

## QUALIFY OR QUANTIFY? SHIFTING BOUNDARIES IN RESEARCH PHILOSOPHY AND PRACTICE

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**ABSTRACT:** *The qualitative-quantitative demarcation in research inevitably pitches theory against practice. Central to this conflict is the problem of how to manage the data; which brings up questions of what to qualify/quantify, when to qualify/quantify it, and how and why to do so in either case. On the basis of the difficulties that emerge in the attempt to answer these questions in the light of actual research practice, this paper observes that the terms 'qualitative research' and 'quantitative research' can be misleading, and argues for a more flexible approach to data collection, analysis and display. It proposes that irrespective of the research paradigm within which one practises, the researcher may regard both qualitative and quantitative methods as primary resources in a spectrum from which one may reasonably draw to meet the specified objectives of the research.*

**KEYWORDS:** Paradigm, Qualitative/Quantitative, Data Management, Mixed Methods, Spectrum Approach

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### INTRODUCTION

In spite of a still significant number of adherents to the tradition, and some quite credible arguments, the strict division of all research into either qualitative or quantitative types appears to have been losing favour in the contemporary scholarship on research methodology, especially as this neat distinction is rarely borne out in the actual practice of research. This shift has been well documented (for instance, by Creswell, 2014; Venkatesh et al., 2013; Duff, 2008; Babbie; 2007; Sarantakos 2005; Yin, 2003; Creswell, 1998). The emergent preference for mixed approaches, as relates especially to the collection, management and presentation of data is often argued to be reflective of the phenomenological reality of the various cases where such mixed approaches have been employed.

A key defence put forward by the traditionalist school is 'Well, what it means is that the research adopts either preponderantly qualitative methods or preponderantly quantitative methods' (our phrasing). However, this explanation appears to be self-defeating in the very admission that the practice of research is often done adopting mixed approaches nonetheless, whatever the ratio of the component approaches is. Even more problematic is the reference to 'qualitative methods' and 'quantitative methods' as these refer to the means employed to gather, analyze and present data, a process which itself raises the major question, *When is the data either qualified or quantified?* Yet another problem is that such an explanation, referring to methods as it does, completely ignores that the raw data itself – the data as it is before any analysis (Kumar, 1999:200) – which apparently is not a 'method', may also be in numerical form or narrative form, or both.

It would seem, also, that considering methods of gathering, analyzing and presenting data as spread along a spectrum makes possible a theory that better explains a critical part of the

practice of many contemporary researchers. These issues will be discussed in some detail in this paper.

## METHODOLOGY

The paper is developed within a theoretical-argumentative framework. Citations of existing works and scholarly positions on the topic provide both the background literature and the data for the discussion. We begin by attempting to interpret key issues that come up in the divisive debate between quantification and qualification in research, and to show that the core terminology itself is problematic. We then proceed to challenge the traditional boundaries of the two approaches, eventually demonstrating how loose these boundaries really are in the practice of research. A verdict is then proffered and some implications thereof pointed out.

## DISCUSSION

### Understanding the Terminology

It may be useful to review some observations and perspectives on the major descriptors of the quantitative/qualitative dichotomy.

The *quantitative/qualitative dichotomy*, as observed by Muijs (2004) and Miles and Huberman (1994) refers to two approaches to empirical inquiry that are often viewed as being antithetical to each other. Muijs (2004:1), for instance, cites Aliaga and Gunderson's (2002) description of quantitative research as follows: 'Explaining phenomena by collecting numerical data that are analysed using mathematically based methods (in particular statistics).' In contrast, qualitative research deploys a wide range of interconnected interpretive practices, in the hope of understanding issues from personal experience; introspection; life stories; interviews; artefacts; cultural texts and productions; observational, historical, and visual texts (Denzin and Lincoln, 2005a). The key points of difference then are in the manner of collecting, analyzing, and presenting the data. Whereas a quantitative approach does so in numerical form, a qualitative approach observes a narrative form. Kumar (1999:10) additionally identifies purpose of the research as another factor that shapes the distinction; and Neuman (2007) records that even the research questions may also reflect the quantitative or qualitative orientation of the research.

