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Abstract

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Keywords

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Linguistic Research Strategies Versus Quantitative Research Strategies: Different Roles, Different Results

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Selecting a statistical framework for a behavioral study has profoundly different results than does a linguistically framed research strategy. The linguistic strategy overcomes many limitations inherent in statistical strategies and offers more meaningful results. Inferential statistical studies often discuss how the findings "explain" the results of the study. Seldom mentioned is the fact that statistical explanations occur in terms of the framework of statistical methodology. Statistical explanations do not explain anything in terms of the actual behavior at issue and do not lead to subsequent interventions about the motivated choices for a target group. Linguistic strategies work especially well if the objective is to make a practical difference in behavior as opposed to raising questions for further research in academic circles. Key Words: Motivational Profiling, Motivation, Systems Analysis, Behavioral Engineering, Content Analysis, Measurement Paradigms, Frames, Psycholinguistics, Mechanism of Action, and Behavior Change

Explaining Behavior versus Changing Behavior

Statistical results of various behavioral studies are customarily characterized as "explanations." What does an abstract conceptual explanation really explain when it is describing the results of an irrelevant method using data twice, thrice, or even further removed from the behavioral phenomenon in question? Such explanations are like telling a homeless person that the solution to his or her hunger problem is "economics". Even the homeless person would find such an explanation laughable. The abstraction offers no "explanation" in terms of cause and effect. Researchers obtain merely a conceptual rationale, with no sensory connection or contextual framework with physical reality in order to observe the elements of behavior in question. Separating stimulus from response in statistical design "forces" a fuzzy outcome upon the investigator.

In humans, motivation leading to choices is a perpetual phenomenon. When a researcher wants to know why a certain individual or group of people choose to behave a certain way, statistics don't "explain" the behavior in terms that are useful to a researcher or practitioner who wants to modify or apply the choices of that target individual or group. A statistical explanation is similar to a nametag on a colleague at a convention. It names something, such as a university affiliation or academic rank. The label does not actually explain anything relating to a change mechanism useful to altering the choices of that colleague. A label, a nominalization, a statistic has no explanatory mechanism.

In contrast, linguistically based research strategies identify the mechanisms behind the choices being made by the targeted individual or group of people. Knowing

the linguistic mechanisms of choice allows the researcher, choosing methods, or practitioner, choosing outcomes, to modify the effects in the situation at hand. Linguistic "cause-effect" technology, which emerged from early qualitative methods of content analysis, trumps statistical "concept" in most any research setting where outcomes affect human events. To accomplish the change of choice among targeted subjects, the researcher simply utilizes the linguistic mechanisms found in the linguistic research strategy (Yeager, 2003). The cause-effect connection between research findings and the subsequent intervention to change choices actually "explains" *how* to cause the desired changes. Deliberate change occurs because the unconscious motivation, the linguistic mechanism of action, can be identified and managed toward a specific outcome. There is no more guesswork in behavioral engineering than there is in engineering an aircraft or a bridge. Effective technology presupposes consistent replicability of methods and results.

An Impoverished Statistical Heritage

In comparison to one hundred years of accelerated development in aviation and aerospace technology, the statistically dominated behavioral sciences have progressed embarrassingly little. Airline travel and interstellar space probes dwarf the progress in behavioral science. Inherently, statistical inference leaves numerous contingencies and loose ends unanswered, thus requiring further research on the concept or theory. The reliance on inference and the null hypothesis creates a never-ending spiral of questions with few answers and many uncertainties. Had aerospace and aviation used a similar inferential approach, human bodies would still be falling out of the sky at the rate of snowflakes in a Rocky Mountain blizzard. Fuzzy inferential outcomes are guaranteed when one frames the inquiry about a motivational research strategy as a probabilistic pursuit. In contrast, a cause-effect linguistic framework insures that the result will provide closure in a well designed study.

Traditionally in much quantitative research, psychological test items and Likert-like scales are put into play. Routinely we see rating scales such as true-false; choices a, b, or c; and the 1 to 5 and the 1 to 10 Likert scales. Those scales and many variants find happy homes in employee performance reviews, consumer research, and in behavioral studies of many kinds. The "quantitative" results are eventually analyzed statistically, often with the goal of eliciting generalized findings that operate independently of any given context. Usually, though, the results of this customary quantitative approach explain the findings only *within the limits of statistical methodology* instead of defining the parameters of hard-copy behavioral reality.

Statistical results do not explain motivation or behavior. In spite of the desire to generalize findings across contexts, the findings can only generalize in terms of the statistical design of the study. Also, the arbitrariness of any given author's preferences in statistical recipes becomes a factor. Findings are often incompatible with other studies or aren't comparable in methods or meaning. Even in meta analyses, the generalized results compare at such an abstract conceptual level as to be nearly metaphysical. So far in Western civilization, metaphysics generally remains unconfused with the scientific method.

Defining the Role of Linguistic Frames

Let's define a "frame". In college, students often choose a major in science or a major in humanities. Either of those choices "frames" which courses will be taken, which teachers will be engaged, or which fellow students will attend the same classes. Similarly, a linguistic frame separates, and makes exclusive, the kind of behavioral research "game" one selects to play, from any other possible game or motive. Within the generic sports frame, one can choose a specific sport such as baseball or soccer. However, each choice of a game precludes the inclusion of any rules or equipment belonging to another game.

