



ENGINEERING: WHY ENGINEERS COMPARE & HOW TO WRITE ABOUT IT



Explanation

Engineers are problem solvers. They analyze the problems that people face and they try to determine ways in which they can help. There is almost always more than one possible way to address a problem. For example, if the problem statement is: “Global carbon emissions are extremely high and destroying the planet,” then many different approaches might be able to improve this unacceptable situation.

Consequently, engineers must consider different options to address the problem, evaluate these options, and determine the best one. Usually this evaluation involves comparing competing options based on criteria, objectives, and constraints. For example, if the objective is “to improve energy efficiency,” then engineers will need to evaluate the different options and determine which one is the most energy efficient choice.

Adjectives for Comparing

When evaluating competing ideas based on multiple objectives and constraints, it is important to use words that *compare* these ideas by highlighting their *similarities* and *differences*. Which one is the best, and *why*?

Words like “amazing” or “awesome” are not very convincing because they are difficult to measure or prove. However, words like “efficient” and “effective” can be more persuasive, as long as they are supported by evidence (e.g. “Studies show that <Option X> is the most efficient because <reason>...”).

Adjectives that are Less Convincing	Adjectives that can be More Convincing
<i>awesome, amazing, astounding, astonishing, extraordinary, fantastic, incredible, magnificent, miraculous, phenomenal, spectacular, unbelievable, wonderful, etc.</i>	<i>advantageous, beneficial, effective, efficacious, efficient, functional, helpful, logical, powerful, productive, reasonable, sound, strong, successful, useful, valid, valuable, etc.</i>

3 Warnings:

- (1) These adjectives are *not* all synonyms, so be sure to *look up the meanings of words before using them*.
- (2) This list includes *some*, but not *all*, of the (more) convincing comparative adjectives available.
- (3) These adjectives are only convincing when they are combined with evidence to support claims.

Some Sentence Structures for Comparing

X is more _____ than Y because _____ <explain> _____ .
(e.g. effective)

Although Y _____ , X _____ .
(e.g. is somewhat helpful) (e.g. is more useful because...)

Whereas Y _____ , X _____ .
(e.g. was only able to...) (e.g. is superior because it can...)

Y _____ <can do what?> _____ , but X _____ .
(e.g. is able to accomplish more by...)

Y was only able to _____ <do what?> _____ , X proved that it could...
(e.g. However/Conversely/In contrast/By comparison)

