Think Critically and Recognize Logical Fallacies

Thursday, January 26, 2017 @ 7 pm ET
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Key Concepts

- Critical Thinking
- Writing as a Tool for Critical Thinking
- Thinking Critically to Understand Argument
- The Elements of Argument
- Recognizing Logical Fallacies
- Resources

In this workshop, we will look at some key concepts of critical thinking. We will define it and learn why it's an essential tool for college-level writing and for understanding argument. Specifically, we will examine the elements of argument in order to recognize logical fallacies. Before we conclude, I'll also provide you with links to resources and tutoring services where you can learn more about critical thinking and logical fallacies.
What is Critical Thinking?

College writing should demonstrate critical thinking, so it is important to understand what critical thinking is. Many assume that being critical means being negative and attacking another's thinking or another’s argument for the sake of being critical. But just as an “argument” in writing is not a fight between people with differing views but a discussion to reach consensus and understanding, critical thinking is also a positive, intentional act that can be used in all areas of your life to grow and learn.
What is Critical Thinking?

Paul and Elder (2009) who authored the *Critical Thinking Guide* for the Foundation for Critical Thinking define critical thinking as “the art of analyzing and evaluating thinking with a view to improving it” (p. 2). In my Successful College Writing workshop in November of 2016, I described college writing as a conversation, one that builds on existing knowledge. Critical thinking is how college writers do that, how they build on knowledge. They look at the arguments of others: their conclusions, thinking and reasoning, their evidence, and the underlying validity or credibility of the arguments, and they question and analyze them in order to understand the argument and to prompt their own research and insights on the topic or issue.

Critical thinking is not something we do instinctively. We are instinctively biased because of our personal experiences and beliefs. We have to practice thinking critically, regularly.
What is Critical Thinking?

Critical thinking involves carefully and rationally digesting and responding to arguments—ideas and texts—using logic and reasoning and being able to show or explain how you arrived at your conclusions and understanding. Going back to the idea that college writing is a conversation, critical thinking is what enables you to continue that conversation and start new ones.
In college, writing is your primary and most important tool for thinking critically. The act of writing stimulates thinking. But thinking critically as you write does require intent and self discipline. You have to pay attention to what you are writing and question it; otherwise biases from our egocentric views will seep in. As you write, seek to be unbiased and truthful about what you are saying. As novelist Ernest Hemingway said, “Write the truest sentence that you know.” I recommend doing that every time. Writing helps us see what we know and think; therefore, it helps us see through our biases. Novelist E. M. Forster famously said, “How can I know what I think until I see what I say?” Most writers would agree the act of writing is a stimulus to thinking, and when we think critically, we can also improve our thinking.
Critical Thinkers and Writers . . .

Here is a partial list of activities that critical thinkers, especially students, must engage in constantly when they read, write, and evaluate their own reasoning or research and that of others: They ask questions, seek answers, evaluate evidence, question assumptions, test hypotheses, make inferences, employ logic and reasoning, draw conclusions, predict readers’ responses, create order, draft and revise, think open-mindedly and from various points of view, weigh feedback, criticize their own work, and seek clarity and coherence.
The Importance of Critical Thinking

Engaging in critical thinking is not just to fill our heads with thoughts, however. The goal is to improve our thinking, and that begins with understanding argument.
What is an argument?

Argument is how ideas are advanced and problems get solved. Argument is fundamental to learning and being an informed citizen. Argument is commonly thought to be a disagreement or fight between people, but in the context of thinking and writing, an argument is:

- a course of reasoning aimed at demonstrating truth or falsehood; for example, someone can argue that extraterrestrial life exists or that alkaline foods are more effective at preventing cancer than acidic foods.

- An argument can also be a fact or statement put forth as proof or evidence or a reason; for example, one could argue that low mortgage rates are a reason for buying a house now.

- An argument may also be a set of statements in which one follows logically as a conclusion from the others. In the cartoon on the slide, a cat is using a series of calculations to arrive at the conclusion that cats are better than dogs. While this is meant to be comical, it’s an example of the type of logic that is used to arrive at conclusions and make claims.