In marriage, the frames can be less clearly defined. Generations ago, moms stayed home and dads worked. Frames change. But whatever frame a person is thinking with at the moment determines the kind of outcome he or she gets. The frame defines the game. Baseball players do not score goals, and golfers don't hit home runs. Linguistic research strategies frame the inquiry as a cause-effect pursuit instead of inferences to get closure. Statistical strategies frame the game as one of inferences, not cause-effect, and obtain no closure. The frame of the research game matters.

Research frames in motivational inquiries have a wide array of defining features and operational characteristics: research strategies, behavior change, persuasion, open systems, systems analysis, cybernetics, behavioral dynamics, and prediction. Choosing among the research strategies of quantitative, qualitative, and linguistic has a profound effect on individual projects as well the progress of behavioral science. Each strategy has a role to play. The role should fit the objective at hand.

Considering the many linguistic characteristics of motivational frames, it is surprising that many in the behavioral community remain largely unaware of the current state of the art in applied linguistics. As a rule, the prevailing conventional wisdom in designing research projects is to create a quantitative framework using inferential statistics and employing the ubiquitous null hypothesis.

Frame Blindness Produces Fiction

A statistical explanation is a "convention." Linguistically speaking, it often represents frame blindness. That is, the "explanation" is not recognized by researchers for its limiting features because people blindly assume the customary research approach is satisfactory. Without a comparison to an alternative, such as a linguistic strategy, the frame blindness will go unchallenged. Compared to progress in aerospace, this blindness has been costly in terms of the lack of tangible progress in the behavioral sciences.

Perhaps, such a statistical explanation borders on fiction in its relationships to reality. Fiction looks real and is about reality, but fiction is not actual reality. While fiction in books and movies is appealing and may seem real, it is not real in the same sense that a tree or an ocean is real from a positivist perspective. Fiction is about reality. Fiction is not reality. Fiction should not be a part of science, even though the choices of fictional characters are better explained in novels and movies than they could be with inferential rationales. Numerology and astrology are also conventions, but few consider their fictions as scientific or real.

The Context of Language Game Frames

Generalizability in behavioral circles is the search for findings that work like those found in physics. In physics, gravity works according to the same rules everywhere. A personality test presumes, in theory, that a person who scores as warm and inviting will be warm and inviting in all contexts, compared to cold and hostile peers. However, if an ex-spouse enters the context, the cold and chilly response of the person invalidates the assumption behind the personality test. Behavior, to have meaning, requires context. Linguistics presumes that a person will vary in behavior according to context. One acts differently toward nieces and nephews than one acts toward an uncle or aunt. Linguistic work presumes that generalizability operates within the individual according to linguistic "game" rules, *within a given context*. This parallels Skinner's (1957) maverick idea that lawful behavior operates within the individual. Change the individual's context and the individual changes behavior.

Statistical generalizations about behavior *across* contexts do not occur if the perceived context changes. Context sets the stage for behavior to operate systematically within that local context. The context of an issue might be a therapeutic situation, a marketing situation, a business setting, an educational or military context, or any other setting where motivating people to change is the issue. Language frames all of the game rules across and within all motivational contexts. Language, like individual motivation, is perpetual and portable.

Language and its structures express the permanent and portable motivational context of the *self* as well as behavioral variation across all contexts the individual perceives. This mobile motivational-linguistic internal context operates at any conceptual scale. That is, the scale may be the motivational frames and mechanism of one individual's specific motive, or it could be the collective motivational frames and mechanisms of a large population of people sharing a cultural belief. Such presumptions become a problem when normatively framed, statistically designed studies leave out the context and the key motivational mechanisms of a successful intervention. Concepts about motives are not real motives; just as concepts about blueberry pie are not real blueberry pie. Gregory Bateson (Wikipedia, the free encyclopedia, 2007) was well known for his quips about concepts with examples such as, "The map is not the territory" and "The name is not the thing named." Change occurs at the physical level of behavior, if the tools fit the task.

Framing Research and Interventions

Many interventions work better when framed within a communications context as linguistic "ipsative studies." Humans communicate constantly within the self and with others. Ipsative is defined as the self compared to the self at two different points in time or space, or context. The scale of the intervention can be one individual, a group of people, or a population. Ipsative, as a relatively rare word in the literature, requires elaboration. We know that parents often stand children against a doorframe and measure their height with a marker. Months later they repeat the measure. There are two ways for the parent to express the difference between the two measures. The normative measure says, "This is how tall you are compared to other children your age." The "ipsative"

measure says, “This is how much you have changed compared to last time.” The real world perpetually changes. Static, normative measures are seldom the best choice.

The ipsative approach is one form of the “N = 1” single case experimental model (Barlow & Herson, 1984). Ipsative measures compare observable changes within the individual (or within a group) to its self, over time, not to norms. Congressman Tip O’Neill noted that “all politics is local,” meaning that people do not respond to global, generalized ideas such as “the American Dream.” Instead, people respond to specific incentives in a specific context. People change motives from moment to moment and context to context. The methods that measure these changes must match the dynamics of reality, not the static imposition of statistics. The obsolete idea of a globalized statistical generalization that works across all contexts is as dead as last Thanksgiving’s turkey.

