

RESEARCH METHODOLOGY EXPLAINED FOR EVERDAY PEOPLE

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Introduction

Deciding what research methodology to use for a study is a challenging endeavor and portends difficulties if the most appropriate methodology is not selected. This document compares and contrasts the general differences and similarities of qualitative and quantitative research methods. Also, I identify the strengths and weaknesses of each research method relative to the use of survey research. Of course, I explain and describe basic research methodology in practical language.

Processes of research, data collection and vocabulary terms are discussed and defined in this paper, as well as considerations such as how preconceptions, reliability and theoretical frame should be recognized.

This has been my least favorite research to write. I feel this way, primarily because of the terminology not being what most people use in everyday life. This paper discusses basic aspects of qualitative and quantitative research methods. It concludes that both types have their individual strengths and weaknesses. However, mixed-method is introduced toward the end of this paper as an ideal choice for research.

Research is the foundation of modern organizational science in academics; its goal is to empower individuals and nations alike with growth achieved through acquired empirical wisdom. When done effectively, research can be conducted much like peeling an onion. In the course of each layer shed, new directions, perspectives, and truths are revealed. Similarly, research is like walking through a maze that sometimes takes scholars on roads that seem to lead nowhere, generate new questions for them to pursue, or reward them with the satisfaction of coming to the end of a journey with new enlightenment that cannot seem to be contradicted.

Good scholarly research does not occur quickly or easily. However, modern advances in technology lend to making research more accessible, organized, and easier to assimilate than prior to the development of word processors and computer databases. Modern research efforts depict a plethora of methodologies, literature, and themes to research abundantly and thoroughly (Lichtenstein, 2000), though with as many varieties in underlying assumptions and orientations as to what exactly constitutes knowledge. Still, diversity in the science of research methodology paves roads to discovery, growth, and empowerment. It is the research itself that should, however, determine the method of research (Becker, 1998; Ulmer & Wilson, 2003).

Overview

This paper discusses the processes of modern research methodology and focuses, primarily, on qualitative and quantitative approaches. Definitions of research concepts are provided to paint a picture of the strengths and weaknesses commonly attributed to each method, especially as they pertain to conducting survey research.

Pursuing a better understanding of research methods through examining methods of investigative study are influenced by trends in both science and society, which make research challenging and debated, though rewarding and rich (Cooper & Schindler, 2003; Creswell, 2003). Although scholarly journals reveal just how challenging research itself can be conducted reliably and with validity, this paper aims to translate terminology found in advanced research literature to accessible terms for ease of understanding and applicability. With a better understanding of research terms and processes, research can be more rewarding and less taxing.

Research results do not always reflect a definitive answer with clearly revealed conclusions and, in fact, often seem to generate more questions than they answer. Sometimes, research proves that more investigation or information is necessary to draw definitive or precise conclusions or to develop theory or new hypotheses. In addition, further research may only reveal that there is more than one correct answer to the research questions. However, a thorough study that is conducted properly may indeed reward investigators with the answers they sought. In order to study life processes, access to the information must be obtained. The nature of the research and questions help establish the types of access required. Remenyi, Williams, Money, and Swartz (1998) argue that promising research sites should have an entrance where trust can be established and possibilities for gathering credible, quality, and suitable evidence are available.

Interpretation of information is often not so straightforward or will take multiple forms. It is through varying methods or integrating quantitative and qualitative methods that information can be interpreted and derived in its complexity. Becker (1998), Davies

(2003), Creswell (2003), as well as many others, suggest that research requires either qualitative, quantitative, or both types of data. As this paper will show, the research purposes and questions should direct what approach to take as researchers look for where and how to pursue more data. For instance, research questions directing qualitative studies often inquire into processes associated with change or individuals' meaning-making, seeking knowledge in variation and diverse perspectives, while quantitative studies are typically geared towards revealing relationships between variables, as measured by central tendencies in a data set. In fact, variations of data collection and analysis methods will be naturally called for when designing and drawing conclusions in a study.

The Process

The process of research is best done with knowledge of some basic guidelines. Creswell (2003) recommends that researchers reduce their entire study to a single, overarching question and several sub-questions. Qualitative researchers should state the broadest question they can possibly pose and glean data from any of six sources: archival records, direct observation, documents, interviews, participant observation, and physical artifacts (Yin, 1989). Of course, interviewing and observing are natural sources of direct data collection.

Recording data may best be done with a pre-designed log where both observations and interview data can be viewed (Creswell, 2003). Established interview protocols are also wise to structure the research and guide discussion. Such protocols will also enable the interviewer to take notes on the responses of the participant during the interview. They also assist researchers in organizing thoughts on items such as headings, ways for

starting the interview, and concluding ideas in a conversation with time constraints (Creswell, 2003). Audio recordings are a valuable tool in research for validity reasons, because they allow answers to be document verbatim.

