

**Communication Research Methodologies:**

**Qualitative and Quantitative Methodology**

\*\*\*\*\*

Dr. Duangtip Charoenruk

A starting point in trying to understand the collection of information for research purposes is that there are two broad approaches: quantitative research and qualitative research. The early form of research originated in the natural sciences such as biology, chemistry, physics, geology, etc. and was concerned with investigating things which we could observe and measure in some way. Such observations and measurements can be made objectively and repeated by other researchers. This process is referred to as “quantitative research”. Much later, along came the researchers working in the social sciences such as psychology, sociology, anthropology, etc. They were interested in studying human behavior and the social world inhabited by human beings (Morgan, 1983). They found increasing difficulty in trying to explain human behavior in simply measurable terms. Measurements tell us how often or how many people behave in a certain way but they do not adequately answer the question “why?.” Research which attempts to increase our understanding of why things are the way they are in our social world and why people act the way they do is called “qualitative research” (Marshall & Rossman, 1999).

The purpose of this paper is to explore and gain a basic understanding of quantitative methodology and qualitative methodology:

Quantitative research is described by the terms ‘empiricism’ (Leach, 1990) and ‘positivism’ (Duffy, 1985). It derives from the scientific method used in the physical sciences (Cormack, 1991). This research approach is an objective, formal systematic

process in which numerical data findings. It describes, tests, and examines cause and effect relationships (Burns & Grove, 1987), using a deductive process of knowledge attainment (Duffy, 1985).

Whereas quantitative methodologies test theory deductively from existing knowledge, through developing hypothesized relationships and proposed outcomes for study, qualitative researchers are guided by certain ideas, perspectives or hunches regarding the subject to be investigated (Cormack, 1991). Qualitative research differs from quantitative approaches as it develops theory inductively. There is no explicit intention to count or quantify the findings, which are instead described in the language employed during the research process (Leach, 1990). A qualitative approach is used as a vehicle for studying the empirical world from the perspective of the subject, not the researcher (Duffy, 1987). Benoliel (1985) expanded on this aspect and described qualitative research as ‘modes of systematic enquiry concerned with understanding human beings and the nature of their transactions with themselves and with their understandings’.

The aim of qualitative research is to describe certain aspects of a phenomenon, with a view to explaining the subject of study (Cormack, 1991). The methodology itself is also described as phenomenology (Duffy, 1985), or as a humanistic and idealistic approach (Leach, 1990), with its origins lying in the disciplines of history, philosophy, anthropology, sociology and psychology (Cormack, 1991). This historical foundation, which is not that of the physical science domain, has been cited as one of the great weaknesses of qualitative research.

Historically the use of the true experiments has contributed greatly to the universal knowledge now acquired. The quantitative methods used produced legitimate

scientific answers, and as a result of this hard data, action was generated and changes took place (Melia, 1982). The qualitative approaches produced soft data which were, and are still described by some, as being inadequate in providing answers and generating any changes. One can argue that the use of the labels hard and soft data suggests in itself that analysis by numbers is of a superior quality to analysis by words (Corner, 1991).

For sampling, sampling procedures for each methodology are complex and must meet the criteria of the data collection strategy. Both research approaches require a sample to be identified which is representative of a larger population of people or objects. Quantitative research demands random selection of the sample from the study population and the random assignment of the sample to the various study groups (Duffy, 1985). Statistical sampling relies on the study sample to develop general laws which can be generalized to the larger population. The advantage of results obtained from random sampling is that the findings have an increased likelihood of being generalizable. The disadvantage and a weakness of the quantitative approach, is that random selection is time-consuming, with the result that many studies use more easily obtained opportunistic sample (Duffy, 1985). This inhibits the possibilities of generalization, especially if the sample is too small. Qualitative research, because of the in-depth nature of studies and the analysis of the data required, usually relates to a small, selective sample (Cormack, 1991). A weakness of this can be suspicion that the researcher could have been influenced by a particular predisposition, affecting the generalizability of the small scale study (Bryman, 1988). This suggests that qualitative research has low population validity. However, the strength of this approach is seen when the sample is well defined, for then it can be generalized to a population at large (Hinton, 1987). Raggiucci's (1972)

ethnographic organizational study demonstrated the values of this approach in studying the benefits and practices of minority ethnic groups.

In quantitative research, the investigators maintain a detached, objective view in order to understand the facts (Duffy, 1986). The use of some methods may require no direct contact with subjects at all, as in postal questionnaire surveys. It can be argued that even interview surveys require the researcher to have little, if any contact with respondents, especially if hired staff carry out most of all the interviews (Bryman, 1988). The strength of such a detached approach is avoidance of researcher involvement, guarding against biasing the study and ensuring objectivity.