Psycholinguistics often follows the “N=1” model of research design. An analogous situation to “N= 1” experiments is offered by stand-up comedians. A comedian tells a joke, “the stimulus.” The audience reacts, the “response.” If the audience does not laugh, the comedian must alter the next stimulus. In “N=1” work of the motivational kind, linguistic techniques are altered in a parallel way to the choices the comedian must make in order to achieve a desired result. Whether the audience does or does not, metaphorically, laugh, there is immediate feedback about the effectiveness of the intervention. This exactly parallels behavior change work in much of psycholinguistics.

Table 1

Comparative Intervention Strategies

QUANTITATIVE INFERENTIAL FRAMES	QUALITATIVE LINGUISTIC FRAMES
Behavior generalizes across contexts	Behavior generalizes within context
Correlational frame	Cause-effect mechanism-of-action frame
Academic informational frame	Political hierarchical positioning frame
Normative measurement frame	Ipsative measurement frame
Solving for statistical robustness	Solving for simplicity (Occam’s razor)
Solving for inter-rater reliability	Solving for a workable contextual solution
Solving within a statistical vacuum	Solving for the client’s frame of reference
Solving for statistical inferences	Solving for mechanism of action
Solving for the rules of statistical methods	Solving the behavioral problem
Likert scales separate Q from A (S from R)	Observations maintain causal connections*
Deletes context and sidesteps motives	Observations maintain context & motives
Statistical interpretation findings	Language behavior identified and changed
Methodological tail wags the dog	Methodological success solves the problem
Behavior remains unchanged	Behavior routinely & predictably, changes

* (Question and Answer – Stimulus from Response)

Examples of Statistical (versus Linguistic) Frame Blindness

Quantitative Frames versus Linguistic Frames –Example Number 1

From the applied research perspective of a motivational consultant, the following case illustrates flawed application of statistics. A researcher, Arkes (2003), consulted on a project to modify an organization's method for having executives select proposals that would be granted research funding. Arkes was not aware that he had the choice between a conventional statistical study of rating techniques and a linguistically based study of decision making behavior among his client-executives. Implicitly, Arkes was asked to change the raters' behavior as opposed to the superficial issue of the rating system.

Arkes (2003) presents a rather telling example of how one can do the "quantitative rain dance," yet fail to produce real rain in the form of a behavior change among the parties. It took considerable fortitude for Arkes to be so forthcoming about his failure, but that is one way we learn from our mistakes. Let's revisit this lead article in a major journal, *Psychological Science*, to see what we can learn about how Arkes framed his research in quantitative terms, and how he could have produced better results by using a linguistic frame of reference.

Arkes (2003), in his abstract, describes an unsuccessful quantitative research project.

> In 1994 the Government Accounting Office (GAO) issued a report critical of some features of the proposal review process at the National Science Foundation and the National Institutes of Health. I provide two examples of procedures the agencies could have adopted to address the GAO's criticisms. I also relate the history of the two agencies' reluctance to use the psychological research literature to guide them in the way their new research procedures were instituted. Finally, I enumerate possible reasons for the agencies' decision not to follow, or even test suggestions based on the judgment and decision-making research literature. (p. 1)

Arkes' (2003) project was designed to address bias among raters who routinely awarded research grants using rather loose criteria. "The use of unwritten, implicit criteria is unfair to novices or other persons who are not part of the 'in group'" (p. 6).

Later his clients judged the science of the project 'irrelevant." The executives in question wanted to change, it seems, yet they had an implicit criterion that the change had to make sense in their terms. A statistical model could not address that issue. Arkes' (2003) own quantitatively framed map of the situation was actually quite different than the reality of his executive clientele, many of whom were technically oriented people. For instance, rarely do consultants observe a client executive conversing in terms of abstruse quantitative "z-scores" or other statistical vocabulary. Instead, executives tend to communicate in language that is easily accessed and managed by ordinary vocabulary.

From the point of view of linguistics, Arkes (2003) approached the task with an implicit belief that his clients "really ought to want" his "proven" quantitative solution. Arkes was not aware of the difference in context between the academic frame of mind and the applied frame of mind. That belief, in automatic relevance and acceptance of his

quantitative mind-set, framed Arkes' approach to designing the project in quantitative terms. He also presumed that quantifying a host of diverse facts would add a kind of objectivity. There is more than one way to solve the problem he confronted. He did not perceive the value of solving the problems in terms of the frame of mind of the executive realities of his clients. He didn't realize that executives in social systems often act like politicians within a social pecking order as they communicate their interests, goals, and preferences to one another. His quantitative solution solved an irrelevant issue of statistical robustness instead of effective executive communication.

> No one should doubt that the National Science Board consists of extremely intelligent and dedicated people. However, I suspect that they are not well informed about techniques of evaluation, the literature on judgment and decision making, or of the fundamentals of psychometrics. Neither z-score standardization of panelists' evaluations, cutoff scores, nor disaggregated ratings were adopted by the National Science Board (p. 3).

This was obviously a disappointing result for Arkes. Many lessons can be extracted from this example. For instance, do people buying a new car, or a new rating system, need to understand the engine to use the technology? The answer is, not really, unless they are auto or statistical enthusiasts. This is a *means* versus *ends* confusion. The technology is a means to an end, not an end in itself to the user. In parallel, carpenters do not want quarter-inch drills: They want quarter-inch holes, by whatever means. That single lesson illustrates one kind of potential progress gained from selecting better fitting roles for statistical versus linguistic strategies.

