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ABSTRACT

Qualitative and quantitative social science research methods rather than representing opposing research methods instead are reinforcing research traditions. The ability of either research methodology to make lasting and important contributions requires the ability to synthesize and integrate with the other approach. While the assumptions of each research tradition differ, a functional framework is proposed for synthesizing and integrating the methods, with examples used from mass media research. The combination of functions provided by each method creates the basis for a complete science. The relationship becomes symbiotic, both methods necessary for the creation of a body of knowledge. (Contains 24 references.) (Author/RS)

QUANTITATIVE AND QUALITATIVE APPROACHES TO KNOWLEDGE:

PROPOSING A METHOD OF FUNCTIONAL INTEGRATION

FOR THE RELATIONSHIP BETWEEN EMPIRICAL METHODS

by

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This paper argues that qualitative and quantitative research methods rather than representing opposing instead are reinforcing research traditions. The ability of either research methodology to make lasting and important contributions requires the ability synthesize and integrate with the other approach. While the assumptions of each research tradition differ, a functional framework is proposed for synthesizing and integrating the methods. The combination of functions provided by each method creates the basis for a complete science. The relationship becomes symbiotic, both methods necessary for the creation of a body of knowledge.

The perception of a schism exists between the quantitative and qualitative approaches to social science. The split involves methodologies perceived at odds, pursuing inconsistent, if not contradictory goals, generating separate theories, and noncomparable conclusions offered about empirical reality. At the current time, few proposals for synthesis or establishing a relationship between the methods exists. With no mechanism for cooperation, the results generated by each method remain independent and unconnected, sometimes portrayed as hostile or incompatible with each other.

This paper argues that while distinctions exist between the two methods of approaching empirical study, there exists a necessary connection between the two methods.[1] The connection provides that both methods become requirements for a successful scientific approach that integrates the methods. The ability of either method to generate knowledge for influence, prescription, understanding, and hopefully improvements in the human condition **requires** both systems of thought. This proposal for integration argues that the separate functions of each set of knowledge claims combines with the other set of knowledge claims in order to advance understanding. An integration of the functions provides the basis for emerging scientific claims.

DEFINING QUALITATIVE AND QUANTITATIVE METHODS

This section provides a definition of each approach and describes the methods typically utilized. The essay recognizes that both qualitative and quantitative researchers utilize a variety of methods and techniques. The descriptions and definitions provide a sense of the scope of permissible options and illustrate of the permeable

membranes of the approaches described. Both methods continue to evolve and change with circumstances and increased understanding. The fundamental claim, the basic antagonism between methods, must be established to justify the search for a means of integration.

Qualitative methods seek a nonquantitative sense of understanding that explores (when used by communication scientists) the nature of how individuals and social groups construct meaning and use symbols. Qualitative techniques require that the scientist use a systematic method to understand the nature of the events under consideration. For example, ethnography can be described as a qualitative method seeking to understand how persons symbolically construct the world (Lonner & Berry, 1986).

Social scientists using quantitative methods collect data that eventually becomes synthesized using meta-analysis on the available research. The design of individual investigations revolves around the examination of relationships among variables organized on the basis of a theory. The research seeks to evaluate and/or clarify the existing set of relationships expected to exist. Quantitative techniques create a domain of findings across individuals and then statistically summarizes that body of research to obtain an average effect intended to represent all the research. Once the analyst obtains a set of homogeneous findings, the meta-analytic average can be said to represent the best available estimate of the average association across all the research. The purpose is usually to generate law like statements that provide a set of relations generalized across a domain (Berger & Chaffee, 1987; Chaffee & Berger, 1987). The assumption is that any limitations function as

boundary conditions restricting or specifying the ability to utilize that claim.

The issue first considered in this paper is not the nature of the methods or claim provided. Instead, the real issue is the limitation of the claims for each method. A strong sense of limitation is what propels much of the search for truth. The inability of a discourse to generate sufficient and convincing claims argues for a continued search for better and more sufficient explanations. Whenever a method, theory, or empirical investigation contains a limitation, that serves as the basis for justifying continued exploration. Most empirical examinations contain a limitations section followed by a future research section. The link between the sections is that the inability to claim complete knowledge after conducting an investigation propels the need to expand the understanding with additional research.

The next two parts of this paper develop the limitations for each methods. The limitations of relying on a single methodological approach propel the search for solutions. The failure of each method to provide the complete package necessary for scientific advancement serves as the basis for considering methods of combining the two methods (or the search for alternatives to existing approaches, see Harding, 1986). The methods contain limitations, and the limitation serves as the justification for the continued need to seek alternatives. If a method or theory was adequate, then no future research or exploration is required, truth becomes established. The final section of the paper proposes a functional framework for the

combining of both methodological approaches into a unified body of knowledge.

