Quantitative and Qualitative Social Research

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Abstract

Social research is based on a careful and systematic methodological procedure. Whether conducted within the framework of inductive or deductive logic, the overall concern is to make social inquiry objective, thus allowing for generalizability of research findings. This paper focuses on quantitative and qualitative research paradigm. It highlights some salient methodological issues that pertain to social research. The paper alludes to the specialized approaches that have been employed by qualitative researchers with a view to making qualitative research a rigorous scientific enterprise.

Introduction

Social research is a very challenging intellectual activity, its central purpose being "to discover answers to questions through the application of scientific procedures" (Jahoda et.al., 1959:2). It seeks to develop general principles with a view to solving practical problems. To that extent, care must be taken to ensure that whatever data is generated in specific research contexts are relevant to the research question (problem) being addressed. As "intellectual stimulus calling for an answer in the form of scientific inquiry" (Nachmias et.al., 1981:33), a research problem has to be empirically grounded. It has to be clearly and specifically articulated such that the research would be feasible and be successfully accomplished. As Johada et.al. (1959:66) state, "[t]he research questions presuppose much prior knowledge of the problem to be investigated as contrasted with the questions that form the basis for exploratory studies. The investigator must be able to define clearly what it is he wants to measure and must find adequate methods for measuring it."

Employing the right methodological techniques is a pre-requisite for a worthwhile scientific research. Kaplan (1973:19) has made the point that:

> There is a right way and a wrong way to do everything in science as in any other work; or at any rate, there are better or worse ways of doing it. The techniques of a science are the ways of doing the work of that science which are regarded, for more or less compelling reasons, as being acceptable. Scientific training is to a significant extent the mastery of techniques.

This paper seeks primarily to discuss the dynamics of quantitative and qualitative social research. The paper is, thus, structured into eight segments, including this introduction. The paper begins with a discussion on the nature of scientific research. The paper then highlights on quantitative research method. In the subsequent segment, attempt is made to give a conceptual clarification of 'qualitative social research.' This is followed by a discussion on deductivism and inductivism as logics informing social research. Generally, social research is carried out for two basic purposes.

To that extent, the paper discusses idiographic and nomothetic approaches to qualitative social research. The paper then alludes to the issue of qualitative research design. The last segment concludes the paper.

The Nature of Scientific Research

The scientific enterprise in social research "is a mixture of quantitative and qualitative thinking" (Stake, 2010:13). The scientific approach makes for plausibility of social and political knowledge. Indeed, "scientific activities always imply the quest for explanations, which are not only empirically based and yield systematic results, but also lead to results which are plausible…" (Pennings et.al., 2006:6). The concern of social research being to describe, explain, and predict social phenomenon, "science as a method of building knowledge has, in general, pursued the objective of explanation, not just description (Punch, 2005:15).

According to Ruane (2005:9), the distinctiveness of science derives from the fact that "it employs set methodical procedures that aim to reduce or control the amount of error that creeps into the process of knowing." He states further on the trustworthiness of science:

> … the scientific approach demands empirical evidence to support any assertions about the world. Its empirical nature means that science places a high premium on the observation, direct and indirect, of concrete phenomena. Science also insists on our following systematic, methodical "rules" for gathering our empirical evidence. Evidence that is obtained in an unsystematic way is regarded as tainted or problematic; it is seen as less trustworthy. And science insists that the evidence we find in support of our assertions be replicated by other studies before it is considered trustworthy… (Ruane, 2005:9-10).

A Note on Quantitative Research Method

Scientific research is fundamentally quantitative in nature. Quantitative research relies mainly on the collection of quantitative data. Punch (2005:28) defines quantitative research "as empirical research where the data are numerical." He states further: "Quantitative research, therefore, uses numerical data and, typically, has structured and predetermined research questions, conceptual frameworks and designs" (Punch, 2005:28). According to him, the key concept in quantitative data is quantity, and numbers are used to express quantity. Therefore, quantitative data are numerical: they are information about the world, in the form of numbers. Thus, he defines quantitative data "as empirical information in the form of numbers, produced by measurement" (Punch, 2005:56). And, he defines measurement as "the process by which we turn data into numbers. Measurement involves assigning numbers to things, people, events or whatever, according to particular sets of rules…" (Punch, 2005:55).

