

QUALITATIVE RESEARCH STRATEGIES AS PREREQUISITE FOR QUANTITATIVE STRATEGIES

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For many years there has been a debate on what scientific research is about. Some researchers argue that quantitative research is the only kind of scientific research and scoff qualitative strategies, and recently *visa versa* has taken place. The authors of this article do not support any of these stances. They argue that scientific research depends on decisions made during the research process. The researcher is almost "funneled" in the research process through specific decisions s/he makes on the research road. For example: the problem that is identified and stated, the research question(s) and aim of the research will determine what research strategy the researcher is obliged to choose. In this way the authors do not view quantitative and qualitative research as in opposition to each other, but complementing each other in the search for the truth and the solution of research problems. They reason that qualitative inquiry actually precedes quantitative inquiry in the classical scientific method. By no means this article aims at providing research recipes, but rather attempts to demonstrate the richness and diversity in scientific research.

Introduction, Problem Statement and Aim

For many years there has been an epistemological debate on what scientific research is about. The differences between quantitative and qualitative research have according to De Vos, Schurink and Strydom(1998:15) "developed into a full-blown debate which has involved scholars and practitioners in a, sometimes, almost vindictive polemic." Some researchers argue that quantitative research is the only kind of scientific research and scoff qualitative strategies, and recently *visa versa* has taken place. One can ask the question as to how valid this particular argument is. At this stage it seems as if these two camps of researchers are socially to a certain extent

forced to tolerate each other. In this article the authors attempt to reason that it is imperative for these two camps of researchers to take hands in conducting research. They reason from a classic, generally accepted scientific model that they cannot ignore each other in conducting research.

To achieve the aim of the article we will address the following:

- Definitions of quantitative and qualitative research
- A classic method of scientific investigation;
- Principles of conducting scientific inquiry;
- The question on the place of qual-

itative and quantitative strategies in the process of research; and

- A strong argument for qualitative research strategies as a prerequisite for quantitative strategies.

Definitions of Quantitative and Qualitative Research

The central focus of this article, that is, quantitative and qualitative research has to be addressed. According to Schurink (1998: 241)

- "The quantitative paradigm is based on positivism which takes scientific explanation to be nomothetic (i.e. based on universal laws.) Its main aims are to objectively measure the social world, to test hypotheses and to predict and control human behavior.

- In contrast, the qualitative paradigm stems from an antipositivistic, interpretative approach, is idiographic, thus holistic in nature, and the main aim is to understand social life and the meaning that people attach to everyday life."

A Classic Method of Scientific Investigation

According to Fox (1969:492) the five-step method of observation can be regarded as the classic method of scientific research. He states that the researcher:

- (1) observes natural phenomena;
- (2) draws conclusions as to what is happening;
- (3) utilizes the conclusions to formulate hypotheses (predictions) pertaining to the causal relationship between certain observations;

- (4) test the hypotheses over time; and

- (5) attempts to develop theories to explain why it is happening.

Thereafter the spiral of scientific investigation manifests in building and developing the body of knowledge in a specific field.

In the development of research methodology and approaches to analyze research problems a certain school of thought opts to over-emphasize the quantitative approach regardless of the demands of the phenomena involved. The quantitative methodology and its requirements almost became the only accepted methodology even to the level of an ideology. In some discussions it often seems as if statistics and hypothesis testing dictated the research process rather than the research problem and the phenomenon being researched itself. Such an approach quite often led to the quantification of man. Respondents thus quite often becomes mere numbers. Research seemed to become equivalent to a mechanical implementation of a measurement instrument and statistical testing. In view of this, the question arises whether it is acceptable to equate statistical significant results to a substantial contribution to the body of scientific results.

The situation described above and the rippling side effects lead to a situation of dissatisfaction with what was happening in the research field amongst researchers. This aforementioned approach often results in an almost objectification of the human being and his/her needs. This situation was identified and described as unbearable in research on human beings by the Chicago

School of researchers (Denzin & Lincoln, 1994: 1, 33, 34 & 362). This group of researchers experienced this approach to the research as somewhat mechanical and was frustrated. They almost intuitively returned to observe a phenomenon within a context. Schein (1987: 12-13) refers to a discussion at a meeting of educators of Organization Psychology and Sociology held at the Harvard Business School in 1983. One of the participants raised the question of how research results enter classroom teaching. Almost all the participants came to the conclusion that the data they really believed in and use in the classroom came from their personal experiences in organizations. What they trusted and believed in as what really goes on in organizations came from their practical experiences in the field. They confessed at this conference that they and their students often perceived what they read in their scientific journals not to be a true reflection of practice. Many of their colleagues who relied solely on experimental and survey research somehow did not seem to "understand" organizational realities as well as those who did field research. Schein (1987:13) went on and said, "it was almost as if there were two separate camps of researchers:

- (1) those who relied strictly on positivistic empirical experimental research, and who felt no particular need to immerse themselves in organizational "realities" (quantitative researchers); and
- (2) those who relied more on the knowledge in consulting experiences and in various kinds of field work

driven more by sociological and anthropological research models" (qualitative researchers).

This led to a polarization between researchers in conducting research. Each camp questioned the other's legitimacy in practicing science.