The process of research is outlined here according to the following general guidelines specified by Malterud (2001) shown in Table 1 (below). They prove useful in analyzing the effectiveness of a research project:

1. Aim—Is the research question a relevant issue? Is the aim sufficiently focused and stated clearly? Does the title of the article give a clear account of the aim?
2. Reflexivity—Are the researcher's motives, background, perspectives, and preliminary hypothesis presented, and is the effect of these issues sufficiently dealt with?
3. Method and design—Is the strategy for data collection clearly stated (usually purposive or theoretical, usually not random or representative)? Are the reasons for this choice stated?
4. Has the best approach been chosen, in view of the research question? Are the consequences of the chosen strategy discussed and compared with other options? Are the characteristics of the sample presented in enough depth to understand the study site and context?
5. Theoretical framework—Are the perspectives and ideas used for data interpretation presented? Is the framework adequate, in view of the aim of the study? Does the author account for the role given to the theoretical framework during analysis?

6. Analysis—Are the principles and procedures for data organization and analysis fully described, allowing the reader to understand what happened to the raw material to arrive at the results? Were the various categories identified from theory or preconceptions in advance, or were they developed from the data? Which principles were followed to organize the presentation of the findings? Are strategies used to validate results presented, such as cross-checks for rivaling explanations, member checks, or triangulation? If such strategies are not described in this section, they should appear as validity discussions later in the report.
7. Findings—Are the findings relevant with respect to the aim of the study? Do they provide new insight? Is the presentation of the findings well organized and best suited to ensure that findings are drawn from systematic analysis of material, rather than from preconceptions? Are quotes used adequately to support and enrich the researcher's synopsis of the patterns identified by systematic analysis?
8. Discussion—Are questions about internal validity (what the study is actually about), external validity (to what other settings the findings or notions can be applied), and reflexivity (the effects of the researcher on processes, interpretations, findings, and conclusions) addressed? Has the design been scrutinized? Are the shortcomings accounted for and discussed, without denying the responsibility of choices taken? Have

the findings been compared with appropriate theoretical and empirical references? Are a few clear consequences of the study proposed?

9. Presentation—Is the report easy to understand and clearly contextualized? Is it possible to distinguish between the voices of the informants and those of the researcher?
10. References—Are important and specific sources in the field covered, and have they been appropriately presented and applied in the text?

Table 1. The Process of Research, Malterud (2001), p. 485.

Comparing and Contrasting Qualitative and Quantitative Research Methods

Extensive debate between the merits of qualitative and quantitative research has occurred for many years (Maines, 2003). As Strauss and Corbin (1990) wrote, qualitative research is any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification. On the other hand, Creswell (2003) explained, quantitative methods are used chiefly to test or verify theories or explanations, identify variables to study, relate variables in questions or hypotheses, use statistical standards of validity and reliability, and employ statistical procedures for analysis.

Certainly, both qualitative and quantitative research methods have individual strengths and weaknesses. Evaluating the strengths and weaknesses of each approach involves a form of qualitative research in itself. Importantly, employing properly designed research strategies (e.g., in data collection and analysis), while meeting the

needs of each research project, often determines whether the research will be fruitful (Cresswell & Miller, 2000). In fact, qualitative data often needs to be supplemented with quantitative methods, and vice versa, in order to reveal different learnings from the research (Ulmer & Wilson, 2003). Clearly, there is a need for both quantitative and qualitative research, as their relative strengths complement the weaknesses of the other.

Academic and social researchers have typically been educated to show favor to quantitative over qualitative methods due to the ability to show validity on a numeric scale with the aid of statistical tools (Morse, 1999). Even so, the use of statistics and statistical tools can be clearly assessed in terms of whether certain tests were properly selected and implemented (Schuster & Von, 2000). Quantitative research papers identify a problem and can generally be characterized by: (1) discussing the purpose of the study; (2) identifying the sample population and instruments used, and (3) discussing the relationship between variables, research questions, steps taken in the analysis of the data, and outcomes (Creswell, 2003). Moreover, qualitative research is usually presented in the same way with its purposes, methods for data collection, analysis and findings for answering them. It is their results that differ.

Horna (1994) asserts that quantitative research designs are best used to depict and explain social facts that can be investigated through the employment of methodologies of deductive logic which is common to natural sciences and Western civilization values. In addition, “a quantitative approach is one in which the researcher primarily uses postpositivist claims for developing knowledge...and collects data on predetermined instruments that yield statistical data” (Creswell, 2003, p.18). When data is quantifiable, validity and verification or rejection of a hypothesis are conducted through measurement,

resulting in a conclusion of acceptance or refutation. Qualitative data, while also addressing issues of validity, typically does so with acceptance of the plurality of truth, thus characterizing validity as the presence of a coherent and traceable logic of analysis and interpretation, versus a measurement of statistical power. When data is quantifiable, the length of the research paper can be considerably shorter in size, due to its numerical depictions of new understanding. Statistical analysis and quantitative data should not be discounted, however, and should instead be valued because of their usefulness in making comparisons across relatively large numbers of people, events, or objects. Likewise, distributions, central tendencies, aggregate patterns, probabilities, and correlations are best researched with quantitative analysis (Ulmer & Wilson, 2003), and qualitative research must often stop short of generalizing outside the sample studied.