Indeed, quantitative research methodology is appropriate where quantitative measures of variables of interest are possible, where hypotheses can be formulated and tested, and inferences drawn from samples to populations (Adamu, 2006:62).

The quantitative approaches involve the collection of numerical data in order to explain, predict, and/or control phenomena of interest. The main objective of quantitative research is to ensure objectivity, generalizability and reliability of research findings.

Berg (2001:2) holds that while "qualitative and quantitative" are not clearly distinct, "in many social sciences, quantitative orientations are often given more respect. This may reflect the tendency of the general public to regard science as related to numbers and implying precision."

Understanding Qualitative Social Research

In contrast to quantitative research explained above, qualitative research refers to "any type of research that produces findings not arrived at by statistical procedures or other means of quantification" (Strauss and Corbin, 1998:11). Qualitative research, essentially, has to do with qualitative, as opposed to, quantitative data. Qualitative data is defined by Punch (2005:56) as "empirical information about the world, not in the form of numbers. Most of the time (but not always …) this means words."

The term 'qualitative research' is used as an overarching category, covering a wide range of approaches and methods found within different research disciplines (Snape et.al., 2003:2):

> Qualitative research is a broad methodological approach that encompasses many research methods. The aims of qualitative research may vary with the disciplinary background… Qualitative methods examine the why and how of decision making, not just what, where, when, or "who", and have a strong basis in the field of sociology to understand government and social programmes. Qualitative research is popular among political science, social work, and special education and education searchers (*See https://en.m.wikipedia.org/wiki/Qualitative research*).

It is argued that, contrary to the conventional view of statisticians which holds that qualitative methods produce information only on the particular cases studied (e.g ethnographies paid for by government funds…):

> a qualitative researcher holds that understanding of a phenomenon or situation or event comes from exploring the totality of the situation (e.g phenomenology, symbolic interactionism), often with access to large amounts of "hard data." It may begin as a grounded theory approach with the researcher having no previous understanding of the phenomenon, or the study may commence with propositions, and proceed in a scientific and empirical way throughout the research process… (See *https://en.m.wikipedia.org/wiki/Qualitative research*).

Denzin and Lincoln (2000:3) offer the following definition of qualitative research:

> Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that makes the world visible. These practices… turn the world into a series of representations including field notes, interviews, conversations, photographs, recordings and memos to the self…

According to Bryman (1988:8) "[t]he way in which people being studied understand and interpret their social reality is one of the central motifs of qualitative research."

The uniqueness of qualitative approach is reflected in its peculiar methods. Such data collection methods as observational methods, in-depth interviewing, group discussions, narratives, and the analysis of documentary evidence have been identified with qualitative research (Snape, et.al., 2003:3).

Johada et.al. (1959:65) state that an enormous amount of social research has been concerned with describing the characteristics of communities. Qualitative studies not only describe the structures of social organization in the community; they also appraise the major patterns of behaviour in given political and social contexts.

The significance of qualitative inquiry in social sciences need not be over-emphasized. As Miles et.al. (1994:1) avers, "qualitative data, usually in the form of words rather than numbers, have always been the staple of some fields in the social sciences, notably anthropology, history, and political science."

Deductive and Inductive Logic

Social research is usually carried out under either Theory-then-Research or Research-then-Theory strategy. The former refers to research informed by deductive logic, while the latter relates to inductively inspired research. The dictionary defines the term 'deductive' as using the knowledge that one has to make a judgment about a fact or situation (Deductive reasoning), and the term 'inductive' as using known facts to produce general principles (Inductive reasoning).

Deductivism and inductivism provide the basis for social research. When research seeks to "test established theory," it becomes deductive research; but when the objective is to "generate new theory," it is regarded as inductive research (Ruane, 2005:49). While deductive logic tests theories and hypotheses in a cause-effect order, inductive analysis is exploratory, premised on discovering categories.

