

General Electric Illumination Study

💡 General Electric (GE) funded the National Research Council (NRC) of the National Academy of Sciences to study how worker productivity is tied to lighting during a 1924 illumination study. What do you think the NRC concluded?

- a) Turn up the lighting slightly (but noticeably) and productivity goes up
- b) Dim the lighting slightly (but noticeably) and productivity goes up
- c) Productivity stays the same in both cases
- d) Productivity goes up in both cases
- e) Productivity goes down in both cases

General Electric Illumination Study

💡 General Electric (GE) funded the National Research Council (NRC) of the National Academy of Sciences to study how worker productivity is tied to lighting during a 1924 illumination study. What do you think the NRC concluded?

- a) Turn up the lighting slightly (but noticeably) and productivity goes up
- b) Dim the lighting slightly (but noticeably) and productivity goes up
- c) Productivity stays the same in both cases
- d) Productivity goes up in both cases
- e) Productivity goes down in both cases

No fair, you changed the outcome by measuring it! [from *Futurama* about the Heisenberg uncertainty principle]

Why do Birds Fly South?

Many cause/effect statements are flawed because no appropriate research or evidence has isolated a single cause. There may be other hidden factors underlying the relationship. A good example is this statement: “Birds fly south in winter because it gets cold in northern areas.” This statement is plausible, and many readers would accept it because it “makes sense.” Data exist to show a relationship between temperature and bird population density: population decreases as temperature decreases. However...

Quotation from *TAKING SIDES: Clashing Views in Science and Technology*

💡 For Discussion:

- What are other possible underlying variables/confounding issues here?
- Can you think of experiments? What makes good experiments on this issue difficult?

Why do Birds Fly South?

However no experiment has conclusively established that temperature is a causative factor of bird migration. Alternative hypotheses may very well also explain the behavior. Food supplies may become scarce during low-temperature periods, breeding instincts may precipitate migration, or the birds may simply want a change of scenery! If sufficiently controlled experiments could rule out these alternative hypotheses, the cause/effect statement could be made. As it is, a simple correlation (statement of coincidence) is all that remains.

Marijuana and Cognition?

I found "college etiquette" tips on various university webpages and adapted them from:

http://www.ehow.com/how_2067800_behave-college-class-discussion.html;

<http://www.mcb.arizona.edu/undergraduates/CollegeEtiquette.pdf>;

<http://www.blinn.edu/natscience/phillips/test-tips.htm>;

<http://history.hanover.edu/courses/excerpts/234etiquette.html>;

<http://www.dailyprincetonian.com/archives/2005/10/06/opinion/13344.shtml>;

http://www.ppslc.com/college_success.php;

<http://www.springerlink.com/content/hx62g0813745q908/>; and

http://www.reslife.okstate.edu/handbook/sub_success.html

💡 For discussion: Studies have found that college students who used marijuana regularly had impaired skills related to attention, memory, and learning 24 hours after the last use.

- What are some confounding issues?
- Can you think of experiments? What makes good experiments on this issue difficult?

Marijuana and Cognition?

I found "college etiquette" tips on various university webpages and adapted them from:

http://www.ehow.com/how_2067800_behave-college-class-discussion.html;

<http://www.mcb.arizona.edu/undergraduates/CollegeEtiquette.pdf>;

<http://www.blinn.edu/natscience/phillips/test-tips.htm>;

<http://history.hanover.edu/courses/excerpts/234etiquette.html>;

<http://www.dailyprincetonian.com/archives/2005/10/06/opinion/13344.shtml>;

http://www.ppslc.com/college_success.php;

<http://www.springerlink.com/content/hx62g0813745q908/>; and

http://www.reslife.okstate.edu/handbook/sub_success.html

💡 For discussion: Studies have found that college students who used marijuana regularly had impaired skills related to attention, memory, and learning 24 hours after the last use.

- What are some confounding issues?
- Can you think of experiments? What makes good experiments on this issue difficult?

Bradford-Hill formalized methodology for clinical trials via 9 criteria to obtain reasonable certainty without proof