On the other hand, qualitative research is often deemed successful when it is triangulated, able to be replicated, and is expressed with thick description (Morse, 1999; Price, 2000). Qualitative research is seen as especially important because it is useful in exploring real organizational goals, processes, failures, and links (Skinner, Tagg, & Holloway, 2000), focusing on “understanding particulars” rather than “generalizing to universals,” as quantitative research is said to do (Maxwell, 1992, p.296). As opposed to the breadth of quantitative approaches, qualitative research is valuable in its depth and its ability to uncover and interpret mechanisms behind behaviors and meaning-making.

Unlike the focus on textual interpretation in qualitative studies, quantitative research focuses on measurement “using predetermined categories that can be treated as internal or ordinal data and subjected to statistical analysis” (Patton, 1997, p. 273). Researchers often assume quantitative research to be precise and easily comparable

because it is grounded in “hard” evidence, which is usually acquired through tests, questionnaires, and surveys (Skinner, Tagg, & Holloway, 2000). Moreover, quantitative research is considered more useful for measuring outcomes of processes that are best understood by qualitative means (Couch, 1995).

On the other hand, qualitative research provides a more holistic examination of research, is usually based on interviews, observations, or focus groups, and focuses primarily on life experiences, social processes, and organizational structures and settings (Strauss and Corbin, 1990). Information is collected based upon spoken and written text and is not inhibited or constrained by predetermined standardized categories, thus allowing the resulting theory to be inductive and “grounded” in the data. Human perceptions and understandings are recorded in qualitative studies to show situations as participants perceive them (Hines, 2000; Miles & Huberman, 1994). In fact, Ulmer and Wilson (2003) believe that qualitative research has advantages over quantitative research because quantitative research cannot accurately quantify “abstract concepts—emotions, culture, social organization, social relationships...” with validity (p. 523). Life experiences and social processes, they imply, are difficult to quantify.

As with quantitative methods, there are limitations in qualitative research, as Creswell (2003) noted, including:

Researcher may be seen as intrusive. Private information may be observed that the researcher cannot report. Researcher may not have good attending and observation skills. Certain participants may present special problems in gaining rapport. Interviews provide indirect information filtered through the views of interviewees. Interviews

provide information in a designated ‘place’ rather than the natural field setting. Researcher’s presence may bias responses. People are not equally articulate and perceptive (pp. 186-187).

Skinner, Tagg, and Holloway (2000) conveyed several concerns for qualitative research, too. First, they question whether or not qualitative data can stand up to intense examination, a doubt that stems from the common presumption that either participants or interpretations of data are biased by the researcher. Bias is something that qualitative research acknowledges via the “subjective-I” approach; replication can be a problem, but qualitative research does not posit that this can be done. In fact, qualitative research rejects the idea of objectivity almost altogether. However, it should be noted that there are also biases in quantitative measures too, as found in the design and wording of survey questions, which are rarely questioned. In the case of researcher bias, generalization of ideas to all participants impacts validity. The second concern involves time considerations and resources for collection and analyzing data, which occurs by relying on diaries, logs, and audio recordings. These resources may be incomplete when amassed during a short time allotted for data collection, such that additional information could be unknown at the time the research is taking place. Third, whether the information is recorded and interpreted accurately is a factor of concern as well, and data often goes missing or is difficult to obtain. Obtaining this type of information is compounded if the environment does not support a qualitative approach for one reason or another (Skinner, Tagg, & Holloway, 2000). An example of this type of qualitative environment may be in an environment that does not give sufficient time during a survey.

Understanding Qualitative Research: Definitions and Processes

Strauss and Corbin (1990) believe that qualitative research requires certain essential skills typified by the ability to recognize and avoid bias, while being able to think abstractly and critically analyze situations. One approach to qualitative research is “interpretive” or “hermeneutic,” a perspective that assumes truth is socially constructed. Its primary goal is to discover or generate meanings held by respondents through transcending facts and causal analyses in order to investigate how they are constructed (Wolcott, 1994). Included in interpretive research are ethnography, grounded theory, ethnomethodology, interpretive biography, and phenomenology, as well as others (Harlos, Mallon, Stablein, & Jones, 2003).

Interpretive research usually begins with observation or intuition, followed by searching for data that supports, contradicts, or leads other directions. This search for supporting or incongruous data better equips a researcher to defend a position or further examine processes (Harlos, Mallon, Stablein, & Jones, 2003).

