

Voice of the Employee

Survey Research for the Real World

Voice of the Customer Analysis

VoCAI



White Paper: Science and Snake Oil in the Conduct of Employee Survey Research

By;

Robert Gerst
Partner in Charge Operational Excellence
Converge Consulting Group Inc.

Do you **really** believe
 what is **important**
 to your **people** can be
reduced to . . .

$$\pm 2 \frac{\sqrt{\sum_{i=1}^n (X_i - \bar{X})^2}}{n - 1} \sqrt{n}$$



(Yeah, we don't get it either)

Actually, no one really believes it. But if you don't believe it, why are you using it?

Almost all survey research, probably the research you are using now, assumes that what is important to people can be determined by the formula for standard error – significance testing.

If your research draws attention to what is statistically significant, then you are being sold snake oil and it is costing you. It is costing you in deteriorating employee satisfaction and declining customer loyalty.

The formula for standard error works well enough for polling, where the problems concern how best to spin political messages. But for those of us in the real world, concerned less with spin and more with bottom-line results, confusing statistical significance with practical importance is a disastrous error. It means most of what you think your research is telling you is dead wrong.

How can statistical significance determine what is important to people?
 It can't.

When you are ready to leave The Cult of Statistical Significance and begin honest research into the real issues and problems in the employer-employee relationship, give us a call or drop us an e-mail. A better organization is just around the corner.

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The Purpose of Employee Research

Organizations regularly survey their employees to better assess the state of the employer/employee relationship. Employee research is important. It is used to set the priorities and the agenda for organizational development and change -- usually with HR taking the lead role and some degree of accountability for improvement.

The aim of employee research is to bring some science to bear on the problem of identifying areas of strength and weakness in the employer/employee relationship. By identifying what is important and what isn't, management actions can be based on the best available evidence that supports a rational approach to improving levels of employee loyalty, engagement and satisfaction.

The hard part of all scientifically valid research, including employee research, is determining what is important and what isn't. Determining what is important means being able to answer fundamental questions. Questions such as:

- ▲ What things do employees really care about?

- ▲ Are levels of employee engagement getting better or worse?
- ▲ What changes would have the biggest positive impact on employee engagement or loyalty?
- ▲ What are the critical factors that drive positive employee attitudes?
- ▲ How should we redesign our HR systems to improve employee satisfaction?
- ▲ What are the critical issues employees have with our organization?
- ▲ Are there any areas of the organization where our relationship with employees is particularly at risk?

Overall, organizations want to know what can be done to improve the state of the employer/employee relationship, identifying the opportunities for value-added change.

Snake oil in Employee Research

Most employee research relies on statistical significance testing to identify areas of importance – to separate the wheat from the chaff.

Results for different departments or other groupings of employees are compared with one another and differences are

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highlighted. These differences are analyzed using various tests of statistical significance. Statistically significant differences are highlighted as important or 'real' and used to set priorities for change.

It looks and sounds scientific -- using statistical significance tests to highlight important differences and identify problems and priorities.

The problem is, using statistical significance in this way is pure snake oil and about as scientific as voodoo. Statistical significance is not, and never has been, a measure of practical importance. This is a fact of the statistical sciences.

When something is said to be statistically significant, it means only that the measurement system is sensitive enough to detect it. For example, a statistically significant difference between two departments in response to some question on a survey, only means that the analysis was able to detect a difference between the two departments. It does not mean that the difference between the two is of any real world significance, that is, of any practical importance. Statistically significant means detectable, nothing more.

This misinterpretation and misuse of statistical significance has had a devastating impact on organizations and society. As authors Stephen T. Ziliak and

Deirdrie McCloskey in *The Cult of Statistical Significance* put it:

. . . reducing scientific problems of testing and measurement and interpretation to one of statistical significance has been an exceptionally bad idea. . . a diversion from the proper objects of scientific study . . . that have cost us jobs, justice and lives.¹

If the costs to society have been *jobs, justice and lives*, think of the costs to your organization. The misuse of statistical significance testing in employee research inevitably produces:

- ▲ wasted organizational effort addressing problems that don't exist,
- ▲ missed opportunities for improvement to the employee/employer relationship,
- ▲ declining confidence that executives and management know what is going on or are connected to the organization,
- ▲ declining credibility in the capability of the human resources function,
- ▲ a decline in the state of the employee/employer relationship.

¹ The Cult of Statistical Significance: How the Standard Error Costs Us Jobs, Justice and Lives, by Stephen T. Ziliak and Deirdrie McCloskey is highly recommended for the technically minded.