GOING IT ALONE

The issue in this section is a brief summary of why each methodology cannot provide a complete empirical answer or description. This is a necessary condition for the search for methods of integration. If a method can satisfy all the demands of description, then the search for an alternative is unwarranted.

Limitations of Qualitative Research

Qualitative research methods differ in kind and degree. Some techniques commit the scholar to an underlying set of relationships existing in the world and the research seeks to uncover those relationships, other techniques seek to provide a description of the experiences of the human group (organizations, culture, or individuals) studied.

For example, consider a feminist mass media scholar seeking method of uncovering the underlying patriarchal structure of the media images and seeking methods of empowering women to resist such images. The end product of the research provides a mechanism for the development of resistance strategies that prevents the impact of pervasive images that create various antisocial outcomes. Lana Rakow (1992) explicitly provides this as the purpose of her research. The function of the exploration represents not simply the generation of objective knowledge, but the scholarship seeks a form of social action on the basis of the knowledge generated.

Such forms of research (e.g. as described by Rakow, 1992) is probably not able to assume that mass media images are not

patriarchal and that women are not already empowered to resist such images. This research assumes the existence of a particular empirical reality and then operates on the basis of those facts to generate a particular conclusion or action consistent with available data. This paper does not apply to those forms of scholarship presupposing a particular set of facts and assess actions. The research considered in this essay involves the process of creation of information describing empirical reality as opposed to changing the existence of an empirical reality believed to exist. Advocates for empowerment of some group function no differently than a commercial consultant working for a fast food franchise, the consultant works to improve the effectiveness of various methods of information transmission rather than seeking to provide some basic descriptive principle. The distinction lies in the perception of moral or ethical purpose between the applications of the information, not the underlying methodological tools used to develop that information.

Not all qualitative methods involve the commitment to a particular social agenda. Many ethnographers, conversational analysts, and interpretative investigators assume the existence of no particular truths but rather seek to accurately describe reality. In fact, Baxter and West (1996) point out that use of these methods does not commit the researcher to rejecting any of the traditional quantitative epistemological assumptions. Like any scientific endeavor, qualitative scientists seek to provide accurate information that maintains the fidelity of the phenomenon under investigation. Interpretive methodologies typically considers how the community of symbol users create meaning or understanding shared by other members

of the community. Communication serves to unite or create culture through this process of sharing (Allen, Hecht, & Martin, 1996). The research seeks an understanding or a representation of the culture provides a mechanism for the speech community to create and share the means of identifying or uniting the individuals.

The limits of qualitative methodology dialectically serve as both the strengths of and limitations for the technique. For example, an ethnographer in obtaining a "thick description" comes to understand the world of the social system or persons under study. The richness of the details and understanding of the functions and processes become important in establishing an understanding of the culture. The uniqueness of the culture, rituals, or individuals operating within that context become apparent.

The problem of this line of empirical investigation is the sense of generalizability and permanence such information provides. Suppose we consider the work, "Talking Like a Man in Teamsterville." (Philipsen, 1975). The representations were collected more than several years ago, could a person go back and expect that the same community would adhere to the same assumptions about communication and interaction as existed in the initial investigation. Suppose the community had changed, the failure to replicate Philipsen's original analysis would not condemn his project as a failure. Nor would inconsistencies or even contradictions reflect poorly on the methodology. The dynamic nature of culture predicates change as inevitable and constant, Philipsen's analysis only intends to reflect the culture of that community for that time period. The fact that cultural analyses of twenty years ago are not consonant with cultural

practices now is not surprising. Consider finding some "Miss Manners" books from 1910, 1950, and 1990, it would probably be unrealistic to expect no changes. But differences do not indicate that cultures or speech communities never share practices or assumptions. The solution to the problem of differences existing across time and geography are not a requirement of properly conducting the investigation.

Discovering that the conclusions from qualitative investigations do not replicate using the same method would be unsurprising. The statement that no one "can step into the same river twice," might apply to many qualitative knowledge claims. The same "Teamsterville" of the era of the original data collection conducted by Philipsen (1975) may not exist five years later. Other researchers working in other communities could find that many other communities or no other community reflect the dynamics observed. The failure to provide replication or generalization is **not** a failure of the method. The preconditions for success of the method do not require that another scientist twenty years later or another scientist examining another community replicate the analysis. Permanence and generalizability, in terms of findings, is not a requirement for successful knowledge claims using qualitative methodologies.