Interpretive research is often a rejection of postpositivist perspectives, which are typically identified in quantitative studies. Characterized by fixed and stable measures, postpositivist perspectives are identified through scientific experimental research. The postpositivist perspective is value-free and is usually found in descriptive, correlational, and experimental research, with an emphasis on coming from an objective stance (Capella, 2003). In order to meet an objective position, the researcher must have “the ability to maintain analytical distance while at the same time being able to draw on past experience and theoretical knowledge to interpret what is seen; astute powers of

observation and good interactional skills” (Strauss and Corbin, 1990, p.18). As with quantitative approaches, valid and reliable data is also important to qualitative researchers.

Interpretive research usually begins with observation or with intuition. The second usual phase is searching for data that supports, contradicts or leads other directions. By doing so, researchers will be better equipped to defend a position or further examine processes (Harlos, Mallon, Stablein, & Jones, 2003).

Validity

Derived from the Latin term *validitas*, meaning “strength,” *validity* is a term used in both qualitative and quantitative research, asserting that a finding can never truly be proven, only argued (Trochim, 1999). Cook and Campbell (1979) believe that “validity is the best available approximation to the truth or falsity of propositions, including propositions about cause...at best; one can know what has not yet been ruled out as false” (p.37). Therefore, conclusions that claim validity must be considered by researchers and academics alike as approximate or tentative (Cook & Campbell, 1979).

There are two types of validity in research: internal and external. External validity describes how well a research finding can be applied to the population from which a sample is drawn, while internal validity speaks to factors that impact the estimation of accuracy in terms of conclusions drawn about the sample itself (LaCoursiere, 2003). Transferability deals with external validity and can be described by the range of limitations on application of study findings beyond the context in which the study was done (Malterud, 2001). For instance, factors that affect transferability in a study include

the presence of an adequate and sufficiently varied sample. Researchers must consider who and what the findings concern in order to assess transferability.

Validity in qualitative research is distinct from usage of the same term in quantitative studies; the second is discussed further below in the section on quantitative research. Qualitative researchers assert that validity in their work expresses the credibility of a finding or interpretation, assessed in relationship to the purposes and circumstances of the study, rather than being a context-independent property of methods or conclusions (Maxwell, 1996). Validity threats characterize the ways in which a researcher can be incorrect about her interpretations or other explanations for the findings she shares. The use of triangulation, as described in the next section will prove useful in such situations.

Two particular issues are common: the first are validity threats in qualitative research, and bias and reactivity (Maxwell, 1996). Bias refers to the selection of data that will confirm a researcher's thoughts and ideas. Reactivity describes the influence a researcher has and uses over those he is studying. Several approaches are commonly used by qualitative researchers in striving to conduct valid research. These include the search for evidence that will discredit their interpretations, triangulation (explained above), soliciting feedback from colleagues on their analyses to ascertain the reason behind their conclusions, and conducting member checks with participants to determine if interpretations ring true for them.

Another way of demonstrating validity is to record detailed information about the actual survey instrument used, if one was actually utilized in the study (Cresswell, 2003). Recording the process of data collection and how the information was analyzed enhances the final product and the credibility of the research. However, it is important to note that

when a researcher modifies an instrument or combines instruments in a study, the original validity may not hold for the new instrument, and it becomes imperative to reestablish validity during data analysis with any of the techniques identified above (Cresswell, 2003). It is also important to note that it is more likely that research results will be deemed valid if there are no conflicting perspectives on the information (Achenbaum, 2001).

Triangulation

Triangulation is another term used in qualitative research and was originally developed by land surveyors seeking to increase validity of maps by incorporating measures from differing angles. These varieties of angles gave diverse perspectives and helped enrich the cartographers' vantage points (Malterud, 2001). Triangulation of data collection and analytic methods is used by researchers to address credibility and validity concerns (Shulman, 1994) by incorporating multiple sources for data and/or several methods of analysis. With the aid of multiple sources of information, a study's validity is supported. In research, triangulation assists researchers in increasing their understanding of complex subject matter and can vary data collection by time, location, respondents, and the information being accumulated (Denzin, 1970).

Howe & Eisenhart (1990) show that time variation in an effort to triangulate data analyzes same, similar, or differing subjects at different points in time. Only when information continually appears to be consistent in future analysis can unwavering conclusions be drawn. In a qualitative study, conclusions can also be drawn with regard to the influence of time on the form and content of the data. By comparing differing sets of data using triangulation, the researcher can gain enhanced understanding and new

perspectives that will strengthen their conclusions through a refinement of their emerging theories.

Triangulation of research is a valuable tool for compensating missing information that was not gathered in surveys during a single round of questioning because it requires multiple rounds of surveys from the same or different respondents. This process creates varying sample groups and varying questions, which will yield more accurate conclusions because a larger sample would be used than in a study using grounded theory with one round of data collection from a single sample. When analyzing the data, the researcher should consider whether or not the characteristics of the sample are understood in enough depth to draw conclusions (Malterud, 2001).