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Equally important, these negative effects can occur undetected because the tool used to detect them, the employee survey, is the source of the problem.

Two types of scientific studies

The misuse of statistical significance in employee research is compounded by the different roles statistical significance plays in the two different types of scientific research. All scientific research can be said to have one of two basic purposes: enumerative and analytic².

The purpose of enumerative research is descriptive.

Specifically, the purpose of an enumerative study is to accurately describe conditions at a particular point in time – to estimate values and detect differences.

Polling is the example of an enumerative study. Most of us are familiar with polls that report if an election were held tomorrow, one political party would finish ahead of another. Usually, these are accompanied by some measure of statistical significance such as reporting

that the results are considered accurate to say, +/- 4%, 19 times out of twenty.

The significance test in this case is simply providing an estimate of the accuracy of the poll. With enumerative studies, therefore, statistical significance is a measure of study quality -- the ability of the enumerative study to do what it is intended to do, estimate values and detect differences

There is no implication that the reported statistically significant difference is important. There is no need, because an enumerative study is not concerned with importance. It is only concerned with estimating and detecting differences.

Enumerative studies are most commonly used to support 'push' strategies – where the objective is to push or sell a position or product. Think of polling research. The typical objective is to find a best way to spin a set of messages to the public. This is why polling is used frequently in political contests and advertising.

The purpose of analytic research is to identify what is important.

Analytic research is about understanding how processes or systems work in order to explain or predict. The aim of analytic research is not describing conditions, it is:

² The difference between the two types of scientific/statistical studies (enumerative and analytic) was first made using formal terms by Edwards Deming.

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- ▲ Identifying the root causes or drivers that influence system or process performance to better explain that performance,
- ▲ Understanding the performance capability of a system or process in order to better predict future outcomes,
- ▲ To provide the necessary information or evidence to take rational, intelligent action.

In many ways, the calculation of a statistical significance test is the end point of an enumerative study. In contrast, a statistical significance test is only the start of an analytic study. It only provides the researcher with a green light to proceed with the more difficult task of determining whether or not detected (statistically significant) differences are important.

Analytic studies are most commonly used to identify opportunities for making value-added change. Rather than 'push' things or spin messages, analytic studies seek to make improvements that actually increase value resulting in greater demand or 'pull'.

Is your employee research enumerative or analytic?

The difference between these two scientific purposes is critical to the conduct of any research, not just because of the role

played by statistical significance testing, but because it affects everything from sampling to analysis and interpretation of results.

Using of enumerative methods for analytic purposes will produce faulty conclusions, bad recommendations and ultimately will contribute to a decline in the relationship employees have with your organization.

So how do you tell if your employee research is more suitable to an enumerative, or analytic approach? Three practical questions can help.

What am I trying to determine?

If you are trying to determine *how many* of something there are, then you are likely dealing with an enumerative problem. If in contrast, *how many* is less important than *how come* or *why*, then you are likely dealing with an analytic problem.

For example, are you more concerned with determining how many employees don't like the benefit plan or why they don't like the benefit plan? Determining how many is the aim of an enumerative study. Determining why and what to do about it is the job of an analytic study.

What am I trying to do?

If you are attempting to spin, sell or otherwise push a solution or position onto people, then you are likely dealing with an enumerative problem and polling is the

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appropriate solution. If, on the other hand, you want to improve products, services, processes or programs, then you are likely dealing with an analytic problem.

Are you more interested in determining how best to convince people the benefit plan is good or more interested in knowing what changes would be most valuable to employees?

Does the uncertainty go away if I conduct a census?

This is the \$64,000 question in distinguishing between the two types of problems. If all the uncertainty and risk disappears with a census (as opposed to a sample) then the problem is enumerative. If the uncertainty does not go away with a census, then the problem is analytic.

For example, if all the employees answered the survey, would your business issue be resolved? If the answer is yes, you are dealing with an enumerative problem. However, if the business problem or issue remains, regardless of how many people respond to the survey, then the issue is analytic.

In Summary: The Aim of Employee Research

Most organizations engage in employee research to better understand the strengths and weaknesses of the

employee/employer relationship – identifying what is, and is not, of real and practical importance to the business. Doing so is the purpose of an analytic study.

Yet most employee research, likely the research you are using now, uses enumerative techniques. This is applying the wrong set of research techniques to your business problem(s) and its costing you.

The Three Signs of Snake Oil

The misuse of statistical significance and confusion between enumerative and analytic purposes tends show up in three ways -- three ways in which snake oil is sold as science in employee research.

