

Math 156: Observational vs. Experimental Studies

Observational Study:

In an **observational study**, the researcher observes what is happening or what has happened in the past and tries to draw conclusions based on those observations.

Experimental Study:

In an **experimental study**, the researcher manipulates (changes) one of the variables and tries to determine how the manipulation influences other variables.

Examples: State whether the following studies are observational or experimental. Explain your reasoning briefly.

1. Sixty patients with carpal tunnel syndrome are randomly divided into two groups. One group is given acupuncture and an exercise regimen. The other group is given only the exercise regimen. After one year, both groups are questioned about their level of pain due to carpal tunnel.

experimental, because researchers changed one variable and then measured the effect

2. Conservation researchers netted 250 large-mouth bass (a type of fish) in a lake and determined how many were carrying parasites.

observational, because researchers made a measurement without changing a variable beforehand

3. Coffee stations in offices often ask users to leave money to pay for their coffee. Researchers at Newcastle University replaced the picture of flowers on the wall behind the coffee station with a picture of staring eyes. They found that the average contribution increased significantly above the well-established standard.*

experimental, because researchers changed the picture and then measured the effect

* Further studies to replicate the results of this experiment have not yielded the same results.