With these definitions and processes in mind, it makes it easier to understand how they may be applied within the many varieties of qualitative approaches to research. A number of qualitative research designs and strategies will be discussed in the next section of this paper.

Grounded Theory

A form of interpretive research, grounded theory takes an inductive approach to developing theory from interviews that are transcribed verbatim and coded to see relevant trends, explore unanticipated themes, or reveal that there is no evidence to answer a research question (Ammentorp & Morgan, 1993). Glaser and Strauss (1967) show how grounded theory was developed and how it works.

There are several important distinctions between grounded theory and quantitative methods. For example, quantitative research usually begins with a hypothesis, which is tested by running data through statistical analyses, leading to the development of a theory

that either refutes or confirms the hypothesis. Conversely, grounded theory starts with data in the form of observations or interviews, from which the researcher searches for patterns, similarities, and differences to develop a theory—without a preset hypothesis (Glaser & Strauss, 1967). Data collection in grounded theory research comes from any of many different textual resources, including journal articles, interviews, observations documented with field notes, government research, or other academic research. This form of research is valuable because of its use of personal experiences and interviews (Davies, 2003).

The processes of grounded theory are performed in a parallel format, beginning immediately after the data is gathered, so that the researcher can identify what path will be taken to obtain more information. This is known as a reactive process and is characterized by dynamic analysis of the information, while modification of the collection process takes place to adapt to emerging findings and processing of the information (Stern, 1994). Dynamic analysis can be described as the way a researcher looks at every piece of information collected, as it is collected during simultaneously. Each concept uncovered in the research becomes part of the theory as it shows up consistently and with significance for participants. When themes do not continually appear and reappear during data collection, researchers must determine whether their absence is a deficiency in defining the concept or there is an influencing factor that is changing the results of the research (Corbin & Strauss, 1990).

Data collection used in grounded theory research comes from any of many different resources including: journal articles, interviews, observations, government research, or other academic research. The process of grounded theory is characterized by

dynamic analysis of the information, while modification of the collection process takes place to test for accuracy of collection and processing of the information (Stern, 1994).

This process of gathering, testing and processing may include the use of quantitative statistical hypothesis testing or by comparing data sets with other various samples and tests that may confirm that patterns of consistency exist. Conclusions may be drawn by an elimination process using individually chosen variables using variations of this technique. Grounded theory works well in gathering and processing survey research information, though it should be noted that the designing of surveys and highly structured interviews can be antithetical to grounded theory when they orient the respondent to reply in a certain way. In the process of using grounded theory, survey research questions unsystematically change and become less uncertain. This process of refinement results in clarity and more accurate responses from which to draw conclusions and build theory.

Reflexivity

Reflexivity is a research strategy and term that can be metaphorically compared to a knower's mirror. Malterud, (2001) describes reflexivity as “an attitude of attending systematically to the context of knowledge construction, especially to the effect of the researcher, at every step of the research process” (p.484). Reflexivity acknowledges that the researcher is inextricable from the material she is studying, and one question asked by a reflexive approach is if the researchers' motives, perspectives, background, and preliminary hypotheses have been sufficiently addressed in a study (Malterud, 2001). Reflexivity is simply a self-reflection by the researcher of his or her biases and predispositions. Reflexivity is useful in research because it helps check potential research

biases that may occur. Biases should be checked while doing qualitative research because the researcher is the instrument and means of the data collection.

Researchers that use a reflexive strategy understand they are a part of their research through the relationships they have with participants and the unavoidable presuppositions they bring to their work. Rossman and Rallis (1998) add that reflexivity also implicates those a researcher is studying because they react to the researcher. It is important for researchers to examine and test their reflexive influence throughout a study, from data collection through analysis and interpretation. In addition, reflexivity can be addressed by accepting rather than rejecting the idea that a study takes place in relationships as well as in a cultural and historical context.

Phenomenology

Phenomenology is a qualitative research design that assesses information based on the principle that reality is made up of independently perceivable and understandable objects and events and not of anything dependent on human consciousness or interpretation. Phenomenology is said to give information a more humanistic perspective (Maggs-Rapport, 2001). It is used to discover the context of events in organizations under study while evaluating information extrapolated from grounded theory (Ammentorp & Morgan, 1993; Eaves, 2001).

Phenomenologists believe that the world is a social construct (Berger & Luckman, 1967) and that the observer is a part of what is being observed. Their research is developed through inductive reasoning and focuses on understanding complexity, meaning, and specific contexts, or as Easterby-Smith, Thorpe, and Lowe (1994) describe,

“to appreciate different constructions and meanings that people place upon their experience” (p.27).