Berg (2001:246) asserts that "the categories researchers use in a content analysis can be determined inductively, deductively, or by some combination of both…" Researchers interested in the inductive approach could begin by trying to divulge the content of particular documents or messages in order to identify the dimensions or themes that seem meaningful to the producers of each message. Conversely, in a deductive approach, "researchers use some categorical scheme suggested by a theoretical perspective, and the documents provide a means for assessing the hypothesis" (Berg, 2001:245-246).

Idiographic and Nomothetic Approaches

Social research has meaning only in the context of the purposes for which it is carried out. Social research, thus, could be either idiographic or nomothetic. Naroll, (1971) states that systematic comparative studies have long been carried out in cultural anthropology for two distinct ends. He continues:

> First, *idiographic*, historical studies have been carried out in an effort to reconstruct the specific culture history of certain regions or certain traits. Second, *nomothetic*, sociological studies have been carried out in an effort to discover or verify basic laws of society or culture, basic principles which presumably would hold good at least as tendencies in any society, anywhere, any time (Naroll, 1971:236).

While idiographic generalizations hold good only about the specific cultures compared, nomothetic generalizations explicitly or implicitly treat the cultures studied as samples from a larger universe and hold good for the entire universe studied, at least as tendencies (Naroll, 1971:236). The distinction has long been made between the purposes of idiographic and nomothetic studies. The purpose of an idiographic study is to describe a particular sequence of events; while that of a nomothetic study is to discern a repetitive pattern which reflects a general characteristic of society or culture. The author argues further that, in cultural anthropology, comparative methods have been developed for both purposes (Naroll, 1971:237).

According to Ruane (2005), when researchers pursue causal analysis they have two paths to follow: the nomothetic path and the idiographic path. He states that the idiographic approach is

dedicated to specifics. This is because an idiographic approach has a micro focus and is much more limited in scope than the nomothetic approach. The interest in idiographic model is to thoroughly explain the sequence of events that lead to one particular outcome. Being case specific, the idiographic approach strives to provide an exhaustive causal explanation of some event. "In this sense, then, it is said to offer a deterministic explanation of events; it details how one event led to another which led to another which ultimately led to the outcome (the dependent variable) we are analyzing" (Ruane, 2005:77).

On the other hand, the nomothetic path "adopts a generalist or a "macro" approach to causal analysis – it is interested in finding general causal patterns that exist over and above any one individual, case, or event. With this orientation, we are interested in finding the common influences that explain a general class of actions or events: e.g., war, crime, divorce, autism, school violence" (Ruane, 2005:76).

Ruane avers that the search for common, transcendent causal agents is a search for an efficient model of causal analysis – i.e, the nomothetic model tries to identify a few key factors that explain the most about our dependent variable. The concern of the nomothetic approach being to seek common factors that hold true across a class of actions, it offers a probabilistic explanation of outcomes. This is to say that nomothetic causal research allows us to identify those variables that increase the likelihood of certain outcomes (Ruane, 2005:76).

Punch (2005:18) posits that an idiographic view of knowledge is a more appropriate aspiration for social research in the eyes of many qualitative researchers. This is fundamentally because it is very useful as a starting point in learning about social science research. According to him, "[m]uch research is based on this model, and it can often help in organizing an individual project. It is clear and easy to understand, so the researcher who wishes to diverge from this model can see where and why the divergence occurs. In other words, when researchers argue about paradigms and knowledge, this model helps to see what the argument is about."

Punch (2005) distinguishes between the nomothetic and idiographic views of knowledge, in the following words:

> A nomothetic view sees generalized knowledge, universal laws and deductive explanations, based mainly on probabilities derived from large samples, and standing outside the constraints of everyday life. An idiographic view sees nomothetic knowledge as insensitive to local, case-based meanings, and directs attention rather to the specifics of particular cases. It prefers to see knowledge as local and situated… The idiographic view thus points towards understanding and interpretation as possible goals of research, alongside description and explanation (Punch, 2005:30-31[See note 3]).

