A Philosophical Analysis of Research in the Medical Sciences: The Qualitative-Quantitative Divide is Cultural rather than Epistemic

Jessica A. Stockdale

Dept of Primary Care and Public Health, Brighton and Sussex Medical School, UK
School of History, Art History, and Philosophy, University of Sussex, UK

J.Stockdale@bsms.ac.uk
@_JackStockdale

Summary

Much critical attention has been paid to the use of qualitative research in the medical sciences, with proponents advancing discussions of what it is and how it may be appraised, and critics arguing that it is of exploratory use only. Using philosophical analysis, I argue that such discussions are flawed insofar as they endorse the idea that qualitative and quantitative research are epistemically distinct categories involving different types of knowledge. Rather, I claim that such approaches are actually culturally distinct involving different intellectual histories. Thus highlighting that qualitative research may not necessarily be exploratory, and that the qualitative-quantitative divide could be closed through the development of innovative social strategies. This makes possible not only shared standard setting practices, but also novel techniques which could optimise medical research to improve health care and save lives.

1. Introduction

Originally developed in the social sciences, qualitative research approaches are now gaining in prominence in the field of medicine[1]. This has led to a range of medical scholarly literature[2-11], presenting qualitative research as a special kind of "in depth" human research[6] which seeks a "deeper truth" [4] by using interviews and observation. Moreover, in this literature qualitative research is also understood as opposing what is known as quantitative research[4-10]; a distinction often directly drawn from the work of prominent education scholar, Yvonna Lincoln[4, 5, 7-9]. This distinction has led proponents to claim that appraising qualitative research is different to appraising quantitative research[4, 5], and critics to claim that qualitative research is only exploratory[13].

Using philosophical analysis[14], **I assess the credibility of this distinction, along with claims concerning the appraisal of qualitative research and its apparent exploratory nature.** I draw on Lincoln's work with Norman Denzin, which provides the clearest account of what I call the qualitative-quantitative divide[15-20].

2. Lincoln and Denzin's Account

With the term qualitative research, Denzin and Lincoln aim to capture the work of observational ethnographers like Margaret Mead[21], and sociological texts like Howard Becker *et al*'s *Boys in White*[22] which described the experience of US students training to be doctors in the late 1950s[15-17]. With the term quantitative research, Denzin and Lincoln aim to capture study designs like

Pictured: The philosopher Wilhelm Windelband (left), and linguist Kenneth Pike (right) drawn upon in Denzin and Lincoln's account.

randomised control trials (RCTs)[18-20], and complex statistical techniques[15-18]. To account for this, Denzin and Lincoln advance an epistemic criteria, outlined in **Table 1**, to establish a principled distinction between qualitative and quantitative research[15-18]. Such an account provides an epistemic distinction because it

Table 1: Denzin and Lincoln's criteria for distinguishing qualitative and quantitative research.

Qualitative research	Quantitative research
is **emic**, **ideographic**, and produces **rich** descriptions	is **etic**, **nomothetic**, and produces descriptions that are **not rich**.

differentiates the research approaches by those features relating to the nature of knowledge. However, as shown in **Table 2**, Denzin and Lincoln's account is unsuccessful.

Table 2: Clarification of Denzin and Lincoln's criteria, and a detailed account of the problems it faces using counterexamples.

	What does it mean?	What are the problems?
Rich vs. Non-Rich	Denzin and Lincoln do not tell us what they mean by the term "rich". However, maybe we could say that qualitative findings are rich in terms of **amount**, or **diversity**. **Therefore: Qualitative research produces a lot of findings, or a diverse range of findings.**	This point is countered by the fact that **RCTs can produce large datasets** (e.g. if they involve a large participant cohort) **or diverse datasets** (e.g. if they collect data on many different points of interest such as intervention outcomes, participant information, delivery, implementation, and economic factors).
Emic vs. Etic	These terms are drawn from the work of linguist, **Kenneth Pike** (pictured), who employed them to describe two different research standpoints[23]. For Pike, etic research studies is an **"outsider" perspective** (i.e. in comparison to other "systems"), while emic research is an **"insider" perspective** (i.e. without comparison to other "systems"). **Therefore: Qualitative research investigates something in isolation.**	Pike maintained that etic research makes a **comparison across different sociocultural groups**. While RCTs can compare the outcomes of two or more sociocultural groups using multiple experimental and control groups[24], such an aim is not necessary to have. Consequently, what counters this point is that **many RCTs do not determine demographic differences** in intervention outcome and are not considered "etic".
Nomothetic vs. Ideographic	Taken from the work of philosopher, **Wilhelm Windelband** (pictured)[25]. These terms describe two forms of empirical science: The natural sciences, claimed to be nomothetic, (i.e. **concerned with discovering universal or generalisable facts**), and the historical sciences, claimed to be ideographic (i.e. **concerned with discerning particular facts**). **Therefore: Qualitative research accounts for the individual nature of things.**	What is important about this feature is that it claims qualitative research, by its very nature, cannot produce generalisable knowledge. However, what counters this point is that **qualitative findings can be found generalisable after quantitative verification**. For instance, both qualitative and quantitative studies report that a majority of individuals are willing to share their routinely collected health information with researchers[26].

3. A Possible Methodological Distinction

Since Denzin and Lincoln state that "qualitative methods [do not] have a distinct set of methods"[15-17], they would not accept a distinction on methodological grounds. Nevertheless, such a position is not shared by some health researchers[27].

For such a strategy, all methodological techniques would need to be categorised as either being qualitative or quantitative. However, due of the vast range of scientific methods, we must also give some rationale for categorisation. In other words, in order to justify why we have grouped the methods in the way we have, we must provide a criteria. Not only does this return us to our original problem, but given the diverse variety of methods across the sciences, producing such a criteria would be challenging if not impossible.

4. The Cultural Distinction

However, this does not mean these terms are empty, or meaningless. In addition to philosophical investigation, the qualitative-quantitative divide may also be explored from a historical or social perspective. This enables us to recognise that these terms also refer to different historical networks of interlinked ideas, practices, thinkers and institutions. Consequently, the qualitative-quantitative divide can be seen as a result of cultural factors rather than epistemic ones, drawing the conclusion that what these terms pick out are not fundamentally different scientific enterprises, but different intellectual traditions.

5. Recommendations

Given this, discussions concerning the appraisal of qualitative research, and its exploratory characterisation must be revisited. In particular, recent debate in the health literature has hinged on the idea that qualitative research is exploratory because of an inability to provide generalisable findings[13]. However as previous arguments indicate, such discussion can be improved by a better understanding of what constitutes exploratory research, and generalisable findings (especially in relation to the objectives and assumptions of the research). Rejecting the epistemic distinction also opens up opportunity for researchers of different intellectual traditions to learn and improve their practices in collaboration. This makes possible not only shared standard setting practices, but also novel techniques which could optimise medical research to improve health care and save lives.

Personal Profile

I am a philosopher of science and medicine, and course leader in Introductory Topics in the Philosophy of Medicine for the Brighton and Sussex Medical School (England).

My current work focuses on:

- Social dimensions of scientific knowledge
- Evaluative standards of evidence
- Non-epistemic values in disease, health and methodology
- Tacit knowledge and reasoning bias in medical decision-making

I am looking to build collaborations between Brighton and Sussex Medical School and the wider metascience community, come talk to me during the conference or email me to arrange a Skype.

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CHASE Consortium for the Humanities and the Arts South-East England
US University of Sussex
brighton and sussex medical school