whether references or documentation are provided

- *What are the Author's Credentials?* You must assess whether the material you are reading is written by an expert in the field who can knowledgeably and accurately discuss the topic.
- *Why was the Material Written?* Identify an author's primary purpose. If the author's purpose is to persuade or convince you to accept a particular viewpoint then you will need to evaluate the reasoning and evidence presented.
- *Is the Author Biased?* Does the author display partiality, preference, or prejudice for or against a person, object, or idea?
- *Does the Author Make Assumptions?* An assumption is an idea or principle the writer accepts as true and makes no effort to prove or substantiate.
- *Does the Author Present an Argument?* An argument is a logical arrangement and presentation of ideas. It is reasoned analysis, a tightly developed line of reasoning that leads to the establishment of an end result or conclusion.

Propaganda Techniques

What are Propaganda Techniques? They are the methods and approaches used to spread ideas that further a cause - a political, commercial, religious, or civil cause.

Why are they used? To manipulate the readers' or viewers' reason and emotions; to persuade you to believe in something or someone, buy an item, or vote a certain way.

What are the most commonly used propaganda techniques? See which of the ten most common types of propaganda techniques you already know.

Types:

Name calling: This technique consists of attaching a negative label to a person or a thing. People engage in this type of behavior when they are trying to avoid supporting their own opinion with facts. Rather than explain what they believe in, they prefer to try to tear their opponent down.

Glittering Generalities: This technique uses important-sounding "glad words" that have little or no real meaning. These words are used in general statements that cannot be proved or disproved. Words like "good," "honest," "fair," and "best" are examples of "glad" words.

Transfer: In this technique, an attempt is made to transfer the prestige of a positive symbol to a person or an idea. For example, using the American flag as a backdrop for a political event makes the implication that the event is patriotic in the best interest of the U.S.

False Analogy: In this technique, two things that may or may not really be similar are portrayed as being similar. When examining the comparison, you must ask yourself how similar the items are. In most false analogies, there is simply not enough evidence available to support the comparison.

Testimonial: This technique is easy to understand. It is when "big name" personalities are used to endorse a product. Whenever you see someone famous endorsing a product, ask yourself how much that person knows about the product, and what he or she stands to gain by promoting it.

Plain Folks: This technique uses a folksy approach to convince us to support someone or something. These ads depict people with ordinary looks doing ordinary activities.

Card Stacking: This term comes from stacking a deck of cards in your favor. Card stacking is used to slant a message. Key words or unfavorable statistics may be omitted in an ad or commercial, leading to a series of half-truths. Keep in mind that an advertiser is under no obligation "to give the truth, the whole truth, and nothing but the truth."

Bandwagon: The "bandwagon" approach encourages you to think that because everyone else is doing something, you should do it too, or you'll be left out. The technique embodies a "keeping up with the Joneses" philosophy.

Either/or fallacy: This technique is also called "black-and-white thinking" because only two choices are given. You are either for something or against it; there is no middle ground or shades of gray. It is used to polarize issues, and negates all attempts to find a common ground.

Faulty Cause and Effect: This technique suggests that because B follows A, A must cause B. Remember, just because two events or two sets of data are related does not necessarily mean that one caused the other to happen. It is important to evaluate data carefully before jumping to a wrong conclusion.

Errors of Faulty Logic

Contradiction: Information is presented that is in direct opposition to other information within the same argument.

Example: If someone stated that schools were overstaffed, then later argued for the necessity of more counselors, that person would be guilty of contradiction.

Accident: Someone fails to recognize (or conceals the fact) that an argument is based on an exception to the rule.

Example: By using selected scholar-athletes as the norm, one could argue that larger sports programs in schools were vital to improving academic performance of all students.

False Cause: A temporal order of events is confused with causality; or, someone oversimplifies a complex causal network.

Example: Stating that poor performance in schools is caused by poverty; poverty certainly contributes to poor academic performance but it is not the only factor.

Begging the Question: A person makes a claim then argues for it by advancing grounds whose meaning is simply equivalent to that of the original claim. This is also called "circular reasoning."

Example: Someone argues that schools should continue to have textbooks read from cover to cover because, otherwise, students would not be well-educated. When asked to define what "well-educated" means, the person says, "knowing what is in the textbooks."

Evading the Issue: Someone sidesteps and issue by changing the topic.