Such an approach was successfully used in the West Berkshire-based perineal management trials of Sleep et al (1984). For example the midwifery study was indirectly controlled by the researchers whose main involvement, other than randomly allocating mothers to either the controlled or experimental episiotomy group, was to analyze the data, once collected. The findings of this study, through its objectivity, have contributed to knowledge within this field. Spencer (1983) argued that little is derived from such an indirect researcher-subject relationship especially in the health care setting. His major criticism is that the detached approach treats the participants as though they are objects and, as such, places hospitals on par with car repair garages. (Cormack, 1991) also emphasized the weaknesses of such an approach. She argued that the research participants are usually kept in the dark about the study, and are often left untouched by the research itself but are expected to transfer the findings into practices. These arguments are examples of the criticism that quantitative methods treat people merely as a source of data.

As with quantitative research, qualitative methodologies also have supposed strengths and weaknesses regarding the closeness of the relationship between researcher and respondent. Duffy (1986) argued that strength of such an interactive relationship is that the researcher obtains first-hand experience providing valuable meaningful data. As the researcher and the subject spend more time together the data are more likely to be honest and valid (Bryman, 1988).

Supporting this argument is the study by Baruch (1981) which revealed that time and the subsequent relationship built between the researcher and the subjects was crucial for a genuine understanding of the dilemma. This appears to be a major strength of the qualitative approach itself, as Woodhouse & Livingwood (1991) pointed out in their study of a multi-agency substance abuse project. They claimed that the approach, because of the interactive method, far exceeded expected evaluation outcomes, by contributing to empowerment, and enhanced communication and clarification of roles among the partners involved in the project.

The weakness of such a close relationship is the likelihood that it may become pseudo-therapeutic, complicating the research process and extending the responsibilities of the researcher (Ramos, 1989). The possibility of becoming enmeshed with subjects could also lead to researchers having difficulty in separating their own experiences from those of their subjects (Sandelowski, 1986) resulting in subjectivity (Cormack, 1991). In its most extreme form this is referred to as 'going native', where the researcher loses awareness of being a researcher and becomes a participant (Bryman, 1988). However, this may not be entirely negative in that it facilitates a better understanding of the subject, as demonstrated by Oakley (1984).

In term of methodology, the research processes used in the quantitative approach include descriptive, correlational, quasi-experimental and experimental research (Cormack, 1991). The strength of such methods is that both true experiments and quasi-experiments provide sufficient information about the relationship between the variables under investigation to enable prediction and control over future outcomes. This is achieved by the ability of the researcher to manipulate an independent variable in order to study its effects on the dependent variable.

This strength can also be argued to be the weakness of the quantitative method, especially where organizational research is concerned. The methodology dismisses the experiences of the individual as unimportant, which is, demonstrated in the Bockmon & Rieman study (1987), and regards human beings as merely reacting and responding to the environment (Cormack, 1991). This causes difficulties in organizational research, because organization uses an holistic view of people and their environment and, according to Briones & Cecchini (1991), quantitative methods do not permit this approach.

The qualitative approach includes methods such as grounded theory and ethnography research (Denzin, 1978). The strength of the methodology employed lies in the fact that it has as holistic focus, allowing for flexibility and the attainment of a deeper, more valid understanding of the subject than could be achieved through a more rigid approach (Duffy, 1986). It also allows subjects to raise issues and topics which the researcher might not have included in a structured research design, adding to the quality of data collected. The study by Melia (1982) is a good example of these strengths, and its findings have contributed to the knowledge of employees' perspective on organization.

A weakness of qualitative methodology is the possible effect of the researchers' presence on the people they are studying. As previously highlighted, the relationship between the researcher and participants may actually distort findings.

Particular to data, the data collected in quantitative research are, as mentioned, hard and numerical. The strength of producing numbers as data is that this demonstrates an ordered system. Such an approach could be viewed as being necessary in an organization, for as Spencer (1983) suggested, preparing an off-duty rota for 5,000 employees needs quantitative methods and a computer. This argument is also supported by Kileen's (1981) study regarding new employees where there was a need to use numerical data to identify the organization resources needed, number of employees involved, and what difference they made to outcome.

The opposing argument, suggesting the invalidity of numerical findings, is that data not displaying significance are often neglected, or alternatively attention is centered on a minority if the respondents leaving the majority unexplored, in other words, there are deviant cases (Cormack, 1991). Therefore, this distorts the evaluation of data. In contrast, the soft data collected in qualitative research identify and account for any deviant cases (Cormack, 1991). The rich data produced provide an illuminating picture of the subject, with great attention often given to pointing out intricate details. Evidence of this is seen in the study by Melia (1982) where employees' comments are quoted, enabling the reader to fully understand the subject being investigated.