Qualitative research must constantly be reborn and reconstructed with each succeeding generation, context, or community. The ability for the material to generate a set of permanent and generalizable knowledge at the current time does not universally exist, for several of the methods the criteria to make universal claims does not exist. Qualitative methods generate an understanding of a community at a

given time for some users. Such understandings can be tested and validated, the material does not lack rigor or a sense of objectivity within the data. The claims do not lack rigor or empirical value in some cases approaching an objectivity. The issue is that the claims, even when verified, do not generally require universality for success. The ability of that community to find, create, or share common symbols or means of sharing symbols provides the basis of understanding that the scientist seeks to share.

Suppose we have fifty qualitative investigations of an issue. For example, we have 50 ethnographies of high school principles conducted from 1950 to the year 2000, one a year, for fifty years. Could anyone line up the published data reports and reach a generalizable conclusion that would cover all the published data reports. In other words, could one combine the descriptions with a final "super" description to represent all the information provided.

The answer to that question is difficult. Producing such an answer might occur if the descriptions provide a sense of continuity and use similar language and provide a sense of shared experience. A corresponding technique to quantitative meta-analysis was proposed called, "meta-ethnography" (Noblit & Hare, 1988). The authors propose that one could collect various ethnographies over time and compare them on an issue. The goal would be to extract some common language representation across all the descriptions that every report includes. The result creates a coding system imposed on the results of the investigations.

For example, one might extract root metaphors that represent universal sets of issues or considerations. However, it is not

guaranteed that the process of synthesis would provide such a conclusion. Moreover, independent scholars each creating a meta-ethnography of the same 50 ethnographies may not agree with each other. This lack of agreement, either between descriptions or between the synthesizers does not necessarily indicate a failure of the technique. The desirability of the ability to generate this synthesis might contradict one goal of interpretative research (generating representations to provide an understanding of the participants the culture). The assumption that the manifestations of the culture simply are different in form but not substance might cause some difficulty since the very process of extracting the metaphors homogenizes the experience and loses the very reason for utilizing an interpretive approach.

Using any process to provide a synthesis ultimately imposes a for of objective structure on the process (which would seem to contradict the social construction need for interpretation). The problem of imposing structure is the assumption that a metaphor at one point in time for one community has the same meaning as a metaphor at a different point in time to a different community. The extraction and generalization of the metaphor may involve the loss of meaning of the original speech community generating the information. This process may go beyond the simple exchanging of terms. For example, asking a person "are you gay?" takes on a very different meaning when comparing the 1990's to the 1890's. But even beyond the particular words, can an interpretative community comfortably assume that metaphors simply reflect manifestations of the same underlying experience?

The inability of the process to generate an outcome using procedures consistent with the original data collection assumption makes any emerging synthesis of data problematic. Unless qualitative research can, as a method, lay claim to permanence, the knowledge is timebound and specific to a speech community. Governments or commercial firms using this research techniques that, by their own admission, provide answers to specify limited cultures at a point in time may proof frustrating.

Consider the legislature assessing whether to change a law, enact a social policy, continue or end a program, or any one of a number of issues that social scientists might provide relevant evidence and experience. The ability of qualitative scientists to guide and participate in that discourse becomes restricted to what the method can or cannot provide to support a claim. Because policy implementation and considerations are often measured in years or decades, the inability to provide long-term generalized knowledge claims may reduce the impact of qualitative data on public discourse. At the same time qualitative approaches are necessary for public policy on vital issues. If one were to construct a safe sex campaign for a school system, the qualitative researcher would generate a better understanding of the impact of various messages for that community.

The issues for qualitative approaches revolve around the uncertainty about the ability to generate conclusions that transcend the original community in which data was collected. No systematic method of resolving theoretical disputes on the basis of existing data currently exists. This current limitation restricts the

certainty that anyone can place in theories or practices that would be claimed as universal. But further, the ability to generate universal or permanent claims is inconsistent to the purpose and the intent of the method.

Limitations of Quantitative Knowledge Claims

Quantitative data assumes that experience can be converted to a common metric capable of comparison among groups. The net effect is to impose a common sense of measurement that attempts to transcend time and culture. Meta-analysis provides an average quantitative estimate the relationship between variables across large data pools. If the technique produces the knowledge claim sought, the relationship possesses four elements of scientific research (Allen & Preiss, 1993): (a) stability, (b) lack of bias, (c) predictability, and (d) contextual irrelevance (generalizability). Cappella (1991) argues that scientific claims should pass the tests of being "ahistorical" and "pancultural" and provide knowledge that permits control and prediction.

Scientific knowledge depends on the ability to demonstrate that such claims remain stable over time, are free from the bias of any individual experimenter or observer, offer predictability for the existence of relationships, and remain in effect regardless of particular context (context, as it exists, becomes a theoretically defined issue, if an element of a theory, therefore results should be generalizable across contexts). The knowledge claims are not objective, but rather intersubjective based on the ability of scientists to agree (at least temporarily) on the data as synthesized by the relevant meta-analyses.