It is clear, however, that the descriptions above emphasize the *hows* of data *collection* and *analysis* as key descriptors of variation in the approach to managing data. This understanding has epistemological implications. In the first place, the emphasis on data in these descriptions of the quantitative/qualitative approaches supports the view that the applicability of either approach relates to the context of empirical research as against theoretical philosophising and examination. Indeed, Given (2008:713) states as much when describing quantitative research as 'approaches to empirical inquiry that collect, analyze, and display data in numerical rather than narrative form.'

Secondly, by relating the discussion of quantification/qualification directly to the collection, analysis and display of data, we are highlighting key aspects of the *methodology* of the research. In this light, it is understandable that Guba and Lincoln (1994:105) are quite emphatic that the use of the terms *quantitative* and *qualitative* 'ought to be reserved for a description of types of

methods.' There is, thus, largely agreement as to the application of the terms 'qualitative' and 'quantitative' in research. Whereas qualitative research adopts a methodology of collecting, analysing and presenting data in numerical form, qualitative research does so in narrative interpretive form.

In light of these explanations, it emerges that the expressions 'quantitative/qualitative *research(er)*' may be quite misleading as they suggest, however slightly, that the particular design of the research is substantially evident not only in the methods employed but in other or all aspects of the research; for instance, in the manner of presenting background information or reviewing the literature. In this paper, we have nonetheless maintained the use of these same expressions only to refer to their assumed interpretations and for the sole purpose of showing ultimately that these interpretations are problematic.

### **Challenging the Boundaries**

We begin this section on the matter of fuzzy boundaries between qualitative research and quantitative research by restating our own perspective as reflected in the words of Guba and Lincoln (1994:105) that 'both qualitative and quantitative methods may be used appropriately with any research paradigm.' And, thus, it does appear tenable also to speak of a 'mixed methods' approach (Creswell, 2014; Venkatesh et al., 2013), with emphasis on 'methods'.

Traditionally, disciplines that are considered to practise quantitative research are in the natural sciences, especially mathematics, physics and chemistry – the so-called 'hard' sciences – while research with qualitative orientation typically occurs in the humanities and the social sciences. The argument often made for the qualitative-quantitative distinction in the approach to research practice in these disciplines is based mainly on their differing views of *validity* and *reliability*. These are arguments that are, admittedly, weighty. For instance, traditionally quantitative researchers invariably embrace the concepts of reliability and validity.

Reliability is viewed as a property of the instruments (e.g., tests and observation schedules) where such instruments produce consistently same results when administered to the same or similar individuals. Validity, on the other hand, refers to the degree to which the instrument measures what it aims to measure and the extent of generalizability of the results (Cohen et al, 2007; De Vaus, 2001).

In the first place, measures of consistency employed to test reliability of instruments in quantitative research would be dysfunctional in qualitative research because, here, the primary instrument is the researcher himself, thus making it impracticable to apply formal assessments of reliability. Indeed, the closest to reliability tests that the qualitative tradition gets is to use triangulation – looking at multiple data sources. Yet the purpose in triangulating is strikingly dissimilar to the purpose of reliability tests. In this respect, Given (2008), for instance, mentions Sandra Mathison's observation in the 1980's that different people construct different meanings of the same events and, therefore, the aim of qualitative researchers, rather than seeking to produce consistent (i.e. reliable) findings, should be to narrate 'the different ways different individuals and subgroups have constructed reality and to make whatever sense they can make of these different constructions.' (p.714).

Also, qualitative researchers do not make much of validity because qualitative research usually studies a small number of context specific cases, thus making generalizations non-applicable. Then also is the matter of the ever-shifting dynamics of different contexts that make it

untenable to expect the same results even for the same individuals. In contrast, the quantitative tradition places a high premium on both internal and external validity and can rely on various statistical procedures to test these, as well as operationalize control systems like laboratory cases to ensure that contexts are reasonably the same.