The comparative weakness of qualitative data concerns the likelihood that some researchers can become overwhelmed by the data collected. They may become confused by their inability to limit the scope of the study, concentrating on a few manageable area (Bryman, 1988). In this situation, the research can become poorly focused and ineffective.

For reliability, quantitative research is considered more reliable than qualitative investigation. This is because a quantitative approach aims to control or eliminate extraneous variables within the internal structure of the study, and the data produced can also be assessed by standardized testing (Duffy, 1985). This quantitative strength can be seen in the comparative analysis of employees' and managers' perceptions about organizational activities. However, one can question the reliability of quantitative research, especially when the data have been stripped from the natural context, or there have been random or accidental events which are assumed not to have happened (Corner, 1991).

The reliability of qualitative research is weakened by that fact that the process is under-standardized and relies on the insights and the abilities of the observer, thus making an assessment of reliability difficult (Duffy, 1985). The study of Hind et al (1990) examined this issues and demonstrated that reliability could assessed by using independent experts to examine various aspects of the process of developing grounded theory. However, one must question the feasibility of employing such a costly process, both in terms of time and money, to verify the reliability of qualitative study.

For validity, although qualitative methodologies may have greater problems with reliability than quantitative methodologies, the position is reversed when the issue is validity. The weakness in quantitative research is that the more tightly controlled the study, the more difficult it becomes to confirm that the research situation is like real life. The very components of scientific research that demand control of variables can therefore be argued as operating against external validity and subsequent generalizability (Sandelowski, 1986). Campell & Stanley (1963) maintain that the more similar the research experiment is to the natural setting the greater is the validity and thus

generalizability of the findings. The field studies concerning perineal management by Sleep et al (1984) all contribute to the scientific understanding of this aspect of organization. One reason that this can be claimed lies in the fact that the studies took place in a organizational environment, which increased validity.

The strength of qualitative research is proposed in the claim that there are fewer threats to external validity, because subjects are studied in their natural setting and encounter fewer controlling factors compared with quantitative research conditions (Sandelowski, 1986). The researchers also become so immersed in the context and subjective states of the research subjects that they are able to give the assurance that the data are representative of the subject being studied, as seen as in Oakley's (1984) antenatal organizational study. The closeness of researchers also threatens the validity of the study if they become unable to maintain the distance required to describe or interpret experiences in a meaningful way, as discussed above (Hinton, 1987). It is argued, however, that this is worth risking because of the high level of validity achieved by employing qualitative methodologies (Duffy, 1985)

According to ethical issues, the ethical considerations for both quantitative and qualitative research are the same safety and protection of human rights. These are mainly achieved by using the process of informed consent. The utilization of informed consent is problematic in quantitative research, but practically impossible in qualitative methodologies in which the direction that the research takes is largely unknown (Ramos, 1989). Munhall (1988) argued that informed consent can be achieved in qualitative research by re-negotiation when unexpected events occur, but one can argue in turn that this places greater responsibility on the researchers, as well as requiring them to possess a high level of skill, especially in negotiation.

The ethical weakness of quantitative research concerns the formulation of hypotheses. In organization, they are immense ethical considerations, especially for instance when it is explained that improvements will occur in employee ability when a certain approach is adopted, and the eventual findings of the research do not support this. The qualitative approach proved valuable for this particular organizational study.

In summary, for every strength, there appears to be a corresponding weakness in both quantitative and qualitative research. It is this dilemma that has fuelled the debate over which approach is superior (Duffy, 1986), and which method should therefore be adopted for organizational research. Choosing just one methodology narrows a researcher's perspective, and deprives him or her of the benefits of building on the strengths inherent in a variety of research methodology (Duffy, 1986). Atwood (1985) disagreed with this, and argued that it should adopt quantitative approaches to build organizational research into science. He stated that this would provide organizational research with a useful theory base with practice application. The debate could be seen as advantageous to organizational studies. Researchers are being forced to consider the controversial issues of both methodologies, and this required them to have in-depth knowledge of epistemology and methodology and not to be restricted, as in the past, to the tradition of the sciences (Duffy, 1985). Preference for a specific research strategy is not just a technical choice; it is an ethical, moral, ideological and political activity (Moccoa, 1988). This debate unearths these issues in relation to both approaches, allowing appropriate methods to be adopted by researchers in order to answer questions and develop organizational theories.