Researchers use focus groups and phenomenology in order to facilitate a shared conversation for a group of people who will develop a mutual understanding. Discussions are the primary tool used to assess the true feelings of those being studied and occur between researcher and participants, as well as among participants in the focus group. Researchers conducting focus groups with the use of phenomenology also typically attempt to experience the world from the perspectives of the research group (Hines, 2000).

Phenomenology has its limitations in the eyes of many academics and researchers. For example, researchers often assert that phenomenologically-based information is limited in its transferability (Maggs-Rapport, 2001), arguing that research is perceived better generalized through quantitative than phenomenological means. Phenomenology in qualitative research allows researchers to share the question the lived experiences of the subjects. One may not be able to generalize a situation, but it can describe what people believe happened in a certain instance.

Preconceptions in Research

Preconceptions are another component of qualitative research that must be considered. Described as previous and professional experiences, motivation, and qualifications for exploration of the topic, these beliefs constitute subjectivity in terms of how things are and what is to be investigated, or, metaphorically speaking, a researcher’s backpack of expectations (Malterud, 2001).

Preconceptions are closely tied to one's theoretical frame of reference, and, thus, they are not always perceived as a detriment to qualitative research. Instead, preconceptions are viewed as a natural cognitive process and not necessarily determinants of research outcomes. They can be reshaped with counter-evidence, providing the researcher engages in reflective consideration of them and is willing to be wrong when preconceptions are challenged by evidence.

Theoretical Frame

The analyst's theoretical frame of reference is her pair of reading glasses, the lens through which she will view and interpret her results. A theoretical frame of reference represents the models and ideas applied to the data in order to assist in understanding it (Malterud, 2001). Given that it frames interpretations, qualitative researchers must ask themselves whether or not the perspectives constituting their theoretical orientation are evident in the data and their interpretations. In addition, the researcher must analyze his framework to make sure it is adequate for the study and should account for the extent of the role given to the theoretical framework during the investigation.

Reliability

Reliability is another term often used in conjunction with validity in qualitative research and is understood by qualitative researchers as the degree to which a finding will be attained repeatedly over time. Maines (1993) points out that all sociological data is already interpreted. They are fact interpretations represented by numbers. They are no less representational in nature than words. Therefore, researchers must ascertain whether the interpretations they make are reliable (Ulmer & Wilson, 2003).

Importantly, some qualitative researchers reject the notion of reliability when studying cognitive and emotional processes because, they assert, human meaning-making naturally changes over time and varies by context. The setting, time of day, current events in the life of the participant, and rapport with the researcher are all factors that will influence the data that is collected.

In essence, the manner in which the data is collected will be a reflection of the lived experiences of those interviewed. It should be noted that those lived experiences may vary greatly among each individual interviewed.

Understanding Quantitative Definitions and Methodologies

One purpose of this paper is to analyze research methodology in order to allow the researcher of this paper and others to understand the processes of qualitative and quantitative research. Language common to these two types of research is generally not used in everyday conversation. Therefore, to balance the previous section on qualitative approaches, this section will define terminology that is common in discussions of quantitative research.

Positivism

Positivism, which typically focuses on cause and effect and the determination of facts, or as Davies (2003) explains, “seeking one unambiguous truth” (p. 99). Positivism refers to the traditional scientific method for conducting research and interpreting results, using the following steps:

1. Develop a hypothesis to be proven or disproven.
2. Use a predetermined and set method to measure the relationship between variables in the data. (Variables will be discussed next in this section.)

3. Collect data through surveys, experiments, or observations.
4. Employ a quantitative analytic approach to draw a conclusion that accepts or rejects the hypothesis.

In positivism (usually distinguished from the flexibility of qualitative research), the researcher presumes his objectivity and takes a stance outside of the events being studied (Hines, 2000). The objective is to measure a theory in order to address practical issues, while assuming an absolute truth can be attained through analysis rooted in provable principles. Consequently, assumptions lead to logical deductions in which conclusions are drawn (Davies, 2003) from predictions of observable matter. “It is the insistence on explanation, prediction, and proof that are the hallmarks of positivism” (Maykut & Morehouse, 1994, p. 3). However in the case of the null hypothesis, researchers seek not to prove an hypothesis, but reject the null hypothesis and support the hypothesis. This yields a small but determining difference.

One drawback in a positivistic approach is that it assumes structures do not change or evolve. Another criticism of this paradigm is that it functions hierarchically and oversimplifies the contexts in which people live, falsely assuming that an objective stance can be taken (Maykut & Morehouse, 1994).

Variables

Variables are understood as characteristics that can take on different values, such as situational conditions, constraints, opportunities, identity markers, relationships, and events. According to Ulmer and Wilson (2003), “Statistical analysis can enable a researcher to engage in analysis of how outcomes may vary according to the contingencies and conditions of situations” (p. 543). There are two types of variables in

quantitative research: dependent and independent. An independent variable is manipulated by the researcher in some way in order to measure the effect of the manipulation on the dependent variable. For instance, in a study of the effect of bonuses on employee tenure at a company, the independent variable, bonuses, would be manipulated to determine if the presence or absence of an annual bonus makes a difference in the length of time employees stay with a company. Therefore, multivariate statistical techniques can be utilized to allow researchers to examine how a dependent variable will vary according to the situation and contingencies represented by an individual variable.