This contrasts with qualitative approaches that define research in terms of perspective and illuminates the subjective process of the culture and the individual within that society. The key to a quantitative meta-analytic finding and the acceptance of the knowledge claim is clearly inconsistent the assumptions of qualitative claims. The quantitative finding permits a direct comparison to other quantitative research. More than that, quantitative research findings are combined and directly compared to each other.

The problems of quantitative knowledge claims is the loss of the individual as well as the cultural basis of the claim. The particulars (person, culture, or context) that generates the data becomes lost when combining data sets. In fact, the assumption made by the technique is to explicitly design for that loss. In most statistical procedures like analysis of variance (ANOVA) or regression the variability due to individual differences is considered the "error" term. Individual differences are to be explained in terms of macro variables or variables that transcend context (personality characteristics, situational features, or other features capable of manipulation or assessment).

The knowledge generated concern the relationships between constructed variables reflecting the scientist's view of the conceptual features of interest. The problem is that such a system creates a connection between abstract conceptualizations unconnected to any necessary operationalization. Without an operationalization, the abstract variable remains unconnected to the practice of the human beings for which the claim should generalize. The process of

operationalization constitutes, as will be argued later, a qualitative process.

Consider clinical psychological practices for the determination of the mental state of a criminal defendant. The use of quantitative data to predict or explain the behavior of the individual is inappropriate. Quantitative data is not concerned with the individual, the approach argues for means changes across a population, or a change in a mean value over time. The thesis is not to predict what any one individual will do, but rather the average movement across a large collection of individuals. Quite appropriately, a court cannot and should not consider quantitative data as applied to an individual in a criminal trial. Determinations about a particular person are questions about whether this person, at this time, possesses certain mental characteristics within some set of defined parameters. The question is not about society or any group of individuals, but rather about a particular individual. Quantitative data may indicate tendencies but do little to solve the practical question facing the court.

Qualitative approaches can and do consider particular circumstances of individuals. In fact, the goal of qualitative approaches is often an understanding of individual circumstances or particular cultural contexts. This knowledge is intrinsically valuable and provides a basis for understanding of the culture. Consider the medical doctor that wants to treat a patient. The doctor views successfully treating the patient as possessing intrinsic value, but in addition the knowledge gained from treating that patient should translate into future successful treatment of

other patients. The very process of the procedure provides some knowledge and outcome, now, and in the future. Quantitative data lacks the detail necessary for application. Application is a context or person specific situation, the application must exist in a particular setting with unique individuals.

A big problem in quantitative research is the inability to incorporate an explicit sense of ethical practice within the construction of knowledge. Ethical practices as constructed by the Internal Review Boards for the Use of Human Subjects or professional societies like the International Communication Association or the American Psychological Association consider the conduct of research. The ethical judgments do not focus on the potential applications of research, the reasons for the conduct of the research, or the basis for action. The result is the quantitative scientists more after the fact rather than with premeditation consider this topic. Wilson (1994) argues for the need to be forthcoming about the personal and professional biases in the work of the quantitative scholar. The dialectical tension in this statement is that the assumption of the method requires the minimization or elimination of these very factors. The result is that the ethical considerations always become external to the method and more often only consider the conduct of the investigation. This tension represents a fundamental issues not solvable within current quantitative methodology.

The limitations of quantitative methods come from the loss of the individual situated within a speech community. Theory is the process of examining relationships among abstract conceptual variables (Dubin, 1978). When that process is combined with the desire to

generalize across contexts and groups the individual, culture, and community become lost. When included within an analysis the framework is imposed and not generated by the participants. Even open-ended questionnaire data is ultimately coded using a scheme based on some conceptual framework, failure to fit within the framework is usually considered an "other" response. The imposition of a framework for understanding creates a gap between the knower and the known that removes the context of knowledge. The additional result is a lack of ethical grounding in practice the further removes the research scientist from the implications of knowing for the society that "gains" this knowledge.

CURRENT RELATIONSHIPS BETWEEN METHODS

This section of the paper considers the two most popular methods of handling the relationship between the methods: (a) incommensurability, and (b) methodological triangulationism. This paper wil argue that both approaches are doomed to failure as a means of providing solutions to the challenges.

Any solution to the problems of integrating quantitative and qualitative methods must meet the following criteria: (a) the process must not require that the techniques and outcomes of either method be compromised, (b) the process must require collaboration between the two methods so that no method can effectively exist without the other, and (c) the outcome must provide for a necessity of the other method.

