CRITICAL THINKING

Principles for Analysis

What is critical thinking?

- Critical thinking is a skill required by researchers to evaluate what they hear and read, and to assess what they put out for other people to hear and read.

Principle 1: Meaning, Clarity of Language, Accuracy of Language, and Definitions

The researcher must be conscious of language when both critically reading research material and writing critical research papers.

Meaning

- Attention to the meanings of words is crucial when examining or making statements because it helps us to determine what the reasoning involved in them is.

Clarity of Language

- A researcher has the responsibility of making clear to his or her readers what precisely he or she is referring to so that they can judge what is written for themselves.

Accuracy of Language

- A researcher has the responsibility to use the correct language within an argument. Using either "extreme" words or words out of context can result in perceived bias.

Definitions

- Attention to the definition of a word is crucial when examining or making statements because it helps us to understand what the researcher is arguing.

Principle 2: The Reliability of Premises and Conclusions

Premise

- The premises are the support structures that provide the reason or evidence for the claim.

Conclusion

- The conclusion is the claim that the researcher is making.

When analyzing arguments the researcher must be able to extract both the conclusion of an argument, and the supporting structure that leads to the conclusion, from the argument itself. Once the researcher has this information, he or she can commence to evaluate the information to determine the acceptability of each premise and the final conclusion.

Principle 3: Standardizing Arguments

Standardizing an argument can assist a researcher in evaluating both the premises and the conclusion.

Logical Order

- Sometimes the order from premise to premise to conclusion is not ordered in a coherent way. Extracting the premises and conclusion and placing them in a logical order can assist the researcher in evaluating the argument.

Clusters

- Sometimes an argument can contain multiple premises that relate to more than one conclusion.
  Extracting the premises and conclusions and grouping them into their separate arguments can assist the researcher in evaluating each argument.

Implied Conclusions

- Sometimes an argument will list its supporting structure but will not state its conclusion. Standardizing the premises can assist the researcher in determining what the conclusion may be.

Missing Premises

- Sometimes an argument will not accurately list its supporting structure leading to its conclusion.
  It becomes the researcher's responsibility to determine what the missing premise may be in order to evaluate the argument.

Principle 4: Evaluating Deductive and Non-deductive Arguments

Deductive Arguments

- The premises are true and the conclusion following from these premises is guaranteed to be true.

To evaluate a deductive argument, the researcher must determine whether the argument is incoherent, coherent, or good. **Incoherent** arguments occur when the conclusion does not follow from the premises. **Coherent** arguments occur when the conclusion follows from the premises but these premises are not acceptable. A **good** argument is when the conclusion follows from the premises and these premises are acceptable.

Non-deductive Arguments

- The premises are true but the conclusion following from these premises is not guaranteed to be true.

To evaluate a non-deductive argument, the researcher must determine whether the argument is created using inductive reasoning, an analogy, from cause, or from an authority. Inductive reasoning occurs when an arguer uses examples, information, or statistics to support a conclusion that is a generalization of an extrapolation from them. An analogy occurs when an arguer uses a significant similarity between things that are different as a premise to support a conclusion. Arguments from cause occurs when an arguer identifies an effect that she or he claims results from or will result from a cause. Arguments from an authority occurs when an arguer uses an argument from an authority or expert as premises to support a conclusion. These methods of creating non-deductive arguments are

all legitimate, but weaknesses in the methodology or interpretation of the statistics, the similarities of the analogies, the correlation between the cause and the effect, or the legitimacy of the authority must be evaluated to determine whether the overall argument is valid.