

CONFOUNDING: Describes a situation where there is a change in the behavior of the Output (Y) while two or more of the input variables (X's) are changing at the same time.

With this simultaneous movement of the X's It makes it impossible to isolate which X is really causing the effect on the Y.

Illustration: Shoe Company Executives

Two executives at a small shoe company are debating about the best way to improve business.

The CEO says, "Let's paint the building pink to attract attention and install a huge electronic billboard to advertise/communicate."

The VP of Marketing responded, "I think a massive media blitz (TV, Radio, Newspaper, etc.) would be a better idea."

They both run off and implement their own initiatives. At the end of the month, they notice business is suddenly booming.

Well, who did it?

More Examples of Confounding

- “I have seen a dramatic reduction in scrap since I began teaching and implementing Six-Sigma tools on the factory floor!” However, this is exactly the same time frame that HR introduced its new reward and recognition system. What caused the improvement?
- Sulfur and Molasses were once used together as a cure for spring fever -- and the combination worked. Although the purpose of the molasses was simply to cover up the taste of the sulfur, scientists later discovered that sulfur had nothing to do with it -- molasses was the key ingredient. Relying on correlations, they could not have found this, since the two went together.

- Unsafe At Any Speed:

In 1967, a crusader branded a particular type of car as unsafe. This particular model was a small, sporty job with high performance. But what kind of drivers would we expect to be attracted to such a car? What if I told you that the majority of owners tended to be under age 25 -- young drivers with young ideas. Isn't this age group charged higher insurance premiums due to higher accident rates?

As obvious as this partial confounding of driver types and car types might be, it wasn't until January 1968 that it was first mentioned by the news media (when J.S. Baker, a Northwestern University traffic expert, pointed it out).