Realism

One cannot discuss definitions of research terms without addressing what is known as the “realist approach.” Harlos, Mallon, Stablein, and Jones (2003) describe writing from the realist approach as that which “holds that there are factual truths that can be fashioned into empirical realities with enough diligence, perseverance, and penetration into underlying fabrics of settings. In this way, it defines itself in relation to hard science” (p.312). They also assert that realists hold a belief that there is an identifiable truth and warn researchers to guard themselves against biases that lead them to sway participants, either intentionally or unintentionally. The realist approach involves setting aside presuppositions and refusing immersion in research settings while keeping systematic notes, in order to maintain a presumably objective stance. Triangulation occurs between observation, views of reality as reported by respondents, and reports of numerous informants (Harlos, Mallon, Stablein, & Jones, 2003).

The opposition to the realist approach asserts that realists fail to accept inherent limitations on discovering singular, universal truths (Clifford & Marcus; 1986; Silverman, 1970), though the realist approach is still being used and is widely accepted in organizational studies (Brown & Eisenhardt, 1997).

Validity

In quantitative research, there are several ways to establish validity. Validity takes on a different meaning than when used in qualitative studies. Validity refers to how well an instrument measures what the researcher wants to evaluate. Specifically, a measure has content validity if the items it contains address all of the topics the researcher aims to study and is assessed in terms of face validity (whereby experts examine the instrument to see if it looks right) or sampling-content validity, in which researchers systematically identify how items on an instrument cover the topics of interest. A more rigorous assessment, construct validity refers to the degree to which a measure actually captures the theoretical construct it aims to cover. It is typically evaluated by testing the measure for applicability under varying circumstances using probabilities, specifically the statistical likelihood that the researcher is wrong.

Now, with a deeper understanding of terminology used in research, this paper will discuss the benefits of survey data. Although there are many varieties of data, including: in-depth interviews, focus groups, oral histories, descriptive data, and mixed-methods data, to name a few; survey data is being described in this paper because of the future benefit of its proposed use in upcoming work by the author of this paper.

Survey data collection is of particular interest and very popular among graduate students who are studying trends and consistent patterns. Whereas, the descriptions and

definitions of research methods and designs may be used in a proposed-future dissertation, other data varieties will not. Describing the other varieties of data in this paper has not been deemed necessary by the author, due to the enormous breadth of information available on each of these data types.

Therefore, by focusing only on describing survey data, it serves a two-fold purpose. First, it enlightens readers and the author of this paper with an understanding on the specific type of data to be used by the author in a proposed-future dissertation paper. Secondly, because it is known that the other types of data are easily researchable and will not be used by the author in the proposed-future dissertation, it is not necessary to use valuable time to describe each data type in a paper used as a foundation for the proposed-future dissertation mentioned.

Survey Data

Survey data can be gathered in many ways, such as with the use of questionnaires administered in person, interviews, and telephone surveys. Information attained through surveys benefits researchers by recording personal behaviors, attitudes, identities, and definitions from a high volume of respondents. Surveys are useful for gaining information that is difficult to discuss or cannot otherwise be calculated by observation, such as risk, fear, religious belief, and racial attitude. Ulmer and Wilson (2003) believe that the strength of using surveys comes from the fact that “the researcher can rely on outside observations. As a result, many scholars believe that surveys, under certain circumstances, provide more valid measures of phenomena than do official records” (p. 535). Moreover, surveys provide a systematic and structured method for acquiring

information on the same topic from a large group of people in a relatively short amount of time.

However, survey data does have its limits. Surveys require that respondents answer questions honestly and accurately, and researchers must be aware that questions are subject to interpretation by the respondents. Therefore, it is recommended that researchers check with respondents on their answers to make sure there is as much uniformity in their interpretation as possible, employ surveys with a published record of reliability, and determine that questions asked in the survey accurately represent the study's intentions (Ulmer & Wilson, 2003).

Esposito and Murphy (1999) believe the quantitative data typically acquired through survey responses do not give a very deep interpretation of occurrences, such as open-ended qualitative interviews would provide. These “snapshot” (Esposito & Murphy, 1999, p.406), point-in-time measures give a shallow view that fails to give a rich or true assessment of the aspect of life being studied.

In order to study life for research purposes, access must be obtained to the information. The nature of the research and questions asked help establish the types of access required. Remenyi, Williams, Money, and Swartz (1998) believe that good research sites should have an entrance, trust can be established, and possibilities for gathering credible/quality and suitable evidence are available.

