

## **Realism and pragmatism in a mixed methods study**

ALLMARK, Peter <<http://orcid.org/0000-0002-3314-8947>> and MACHACZEK, Katarzyna <<http://orcid.org/0000-0001-5308-2407>>

Available from Sheffield Hallam University Research Archive (SHURA) at:

<http://shura.shu.ac.uk/18205/>

---

This document is the author deposited version. You are advised to consult the publisher's version if you wish to cite from it.

### **Published version**

ALLMARK, Peter and MACHACZEK, Katarzyna (2018). Realism and pragmatism in a mixed methods study. *Journal of Advanced Nursing*, 74 (6), 1301-1309.

---

### **Copyright and re-use policy**

See <http://shura.shu.ac.uk/information.html>

**MS Title: Realism and Pragmatism in a mixed methods study**

**Running Head:** Realism pragmatism v2

**Authors** Peter ALLMARK PhD RN (Corresponding) and Katarzyna  
MACHACZEK PhD

**Job titles:** Principal Research Fellow (PA) and Research Fellow (KMa)

**Affiliation** Centre for Health and Social Care Research, Sheffield Hallam  
University, 32 Collegiate Crescent, Sheffield S10 2BP

**Contact details for PA**

peterallmark@gmail.com

Phone: 0114 225 5727

Fax: 0114 225 4377

Address - as above

**Acknowledgements**

The authors thank the clinicians who participated in this study and the Project Hope team, who facilitated data collection process. Thanks also to John Paley for reading and commenting on an earlier version.

**Conflict of interest:** No conflict of interest has been declared by the authors

### **Funding statement**

This discussion paper received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. The empirical study discussed was funded by Project HOPE and is reported elsewhere.

### **Author Contributions:**

All authors have agreed on the final version and meet at least one of the following criteria (recommended by the ICMJE\*):

- 1) substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data;
- 2) drafting the article or revising it critically for important intellectual content.

## **Realism and Pragmatism in a mixed methods study**

### **Abstract**

**Aim:** A discussion of how adopting a Realist rather than Pragmatist methodology affects the conduct of mixed methods research.

**Background:** Mixed methods approaches are now extensively employed in nursing and other health care research. At the same time, realist methodology is increasingly used as philosophical underpinning of research in these areas. However, the standard philosophical underpinning of mixed methods research is Pragmatism, which is generally considered incompatible or at least at odds with Realism. This paper argues that Realism can be used as the basis of mixed methods research and that doing so carries advantages over using Pragmatism. A mixed method study into patient handover reports is used to illustrate how Realism affected its design and how it would have differed had a Pragmatist approach been taken.

**Design:** Discussion Paper.

**Data sources:** Philosophers Index; Google Scholar

**Implications for nursing:** those undertaking mixed methods research should consider the use of Realist methodology with the addition of some insights from Pragmatism to do with the start and end points of enquiry.

**Conclusion:** Realism is a plausible alternative methodology for those undertaking mixed methods studies.

**Key words**

philosophy, realism, pragmatism, mixed methods, nursing, research, nursing theory

## **Summary statement**

### **Why is this research needed?**

Nursing researchers are attracted to both mixed methods approaches and Realist methodology.

However, there is a tension between the two because the former mixed methods approaches generally draw on Pragmatist methodology, which has important differences to Realism.

### **What are the key findings?**

This discussion article is illustrated with a mixed methods study that took a Realist approach.

It suggests:

- 1) Realist methodology can be used alongside a mixed methods approach.
- 2) Realist methodology has advantages over a Pragmatist approach.
- 3) Realism can take valuable insights from the Pragmatist approach to inform research into clinical practice.

### **How should the findings be used to influence policy/practice/research/education?**

The findings are of primary import to research where, if applied, they would affect the conduct and interpretation of mixed methods studies.

They could also be used in nurse education concerning research methodology.

## **Introduction**

Nursing researchers are attracted to both mixed methods approaches and Realist methodology. However, mixed methods approaches are generally said to be grounded in Pragmatist methodology (Feilzer, 2010; Morgan, 2007), an approach often seen as incompatible with Realism (Laudan, 2012; Rorty, 2009). This article draws on a Realist mixed method study to illustrate, first, that the combination is possible (see also Maxwell & Mittapalli, 2010) and, second, how taking a Realist approach makes a practical difference to researchers.