Pecking Order Context – Arkes' Rejection Explored

A linguistic intervention often will strategically frame a research project as a systems analysis of communications behavior (Yeager, 2003). One item of implicit communications behavior transmits constantly among the parties. That item of behavior is the verbal and non-verbal language that defines the social pecking order. The pecking order operates as an implicit context in most situations, and almost always frames a good deal of the intervention's motivational and change issues, thus impacting research design.

Members of social structures compete for position even while they may cooperate on achieving mutual objectives. Proposed changes affecting social systems often put a group's members' payoffs in question. People worry that a change may affect their positioning, their standing in the group, for good or ill. Perceived gains pressure individuals toward cooperation with a proposed change. Perceived loss frames motives toward competitive resistance to the change.

Jockeying for position is a constant phenomenon in work contexts. Many people disparagingly refer to this phenomenon as "politics." Arkes (2003) didn't perceive the overarching impact of this political context. Reading his paper makes this clear by the conspicuous absence of any mention of the topic. Competing agendas are routine in organizations. Arkes (H. Arkes, personal communication, May, 20, 2004) missed this fact, and the entire rationale of a non-statistical approach, which he acknowledged in a conversation that reviewed the issues.

In many linguistic interventions involving social systems, the object is to change the behavior of the parties involved. Normally, human motives are as scattered as a handful of marbles dropped on a hardwood floor. That makes managing the motives into a concentrated focus the prime concern. An intervention must find common ground among the parties to gather and focus the various motives at hand. Interventions in a social context respond nicely to linguistic communications issues among the parties. Seeking agreement and cooperation among people calls for reframing scattered self-interests. The search for locally motivating common denominators for the group dominates virtually all organizational matters in competitive settings.

Obtaining agreement requires reconciling those scattered motives with some sort of overarching "communications" process that frames all of the parties' interests, so that agreement can be obtained on the goals at hand. Gaining agreement is a social and "political" persuasion process. Persuasion is a major aspect of the overall meta frame. That is, for the question at hand, the meta frame *is* the dominant frame as defined by the selected system parameters. Persuasion is predominantly a linguistic phenomenon of the verbal and non-verbal kind. In Arkes' (2003) case, the competitive frame of the social system was omitted from consideration in favor of a belief that cooperation was the norm and that robust statistics would carry the day.

Arkes (2003) wanted to change the behavior of the raters. The essential problem for Arkes was that he framed his project as an abstract exercise in statistics instead of framing the project in persuasive terms. Like a quantitative evangelist, he was, perhaps, blinded by over reliance on statistical methods. His improbable assumption seems to have been to expect his clientele to appreciate his belief in his methods and to spontaneously embrace his recommendations. They did not. Spontaneous persuasion seldom happens in contentious contexts.

In the aftermath of the rejection of his approach, Arkes (2003) later attributes the rejection of his work due to the "soft" image of psychologists and the controversial facets of the ratings game being played by his clientele. That is, he wonders, "What image of psychologists do hard scientists have?" That lament is immediately followed by another speculation of his, "A second possible cause of our profession's lack of impact is that our data are germane to very controversial social issues" (p. 6). From an applied and qualitative perspective, his point of view seems naive. Let's look at the "role related" flaws in his mental map.

He clearly misperceived the role of the problem as being one of changing rating techniques. Actually, a consultant's role is better framed as an effort in persuading changes in the political behavior of the raters. Arkes (2003) version of his role focused on merely generating a "better" rating ritual for these executives. And, finally, he misperceived the differences in the frames of quantitative statistics versus non-quantitative methods.

There is a saying that when you "give a small child a hammer, everything looks like a nail." In this case, statistics were Arkes' (2003) hammer. He used the conventional quantitative tools to frame the project, but those tools were irrelevant to the frames that were on the minds of his clientele. In a manner resembling Mr. Spock of Star Trek fame, he got the "right" answer, from his statistical point of view, but totally missed the human element of the situation. Spock always left out the emotional component.

Any beginning practitioner knows that to change behavior, one must deal with the social context's power games and politics. This reality imposes a prerequisite that the intervention method selected should provide the mechanism for changing a group's process. That is done through altering the motives of those involved. Communication of the linguistic kind that will alter motives becomes the logical selection in such a context. One must persuade the parties to change using terms and tools that are relevant to changing their perceptions. One needs a mechanism of action to "cause" such changes. We know from linguistics that client perceptions and motives are driven by their language and communications mechanisms. The new reality clearly demonstrates that language is behavior, not merely about behavior.

Arkes (2003) innocently chose to impose his scientific statistical rationales upon his clients. Client practicalities often do not respond well to these rationales. There is a strong undercurrent in behavioral circles that presumes quantification strategies are inherently scientific and objective. However, that rationale is seriously lacking in state of the art applied linguistic know-how. Reality requires that quantification amount to more that the equivalent of quantifying the nouns used by Shakespeare. Shakespeare's creations are fiction. Yet, the frames his fictional characters act within are much more realistic than many "miscast" quantitative strategies in applied situations.

Any consultant knows "the customer is always right." Arkes (2003) didn't learn how to frame his audience's interests in terms of their being customers or clients. He appears to have framed them more in terms of uneducated students. Arkes assumed that a complex and academically designed statistical method was the strategy of choice. Based on the results, it was a very bad idea. His conclusions, as stated above, tell us how misconceived his ideas turned out. Nonetheless, this ill-fitting quantitative approach is very popular in behavioral circles.