1. Misrepresenting statistical significance as practical importance.

The first thing to look for in your employee research are signs that statistical significance is being misrepresented as a test of practical significance. In the science of statistics, statistically significant means detectable, nothing more. There is a big difference between saying something is detectable and saying what is detected is

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important. Statistical significance is not a measure of the importance of a particular result. It is a statement of how a result was calculated. This is not a point of debate. It is a fact of the statistical sciences.

That hasn't stopped the snake oil salesmen from selling statistical significance as a measure of practical importance, however. Keep an eye out for it. It shows up most frequently when comparing different employee groups or different questions on a survey.

For example, one department may have statistically significant lower employee satisfaction results from another department. The interpretation is that the first department is doing something wrong compared to the second. Such an interpretation is pure snake oil.

Unfortunately, in counseling managers to pay attention to their statistically significant results, HR departments can become the unknowing accomplices in all this, diminishing their credibility as managers and employees see the increasing disconnect between statistical fantasy arising from the research and organizational reality.

2. Making meaningless models.

The second sign of snake oil in employee research is the presence of models that are said to predict employee engagement, loyalty or satisfaction.

Polling research is typically concerned with identifying correlations (enumerative aim). For example, is political affiliation correlated with age? Again, the intent here, as with all polling, is how to better spin a message.

In business, however, the concern is usually less on how to spin a message and more on what changes would actually have the greatest impact on employee engagement, loyalty and satisfaction (analytic aim). That requires causation, not correlation.

Now if a statistics course was part of your education, there is a good chance you remember at least one phrase: correlation is not causation! In employee research, the confusion between correlation and causation is most commonly evident when causal models of customer loyalty, satisfaction or engagement are created from statistically significant correlations found in large data sets.

Examples are identifying the ten questions that are said to predict employee engagement or the twelve drivers that

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determine employee loyalty. Both are examples of snake oil, arising from the confusion between correlation and causation.

Such models of employee loyalty, engagement or satisfaction are as scientific as models linking declines in polar bear populations with decreases in the number of accordion players in Missouri. The two are correlated, but the relationship is pure fantasy, and the model, meaningless.

Organizations acting on such fantasies perform as well as might be expected. HR pursues actions designed to improve employee engagement (based on the model) to the bewilderment of employees who cannot figure out *what HR is up to now*. The result is wasted effort and misdirected initiatives that end up contributing to declines in employee engagement.

3. Creating corrupt comparisons.

The last sign of snake oil in employee research is creating corrupt comparisons, where the results of one company are compared with the results of a group of companies.

Usually the consultant has or makes claims that your data will be compared with a large database of results for similar

companies to determine how your company compares with some best in class group. For example, comparing your employee engagement score with the employee engagement scores for a comparison group and drawing some conclusion based on rank (We are in the highest quartile!).

The snake oil trick here is in having you believe that a single number, your employee engagement in the current year, for example, can be taken as an indicator for your performance generally, that is, over time. Comparing your measures to similar measures of comparative organizations simply compounds the error. (The technical phrase is confusing/ignoring within-group and between-group variation.) In short, these are corrupt comparisons that produce only misleading and inaccurate conclusions.

The net result is that statistically significant performance gaps among organizations, that don't exist in reality, are inevitably identified while real (statistically insignificant) issues within your organization linger unaddressed.

Again, the net effect tends to be a decline in HR or executive/management credibility as employees see the increasing disconnect between research theory and organizational reality.

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What can you do?

So where does all this leave us and what can you do about it?

1. **First and most importantly, stop.** If you see the signs of snake oil in your employee research, stop what you are doing. The application of statistical significance testing and enumerative methods to analytic problems ultimately hurts the organization (and HR credibility) far more than it helps. The point is, real damage is likely being done to your organization right now and in such circumstances, the best course of action is to simply stop what you are doing and take time to consider the issue.
2. **Second, seek some independent advice.** Talk to your local University statistical department – a professor that understands the difference between enumerative and analytic studies and show them this paper. For the technically minded *The Cult of Statistical Significance: How the Standard Error Costs Us Jobs, Justice and Lives*, by Stephen T. Ziliak and Deirdrie McCloskey is highly recommended.
3. **Talk to us.** Yes, we know it is self serving, but we can answer all your

questions, including technical / statistical questions directly. We can also quickly determine if your research is more snake oil than science and show you where corrections need to be made. These may be simpler and less costly than you thought and go a long way to bringing back credibility to your employee research process.

Ultimately, if your employee research is to be effective (as opposed to destructive) you must ensure that:

- ▲ significance testing must be used properly and,
- ▲ research methods must be aligned to the nature of the purpose of the research – either enumerative or analytic.

