

The Misguided Search for the “Magic Bullet.”



What Factors affect Academic Achievement in College

Studying
Completing homework
Attending class
Keeping up with reading
Keeping a schedule
Forming a study group
Sitting in the front
Being engaged in class



Small Differences are Still Important

Is one variable the most important?

Can the one most important cause of
academic achievement be identified?

Of what value is it to identify it?

When our old Nemesis rears its head.....

Due to pre-existing
biases or highly
emotional
subjects..

We tend to forget or
ignore the principle
of multiple
causation.

And fall pry to...



The Temptation of the Single Cause Explanation



Small Differences are Still Important

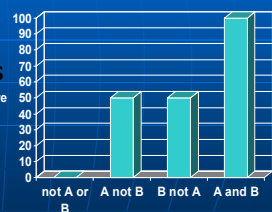
Is one variable ever the cause of anything in psychology?

One variable which accounts for a greater proportion of the behavior of interest may be the *most important*

But only all the variables **TOGETHER** rather than them **SEPARATELY** can best account for the behavior

The Concept of Additivity

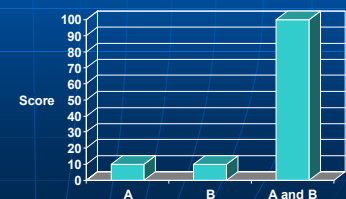
Sometimes multiple Variables (A and B) may work **ADDITIVELY** to affect an outcome. In such cases the variables are called additive, as the case on the right, where the presence of each variable is associated with the score increasing 50 points.



The Concept of Interaction

Sometimes multiple Variables (A and B) may work **interactively** to affect an outcome. In such cases the variables are called interactive because the influence of one depends on the status of another variable

The graph shows an interactive effect of variables A and B. The influence of variable A on the score depends on the presence of variable B and vice versa.



THUS

The concept of multiple causes involves even more complexities than you might have thought at first. Not only is it necessary to track down and measure the many individual factors that may influence the behavior in question, but it is also necessary to investigate how these factors interact.

For Example....

A farmer that in debt kills banker and himself...

WHY?

A inner city resident kills someone...

WHY?

What is the difference?



To Top it Off...

All of the complex problems that psychologist analyze are multiply determined!!