Selecting Viable Frames for Research Strategies

In other words, Arkes (2003) omitted the decision-making reality of local politics that framed the social system, and the applied needs of his clients. He did not frame the essence of his work as solving "people problems" because his frame was implicitly to solve for quantitative issues instead of behavior change and motivational issues. As might be expected with this approach, he didn't provide the executives with a decision-making solution. From an effectiveness perspective, and in spite of good intentions and using the "right" tools, Arkes' effects somewhat worsened the problem. Arkes' solution would have actually complicated executive choices by offering an irrelevant solution. The clients made the crucial point, "The scientific data aren't relevant" (p 6). The clients were right. The authors would go one step beyond and ask if the scientific data was actually scientific in its origin? Arkes framed the technical issues with an ill-fitting but popular quantitative strategy. He would have done much better framing the situation with a decision making strategy based on changing the decision making behavior of his clients.

Arkes' (2003) rationale also framed the task of refining a decision-making ratings process as a research project, when he could have done better had he framed it as a consulting project with research in a secondary role. He needed to persuade the clientele to change their methods. Instead, he framed his work as a justification supplied by out-of-context research literature. He assumed that his results would be self-evident to the

executives. To the contrary, the executives for at least one very good reason rejected the result. To repeat their crucial point, "The scientific data aren't relevant" (p. 6). For context, Arkes was asked to produce a management selection tool to improve the fairness of the process that awarded grants to researchers. Inadvertently, he created an unusable, academically correct, administrative monster that could not possibly work in an environment of accountability.

It is debatable whether this quantitative approach was actually scientific. It was quantitative and statistical. It would not seem to be scientific without a cause-effect aspect to its presuppositions. With ipsative and "N=1" linguistic strategies, he would have done much better. Without a cause-effect model to create a means of change, the project appears to have been doomed to fail before it started.

In applied behavior change circles, a given behavior must be changed deliberately with tools or technology that will produce the desired behavior change, and with reasonable certainty of the outcome. Sales professionals routinely change client minds from "NO, I don't want your stuff" to "Yes, I do want your stuff." In applied linguistics this kind of deliberate change happens just as routinely. And the change is just as observable. In both cases there are deliberate means to produce the changes.

Arkes (2003) followed the more or less standard protocol of creating test items, then adding Likert scales, then calculating norms and standards for use in a seemingly objective fashion. Such an approach can be portrayed as producing pseudo-scientific data. Arkes had tables of data that, in his view, ought to have changed behavior. The data did not change the targeted behaviors of the clientele because it was not an effective means to the end in question.

Arkes' research project is a case of superstitious expectations (Yeager, 2003). The entire rationale resembles a case of magical thinking of the rain-dance kind. The leap to the anticipated results had no basis in cause-and-effect reality.

From an applied linguistic perspective, the irrelevance of his solution was a very good reason for the executives to reject the results. Also Arkes' (2003) frame of mind presumed that he should look for classic generalizability. As implicitly sought by Arkes, false generalizability was inherent to Arkes' presumptions about a quantitative strategy. Arkes created a statistically justified and complex rationale to forcibly overlay the motives of his clientele. His solution seemed impossibly cumbersome to his client audience, given their context.

While statistically correct, Arkes' (2003) solution, had it been accepted, would have been the equivalent of a bridge engineer requiring a motorist to solve an engineering equation before driving over the bridge. Such a cumbersome solution did not solve the problem in spite of the fact that Arkes was puzzled by their lack of response to his fractionated rating system. Arkes notes, "Finally, some NIH (and NSF) personnel and grantees placed very little weight on the research literature that supported disaggregated evaluations or calibrated ratings" (p. 5).

In linguistic measurement terms, and in practical terms, his solution was beside the point. He was trying to change the behavior of clients by preaching about statistical rationales. That is like explaining to a teenager at home to be 100% efficient in making the bed and doing homework. The goal is laudable, but the motivation is unlikely to increase.

Quantitative Frames versus Linguistic Frames –Example # 2

In a recently published book, we can find additional support for the alternative choice of linguistic tools for understanding motivation. Kramer, the author of *Managing Uncertainty of Organizational Communication* (2004), has followed the protocols of conventional quantitative research and profiled motives in applied business situations. As we will see, the results are equivocal, due to a misapplication of quantitative strategies instead of a more effective linguistic approach.

Let's take the bird's eye view for a moment to consider his perspective. In his introductory rationale, Kramer (2004) presents his main research question in well-defined terms. He illustrates how people coped with the uncertainties of the 2000 millennium.

According to a Gallup poll which he cites, about half of the population in America did nothing out of the ordinary to prepare for potential cataclysmic disaster for the transition to the 21st century. Pundits predicted that computer systems would implode, aircraft would fall from the sky, the electrical grid would disappear, and civilization might end. About half of the survey participants stockpiled food or water, while a few went to extremes, stockpiling food, weapons, seed stocks, money, and water. Kramer's (2004) central question is: "Why did people respond so differently to the same situation?" (p. 2).

This question frames the rationale of his strategy about the motives behind such behavior. This is a motivational issue, and he frames it as such. When "why" frames a situation involving people, "why" usually represents motivation.

The author describes specific types of uncertainties as well as the types of techniques commonly used by individuals to cope with the many uncertain situations they might encounter among peers, colleagues, customers, and bosses within organizational contexts. His approach is valid as he characterizes real, motivated people in everyday situations. Those people are uncertain about encounters with others and chose different techniques to resolve the uncertainty (e.g., direct questioning of others, consulting written materials, observation of others, imitation of others, and so on).