Every day we are presented with dozens of arguments that purport to be factual. Every day we must evaluate these claims and decide what we think about them—
not only whether we agree with them or not, but also whether we think they are valid and true. In persuasive writing, you must also be able to evaluate the arguments that you read in outside sources. When we evaluate, we are thinking critically.
The Elements of Argument

Thinking critically begins with identifying the elements of an argument. Every argument has a claim, grounds, warrant, and backing. Whether you are reading a scientific article or your textbook, watching the news, reading a headline in your Facebook feed, or reading an advertisement—these are the elements at work.
The Elements of Argument

Every argument has a claim. This is the assertion that the writer wants readers to understand or believe. An example is the statement, “Strong readers are typically more effective writers.” This statement makes an argument because it is arguable—some might disagree with it. Therefore, there needs to be proof to support it and logical reasoning that links the proof to the claim, and we will get to those elements of an argument next. First, I want to point out that this claim contains qualifications. Qualifications are words that limit statements, so they are more logical and therefore truer. Qualifications are very important to avoiding a logical fallacy, which we will also look at shortly.

For example, the word “typically” is a qualification. Without it, the claim would state that “Strong readers are more effective writers,” which implies ALL strong readers are more effective writers, but this would be impossible to prove, so it’s an illogical statement. There are always exceptions and variables that can disprove blanket statements like that. So “typically” allows for those exceptions.

Also the comparison word “more” qualifies or limits the claim to make it more valid. It limits the claim to focus on readers and non readers only, again allowing for exceptions or other factors besides reading that could influence writing skills and
that won’t be addressed in this discussion about readers and non readers. Without qualifications, a claim can quickly become illogical or fallacious.
The Elements of Argument

The grounds of an argument are the data, evidence, research, reasoning, and support that prove the claim is valid or true. The grounds for the claim that “Strong readers are typically more effective writers” might be that readers consistently receive higher essay grades than non readers do. This argument would also need to explain how the data was collected and how readers and nonreaders were separated for the grading. Facts and information like this are part of the grounds or evidence that supports the claim.

When it comes to grounds though, we have to think critically to recognize our existing biases. For example, if I read an article that is claiming coffee is bad for me, I’m going to need extensive, reliable, and relevant evidence (or grounds 😊) before I stop drinking it. On the other hand, if I read an article that says coffee is good for me, it’s not going to take much to prove it to me since I love coffee, which goes to the next part element of the argument—the warrant.
The Elements of Argument

A warrant is an underlying belief or value shared by the writer and the readers that the grounds are relevant to the claim. Fallacious arguments are often the result of proof that is irrelevant or unfounded. An effective argument is based on a legitimate connection between the grounds and the claim and oftentimes, shared values. In the example, if higher essay grades are what prove stronger readers are more effective writers then the warrant or shared value is that grades are a reliable and acceptable way to measure writing skills. This argument would fail if the readers didn’t share that assumption such as if they were from another school of thought in which grades were not a reliable measure of writing skills.

Warrants are not usually stated in an argument; they are assumed, but they are central to the credibility of the argument, and they will also have some grounding or backing that substantiates the assumption.
The Elements of Argument

For example, the assumption or warrant that essay grades are an acceptable measure of writing skills is that grades have historically been used in Western education to measure skills, for grades are derived from the expert evaluation of standardized rubric criteria by credentialed professors.

But if the reader doesn't share the same value or accept the warrant, or the evidence is lacking, or the claim is illogical, the argument will not succeed in its purpose to inform or persuade. Or, it will, and you will be misled. Arguments will often have holes in them or logical fallacies, so it's important to use your critical thinking skills before accepting any claim.
Logical Fallacies

Logical fallacies are errors or flaws in reasoning that undermine an argument’s logic, credibility, or validity. There are many types of fallacies, and many boil down to false claims based on incorrect assumptions and biases. Sometimes logical fallacies are unintentional and come from being so emotional about a topic that logic is ignored—like I love coffee so much that I might ignore facts showing that it’s bad for me. And sometimes logical fallacies are intentional in order to direct the reader’s attention away from the facts or holes in the logic.
Logical Argument or Fallacy?

Let’s look at an argument and determine if there are any errors in the reasoning:

Teens wearing T-shirts with offensive messages on them were hanging out behind the gymnasium. Allowing teens to wear offensive T-shirts leads to teens smoking marijuana behind the gym. **Banning T-shirts with offensive messages on them will prevent teens from smoking marijuana.**

Logical or logical fallacy?