Basically, the requirements for a "desirable" solution create the assumptions that each method is necessary and must not be compromised. Any solution that requires a fundamental alteration in

either method or a failure of an equal partnership fails to provide a satisfactory solution. This does not mean that in all endeavors or at all times the methods are of equal value, instead they are of equal and necessary value to the enterprise of science.

Incommensurability: Ignoring Each Other

Incommensurability argues that the data, conclusions, and the techniques are put in such a manner that neither is comparable to each other. The tenet is that the process is such that there can be no integration or really even dialog between the two methods. The methods go it alone and apart. This is acceptable if either method works to generate a complete understanding, the failure of both methods to work completely indicates that incommensurability permanently guarantees both separation and failure.

Basically, acceptance of this position is to argue the basis of why the methods must go it alone. Since neither can provide useful information or commentary on the other, there is no basis for integration. Results cannot be compared to each other, they are generated from separate traditions, incommensurability denies even the possibility of agreement by denying the ability of disagreement as well.

This method fails more in practice because seldom does one find citation patterns where an author will exclusively provide citations to only one methodology. If the incommensurability position is correct scholars should build big thick walls and ignore each other, since they have nothing to say to each other anyway. It is difficult to argue that **in practice**, scholars follow this assumption. So, in practice this method has been rejected.

The scholar is therefore forced to make a choice. A person can practice both, but not at the same time under this view. But incommensurability argues much like the Highlander premise, "there can be only one."

Triagulationism: Ignoring the Problem

Methodological triagulationism argues that each method provides a unique and useful set of perspectives that one can triangulate and compare. The integration method assumes that each method produces the same set of answers but using a different method. The position provides a sense of handling the quarrel by arguing for both methods to exist and practiced with comparison occurring later.

If qualitative and quantitative procedures agree (assuming one accepts that the methods produce comparable information) then everything is fine. The generation of consistent results by each method indicates that the conclusion is not method specific.

However, assume that the findings of each method disagree. The method has no solution for resolving inconsistencies. Notice that there really exists no method for defining the source of the inconsistencies. Another side note, the triagulation approach assumes that the methods do in fact address the same questions and generate comparable information in the sense of comparison for a conclusion. This may be problematic when one compares literature review methods.

The result of triagulationism is that the method requires a higher level methodology or theory for specifying a procedure for resolving inconsistencies. There exists no currently accepted procedure for systematically handling disagreements on outcomes.

Probably most damaging is the idea that a methodology can be wrong or inadequate.

A PROPOSAL FOR FUNCTIONAL INTEGRATION

The need exists for a sense of professional collaboration between qualitative and quantitative scientists, particularly when attempting to solve practical problems. The statement by Lewin that there exists, "nothing as useful as a good theory," indicates the goal and method of evaluating a theory. A good theory provides for utility in the application to social phenomena, a good theory provides inspiration for the continued search for knowledge. A good theory combines both understanding of the abstract but also the ability to apply that knowledge in solid and well-founded application.

Consider the analog between physics and engineering. Physics often generates equations to represent the forces at work in the universe. However, such abstract ideas like "for every action there is an opposite and equal reaction," while forming the basis for explaining and predicting the effectiveness of a rocket, does not provide the mechanical answers about how to manufacture one. The job of the engineer is to take known principles and bring them forth into a practical reality.

The relationship is not that qualitative research is "pretheoretical," or "prescientific." This characterization comes from arguments advanced by Bowers (1968) about rhetorical scholarship. The problem with such a characterization for qualitative scholarship is that it would ignore the dynamic necessity of such knowledge for action. Qualitative knowledge provides the basis for effective action within the speech community. There does

exist a relationship between quantitative and qualitative approaches to knowledge but not one that privileges either method over the other. Understanding the functions for ways of knowing creates a healthy sense of respect for the interplay of methods rather than a sense of inconsistency.

The relationship is active with influence traveling in both directions. The recognition that human sciences involve the use and eventual mastery of rhetoric is important. The key is recognizing the social context within which knowledge construction occurs and how that construction reflects particular values and orientations generates an understanding of the contextualization of knowledge claims. For example, Harding (1986) explores the relationship of gender to the impact on scientific knowledge to serve as the basis for a feminist standpoint approach to science. Even Sommers (1994) in her critique of Harding's position admits many of those same issues are relevant. These discussions provide some background understanding of a scientific process that operates within a human society.