Considering the facts, it is argued that each approach should be evaluated in terms of its particular merits and limitations, in the light of the particular research

question under study (Duffy, 1987). However, this implies that there are only technical differences between the two those of research strategies and data collection procedures (Bryman, 1988). There is a suggested alternative to this, that of combining the approaches, pulling on the strengths of each method and therefore counteracting the limitation posed by both. This research approach is called triangulation.

In terms of triangulation, the main research areas that triangulation is concerned with are issues of data, investigator, theory and methodology (Murphy, 1989). Morse (1991) argued that triangulation not only maximizes the strengths and minimizes those weaknesses of each approach, but strengthens research results and contributes to theory and knowledge development. Silva & Rothbart (1984) hold a different opinion, arguing that a compromise resolution seems to ignore the significance of work presented that acknowledges various philosophies of science as factors in research and theory development. The literature demonstrates that there is no agreement between researchers about triangulation. This is not surprising when there is no agreement either about quantitative or qualitative methods, employed within the approach.

The triangulation study conducted by Corner (1991) concerning newly registered employees' attitudes to and organizational preparation for working for customers, illustrates both the strengths and weaknesses of the approach. The study revealed a richer and deeper understanding of the subject matter than would otherwise be possible. Quantitative and qualitative approaches were found to complement each other while the inadequacies of each were actually offset. However, it also highlighted the time and cost implications the volume of data produced was immense and an extremely broad knowledge base was required to analyze it, which meant that other researchers were contracted in to work on different parts of the analysis. These findings are similar to

those of Murphy (1989) who used the method of triangulation to study organizational events. Considering the evidence, it seems reasonable to suggest that triangulation is not the way forward for all organizational research but that it may help organization to remove itself from the bipolar debate and restrictions, especially in the light of current financial constraints on organizational professions.

Overall, when qualitative and quantitative approaches are combined, the methods are often applied in sequential order. Semi-structured interviews or observational data might, for example, be used to explore hypotheses or variables when planning a large epidemiological study, resulting in enhanced sensitivity and accuracy of survey questions and statistical strategy. In such instances, qualitative studies might be thought of as precursors of “real” science. However, qualitative studies can also be added to quantitative ones, to gain a better understanding of the meaning and implications of the findings. More creative combinations are seen in triangulation (Miles & Huberman, 1994). The idea of triangulation originated from a craft used by land surveyors, who increase the validity of a map by incorporating measures from different angles. Multiple and diverse observations can enrich the description of a phenomenon—such as, an elephant looks very different when seen from above or below. Someone reading a report might gain a better understanding of what goes on if data from various sources. The aim of triangulation is to increase the understanding of complex phenomena, not criteria-based validation, in which agreement among different sources confirms validity.

Quantification of phenomena or categories can be done to gain an overview of qualitative material, but the application of such numbers should be done with caution. Quasi-statistical analysis of textual material, also termed content analysis, has gained some popularity, and computer programs are available to count the occurrence of

specific words or uttering in a text. However, the scientific logic of statistics and transferability is far from accomplished in a non-representative sample in which questions were not asked in a standardized way to all participants. We do not know to whom the findings can be transferred, and we do not know the potential answers from informants who just did not mention the issue. Prevalences, distributions, and differences cannot be inferred from this kind of material. Correspondingly, the search for meaning and experience in responses constructed by the researcher in advance is a risky business.

Accordingly, the principles of meta-analysis should be thoroughly reconsidered when qualitative and quantitative studies are analyzed together. Complete integration is not a realistic objective. In the context of organizational research, integration of methods invariably denotes treating the qualitative study as if it were a quantitative one, recording the material as variables, which are counted and aggregated. Meta-analysis should develop methods for reasonable combination of findings from qualitative and quantitative studies, acknowledging and using the potential of the different nature of these approaches. Interpretation of textual materials and purposeful samples is different to the calculation of numerical materials and random samples. Findings from qualitative and quantitative studies can certainly be aggregated and complemented by secondary analysis, contributing to an extended approach to the phenomenon in question, as well as a mutual validation. However, such meta-analysis should be done on the results, and not by accumulating and mixing quantitative and qualitative data, which require fundamentally different procedures for scientific analysis. When combining qualitative and quantitative studies, the meta-analyst should be prepared to handle contradictory findings, without having to discard one and appoint the other as the gold standard.

