

# The language of research (part 1): research paradigms

This series of papers will explore the nature of healthcare research and how it is applied to studying clinical issues. Within the series, we will explore research methodologies, methods, ethics, sampling, quality related issues, the understanding of results and how research might be used to inform practice changes. Throughout the series examples will be used to demonstrate the applicability of research to the work of the tissue viability and wound care specialist nurses.

In this paper, the first in the series, Peter Ellis will consider how paradigms (ways of seeing the world) can be used to determine the general approach to research chosen to explore a particular topic. We will briefly explore how the two dominant paradigms – the qualitative and the quantitative paradigms – are employed to answer questions, through research, which may be of interest to nurses.

The word ‘research’ refers to the systematic, planned and considered use of ‘scientific method’ to the investigation of some subject, topic, problem or concern in an attempt to either improve our understanding of the issue or to discover new ideas or facts. Many research commentators refer to the process of discovering new truths as empirical research. Over thousands of years, empiricist philosophers have been concerned with determining and coming to some appreciation of the nature of what we might call reality.

Within research in health care in general, and nursing in particular, we often see that research is split into one of two world views. These world views are called paradigms (Creswell, 2007) and are the means by which we organise what we see, what we reason and what we think we know in order to better make sense of reality. In day-to-day-life, and in nursing, we often take for granted the ways in which we view either the physical or the human world around us, but on the whole, we tend to regard the world in one of two ways: the physical (what we can see, hear, touch, smell, count etc) and the mental, social, spiritual (what we cannot detect with our physical senses but which we experience nevertheless).

In most research texts, these two world views are described as the quantitative paradigm and the

qualitative paradigm. As we shall see they represent very different views of the world and investigations which are informed by these views proceed in very different fashions. It is true to say, however, that while they are very different views of the world, they are also complimentary and supplementary to each other and combining the two paradigms (in mixed methodology research, which we will discuss later in the series) is an increasingly powerful and popular way of investigating healthcare phenomena.

## THE QUANTITATIVE PARADIGM

The quantitative paradigm is the one widely associated with what we like to think of as ‘scientific investigation’. The quantitative paradigm entails a way of seeing the world and the things in it in a manner that involves being able to measure and ‘prove’ things. In that respect, quantitative refers to a view of the world which is amenable to quantification where the findings of research are measurable, countable or can be represented in ways which involve numbers and statistics.

In the March edition of *Wound UK*, Mudge et al (2014) reported on a study designed to measure the reduction in ulcer size of hard-to-heal venous leg ulcers. Given the objective nature of the primary research question, and the use of measurement in the study, this is a good example of a quantitative approach to research.

One of the distinguishing characteristics of quantitative research is that it is concerned with proving something, often — as in the Mudge et al (2014) study — the increased utility of one treatment over another. Quantitative studies are used to investigate and demonstrate cause and effect relationships. Studies using quantitative research are the bread and butter of much clinically facing research since what nurses really want to know the answer to is whether what they are doing makes a positive difference to patient care. Quantitative research is concerned, therefore, with associations and correlations between variables; causes and effects.

Much quantitative research starts with a hypothesis, which is essentially an idea that has

yet to be tested and proved using established and accepted scientific methods. This is one of the other key ways in which quantitative research differs from qualitative. The manner of data collection within the quantitative paradigm reflects this notion that the researchers are often setting out to confirm or refute an initial hypothesis or idea.

Much quantitative data collection is deductive, in that it uses established methods of data collection in a preordained manner in order to collect the data it needs to prove, or disprove, what it has set out to answer (Ellis, 2013). That is to say quantitative research does not deviate from the data collection methodology and methods because it is only interested in answering the research question, or hypothesis, and nothing else. Deductive reasoning, and therefore deductive research, starts from the general and works toward attaining something more specific; from a broad idea to something more precise. In this respect, quantitative research is considered to be knowledge driven.

### THE QUALITATIVE PARADIGM

The qualitative paradigm is often more associated with the social sciences and ‘people centred’ research methods. Qualitative research looks at the world from the point of view of the people experiencing it; it is interested in how people experience the world rather than in trying to capture some quantifiable measure of reality. Core themes within qualitative research are people’s attitudes, feelings, beliefs and understandings. Unlike quantitative research, therefore, research that is situated in the qualitative paradigm is concerned not with proof and cause and effect, but with describing and seeking to understand the experiences of people who have undergone, or are going through, an experience (often termed a phenomenon) of interest.

Mudge et al (2014) measured treatment satisfaction and dressing tolerability, although the way in which this was done was to use a visual analogue scale, this is not an example of research in the qualitative paradigm. This is not because the notions of satisfaction and tolerability are not about experience, rather it is because the method used to gather data about this was quantifiable. This observation points us to one of the other features of qualitative research, that it seeks to understand things which cannot be measured or counted.

Qualitative research is, therefore, more interested


in uncovering the quality, as opposed to quantity, of the experience. The focus of qualitative research is on understandings and beliefs.

In common with all research, qualitative research sets out to explore something, it might be used to generate a hypothesis or theory (as in grounded theory), but it never starts with one. Where quantitative research is mostly deductive, qualitative research is always inductive — that is it allows the topic area to determine the direction of travel of the inquiry rather than starting with a preconceived notion of where the enquiry might go (Hek and Moule, 2006).

Research undertaken in the qualitative paradigm is done with no preconception of what the research will find. Qualitative researchers allow the data they collect to dictate the direction of travel of the research and the nature of the findings. Qualitative researchers work from specific observations toward the generation of broader ideas. Qualitative research is sometimes described as being ‘feature detecting’ since it employs methods such as interviews and observation to detect the key features of a given phenomenon as experience by the subjects of the research.

### CONCLUSION

In this article, we have uncovered the primary nature of the two main schools of thought which inform nursing research design and practice. We have seen that quantitative research is concerned with things which can be enumerated and is also concerned with cause and effect and issue of proof. We have further seen that qualitative research differs from quantitative in that it is not concerned with numbers or cause and effect relationships, rather it seeks to explain and understand the world from the point of view of the people who live in it.

In the next article, in this series, we will consider the nature of the broad approaches to research, which are termed research methodologies emanating from these two paradigms. 

### REFERENCES

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