At the same time, the balancing force for all scientists is that the knowledge created through empirical investigation addresses an interpretation of an empirical reality not contained within the symbolic world. In other words, while the symbolic world of language and society mediates the understanding, the ultimate teliology is experiential. The intersubjective agreement about the nature of experience forms the basis of scientific claims. Social constructions, like language and theory, serve as both a barrier and a medium for that comparison. But the basis for the claim is

experiential and no amount of symbolic reconstruction will make the sun go around the earth or an apple when let go ascend to the heavens rather than fall to the earth. Social construction does not substitute for experience, instead social construction functions to represent that experience. The degree to which the social construction fails to represent that experience for any reason (inadequacy of the symbols, political, social, or personal bias, etc.,) generates a legitimate concern.

The need for the creation of human symbols to represent an experienced (rather than objective) empirical reality creates the need for a dual and yet mutually reinforcing system of scientific interaction between quantitative and qualitative views. Brummett (1988) provides an example of how a Burkean rhetorical position served as the basis for a quantitative social scientific endeavor. He argues that the Burkean concept of homology serving as a basis for understanding the experience one has with a text can be tested using quantitative data. His argument is that the phrasing of the question is conducted in such a manner that quantitative data can access an answer. However, that does not mean that the rhetorical approach is validated or invalidated based on the results of quantitative investigation. The key is to establish a sense of how the methods generate relations among ways of knowing.

In a real sense, all quantitative scientific investigations begin as a qualitative venture that later becomes formalized within a quantitative methodology. At the same time, the application of a formal abstract system using quantiative methods must be interpreted using a social construction or qualitative methodology to enact the

findings. If the Newtonian story of the apple falling on his head, or Darwin's trip on the Beagle, or any one of a number of stories about scientists are accurate, then quantitative scientific theories typically come from largely qualitative ventures. Because the basis of experience is qualitative, the only addition quantitative scholars make is the attempt to define issues in a manner that eliminates the subjective or interpretive characteristics when making claims. In doing so however, the scientist creates the very limitation that undermines the sense of application to the context from which the idea came.

Quantitative science is often represented as a series of critical experiments that provided answers, just like the events in the previous paragraph. While such visions are compelling, they unfortunately fail to reflect the reality that critical experiments (or events) are invariably replicated hundreds, if not thousands of times, before general acceptance as truth. Each replication provides increased certainty of the conclusions when the replication reaches the same results (to within sampling or other error). But the replications, even when successful, only further contribute the loss of context and community when conducted by communication scholars.

For example, results of a meta-analysis may tell the educator that a two-sided refutational message exhibit the best method of convincing a student about the health benefits of a particular sexual practice (using a condom, abstinence, monogamy) (Allen, 1991). However, only ethnographic knowledge can provide the information about the exact content and how that content will resonate with the intended message targets. The knowledge generated by the

quantitative approach does not provide the "equipment for living" in the sense that the quantitative knowledge fails to provide a sense of specification about how to put into action the conclusions derived. Interpersonal relationship scholars do not, by definition, have more satisfying relationships. Abstract knowledge does not necessarily translate into improved ability. One does not expect a great athletic coach to be able to perform the physical tasks that the athlete does in competition. The coach's job is to direct the training and preparation of the athlete to encourage, permit, and construct the circumstances so the athlete can achieve a goal. Similarly, scientists may possess of knowledge of knowing that, without a knowledge of knowing how.

The knowledge required to generate a specific message is culturally specific and qualitative. Knowing that using higher levels of fear in a message (Boster & Mongeau, 1984; Mongeau, 1994; Sutton, 1982; Witte & Allen, 1996) improves the effectiveness of such messages is important. Such knowledge however, is abstract and theoretical and removed from the praxis of the communicator, providing little in the sense of practical wisdom to a person facing the task of determining how to construct a particular message for a particular condition.

The series of meta-analyses fear appeals establishes as a general principle that high levels of fear are, on average, more persuasive than lower levels of fear appeals. The findings indicate that a message maximizing the severity of the threat, maximizing the vulnerability of the person to the threat, maximizing the ability of the proposed solution to be effective in reducing the threat, and

maximizing the ability of the person to utilize the solution improves the persuasiveness of the message. The meta-analyses however, fail to provide one bit of crucial information, how to create a message the maximizes those criteria for a particular audience on a particular topic. What phrases to use, what emotions to invoke, what words, and for which persons, in which places. These questions are not answered when using quantitative methods (even when summarized by a meta-analysis).

The only answer to the failures of this position by quantitative scholars are the arguments advanced for analytic induction (Blalock, 1984). Analytic induction comes from a notion that one can create a basis system and keep modifying that to account for anomalies. The problem with the approach is that the unique uses of language or development of new or the change of existing cultures is not an anomaly. Cultures grow and fade in response to changes in the human condition. One does not "modify" culture as much as one understands it. The problem is that the creative use of language when creating a message is not simply produced by using a mathematical model.