Enter the Quantitative Frame

Then his strategy goes quantitatively astray. Specifically, his inquiries are questionnaire item scales used to explore items such as, "I'm not sure I'd know what to do," or "People might think less of me if I asked." He anchors these scales with the conventional Likert approach of rating the items on a scale of 1 to 5. Of course, this scaling process is the gateway to quantification, which we find so often in research. This quantitative frame dooms the results from the outset.

From the perspective of inferential statistics and a pure research perspective, no faults can be found in this approach. Those colleagues of Kramer (2004) working with similar tools in a theoretical context will find this strategy a well-formed, solid piece of work. But we are back to the hammer as our only tool.

Predictably, applied linguistic strategists will find this work frustrating. The quantitative frame implicitly "deletes" the possibility of finding or managing a mechanism of action in communications behavior. With the quantitative design chosen, no opportunity will occur for a mechanism to be found. In terms of the frame of motive,

opportunity, and means, there is no *means* in a statistical approach to find a mechanism, thus deleting the *opportunity* to find any such phenomenon.

There is an implicit assumption in statistical strategies that on some far-away day, enough inferences will be drawn, so that a grand inspiration will occur. So far no grand inspiration has occurred if progress is the measure. Benjamin Disreali famously commented that "there are lies, damned lies, and statistics." We cannot vouch for the accuracy of the statement, only the sentiment.

Quantification as Kramer (2004) has done fragments cohesive behaviors into "item analyzed" parts like Humpty Dumpty's egg. Will he be able to put it together again? No. Practitioners usually need tools that parse behavior and then reassemble it. That is the inherent meaning of behavior change. That change option disappears because of the quantitative design chosen for the project. It is based on statistics. Statistics have no cause-effect connections with which to reassemble Humpty Dumpty.

Frame Blindness to Methods and Context

The authors routinely see highly educated experts acknowledge the inferential nature of their statistical methods. Routinely the authors see those same experts draw cause-effect conclusions from the inferential data. Due to frame blindness, they don't realize their error or the ineffectiveness of their chosen methods for the context they need to address.

From an executive perspective, Kramer's (2004) rather conventional statistical strategy will produce no direct value in the applied context of his project. Kramer's book really considers, at great length, subjective states to a detailed degree that could not be supported in a competitive applied context. For instance, employee navel-gazing about uncertain states of mind is not well received in competitive organizations. People are required to perform, and that performance requirement also applies to the use of properly framed research strategies.

Nor do Kramer-like results offer tools to anyone willing to pursue this type of quantitative approach. For instance, the questionnaire methodology utilizing Likert-type questionnaires and statistical analysis is a rather abstract and indirect approach to the phenomenon at hand. At its essence, uncertainty or any other psychological issue is a direct motivational issue in any conceivable applied context.

To try to apply the results of such a quantitative study, researchers would have to draw very large inferences, while hoping the findings of the study will help in selecting effective responses. Analogously, that would seem like using the results from a statistical analysis of generic "sports behavior" to infer which sport is at issue. The practical outcome might be that a baseball player would be supplied with a hockey stick to use when at bat. When you lose the context of behavior, you lose the meaning and the game frame.

Applied situations need to know how people "tick" in behavioral engineering terms. In Kramer's (2004) customary statistical strategy, the context is lost. It is routine in applied employee attitude surveys to keep group and team identities intact as a context. That prevents uncertainty about where to intervene when planning a relevant change. Similarly, in marketing research the tools used must provide specific, action-oriented information that leads to effective ad copy and ad visuals. Those lead to persuasive ads that beat the competition's efforts. The dots must remain connected.

Erroneous Quantitative Conclusions

At the conclusion of the book, Kramer (2004) returns to the "framing" question posed at the beginning (i.e., the behavior of people at the turn of the millennium). In the introductory chapter, we argued that uncertainty reduction theory was unable to "explain" the different responses that people had to the changing of the millennium (p. 218). He reverses his initial position and concludes that uncertainty reduction theory (i.e., URT) sufficiently "explains" the phenomena of differential behavior. The authors feel the explanation is ineffective because with this change of mind at the end, he decides that "TMU (the management of uncertainty) provides an explanation for these different reactions to the uncertainty. People manage their uncertainty through a combination of cognitive processes and information seeking" (p. 218).

This conclusion is so general a concept as to be useless from a cause-effect perspective that requires tangible, practical solutions. His "explanation" is not an explanation in meaningful terms. His explanation is actually a conceptual rationale, an opinion, based on little evidence, and gathered by a misplaced statistical strategy. Instead, one must ask practical questions such as, "What specific combination of cognitive processes and information seeking will work?"

As usual with conceptual, quantitative research, we are left to guess at the mechanism of action involved and what to do about it. Many quantitative researchers simply proceed with the often-observed "leap of faith." That is, the findings act like a Rorschach ink blot, wherein the researcher projects upon the findings an intervention out of thin air and leaps to a misleading conclusion.

From this, they develop a personal perception of the uncertainty in the situation and act accordingly. Kramer (2004) closes his work with, "A theory of managing uncertainty offers an approach for managing these issues" (p. 218).

To the contrary, there is absolutely nothing substantial to work with here in terms of behavioral engineering. As Hayakawa has demonstrated (Yeager, 2003), concepts layered upon concepts quickly separate us from reality and leave us with frustratingly circular, philosophy-like rationales with no real-world connections; another instance of "faction." Faction is defined as "a little bit of fact combined with a little bit of fiction."