The point has earlier been made that social research could be scientific or normative. Scientific research is, in the main, quantitative, and it is based on logic and rationalism. Indeed, scientific research entails systematic control and rigorous collection of facts and figures. It is internally consistent and subject to empirical testing. In scientific analysis, cases are selected in a random fashion and subjected to empirical verification. Kaplan (1964:256) contends that "[t]he aim of science is alleged to consist only in the discovery of universal laws, a viewpoint aptly designated 'the nomothetic bias.'"

According to Punch (2005), the question as to whether description or explanation is the appropriate purpose for a piece of research would depend on the particular situation. Further, the concerns of theory generation (qualitative) research and theory verification (quantitative) research would be different. He maintains that while the correlation (between quantitative research and theory verification on the one hand, and qualitative research and theory generation, on the other) "is historically valid, there is no necessary connection between purpose and approach. That is, quantitative research can be used for theory generation (as well as for verification) and qualitative research can be used for theory verification (as well as for generation)" (Punch, 2005:16).

The comparative approach offers interesting perspectives to political analysis. This is because "the art of comparing is… one of the most important cornerstones to develop knowledge about society and politics and insights into what is going on, how things develop and, more often than not, the formulation of statements about why this is the case and what it may mean to all of us" (Pennings, 2006:4).

The contemporary approach to comparative politics has a historical dimension to it. As Bendix (968:67) states, "the renewed interest in comparative studies of social change dates from World War II. This intellectual repercussion of the war and its aftermath is most apparent in the discontinuities of interest which have marked the work of American social scientists in recent decades." Before this time, comparative studies have not been systematized; no attempt was made to employ a scientific mode of analysis. Egwurube (1992:1) states, in this regard:

> Because of purely practical and material rather than scientific or methodological problems, traditional comparative analyses have remained bounded, usually adopting an essentially descriptive country-by-country approach to the examination of selected political institutions, in countries that in most cases share common political, administrative, social and economic values, or that have similar political institutions. Fortunately, this trend has evolved for the better in the contemporary period. This is because, from an initially limited area approach in which comparative studies were composed of case studies of individual states or studies of states that resemble rather than differ in several significant ways, there appears to be an evolution towards the comparative examination of political issues and political problem areas in states that appear at first so different and thus in principle "non-comparable."

The history and development of qualitative research has been traced to the need to make research more participatory and activist-oriented. The field of qualitative research came into currency in the early 1900s during which period some researchers rejected positivism, the theoretical idea that there is an objective world which we can gather data from and "verify" this data through empiricism. In the alternative, these researchers embraced a qualitative research paradigm, attempting to make qualitative research as "rigorous" as quantitative research and creating myriad methods for qualitative research (*https://en.m.wikipedia.org/wiki/Qualitative research*).

The development of grounded theory gave theory generation research new legitimacy in social science. Grounded theory itself is an explicit theory generation research strategy, developed in reaction against the overemphasis on theory verification research in the American sociology of that time (Punch, 2005:17).

Punch (2005) maintains that each of the purposes of research (theory verification or theory generation) would be appropriate for a given research, depending on the needs and the circumstances:

> When an area has lots of unverified theories, an emphasis on theory verification research seem a good thing. On the other hand, when an area is lacking in appropriate theories, it is time for the emphasis to shift to theory generation. Also, when research is directed mostly at the verification of existing theories, looking at new problem areas is discouraged, and the logic and techniques (usually quantitative) of verification research are seen as more important. When it is important to look at new areas in research, theory generation appeals as the appropriate purpose… (Punch, 2005:17).

Designing Qualitative Research

Research design attempts to match between the research questions and research methods. To achieve this, it is necessary for methods to follow questions (Punch, 2005:19). Essentially, "the development of a proper research design enables one to translate questions about real-world event into observations, which allows for drawing systematically conclusions that can be generalized" (Pennings, et.al., 2005:5).

The question ought to be raised: what is a research design? Punch (2005:42) describes the research design "as the overall plan for a piece of research, including four main ideas: the strategy, the conceptual framework, the questions of who or what will be studied, and the tools to be used for collecting and analyzing empirical materials." For Jahoda et.al. (1959:50), a research design "is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure."

