LOOKING BEHIND THE NUMBERS: HOW ARE YOUR STATISTICAL ETHICS?

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Originally published in *Christian Management Report*, November 1997

Did you know that Anchorage, Alaska is the largest city in the United States? Or that 95% of Americans oppose abortion? Or that senior citizens are more likely than young people to own a computer?

By now you may be thinking that this article is a trip through a statistical fantasyland, but be assured: all of these statistics are true, according to their source. Whether or not you believe them depends on the validity of the source, and on the interpretation of the data.

We all see numbers, statistics, and surveys quoted *ad nauseam* in business today, whether they're popping up in the media, used as the basis for marketing plans, or quoted by business consultants. The chances are pretty good that at some point during your career, you'll have the opportunity to use data to prove your point in a document, speech, or meeting. This also means you'll have the opportunity to do some rather unethical things with data or statistics – often without even knowing it.

There are many guides to finding the numbers you need, or working with data. Few, if any, deal with the idea of *statistical ethics* – what to do with the numbers once you've found them. It's easy to locate a number or statistic that supports whatever argument you're making. But are you using these numbers in a way that is ethical?

How Data Gets Misused

Consider whether you or your organization have ever done any of the following:

- Read a survey or statistic in the media and assumed it to be true, then quoted it to others without checking its accuracy.
- Selected statistics for a presentation that supported your position – ignoring those which did not.
- Commissioned or conducted a survey without using accepted data-gathering techniques (such as surveying donors to a particular Christian organization, and using that data to represent Christians across America).

- Interpreted raw numbers in a way which helped tell the story you wanted told.

All of these are examples of misuse of data. But what difference can the misuse of data really make? Here's just one example. Ten percent of all Americans are gay, right? Wrong. According to repeated studies by numerous reputable research organizations, homosexuals represent around 3% of the population. The 10% figure we continually hear is from an old study by Alfred Kinsey, which has since come under fire due to accusations that Kinsey's research sample used large proportions of prostitutes and prison inmates to represent typical Americans, badly skewing the findings. Yet the media and much of the public take the 10% quote as an assumed truth, repeating that figure as a fact without bothering to check its accuracy.

Statistics are frequently misquoted in the media, largely because reporters don't understand the different kinds of research and how easy it is to bias data. They often don't have the time or background to investigate a study fully before reporting on it. This is why you can read different reports that place the evangelical population in America at 7% of the total population, 12%, or 33% -- because different research organizations vary in how they define and classify "evangelicals."

Reporters and editors, not being specialists in this terminology, simply report the findings of the research as they receive it. These findings then end up in books, sermons, and strategic plans because no one went back to check the accuracy of the research, or of the reporting.

When you read a statistic in a magazine, then plug it into your sermon or management report without checking it out, you run a fairly high risk of communicating inaccurate information – and misleading colleagues into the same trap. It's the same as taking one passage of the Bible out of context, rather than within the whole of scriptural teaching. Consider an example. "How popular is the New International Version versus the King James Version?" A simple question, but it could be answered in a variety of ways. You might compare the popularity of the two based on recent sales, sales in the last decade, sales since each was translated, readership, use by churches, or even loyalty to each one by readers. And the answer would be somewhat different with each means of comparison. It's not wrong to choose one method to measure popularity – as long as you understand it's just one measurement, and clearly communicate that when you quote the data to others.

Christian leaders are called to have integrity and honesty in their work. Checking the accuracy of information you plan on using to advance your efforts can be, frankly, a big pain in the neck at times. It's much easier just to assume that the data you read in the morning paper was gathered and measured properly, interpreted accurately, and reported fairly and completely. But that's a major challenge to your statistical ethics. Beyond just the ethical questions, what happens to your reputation and reliability when you quote numbers that others know or can prove are wrong?

There are ways to avoid these traps, whether you're conducting or commissioning research yourself, or using what someone else has conducted. For data you find in other sources, such as books, sermons, or marketing materials, use the following checklist:

How recent is it?
Some things – like studies on use of the Internet – can change drastically in even a few short months.