The stark differences identified so far notwithstanding, several common caveats can be cited about the qualitative-quantitative distinction. Three common ones are summed up here from the observations of Given (2008:713). First, many quantitative researchers are interested in qualitative aspects of phenomena and thus translate gradations of quality into numerical scales that are amenable to statistical analysis. Second, terms like *sometimes*, *often*, *seldom*, *never*, *hardly* that are used by qualitative researchers are a (howbeit loose) form of quantification. Third, qualitative researchers sometimes use sophisticated quantification when they administer questionnaires and report results in the form of descriptive statistics, sometimes for the purpose of triangulating qualitative findings.

A more radical view, proffered by (Berg, 2007:9), is that all data are qualitative in some sense as they refer to essences of people, objects, and situations. Miles and Huberman (1994:9) on the other hand refer to these essences as "raw" experience, which is then converted into words... or into numbers...' The words are based on observation, interviews or documents.' The idea of data being fundamentally neither quantitative nor qualitative is one that we find especially appealing in view of the implications it has for the current discussion, and especially as it brings to the fore the question of *when* to describe the data as qualitative or quantitative, and *why*.

### **(Perpetually) Shifting Boundaries**

We have already indicated early on in this paper that the literature generally agrees that whereas qualitative research (so-called) adopts numerical formats in collecting, analysing and presenting data, qualitative research (so-called) does so in narrative/prose form. A significant concern that still extends, however, from this account lies in determining the following: 'At what stage of the data management process (collection-analysis-display) is the data actually considered or described in quantitative or qualitative terms? Whereas the labels 'qualitative data' and 'quantitative data' are sometimes used freely without consideration of this concern, our view is that these tags, too, like the 'qualitative/quantitative research' labels can be misleading. Is the data already in numerical or narrative form at the point of collecting it? Or is it quantified or qualified only at the point of analysis? And does the quantification or qualification extend to the manner in which the data is presented and discussed? Adding to the problem of the ambiguous use of the expressions is the fact that there could be various permutations of the actual incidence of quantitateness or qualitateness in the three-tiered process of the data management. For instance, raw quantitative data may be analysed qualitatively and presented similarly; but it could also be analysed quantitatively yet displayed only qualitatively, etc.

## **CONCLUSION**

Increasingly, it appears that the strict division of research practice neatly into either quantitative research or qualitative research is untenable in the face of what researchers of either tradition actually do. We contend that the distinction between quantitative and qualitative research

applies, in the main, to the *method* employed in the research, and, more narrowly, to the data management. In this wise, it will be more appropriate, then, to refer to quantitative or qualitative research *methods* and to quantitative or qualitative data. We contend further, nonetheless, that data in itself is fundamentally neither quantitative nor qualitative; and that the act of quantifying or qualifying is to some degree arbitrary, bound only by the core purposes of the research. Research may be more or less quantitative or qualitative depending on how closely the methods used approximate either of the two extreme poles of 'wholly quantitative' or 'wholly qualitative'. We theorize, therefore, that a *spectrum approach* as a post-modernist view of research methodology will help account for and give further legitimacy to the putative practice of blending quantitative and qualitative methods in the collection, analysis and display of data.

### Implications for Theory and Practice

The foregoing insights have implications for the ongoing debate on research philosophies and practices. It is clear that the quantitative-qualitative controversy is one that may be significantly resolved by a basic redefinition of the relevant terms in the meta-language. Besides, helping to make the research terminology more consistent with the practice will legitimize the practice, and embolden practitioners to adopt pragmatic blends of methods that will produce exciting results that may not be achieved otherwise by straining to work within a mono-methodological framework. In practice, most research involves a combination of methods across the quantitative-qualitative divide.

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