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## STRATEGY

BY GORDON H. BELL

# Never Trust the Numbers

## AND HOW TO MAKE YOURS LOOK GOOD

One great advantage of direct marketing is the ability to measure results. With the right data, marketers can make the right decisions to increase sales. Yet marketers (and senior executives) too often are misled by precise numbers derived from fuzzy math.

In his 1954 classic, "How to Lie with Statistics," Darrell Huff gives numerous examples of how "the secret language of statistics, so appealing in a fact-minded culture, is employed to sensationalize, inflate, confuse, and oversimplify ... Many a statistic is false on its face. It gets by only because the magic of numbers brings about a suspension of common sense."

Though surely we have become much more sophisticated over the last half-century, the "suspension of common sense" seems to stay with us. Here are a few warnings to note.

### Never Trust Percentages ... Especially the High Ones

Reading the local paper recently, I was surprised by the "252 percent earnings decline" on a "4.6 percent" drop in sales for a regional billion-dollar retailer. How hopeless can they be to lose so much on such a small change in sales?

Looking at the numbers, the picture becomes a bit less dramatic. The journalist was correct: Earnings dropped from a profit of \$13.3 million in 2000 to a loss of \$20.2 million in 2001. Yet at the same time, sales dropped by \$60 million. Now, think about the relationship between the dollar and percentage drop:

■ If earnings had fallen by the same dollar amount—only instead from \$80 million to \$46.5 million—the drop would still be \$33.5 million, but only a 42-percent decline.

■ If earnings had fallen even more—from a profit of \$80.3 million to the same \$20.2 million loss—then the dollar change would have tripled (\$100.5 million), while the percentage drop would be only 120 percent.



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A better percentage to use in this case is the change in profit margin: from +1.06 percent to -1.70 percent. This shows how earnings have remained precarious, whether positive or negative.

### Understand the Difference Between Coincidence and Cause-and-Effect

Ignoring data and beating it to death give the same result—confident answers with no basis in reality.

First, the latter: Data-mining and other advanced statistical software offer enormous power to dig out information from a mass of market data. But that power comes with some risks. Bad or incomplete data, misuse of statistical techniques, and poor

interpretation of results all can lead to wrong answers.

In addition, testing errors quickly add up, so after a few analyses, the likelihood is high that a "significant" result might be just random error.

Another risk of analysis is finding a correlation and jumping to the conclusion that it's a cause-and-effect relationship. For example, does a correlation between the number of direct mail credit card solicitations and average temperature in the Northeast mean that banks are causing global warming?

Both have risen, but probably from very different causes. In the same way, when response jumps after you change your envelope color, does it mean that the envelope caused the increase? Or was it other changes to the mail package or marketplace that caused the change? Unless you design a statistically-valid test, there is no way to prove what caused the outcome.

Ignoring data is just as bad as blindly accepting the results your computer spits out. Marketers often selectively remember results that support their opinions, while "explaining away" conflicting results. By analyzing only what you "know" is important, you never collect data on other variables that may lead to new insights. This self-fulfilling prophecy ensures only incremental change—as real breakthroughs are ignored.

### Listen to the Data ... and Speak its Language

If you can't measure performance, you can't learn. Therefore, your metrics should accurately measure whatever you want to track, analyze and improve. The simplest, most unequivocal metrics are usually the best.

Direct measures of behavior—response rate, unit/dollar sales and gross margins—are superior to measures of consumer interest (like e-mail open rate, catalog requests and survey results) and ratios (like sales-to-forecast).

Statistics is the language of data, so you need to understand the basics (it's not that painful). For market testing, sample size and confidence limits are two related statistics that ensure a valid test with actionable results. Insufficient sample size can lead to an inconclusive test, with good results concealed within market variation. Confidence limits quantify the uncertainty around your test results, so you know when a change is

significant.

For example, say you send out a test catalog to 4,800 customers and see a 2-percent response rate. If your control pulls just 1.8 percent, is the new catalog a winner? Maybe not—the test response, with confidence limits, is really 2 percent  $\pm$  0.4 percent. Therefore, the true response over time may be as low as 1.6 percent or as high as 2.4 percent. The test catalog may actually be worse than your control!

Alternatively, a sample size of 20,000 would show a significant difference, with confidence limits of 2 percent  $\pm$  0.19 percent.

Ultimately, you can trust the numbers

you understand ... to a degree. The more data you gather, the more vivid your view of the marketplace, just as each brushstroke adds one more detail to a painting. Yet you will never complete the picture before the market landscape changes. So use common sense and make clear decisions based on the strongest data you can find ... and continue to learn at every opportunity. ♦

**GORDON H. BELL** is the principal of **LucidView**, a consulting firm specializing in marketing science and strategy. He can be reached at (865) 693-1222 or [gbell@lucidview.com](mailto:gbell@lucidview.com).

## When You Want to Make Your Numbers Look Good

"The numbers show ..." can be one of the most powerful arguments for doing things your way. If you don't want reality to get in the way of your expertise, here are a few techniques to use:

**1. Pick-and-choose data you analyze.** If you don't like the results, filter out the "bad" data (just erase a few of those low outliers) and re-analyze until you get the right answer.

**2. Ignore statistical significance.** If sales go up, claim credit—even if it's within the natural variation of the marketplace. Alternatively, if sales drop, pinpoint something your co-worker changed as the irrefutable cause.

**3. Create charts that more effectively support your point.** For example, look at these charts of direct mail sales (the numbers are from the Direct Marketing Association's Web site).

Both bar charts show a sales increase from \$338.2 billion in 1995 to \$528.5 billion in 2000. However, the scale of the second bar chart starts at \$250 billion—giving a nice steep slope.

If you want to avoid changing the scale, just use an attractive graphic like the one in the third chart. Though the height of the graphic follows the same scale as the first chart, the increased width makes your eye perceive the change in area rather than the 56-percent change in height, so it looks like sales more than doubled.

**4. Index your data to improve how it looks.** Try to find any number that is actually going in the right direction (even as sales languish). Use sales-versus-forecast, margins, number of units sold, new product growth, percent-change-in-sales-decline, sales versus industry benchmark or sales to elderly Norwegian shepherders ... anything to show the upside of lousy performance.

For example, credit card response rates have fallen from 2.1 percent in 1990 to 1.4 percent in 1995 and 0.6 percent in 2000 (according to BAI Global). Even if you multiply the jump in mail volume, the number of new cardholders is dropping. So, let's instead chart the cumulative number of cardholders year-by-year. No matter how bad the other numbers, your totals should be increasing.

—G.H.B