This is an example of a slippery slope fallacy.
A slippery slope fallacy is an argument that assumes one thing happening will cause a domino effect leading to some extreme, hypothetical outcome. A slippery slope fallacy lacks the grounds or proof of the outcome. In the example, there is no real proof that smoking marijuana is the result of wearing offensive t-shirts. The argument wrongly assumes that there is a link between the teen’s clothing and their behavior when that is something that would need solid evidence. If the reader already has a bias against teens wearing offensive T-shirts, he or she might be misled by this argument. When thinking critically, it’s important not to buy into a claim simply because of a bias. This argument is meant to appeal to people’s fears as it does not argue with facts.
Logical Argument or Fallacy?

Here is another argument. Is it logical or a logical fallacy?

Childhood obesity is a serious social problem that could be curtailed by limiting children’s access to junk food. Vending machines selling junk food should therefore be banned in schools. Some children cannot even afford vending machine snacks at school.

While the argument starts out logically, this is an example of a red herring fallacy.
A red herring fallacy is flawed reasoning that uses irrelevant information as grounds for an argument. Whether or not children can afford the vending machine snacks might be another reason to ban vending machines, but it is irrelevant to the topic of obesity, which is the problem that the ban on vending machines was meant to address. Bringing the socio-economic status into the argument diverts attention away from the main argument about obesity and may lead readers to a false conclusion about the cause of the problem.
Logical Argument or Fallacy?

Here’s another example:

Senator Johnson’s new tax bill will benefit this state by saving tax payers money, but I oppose the bill because Johnson has been divorced five times, and he may be charged with fraud in the future.

The argument here is that the bill shouldn’t be supported because of the senator’s personal life and a hypothetical future outcome similar to the slippery slope.

This is called an ad hominem fallacy.
Ad Hominem Fallacy

- “Against the person”
- Based on irrelevant grounds meant to undermine the claim but the grounds do not address the claim but rather, the person making it.
- Lacks warrant linking grounds to claim

Ad Hominem Fallacy

Ad hominem is Latin for “against the person.” An ad hominem fallacy is an argument based on irrelevant grounds meant to undermine the claim, but the grounds do not address the claim at all but rather, the person making it. This type of argument lacks grounds as well as a logical warrant that would link the grounds to the claim. However, if readers already had a bias against the person, they could be easily misled and not support a tax bill that would in fact benefit them.
Logical Argument or Fallacy?

Here is one more: Smoking cannot be that harmful; my uncle smoked a pack of cigarettes a day for over 80 years, and he never got cancer. In fact, he lived 99 years.

What's the fallacy here?

This is called an anecdotal fallacy.
Anecdotal Fallacy

- The misuse of a personal, singular, or unusual example to make a general rule or prove a claim
- Grounds exclude or ignore counterexamples
- Warrant wrongly assumes the grounds are typical or common.

Anecdotal Fallacy

An anecdotal fallacy is the misuse of a personal, singular, or unusual example to make a general rule or prove a claim. The grounds exclude or ignore counterexamples, and the warrant wrongly assumes the grounds are typical or common.
For more examples of logical fallacies and further discussion on critical thinking and writing, refer to the following resources in the Writing Center. Click each of the links to open the page in your browser and save for later.

**Writing to Think: Critical Thinking and the Writing Process**

Hasty Generalizations and Other Logical Fallacies

Support an Argument and Avoid Logical Fallacies

Name that Logical Fallacy Worksheet
To conclude, here are the “intellectual standards” for critical thinking from The Foundation for Critical Thinking (https://www.criticalthinking.org/): “In your reading and writing, always seek clarity, accuracy, relevance, logicalness, breadth, precision, significance, completeness, fairness, and depth” (Paul & Elder, 2009, p. 19).

Thank you very much for attending this webinar. As I advance through the final slides showing the references and how to access the Writing Center, please take our student survey. Thanks again!
Reference

The resources on critical thinking and more are also available in the Writing Resources area of the Academic Support Center. Begin by selecting Academic Support Center under the My Studies tab.
The Resources are under the heading Manage Your Studies and Time. Other Writing Center services include Connect with a Tutor, Submit a Paper or Question, Webinars, and more. Notice, you can access the Kaplan Guide to Successful Writing on the left hand side in both print and audio form.
Workshops are recorded and recording links, with an accompanying PowerPoint, are posted on the Writing Center Workshops page after the workshop.

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