Qualitative research considers the nature of values and culture. Understanding a culture suggests what types of icons induce fear. Understanding a culture suggests the ethical acceptability of using icons for various purposes and with various outcomes. The ethics of practice are, by definition, a qualitative consideration in the application to the living. The combination of qualitative and quantitative summaries that permits solution to the problems encountered by the society.

Quantitative researchers essentially gloss over the qualitative assumptions made when conducting a study. Suppose a research wants to conduct a study of high fear and low fear appeals. An experimenter would write two messages (one low fear and one high fear) for use in the investigation. The experiment provides a manipulation check to determine whether or not the assumptions about the writing of the messages were correct or not. If the participants reading the message indicate more fear experienced with the high than the low fear message, the manipulation was successful.

But the manipulation check fails to consider the first step. How did the an investigator know or reasonably expect that the messages would induce varying levels of fear. This is not to say that experimenters are always correct, manipulation checks often demonstrate errors between the conclusion an analyst draws and the participants would draw. However, the quantitative researcher by believing that the researcher possesses the ability to write the appropriate message assumes a qualitative understanding of the issues (consider that relatively few manipulations fail). Further, consider that the mathematical tests used in scaling (factor analysis, reliability, clustering) hide the essential qualitative feature of scales deemed most important--content homogeneity. The assumption of self-report scaling is that the items share homogeneous linguistic content at a semantic level. This judgment is initially qualitative, the quantitative analytic devices only serve to confirm this evaluation. Strangely enough, a leading proponent of confirmatory factor analysis, Hunter (1980) argues that the strongest indicator of successful measurement is content homogeneity. In other words, the

"best" determination of quantitative scaling should be a qualitative test based on an understanding of a normal language user.

However, this concern is mirror imaged by the qualitative researcher's concern that the conclusions and attributions of the research are shared by those under study (Tompkins, 1994). The difference is that the endpoint of the qualitative product requires an enormous attention to this kind of detail and often the point of the entire project is the development of this particular point. Quantitative research usually just "checks" this assumption to make sure it is accurate without any development of the process by which such knowledge was generated. The necessary process of understanding the culture or community takes place but receives no articulation. Therefore, the quantitative approach lacks the theoretical knowledge that only a qualitative understanding can provide for appropriate application.

Yet, it is that very process of understanding a situation well enough to produce a message (in persuasion research) that remains necessary. However, without the research of quantitative methods the qualitative results provide little direction. Understanding how participants understand messages is not an assurance of how persons will view the relative merits of competing messages that may be produced in the future.

To provide an example, suppose we wish a population of males to wear condoms during sex because we believe them to be at risk for HIV infection. The qualitative researcher can provide information on how to generate messages but is often a poor judge to compare the effectiveness of the various possible broad strategies to generate a

message. The qualitative researcher simply lacks the cumulation of experience of comparing different message strategies to make a judgment. Only after deciding what kind of message to generate does the question about how to generate the message become relevant. However, the two methods should combine for a successful public service messages by combining information on strategy as well as an understanding of the application.

Strangely enough, this process makes qualitative research ultimately an applied research endeavor. Consider the advertiser wanting to make commercials advocating safe sex practices. The quantitative researcher says make the commercials high in fear to improve effectiveness. However, the meta-analysis does not provide information on how to generate fear. The necessary information for generating fear is culturally specific. In a real sense, a qualitative understanding of the culture becomes necessary in order to know how to write the appropriate message. In this frame, the qualitative researcher becomes the applied scientist by applying the abstract knowledge generated by the quantitative research. The qualitative theories provide a mechanism for practice within a community. But the question is how does the qualitative researcher know that the description is accurate? Qualitative theories and methodologies serve as the basis for the ability to make the appropriate determinations.

In practice, an interactive or cyclical outcome exists where the results of one type of investigation feedback into the practices and questions of the other type of investigation. Rather than viewing these as independent methods, there exists a necessary synergy

between the methods and eventually an interdependence that requires the utilization of both methods to develop knowledge claims. Quantitative knowledge provides the possibility of generalized or expected propositions about the normal tendencies of relationships to exist. Qualitative research provides the reflective knowledge for practice and the ability for research to exist in any form.

SPECULATIONS ON THE UNDISCOVERED COUNTRY OF THE FUTURE

The simplistic in group-out group politics of the social scientific community as practiced in the last half of the 20th century require reexamination if human knowledge seeks to sustain true advances. The tendency of social scientists to view knowledge within a limited framework means that the ability to create a unifying view across methods is lost. The tendency is to prioritize or create a sense of dominance where the methods are viewed as inconsistent.

