

Three and a half Steps to Statistical Success

Three...No, Four...Well, Actually

The work of statisticians, like that of investigators in other fields, is guided by principles. This article summarizes the three-and-a-half first principles that guide all successful working statisticians and data analysts.

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Introduction

Like all other true sources of knowledge, i.e., hard sciences (vis-a-vis the faux sciences, such as psychology and sociology), there are certain First Principles that guide the intrepid statistician in his holy quest. This article serves to summarize these First Principles in much the same way as Moses summarized the laws of organized society over 6,000 years ago last April.

In this paper, we will outline the three, no four, well, actually three and a half First Principles that guide all successful "working statisticians", i.e., those statisticians paid to actually do something as opposed to those paid to write about what they could do or, worse yet, those paid to teach others to write about what they could do, if they were but willing to sulley their hands by entering the real world. In other words, this paper is not for statisticians at all, but rather data analysts of all stripes and persuasions, who despite checkered academic backgrounds and the occasionally complete lack of aptitude altogether, find themselves charged with discovering answers to very real business problems within the mystical confines of a data set of questionable heritage.

These First Principles can be summarized as follows:

Seek Truth and Meaning, Find it and then
Tell Someone Who Can Do Something About It.

The diligent data monger who follows these rules religiously will undoubtedly find money, fame and nasty women as his reward (If you happen to be a female data monger, you may substitute the word "men" for "women" in the preceding phrase, unless, of course, you are the type of female data monger that prefers nasty women to nasty men. That's your business, not mine. Ditto for the male data mongers, of course. But I really didn't want to get into all that here. As the statisticians like to say, that is beyond the scope of this course. Way beyond.)

Let's begin, shall we?

First Principle Number 1: Seek Truth

Now, I suppose this sounds a bit obvious, doesn't it? I mean, after all, who, aside from the odd Satanist, actively and consciously seeks falsehoods? However, how many people do you know who start out the day looking for the truth? Who says "How are you?" and really wants a truthful answer? How about "Do you like my tie?" or "Do you think I'm getting fat?" You see my point (if you don't, stay indoors and speak to no one until you do).

And it gets even stickier about business issues. How many bosses want to know that their management style directly reduces company productivity to a degree equal to 5% of total profits? Or that the brilliant ad campaign that just won the agency a Cleo (and cost \$600,000 to produce and \$10 million more to air) caused, actually caused, sales to decline 13%? You see my point.

So we don't always cling to truth as if it were our mothers' skirt because the truth often bites much harder than our baby brothers. But the intrepid data analyst needs to ignore all that and be, well, intrepid.

First Principle Number 1 and a half: ...and Meaning

Here's where things start getting difficult. It's one thing to preach self-righteously about truth, ad nauseam, but it's another thing entirely to talk about relevance. Especially to a statistician. Because, as a conversation topic, the concept of relevance, at least with the numerically literate, generally elicits a glassy eyed stare and a "huh?" reminiscent of past conversations with your teenage son. Not good.

I think the primary problem of relevance among those of us who do not need a calculator to multiply two digit numbers, is not why but how. That is to say, the problem is not why do we seek meaning but rather how would we recognize it even if we found it? Generally speaking, those with some aptitude for recognizing meaningful information are not those who, just for fun, programmed their first computer to calculate the first million prime numbers. You see my point.

Unfortunately, however, the burden often falls on one of us intrepid data analysts to seek not only truth but meaning in our data. This is often because no one else is willing to stare at so many meaningless numbers and attempt to divine meaning. The bad news is that these same people will stare at us expectantly and ask "What's the data say?" (as if data talked). If we simply tell them the truth, they get angry. They want meaning and it's up to us to give it to them.

First Principle Number 2 and a half: Find it

Oh, we are in it deep, now. Not only is the rubber hitting the road, it's starting to burn (and it smells something awful). It is not enough to, with a pure heart and a clean conscience, seek truth and meaning, we've got to find it (If this isn't true of your situation, then you're an academic and you should read no further. It will just confuse you).

There is but one secret to finding truth and meaning. It has been passed down from McCullough to McCullough for generations and for the very first time, I will break the code of secrecy and share this pearl of wisdom with others not surnamed McCullough. Armed with this one mandate, you are guaranteed to be successful in your sacred quest. And this is it:

Don't quit until you've found it.

You may send personal checks, money orders or credit card numbers to express you gratitude.

First Principle Number 3 and a half: Tell Someone Who Can Do Something About It

Remember that guy who didn't program his first computer to calculate the first million prime numbers? He's probably the one you've got to tell. And this is important: this guy doesn't speak numbers. He barely speaks English. He is numerically illiterate, probably a vice president or maybe, even worse, a president. This guy can't sit through Nova or NextStep (too long and what's the point?), has never read Eschbach or even Hawking and thinks Tom Peters is an intellectual. You see my point.

But if you've gone to all the trouble to seek truth and meaning and then were lucky enough to actually find some, well, it would be a shame to waste it, wouldn't it? So practice your baby talk; limit syllables per word to two, words per sentence to 7 and points for him to remember to 3. Ignore 99% of what you worked three weeks to uncover, give him the tip of the iceberg and pretend nothing's under the water line and he'll think you're a genius, on par with mental giants like Frank Gifford and Dan Quayle.

Not only that, but your company (his, actually) will make more money because of you and the restraint you exercised. Then he will feel even more arrogant, look at you as an even more unnecessary cost and....well, never mind. Let's stop now. Isn't your computer beeping?

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