To conclude, although quantitative and qualitative methods are different, one approach is not superior to the other, both have recognized strengths and weaknesses and are used ideally in combination. Therefore, it can be argued that there is no one best method of developing knowledge and that exclusively valuing one method restricts the ability to progress beyond its inherent boundaries. Recognizing the tension between researchers about quantitative and qualitative research, and attempting to understand it, may serve to create relevant and distinctive modes of enquiry in organizational research. It may also help the unification rather than the division of organizational scholars.

From examining research in organizational studies, qualitative approaches appear to be invaluable for the exploration of subjective experiences of employees, while quantitative methods facilitate the development of quantifiable information. Combating the strengths of the methods in triangulation, if time and money permits, results in the creation of even richer and deeper research findings. It seems that organizational research has the potential to provide a valuable resource for the organization. As organizational research discovers and uses different methodologies, it will assist in creating the necessary balance in the knowledge required to develop organizational research as both a science and an art.

## References

- Baruch, G. (1981). Moral tales. *Journal of Sociology*, 3, 3, 275-296.
- Benoliel, J.Q. (1985). Advancing qualitative approaches. *Western Journal of Research*, 7, 2, 1-8.
- Bockmon, D.F., & Rieman, D.J. (1987). Qualitative versus quantitative research. *Holistic Practice*, 2, 1, 71-75.
- Bryman, A. (1988). *Quantity and quality in social research*. London: Routledge.
- Burns, N., & Grove, S.K. (1987). *The practice of research, conduct, critique, and utilization*. Philadelphia: Saunders.
- Campell, D.T., & Stanley, J.C. (1963). *Experimental and quasi-experimental design for research*. Chicago: Rand McNally.
- Cormack, D.S. (1991). *The research process*. Black Scientific: Oxford.
- Corner, J. (1991). In search of more complete answers to research questions: Quantitative versus qualitative research methods is there a way forward? *Journal of Research*, 16, 3, 718-727.
- Duffy, M.E. (1985). Designing research the qualitative –quantitative debate. *Journal of Advanced Nursing*, 11, 3, 225-232.
- Duffy, M.E. (1987). Methodological triangulation a vehicle for merging quantitative and qualitative methods. *Image*, 19, 3, 130-133.
- Gould, D. (1985). Isolation procedure. *Researching Time*, 81, 7, 47-50.
- Hinton, A. (1987). *Resracg awareness; The ethnographic perspective*. Ashford: Southampton.
- Leach, M. (1990). Philosophical choice. *Journal of Education*, 3, 3, 16-18.

- Lincoln, Y.S., & Denzin, N.K. (1994). The fifth moment. In N.K. Denzin & Y.S. Lincoln (Eds.), *Handbook of qualitative research*. CA: Sage.
- Lincoln, Y.S., & Guba, E.G. (1985). *Naturalistic inquiry*. Newbury Park: Sage.
- Meila, K.M. (1982). Qualitative methodology. *Journal of Advanced Nursing*, 7, 4, 327-335.
- Miles, M.B., & Huberman, A.M. (1994). *Qualitative data analysis*. Thousand Oaks: Sage.
- Moccia, P. (1988). A critique of compromise beyond the methods debate. *Journal of qualitative research*, 10, 4, 1-9.
- Morgan G. (1983). *A sociotechnical perspective, in beyond method: Strategies for social research*. CA: Sage.
- Morse, J.M. (1991). Approaches to qualitative and quantitative methodological: Triangulation. *Qualitative Research*, 40, 1, 120-123.
- Munhall, P. L. (1988). Ethical considerations in qualitative research. *Western Journal of Research*, 12, 2, 150-162.
- Murphy, S.A. (1989). Multiple triangulation: Application in research. *Qualitative Research*, 38, 5, 291-297.
- Oakley, A. (1984). *Talking it like a women*. London: Cape.
- Raggucci, A.T. (1972). The ethnographic approach and research. *Qualitative Research*, 21, 6, 485-490.
- Ramos, M.C. (1989). Some ethical implications of qualitative research. *Qualitative Research*, 12, 1, 57-63.
- Sandelowski, M. (1986). The problem of rigor in qualitative research. *Journal of science*, 8, 3, 27-37.

- Silva, M.C., & Rothbart, D. (1984). An analysis of changing trends in philosophies of science. *Western Journal of Research*, 6, 2, 1-13.
- Sleep, J., Grant, J., Elbourne, D, Spencer, J., & Chalmers, I. (1984). West Berkshire perineal management trial. *British Medical Journal*, 289, 6445, 587-590.
- Spencer, J. (1983). Research with the human touch. *Researching Times*, 29, 12, 24-27.
- Woodhouse, L.D., & Livingood, W.C. (1991). Exploring the versatility of qualitative design. *Qualitative Research*, 1, 4, 434-445.