Example: When asked to say whether or not the presence of homosexuals in the army could be a disruptive force, a speaker presents examples of homosexuals winning combat medals for bravery.

Arguing from Ignorance: Someone argues that a claim is justified simply because its opposite cannot be proven.
Example: A person argues that voucher programs will not harm schools, since no one has ever proven that vouchers have harmed schools.

Composition and Division: Composition involves an assertion about a whole that is true of its parts. Division is the opposite: an assertion about all of the parts that is true about the whole.
Example: When a school system holds up its above-average scores and claims that its students are superior, it is committing the fallacy of division. Overall scores may be higher but that does not prove all students are performing at that level. Likewise, when the military points to the promiscuous behavior of some homosexuals, it is committing the fallacy of composition: the behavior of some cannot serve as proof of the behavior of all homosexuals.

Errors of Attack

Poisoning the Well: A person is so committed to a position that he/she explains away absolutely everything others offer in opposition.
Example: Almost every proponent and opponent on the ban on gays in the military commits this error.

Ad Hominem: A person rejects a claim on the basis of derogatory facts (real or alleged) about the person making the claim.
Example: Someone rejects President Clinton's reasons for lifting the ban on gays in the military because of Mr. Clinton's draft record.

Appealing to Force: Someone uses threats to establish the validity of the claim.
Example: Opponents of year-round school threaten to keep their children out of school during the summer months.

Errors of Weak Reference

Appeal to Authority: Authority is evoked as the last word on an issue.
Example: Someone uses the Bible as the basis for his arguments against specific school reform issues.

Appeal to the People: Someone attempts to justify a claim on the basis of popularity.
Example: Opponents of year-round school claim that students would hate it.

Appeal to Emotion: An emotion-laden "sob" story is used as proof for a claim.
Example: A politician uses a sad story of a child being killed in a drive-by shooting to gain support for a year-round school measure.

Developing the Ability to Analyze Historical and Contemporary Information

- Apply understanding & knowledge of past events to new situations
- Identify cause and effect relationships
- Practice problem solving through the use of analogies

Synthesizing Information

Synthesis is creating something new from a number of different sources. Synthesizing information is a process of examining and inferring relationships among sources and then making those relationships explicit. Synthesis is also a process of combining information and ideas to create or develop a new idea, focus, or perspective. An effective way to integrate and synthesize information is to recognize and use four particular thought patterns. These include:

- **Cause-effect** - expresses a relationship between two or more actions, events, or occurrences that are connected in time.
- **Comparison-contrast** - the comparison pattern is used to emphasize or discuss similarities between or among ideas, theories, concepts, or events, while the contrast pattern emphasizes differences.
- **Problem-solution** - defines a problem and conducts research to test possible solutions.
- **Classification** - organize information into broad types or categories.

Using Analogies

The use of analogies to understand and interpret situations is another method for analyzing information. Using analogies requires one to identify similar problems or situations and compare them with the problem at hand. The use of analogies enables one to learn from the experiences of others.

Some guidelines to follow are:

1. How are the situations alike?
2. How are they different?
3. How well does the analogy apply to your situation?
4. What does it suggest that you do?

Recognize & Value Various Viewpoints

- Identify an individual's values and biases (including your own)
- Explore issues from multiple perspectives & understand multiple perspectives
- Examine your existing beliefs, attitudes, and opinions. Why do you think so? What evidence do you have to support that opinion?

Evaluating differing viewpoints is an essential critical thinking skill because it enables you to pull together divergent ideas and integrate differing, even contradictory, sources. The skill is valuable as you research papers, examine social and political issues, and resolve controversy.

Suggestions:

- Deliberately put aside or suspend temporarily what you already believe about a particular issue.
- Discover what similarities and differences exist among the various viewpoints.
- Identify the assumptions on which each view is based.
- Look for and evaluate evidence that suggests the viewpoint is well thought out.
- To overcome the natural tendency to pay more attention to points of view with which you agree and treat opposing viewpoints superficially, deliberately spend more time reading, thinking about, and examining ideas that differ from your own.
- To analyze particularly complex, difficult, or very similar viewpoints, write a summary of each. Through the process of writing, you will be forced to discover the essence of each view.