Nachmias et.al., (1981:75) define research design in the following words:

> A research design is the program that guides the investigator in the process of collecting, analyzing, and interpreting observations. It is a logical model of proof that allows the researcher to draw inferences concerning causal relations among the variables under investigation. The research design also defines the domain of generalizability; that is, whether the obtained interpretations can be generalized to a larger population or to different situations.

Punch (2005:22) holds that the research questions, design and data ought to be preplanned in a piece of research, all of which would emerge as the research develops. Indeed, at the centre of the design of a study is its logic or rationale: the reasoning or the set of ideas by which the study intends to proceed in order to answer its research questions (Punch, 2005:63).

With respect to quantitative research design, causal assertions are assessed or evaluated in light of the standard of internal validity. The question of internal validity is posed in order to ascertain if the overall research plan or research design is capable of detecting causal relationships when they exist. On the other hand, external validity seeks to determine if the findings obtained in any one study can be safely generalized to other settings or groups (Ruane, 2005:38-41).

The research design is the basic plan for a piece of research. Therefore, "developing specific research questions to a point where they are stable, and connecting them to the design, data collection and data analysis parts of the research, requires careful work" (Punch 2005:26). The basic function of research being to provide for the collection of relevant evidence with minimal

expenditure of effort, time and money, the research design should be tailored towards the achievement of the research purpose:

> When the purpose of a study is exploration, a flexible research design, which provides opportunity for considering many different aspects of a problem, is appropriate. When the purpose of a study is accurate description of a situation or of an association between variables, accuracy becomes a major consideration; a design is needed that minimizes bias and maximizes the reliability of the evidence collected (Jahoda, et. al., 1959:78).

A significant aspect of the research strategies is the units of analysis. Ruane (2005:12) contends that:

> Paying attention to units of analysis should also help us in our search for answers to our research questions. If we want to generalize about individuals, we must make individuals the focus of our data collection efforts. If, on the other hand, we are content with generalizing about aggregates we are safe collecting and working with group-level data.

There are a number of competing paradigms and perspectives in qualitative research. Unlike quantitative research, "which seems relatively methodologically unidimensional despite its internal debates" (Punch, 2005:134), qualitative research is characterized by diversity of viewpoints. In conducting qualitative research, social scientists would take recourse to particular research designs that they consider appropriate for their research purposes. Indeed, there are several different research approaches or research designs that qualitative researchers use. The most frequently used qualitative research approaches in the academic social sciences include: basic/generic/pragmatic qualitative research; ethnographic research; grounded theory; phenomenology; philosophical research; critical social research; ethical inquiry; social science and governmental research; activist research; fundamental research; historical research; visual ethnography; and auto - ethnography.

Designing qualitative research entails careful methodological procedure. For, as argued by Berg (2001:102), "good qualitative research, like good quantitative research, is based on calculated strategies and methodological rigor… insights obtained from qualitative research cannot only add texture to an analysis but also demonstrate meanings and understandings about problems…"

In going about a given piece of research, researchers could use a method, protocol, or approach that has been tried and found useful or they could employ methods employed by other researchers to gather data for similar research questions (Stake, 2010: 90).

Conclusion

The paper has attempted to discuss some salient issues bordering on qualitative social research. Social inquiry as an academic concern is based on a systematic methodological procedure. This is to make for objectivity of research findings as well as for generalizability. The paper began by a discussion on the nature of scientific research. It then comments on quantitative research method. In order to put the paper within context, a conceptual clarification of qualitative social research was made. The paper also highlighted on deductivism and indictivism, which are central to the task of social research. Idiographic and nomothetic views of knowledge were discussed in relation to research. The issue of qualitative research design was also addressed in the paper.

As highlighted above, there are diverse research designs and approaches that have been employed by qualitative social researchers. The methods must conform to the research question or problem and be capable of bringing the proposed research to fruition. To be sure, not only must the information gathered for the research be relevant to the questions asked; they must be reliable and unbiased.

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