How original to the source is it?
A sermon based on an article based on an interview based on a research study would contain data that's had many opportunities to be misquoted or misconstrued. Whenever possible, obtain the original study and determine what the researcher actually intended to be said, not what someone else has reported.

How unbiased is it?
Data from an organization wishing to prove a point or push an agenda is more likely to introduce bias than data from a neutral researcher.

How representative is it?
A survey taken inside one church hardly represents the attitudes of American churchgoers. Readers of any one Christian magazine don't represent all Christians, donors to any particular ministry don't represent all donors, and people attending one trade show probably don't represent all of your customers.

How was it conducted?
If possible, look at how the questions were asked. Are they simple and unbiased? Would you have trouble answering them honestly? Also look at the methodology. Call-in polls to 900-numbers, surveys done as part of a direct mail fundraising campaign, and other such "research" rarely has any basis in reality.

How well does the information source understand key terms being used?
It's not uncommon for political researchers and reporters to use the terms *evangelical, the Christian right, conservative Christian,* and *born again* interchangeably in their reports, chiefly because they don't fully understand these terms.

How logical is it?
If you see a few studies claiming Christians represent around 35% of the American population, then one claiming the number is 55%, start asking questions. Surprising data does not always mean wrong data, but it could be a clue that something is amiss.

Research Guidelines
When commissioning your own research, there are also some key rules to follow:

Do everything possible to make sure the study is representative (that it truly will represent the opinions of the group being surveyed).

Sometimes this means taking a longer time or spending more money, but both of those options are preferable to ending up with misleading information. It can be tempting to save money by surveying people coming out of your local Christian bookstore and hoping that they accurately represent Christians throughout America. They don't.

Make sure the questionnaire is simple.
If you aren't sure what a particular question is asking you to do, the respondents won't know, either.

Open the data up to interpretation by a range of people.
One of the biggest causes of research error is accurate data that is misinterpreted. Even the most renowned research experts won't have all the answers. When data seems contradictory or confusing, get a few heads together and brainstorm on why. You may be surprised at how clearly an answer emerges when people approach the data from a few different angles.

Try to have some control over the release of the data.
It's important that information gets disseminated to be used within your organization, but it has to be presented in the proper context. When someone is obviously misrepresenting the findings, call them on it (in an appropriate manner, of course).

To be blunt, if you don't know what you're doing, find someone who does and stay out of the way.
You need to make sure the research project is going to address your information needs, that it stays within budget, etc. But let a professional recommend things such as choosing a sample size, building the sampling frame, or avoiding response bias. (If you don't know what those terms mean, it may be a hint that you need professional input in your research efforts.) This doesn't mean accept what the researcher says without question – a good researcher can explain why things need to be done in a particular way.

Whether the research you are using was commissioned by your organization or is from another source, be wary of people who claim that the study proves something "beyond a doubt." Like any tool, research has its limitations, and is only one part of the greater picture. It won't solve all your problems, but it can certainly be a major part of the solution.

With these dangers, it may be easy to be scared away from using research at all. Don't let that happen. Properly conducted, marketing research is an incredible tool for strategy, management, ministry, leadership, and business within the Christian community. But like any other tool, it must be used and applied responsibly and ethically to be of any real use.

Oh, and those statistics quoted at the beginning of this article? Anchorage is the largest city in the U.S. in terms of *square miles covered*. Ninety-five percent of Americans opposed abortion when asked, "Do you approve of the merciless slaughter of innocent children?" in one badly-skewed "survey." And legitimate research consistently shows

that senior citizens are considerably less likely than average to own a computer – except for one misguided research attempt conducted at a seniors' trade show that attracted a non-representative sample of well-to-do, highly active seniors who embraced new technologies.

Just a few examples of the need for statistical ethics.

"Statistics: the only science that enables different experts using the same figures to draw different conclusions."
EVAN ESAR, AMERICAN HUMORIST

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