Appreciate the Complexities Involved in Decision-Making & Problem Solving

- Develop evidence to support views
- Analyze situations carefully
- Discuss subjects in an organized way
- Predict the consequences of actions
- Weigh alternatives
- Generate and organize ideas
- Form and apply concepts
- Design systematic plans of action

A 5 Step Problem Solving Strategy

1. Specify the problem - a first step to solving a problem is to identify it as specifically as possible. It involves evaluating the present state and determining how it differs from the goal state.
2. Analyze the problem - analyzing the problem involves learning as much as you can about it. It may be necessary to look beyond the obvious, surface situation, to stretch your imagination and reach for more creative options.
 - seek other perspectives
 - be flexible in your analysis
 - consider various strands of impact
 - brainstorm about all possibilities and implications
 - research problems for which you lack complete information. Get help.
3. Formulate possible solutions - identify a wide range of possible solutions.
 - try to think of all possible solutions
 - be creative
 - consider similar problems and how you have solved them
4. Evaluate possible solutions - weigh the advantages and disadvantages of each solution. Think through each solution and consider how, when, and where you could accomplish each. Consider both immediate and long-term results. Mapping your solutions can be helpful at this stage.
5. Choose a solution - consider 3 factors:
 - compatibility with your priorities • amount of risk
 - practicality

Keys to Problem Solving

- Think aloud - problem solving is a cognitive, mental process. Thinking aloud or talking yourself through the steps of problem solving is useful. Hearing yourself think can facilitate the process.
- Allow time for ideas to "gel" or consolidate. If time permits, give yourself time for solutions to develop. Distance from a problem can allow you to clear your mind and get a new perspective.
- Talk about the problem - describing the problem to someone else and talking about it can often make a problem become more clear and defined so that a new solution will surface.

Decision Making Strategies

Decision making is a process of identifying and evaluating choices. We make numerous decisions every day and our decisions may range from routine, every-day types of decisions to those decisions which will have far reaching impacts. The types of decisions we make are routine, impulsive, and reasoned.

Deciding what to eat for breakfast is a routine decision; deciding to do or buy something at the last minute is considered an impulsive decision; and choosing your college major is, hopefully, a reasoned decision. College coursework often requires you to make the latter, or reasoned decisions.

Decision making has much in common with problem solving. In problem solving you identify and evaluate solution paths; in decision making you make a similar discovery and evaluation of alternatives. The crux of decision making, then, is the careful identification and evaluation of alternatives. As you weigh alternatives, use the following suggestions:

- Consider the outcome each is likely to produce, in both the short term and the long term.
- Compare alternatives based on how easily you can accomplish each.
- Evaluate possible negative side effects each may produce.
- Consider the risk involved in each.
- Be creative, original; don't eliminate alternatives because you have not heard or used them before.

An important part of decision making is to predict both short-term and long-term outcomes for each alternative. You may find that while an alternative seems most desirable at the present, it may pose problems or complications over a longer time period.

Being a Responsible Critical Thinker and Collaborating with Others

- Construct and evaluate arguments
- Furnish support for one's beliefs
- Assume responsibility for one's actions
- Collaborate with the members of a group
- Share obligations
- Listen and communicate with others

In the settings of college, the workplace, and the community the ability to work with other people in group projects is an increasingly important skill to develop. As adults, we are often required to be able to critically read and evaluate written and oral communication, as well as to communicate our own ideas in a respectful and effective manner. However, collaborating with other people can be a difficult task, especially if one is unaware of effective communication skills. Following are some suggestions for developing those skills needed to be an effective critical thinker and collaborator.

- When evaluating information and arguments, be wary of biased and slanted language but keep an open mind to the ideas and opinions of others. Too often we close our minds when faced with opinions or information with which we don't agree. Practice being a critical but open-minded listener. Use patience and respect while listening to others' ideas.
- As a critical thinker you should critically evaluate the arguments of others, but this also means you have the responsibility of constructing your own arguments so they are unbiased and supported with credible evidence. It is good to have beliefs, but remember to support your opinions.
- Another responsibility one has as a critical thinker is to take responsibility for one's actions. Everyone makes mistakes and it is a responsible person who acknowledges his/her error and learns from it. A person who accepts responsibility for her/his arguments and actions builds integrity in the eyes of others, and a person with integrity is often respected and listened to.
- Finally, group collaboration requires a commitment to shared obligations. For group work to be effective all members must contribute equally to the problem task. Successful teamwork entails full participation by all members and not just a dedicated few.

The qualities of a critical thinker are truth-seeking, open-minded, analytical, systematic, self-confident, inquisitive, and mature.

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