The question that arises is the following: Is the polarization between so-called qualitative and quantitative researchers really based on sound scientific principles?

Principles of Conducting Scientific Inquiry

According to Sax (1968: 26) science can be defined as consisting of the following characteristics/principles: "reduction and control of bias, the quest for precision, verification, empiricism and theory construction."

Reduction and control of bias refers to the recognition by a scientist of his/her fallibility. This recognition leads to the scientist endeavoring to make observations without bias acknowledging personal values, principles, prejudices or interests.

In the scientist's quest for precision he/she depends on his/her strategies and methods to provide him/her with knowledge, but recognizes that this knowledge can be questioned and verified.

One of the counter measures of the scientist's fallibility is letting others disprove or verify his/her conclusions. He/she also examines conclusions by other researchers. This verification is only possible where direct observations or measurements of phenomena can be obtained or consequences of measurements can be obtained.

In empiricism the focus is on observa-

tion and experience. Inductive reasoning is utilized as the main mean for establishing principles and generalizations. Through induction explanatory principles are developed to explain the interrelationships between observations.

Theory construction is part and parcel of practicing science. A theory refers to a set of concepts; definitions, assumptions and principles interrelated to each other. These theoretical descriptions and explanations should be kept as simple as possible because it prevents the necessity of testing the consequences of superfluous assumptions.

In view of the explication of the aforementioned principles we are of the opinion that they are applicable to all scientific practices including research where researchers utilize quantitative as well as qualitative strategies as well as science as practiced by physical scientists.

An Illustration of the Authors' Way of Reasoning:

As example the well-known story of Newton's (Albertyn, 1955: 1764-1765) formulation of the Universal Law of Gravitation is used: One day Newton was sitting dreaming under a tree. He saw an apple falling from the tree. As this happened he started wondering as to what was happening. Was it an apple falling from the tree or the earth falling towards the apple? What was happening? Newton's wondering lead to the formulation of the way objects attract each other. Various experiments were then planned to test this expectation formulated by him. After condensing and verification of all the gathered data the Law of Universal Gravitation was

formulated which in brief states that any two objects are attracted to each other by a force directly proportional to the product of the mass of the two objects and inversely proportional to the square of the distance between the two objects.

Let us analyze how Newton applied the principles of science:

In the first instance he used his senses to observe the phenomena of a falling apple. Almost simultaneously through inductive reasoning, he formulated (postulated) that two objects attract each other (Empiricism). Various data gathering methods and experiments were conducted to test this expectation /hypothesis (reduction and control of bias; the quest for precision and verification. The continuation of these processes eventually led to the formulation of the Universal Law of Gravitation (Theory construction).

The application of these principles are in line with the classic method of conducting research namely observation of the natural phenomena; drawing conclusions as to what is happening; using the conclusion to generate hypotheses; testing the hypotheses over time; and attempting to develop theories to explain why it is happening. The inevitable question now remains: Where does qualitative and quantitative strategies fit into this whole process of research?

The Role of Qualitative and Quantitative Strategies in the Process of Research

Before we are able to answer this question it is important to clarify what is meant with a qualitative and what is meant by a quantitative research strategy. In qualitative research there is usually little or no

information about a specific phenomenon available. Usually an inductive reasoning strategy is followed resulting in the generation of a hypothesis or hypotheses. An exploratory, descriptive and contextual design is followed. In quantitative research usually a deductive strategy is followed. A conceptual framework directs the research process and form parameters within which the research is conducted. Quite often hypotheses testing form the basis of the research process. These two strategies within this context are not in opposition to each other. We would rather say they complement each other.

How does the above stated explication fit within the classic scientific method of research? We would say that the researcher follows a qualitative research strategy in the initial steps of the classic scientific method, that is observing natural phenomena; drawing conclusions to what is happening and using the conclusion to generate hypotheses.

Following this in the next steps of the classic scientific method a quantitative research strategy is followed, that is testing the hypotheses over time and attempting to develop theory why this is happening. This is a rather simplified explanation for a complex research reality. To come to the conclusion that a qualitative strategy is synonymous to inductive reasoning and quantitative strategy is synonymous to deductive reasoning is untrue. Both reasoning strategies can be used in qualitative and quantitative research practices depending on the problem statement and aims of the research. This entails that the polarization of researchers in physical scientists, qualitative researchers and

quantitative researchers is superficial. Research strategies should not be the point of departure for research but rather the phenomena that are being investigated. The problem statement and the aims of a specific research project should determine the research strategy that is to be followed.

If this approach is followed in conducting research it can promote interdisciplinary research, multi-disciplinary team research and respect for each other as researchers. There will no in fights, polarization or any other superficial debates, only a quest for knowledge. Researchers are challenged to work together, support and facilitate the development of novice researchers and prevent poor quality research.

To conclude: research entails that both qualitative and quantitative strategies could be used depending on the phenomenon and research problem. If the classic scientific research approach is followed it implies that qualitative research will be a prerequisite for quantitative research. This is in line with the post-modern approach to conducting research where researchers have to demonstrate logic and justification throughout the research process and not be driven by preference of a research strategy.

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