Finally, questions concerning data collection should analyze whether the strategy for collection has been clearly stated or not. Without a clearly articulated method for data collection, replications are obstructed and validity and reliability might come into

question. These questions should address whether or not the best approach has been chosen for answering the primary research question.

Mixed Methods

Although mixed methods is not within the scope of the question addressed in the beginning of this paper, it is being briefly described here, because of its apparent utility in survey research which is addressed as the focus of this paper. Also, it has been included in this piece out of hindsight and necessity for possible usage in a proposed-future dissertation by the author.

Determining whether to use qualitative or quantitative research should become more apparent as the research process unfolds. Hines (2000) believes that multiple methods provide construct validity, as well as internal and external validity, while allowing complex issues to be examined using the respondents' language. Creswell (2003) also indicates that using mixed-methods research will assist in making better interpretations because informants will be providing information that is both measurable and analyzed through rich description. A mixed-methods approach will also aid in reducing researcher bias and allowing documentation to be measured and analyzed more effectively. Likewise, Malterud (2001) states that, "qualitative studies can also be added to quantitative ones, to gain a better understanding of the meaning and implications of the findings" (p.487).

Qualitative data is what often shapes the body of the research. Furthermore, it depicts the world as having several realities rather than one truth. On the other hand, quantitative research allows the use of data that identifies partial regularities, turnover in numbers, and statistical operations. Quantification shows a mixing and churning in

numeric or sequential patterns and also emulates natural science (Davies, 2003). The practice of gathering and processing qualitative data should include the supplemental use of statistical hypothesis testing or comparing data sets with other samples and tests in order to confirm patterns.

Determining whether or not to use qualitative or quantitative research is not always so cut and dry. When great amounts of data are sought, quantitative research is often the most efficient and cost-effective research method. However, when data analysis and research questions require large amounts of description dealing with human experiences and perceptions, quantitative research could restrict the findings, making a qualitative approach ideal. The study itself should determine the method.

Ulmer and Wilson (2003) argue that “researchers can use qualitative data and statistical analysis without violating pragmatist ontological and epistemological positions” by meeting the following five conditions that serve to incorporate methods:

- (a) Using quantification and statistical analysis of outcomes of social processes to sensitize or lay the groundwork for qualitative study of the social processes in question themselves;
- (b) understanding that quantification should not be seen as synonymous with empiricism;
- (c) specifying that individual and joint actors, not variables, exercise agency (i.e., variables do not think or do things, people do, and we create variables to represent those things);
- (d) remembering that social causality lies not in variables or statistical models but in interpretive processes as people individually and jointly define situations and act within them;
- and (e) striving to keep the conceptual distance between the quantified measures

and the phenomena measured as small as possible (i.e., maximizing validity) (p.533).

Conclusion

As Hines (2000) asserts, there is no one best method for conducting survey research. Qualitative research is valuable for describing events, circumstances, and other areas of human understanding, including people's experiences and meanings in a normal social setting, as well as processes and structures (Skinner, Tagg, & Holloway, 2000). Similarly, Bryman (1993) believes qualitative research is best defined in studies of the social world; as it analyzes and describes human behavior from the point of view of those being studied. However, quantitative research too has value due to its ability to measure data, generalize findings, and make predictions.

These research strategies should not be thought of as incompatible, but complementary (Malterud, 2001). Their procedures for interpreting data and other types of information are interpreted differently, and they answer different types of questions. Their underlying principle for increasing understanding of a subject, however, is the same, and they can be used to interpret or enhance one another. Mixed-methods research utilizes both qualitative and quantitative methods in order to explore a topic in breadth and depth (Creswell, 2003). Mixed methods lead to a "truer analysis," as Davies (2003) indicates (p.110), and quantitative discoveries should lead to a reflection on qualitative decision making in order to get a better understanding of the ideas in the "heads of economic actors and the models they use" (p.109).

Research should occur through multiple methods of gathering data for the purpose of drawing a robust conclusion (Barnes, 2001). As Davies (2003) explains, incorporation

of both qualitative and quantitative designs in research could yield results that would not have been identified through use of one method or the other. Mixed method clearly has their advantages in research and is often the answer to the debate over which type of research is best.

Although not every tool and method in either quantitative or qualitative research was discussed in this paper, it is clear that each method represents a different paradigm, making no possible answer as to which is conclusively best. One primary conclusion that can be drawn from this paper is that for any study proposed, one will not know which research method will produce the most accurate conclusions without examining the kind of knowledge sought. Once a survey is initiated and the data is collected, clues to new avenues that researchers should pursue and new questions to be asked will be revealed. During this process, researchers need to be aware of personal biases in collecting and analyzing data. They should find ways to keep their own and their respondents' biases in check in order to produce results that accomplish what scholars have yearned to do for centuries—help society grow in knowledge through realized truths.

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