While this kind of "soft" reasoning may prove harmless in conceptual settings, in applied settings the results of such a rationale can be devastating. Depending upon one's perspective, an individual therapy client might remain symptomatic for lack of a linguistic intervention. Or a billion dollar advertising campaign could fail for lack of a linguistic intervention. Other examples of linguistic interventions, by the authors and many of their colleagues, include teaching children to be perfect visual spellers in a matter of minutes, resolving phobias in an hour's time, and releasing stifled performance in professional athletes. In contrast, the authors have seen contrasting examples of misapplied quantitative analysis, producing serious and costly consequences.

Qualitatively, one must ask, "How do they develop a personal perception of uncertainty in the situation and act accordingly?" We are left with no clues at all with Kramer's approach (2004). In practical terms, a practitioner in an applied setting gains no useful tools or strategies beyond armchair concepts. Kramer believes otherwise, as he notes with this thought, "A theory of managing uncertainty offers an approach for managing these issues" (p. 218). There are no tools that offer any connections to any

means of managing the issue in real-world terms. In other words, this academic view of the real world is impossibly naïve, but is a common point of view held by many.

Reinventing the Wheel

The answers to such practical questions are offered via the tools of applied psycholinguistics. Linguistic tools are devoid of ill-fitting quantitative inferential strategies when motivational effectiveness is at stake. The mechanisms of action offered by linguistic motivational profiling and decision-making have been solved for over three decades (Bandler & Grinder, 1975). The task remains to gain broader implementation of these behavioral engineering strategies.

The issue left unsaid is that the Kramer-like explanations are conceptual and point to no hard data for an applied practitioner to use as a means to change the uncertainties at hand. Conceptual nominalizations chase conceptual nominalizations endlessly in ever widening circles. While such ethereal conceptions run amok, psychology will be called a soft science.

Even though Kramer (2004) chose an applied setting, and expected to obtain applied results, he did not. Kramer's approach, though common, is not an effective approach. The approach fails to meet the stated goals of his book, and fails because the chosen frame does not permit the actual profiling of the motives he wanted to investigate. His conclusions are so general from an applied perspective that they are useless for the actual management of the behavior at issue. There is no "how to use it" information involved in the conclusions. The reader is left to guess. That is not the case with applied linguistics.

In other words, using miscast quantitative methods, Kramer (2004) has solved a non-problem and created another non-problem to solve in the future. In the process, he has missed the fact that this conceptual "wheel" for managing uncertainty has already been invented. Linguistic behavioral modeling of communications behavior has been managing uncertainty and other psychological issues in countless contexts for well over a generation.

Open Versus Closed Systems

In effect, Kramer's (2004) ball has not moved forward in terms of his own goals. He has not covered new ground, nor has he added a new tool to the extensive applied kit that already exists. His methodological frames constrained him to limited results defined by the "closed" system generated by the statistics he used to frame the task. He covers old ground and offers no practical solution to organizational problems. This observation is also true for the work presented by Arkes (2003). These ineffective outcomes are all too common for behaviorists. To open new ground and make discoveries, that advance the concerns of the profession, requires an appropriate choice of methods at the beginning.

It can be said, then, that inferential approaches of the kinds illustrated here are "circular," yet rather customary quantitative rationales. Perhaps the quantitative state of the art qualifies as a case of a few experts having noticed the emperor's clothes. In contrast, linguistic strategies by definition are "open" systems. Open systems allow the experimenter to expand the definition of the initial frames of a project to encompass any

potential phenomena that might be relevant to the inquiry. Open systems allow the investigator to get on top of their box. The addition of this perspective is how discoveries are made: The method adapts to match the phenomenon. The linguistic methods do not act like a Procrustean bed that hacks and cuts reality to fit the method.

Qualitative organizational practitioners, in contrast to the quantitative, seek solutions to problems that would impinge on efficiency or effectiveness in a given context. Those practitioners may be executives, psychologists, marketers, researchers, coaches, or others who share their goals. The serious contributions they make occur in the form of competitive advantages and improved behavioral technology gained by their clientele.

Research versus Practice in Communications and Motivation

Wanting is a synonym for motive. And in the arena of motivation, we should explore a perspective that can add to the pool of ideas for our readers. We must return to the meta frame of motive and opportunity and means as an overall framework for modeling human behavior. James (2004a) has set the task for us, "Our ideas must agree with realities, be such realities concrete or abstract" (section 7).

From the framework of those three "universal" ingredients, motive, opportunity, and means, surely motive takes logical precedence over uncertainty as the "universal foundational focus" of communications theory.

Motive dominates the applied world of human behavior. Motive is the "foundational universal focus." In various settings, whether patients in therapy or consumers making a choice among products, people must have motive, opportunity, and means for behavior to occur. In this light, to assign "uncertainty" the lofty status of the universal foundational ingredient would seem unproductive in comparison to the obvious dominance of motive. James (2004b) offers us yet another insight about the value of context, "To know an object is to lead to it through a context which the world provides" (sect. 8).

Kramer's (2004) erroneous conclusions are to be expected because of the miscast role of quantitative methods. Those methods framed the project in such a way that conceptual tangles and abstract flaws in the results are inevitable. The whole of the explanation is seen through the lens of the method-limited perspective.