The assumption of this essay is that both methods of scholarship work to produce valid knowledge claims. That is, both qualitative and quantitative methods generate information that successfully meets the standards for claims about empirical reality. Rather than view one or the other as failure (and both are limited), the assumption is that both are successful. However, both methods remain incomplete in the level of success. The plan offered by this essay suggests that through a combination of understanding provided by the methods generates successful practice.

The treatment of the each research tradition (quantitative or qualitative) as antithetical to the purposes of each other undermines the potential of each perspective to contribute to the other. The

problem is that even if each group refuses to recognize the legitimacy of the other perspective, it unwittingly must at some level must create a mechanism to adopt the desires and often the practices of the other approach. As pointed out previously, the adoption of assumptions are sometimes subtle, but ultimately necessary for the procedure to remain viable.

The next step is to develop research team approaches both for primary and applied research that integrate the information of each approach. How do researchers with fundamental divergent views on data combine efforts when solving problems. The key is to escape the desire to claim that research traditions and approaches are either qualitative or quantitative but rather to find techniques at synthesis and dialog in other to advance the agendas for both communities.

Generally, first step approaches into any question involve and depend on the ability to conduct qualitative investigations. Only qualitative investigation techniques can provide the initial understanding and richness of information necessary to even begin or guide a quantitative investigation. Theoretical views about the nature of cultures and speech communities form the hidden landscape of the world in which the quantitative scientist works.

Quantitative methods deal with issues of generalizing as well as eventually considering the permanence of knowledge among conceptual variables. For example, fear exists in all cultures, and therefore if the fear meta-analysis is correct, high fear is more persuasive than low fear. However, fear is left undefined. Fear operates

within the context of a culture or language community that seeks to accomplish particular tasks to construct a beneficial reality.

Combining the use of quantitative and qualitative methods permits a full picture about the relationships among variables as well as the ability to recreate those variables within the changing social conditions. The focus on application and the community by the qualitative researcher also provides the basis for why that branch of research is often far more concerned with the ethical practices of the scientific community. The result of this integration is a natural infusion of ethical considerations into the quantiative scholarship. This infusion is accomplished by inclusion rather than exclusion.

A quantitative research outcome, for example high fear is more persuasive than low fear appeals, carries no immediate ethical imperative. A society concerned with reducing HIV/AIDS infection rates may use the fear of the disease to encourage behavioral changes on the part of at risk groups. Most persons would probably find few ethical problems with the use of this information. However, a politician arguing that a vote for an opponent risks loss of social security benefits, the release of dangerous criminals, or economic disaster involves ethical concerns. The problem with quantitative knowledge is that such abstract claims provide no inherent basis for ethical consideration. Ethics for quantitative researchers focus on the process of how an investigation is conducted, not the potential application of outcomes. Given in the above example the same knowledge can be used for pro or antisocial purposes, the quantitative scientist cannot guarantee the ethical use of the

information. While the same problems exist for qualitative research, the focus on potential application within a community creates a higher and more immediate consideration of ethical implications. The qualitative researcher is addressing the issues of a community and sensitive to the needs and values of the participants. Qualitative research often is expressly concerned and considers the ethical implications of the investigation. More effort considering the relationship between the observer and the observed would benefit both lines of investigation.

The need to combine these forms of knowledge for effective action indicates that there exists the need for dialog on ethical issues. Quantitative researchers quite often fail to articulate in advance the implications of the outcomes they generate. Qualitative researchers often do not consider how the understanding of the community may permit effective action on the part of those engaged in change (goverments, corporations). Just as the considerations for scientific knowledge require both halves of the coin, so does the consideration of ethical standards and practices require such joint ventures.

The future requires the generation of a vision that combines, after a fashion, the elements of each research tradition into an integrated body of scientific knowledge and action. One should never take the position that one form of knowledge serves a higher, nobler, or better purpose than other forms of investigation. In addition, given the necessity of both forms of investigation to make meaningful contributions, neither can exist without the other. The problem is to find a pattern of interaction between the communities that permits

capitalization on the strengths of each community. This does not mean mistakes and errors will not occur. Science is the progress of self evaluation, criticism, and correction in an effort to improve the status of knowledge claims.

The critical question is not whether such a combined sense of knowledge will occur, but how it will take place and under what conditions. Our recommendation is that the community begin collaboration and the process of examination, often on important social issues. If solutions to human problems can be found, they will come from both the application of quantitative and qualitative methodologies within a unifying framework.

FOOTNOTES

[1]Baxter and West (1996) point out that the distinction in techniques of producing information may not be evidence of underlying true epistemological differences. For example they point out that most multi-method research (involving quantitative and qualitative techniques) is positivistic in nature (p. 98).

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