Some Science Would be Nice

Ensuring the proper use and alignment of research methods comes down to doing some real science.

The purpose of science and analytic research is identifying what is, and is not, important. With employee research, this typically means identifying those areas of strength and weakness in the employee/employer relationship that are of a real and practical importance to the performance of the business.

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If this describes the purpose of your employee research, only analytic methods will be effective. One such analytic methodology is called *Voice of the Employee*, (a variation of Voice of the Customer survey research methodology).

Consistent with the nature of analytic studies, the purpose of Voice of the Employee (VoE) is to identify strengths and weaknesses in the employee/employer relationship that are of real and practical importance to your business.

VoCAI

VoCAI is Converge Consulting Group's approach to VoE research – employee research designed specifically to address analytic questions.

VoCAI stands for *Voice of the Customer Analysis* (Voice of the Employee methods are based on Voice of the Customer methods). While VoCAI represents the approach of Converge Consulting Group, there are no proprietary technical tools within VoCAI. It is simply an approach that applies the proper set of scientific/statistical tools to the conduct of employee research that is analytic in nature. Like all scientific tools and techniques, they lie entirely in the public domain.

VoCAI offers no magic bullets, no secret formulas and certainly no snake oil. Just the

best in sound scientific employee research designed to identify areas of practical importance to the business. You will notice differences with VoCAL.

1. Areas of real and practical significance will be identified.

This means there will be far fewer 'significant' results. The reason is easy enough to appreciate. With a large enough sample size, everything is statistically significant. Employee research is infamous for vast amounts of statistically significant differences, the majority of which are of no real significance.

Areas of real and practical significance, however, are understandably fewer in number and it is these areas of real significance that VoCAI identifies.

2. There will be clarity.

Your employee research may be flooded with statistical tests combined with esoteric models or external competitive comparisons. Usually these results are produced using the consultant's top secret proprietary database or methodology. (That alone should send up warning flags as nothing in legitimate science is proprietary.)

With VoCAI, our feedback workshops explain our approach and teach managers and leaders how to interpret their own results and to properly identify areas of

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practical importance. People take ownership as a result. Change and improvement become internally motivated.

3. Less economizing³ and greater honesty in the reporting of results.

This means greater levels of acceptance by employees. Employees have come to view employee research with a great deal of skepticism, dismissing it as disconnected from reality. More often than not, they are right. The reason of course, is that typical employee research highlights statistically significant differences that by definition are of no real world importance.

The focus of VoCAI on real world significance yields results that make sense to employees. No grand claims are made. We only claim to use sound research to identify areas of real importance to the employer/employee relationship. This straight forward approach builds credibility for HR and the organization. It also builds confidence.

³ Economizing is a term first used (to our knowledge) by the ever brilliant Edward Tufte in his book, *Beautiful Evidence*. *The act or process of converting limited evidence into grand claims.*

Some Conclusions

The purpose of most employee research is not to identify areas of statistical significance (calculate probabilities). It is to identify things of practical importance to the business. The ultimate significance test, therefore, is real world significance.

Despite this, much of the employee survey research conducted today uses the methods of polling research. While polling is useful in determining how best to spin a message, it is not effective at identifying areas of practical importance or what changes to make or how best to make them.

There are three big signs that your employee research is using the wrong approach –three signs of snake oil:

- ▲ The research highlights areas of statistical significance and otherwise implies that statistical significance is a measure of practical importance or real world significance. It isn't.
- ▲ The research calculates employee satisfaction, loyalty or engagement from a model that has been developed using research from other organizations (i.e.; the ten factors that drive engagement). Such models confuse correlation with causation and

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create a fantasy world of make believe causal relationships.

- ▲ The research compares your results with those in other organizations and ranks your organization accordingly. This approach assumes that a single point estimate (summary statistic) can accurately describe the behavior of a highly complex system over time. Such assumptions are essentially delusional.

VoCAI is Converge Consulting Group's approach to Voice of the Employee methods. There is no magic to VoCAI. Just

sound statistical science applied to survey research with the aim of identifying real issues or practical importance to your business.

If that sounds of interest to you, please call us or e-mail rgerst@converge-group.com. Please visit us as well at www.converge-group.com (our general site) www.voiceoftheemployee.com or our blog where you can find white papers and additional information www.converge-group.net.

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Converge Consulting Group Inc.

www.converge-group.com

p. 403 266 0061

f. 403 246 5953

Mailing Address:

Suite 100, 2617, 20 Street SW

Calgary, Alberta

Canada

T2T 4Z4

e-mail: rgerst@converge-group.com