As a constant in a dynamic organizational setting, one can assume that an efficient and effective organizational outcome is always at stake. Business as a form of organized human behavior performs to competitive standards. Competitors are in a race to win, and the first thing we all learn in a race is that "no one waits for you." Competitors and the profit motive drive the motives of those in charge of decision makers. Motive dominates in organizational contexts and uncertainty (sometimes perceived as risk) is one of many contributing yet manageable components of organizational decision-making.

The authors have profiled motives in a wide range of settings, and there is no doubt that motive sets the framework within which uncertainty occurs. Motive as a system is the Holy Grail, not any particular component of a motive such as uncertainty. Motive is the "foundational universal focus" in the meta context of motive, means, and opportunity. Any forensic expert or organization knows that behavior of any kind (by either bad guys or good guys) can only occur if there is a motive, a means to carry out the

motive, and an opportunity to use the means to carry out the motive. This principle of behavior is used by all forensic organizations in their applied work to solve crimes. For instance, the writer Snoopy the Beagle, of Peanut's fame, knows that if the butler's motive is to kill the nefarious Baron of Upstream Pollution, he needs a weapon as the means, and an opportunity when there will be no witness; hence "a dark and stormy night." All three elements of a behavior are required. If any one element is absent, the behavior does not occur. This is how behavioral reality works. Motives happen in context.

James (2004a), again, clarifies the essential point here. "…Mental facts cannot be properly studied apart from the physical environment of which they take cognizance. [i.e., thoughts, feelings, and knowledge can only be understood within a social-cultural context…]" (sect. 2).

Statistical strategies cannot comply with James's (2004a) criterion. That means applied problems, such Arkes' (2003) merit-rating program, must be conceived as a people problem at its roots not a statistical exercise. In Kramer's (2004) case, we are offered a false solution of generic conceptual results, but without any technological substance regarding "how to" create viable answers to the essential questions he raised. Motivational investigations usually work best when conceived as linguistic communications systems. Interventions intended to change the behavior of individuals or groups require motivational profiles of one kind or another.

The quantitative data looked real to Arkes (2003). The data looked real to Kramer (2004). Other such similarly miscast projects look real unless you look through the lens of a more appropriate strategic perspective. Their findings were more akin to fiction regardless of how properly quantified they were in conventional terms. Statistics produced "science fiction" in contrast to linguistic technology. Just because something is quantified, does not make it relevant or real.

A Final Example

The difference in proper roles between the quantitative and linguistic strategies is substantial. In an issue of the *Monitor on Psychology*, we find an article, "*Criminal profiling: The reality behind the myth*." The author, Lea Winerman (2004), reports a difference in the inferentially-oriented psychologists versus the pragmatic mechanism-of-action-oriented FBI agents that says,

> Among those in the profiling field, the tension between law enforcement and psychology still exists to some degree. 'The difference is really a matter of the FBI being more oriented towards investigative experience than [academic psychologists] are,' says retired FBI agent McCrary. (p. 69)

The authors observe that errant psychologists routinely insist on employing idealistic statistical tools that lead them astray. The pragmatic agents of the FBI use cause-effect methods in their investigative efforts. Psychologists have the option of using the tools of linguistics with power and effectiveness. Linguistic strategies would be more in keeping with the needs of their client, the FBI.

The tension reported by Winerman (2004) implies that the psychologists lack rapport skills in not being able to get along with their clients. Or, most likely, are they imposing inappropriate methods on their clients, such as those shown in the illustrated cases described in this paper? In other words, those who study motives need to be clear about their own motives and their methods, and the role methods play in producing an effective result.

Summary

The fields of psycholinguistics and systems analysis have developed many topics in the professional literature of motivation from motivational science to applied motivational engineering technology. A key factor in this transition relates to the growing recognition of the mechanisms of action that language provides for systematic and deliberate change of human behavior to suit the purpose at hand. These developments have received uneven recognition among the behavioral professions for at least a generation. This lag results in some notable ineffectiveness regarding the choice of quantitative versus linguistic systems strategies for motivational issues.

From an applied perspective, the result of the quantitative/inferential approach to motivation is like a dog chasing its tail, running in circles. Applied situations generally cannot tolerate limitless, circular micro-parsing of concepts and their endless routines of data collection. System designers call this "analysis paralysis." Zeno, of Greek myth, shot his arrow at a target, but the arrow never reached the target because his arrow closed the first half of the distance to the target, then half of that remaining distance, and half of each remaining distance, endlessly, never connecting with the target. Zeno could represent the misapplication of inferential statistical strategies to motivational matters.

The literature clearly documents the power of direct, linguistic research technology. As researchers and as practitioners, the authors wonder why those using inferential approaches have been slow to realize the power of the linguistic approach. Partly, it would seem, it is an issue of **"**market dominance" or superior branding that gives statistical psychometrics a larger presence in university curricula than psycholinguistic methods. It is also a fact that learning linguistic technology is akin to learning a foreign language in terms of effort. However, in aerospace, experts gladly make that effort. Aerospace has progressed; psychological affairs have lagged by comparison.

Researchers have choices ahead of them to insure clarity for the respective roles of quantitative, qualitative, and linguistic research. This comparative look has outlined how research strategies are framed with the hope of clarifying the respective roles of the major strategies. Role clarity can provide the basis of more effective choices in research designs. Progress is at stake. The choices professional researchers make in the future will have profound consequences on real lives and their own reputations.

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