Throughout this article we capitalize the terms Realism and Pragmatism. This is to distinguish the philosophical movements we refer to in the article from their everyday use. In the latter, people may correctly view their own attitudes and behaviour as both realist and pragmatic; in the former, to be both Realist and Pragmatist would be to hold views that are often explicitly at odds with each other (although, see Sosa, 1993).

## **I BACKGROUND: MIXED METHODS AND PHILOSOPHY OF SOCIAL SCIENCE**

Mixed methods research is now extensively employed in nursing and health services research. Realism and Pragmatism are both mooted as philosophical positions where mixed methods research might be grounded (for Pragmatism see Biesta, 2010; Feilzer, 2010; Scott & Briggs, 2009; for Realism see Maxwell & Mittapalli, 2010). As these are on the face of it quite different, a researcher might expect the choice of one or the other to affect the conduct of mixed method research. Using a specific health services mixed method project as an example, this article examines the extent to which adopting a Realist rather than Pragmatist methodology affects the conduct of mixed methods research.

## **II TWO ASPECTS OF PHILOSOPHY OF SCIENCE: ONTOLOGY and EPISTEMOLOGY**

Theories of the philosophy of science can be analysed under two broad headings or aspects: ontology and epistemology (Ladyman, 2002).

A) *Ontology* is the study of being. All sorts of things are said to exist. In philosophy of science, ontology focuses on the objects or entities of science, such as electrons, social class, individuals, universals and scientific laws. These can be sub-divided into those that are observable, such as individual trees or people and those that are not. The latter can be further sub-divided into those that are detectable, such as cells and electrons and those that are not, such as abstract concepts and universals.

B) *Epistemology* is the study of knowledge. In philosophy of science the key questions are whether the outcome of scientific inquiry is knowledge and the extent to which scientific theories are true.

## **III REALISM AND ITS PROBLEMS**

(Scientific) Realism is at heart an ontological thesis affirming the reality of the objects of science both observable and non-observable and detectable and not-detectable (Kukla, 1998). It also affirms the epistemological proposition that scientific theories are or aim at truth, that they (aim to) provide a correct description of a mind-independent world.

Realism faces several serious philosophical problems (Chakravartty, 2007; Papineau, 1995).



### The pessimistic induction

Scientific theories change over time; some that were central at one point are later rejected.

This is true even of views once taken as unassailable, such as Newton's physics. This being so the Realist tenet that scientific theories correctly describe the world cannot be true of the rejected theories. Further, we may pessimistically induce from the failure of past theories that those we currently hold true are likely to be rejected in the future; it follows that Realism is unlikely to be true of the theories we currently hold. If not just some but all scientific theories will turn out to be false, then in what way can the epistemological proposition of Realism be correct?

### The under-determination problem

It is always possible to construct more than one theory to explain a set of data. As such, the choice of one theory over the others cannot be because it alone is consistent with the data and thus provide a true picture of the world - any others that provide a picture that is consistent with the data could equally well be true.

### The social reality problem

Realism posits a mind-independent external world described by scientific theories, a social reality. Social reality, however, seems to be mind-dependent; entities such as money, social class and governments rely on human minds for their existence - they would go out of existence if humans did, or even if humans simply stopped believing in their existence: the mind-independence requirement of Realism cannot apply to social reality (Hillel-Ruben, 1998).

## Denial of metaphysical realm

Few if any non-Realists are solipsists, that is, holding the view that the world beyond the individual's own mind does not exist, that 'it's all a dream'. To be non-Realist only requires denying the ontological claim of mind-independent reality for the objects of science.

Typically, a non-Realist might be empiricist, placing reality in the immediacy of our sensory experience but denying the reality of things that cannot be experienced. Such empiricists do not need to deny the 'reality' of objects that could be non-mind-independent, such as individual trees. Nor need they deny the existence of objects that underpin these appearances, but which require detection, such as cells. They do need, however, to deny the existence of non-detectable entities.

Two such non-detectables are crucial here: i) cause and ii) classes of objects. We experience a billiard ball hitting another one and the latter moving; we describe this as one event causing the other; but for the empiricist there is no reason to attribute real mind-independent existence to a third thing, a cause. Although the concept of cause might be instrumentally useful in helping us describe or predict the empirical world, we do not have to attribute mind-independent reality to it. Similarly, although we cluster experiences into universal classes such as 'animals', 'trees' and 'beliefs', we do not have to attribute mind-independent reality to those classes over and above each individual animal, tree or belief. The theories of science make extensive use of causes and of universal classes, but these should be seen as being instrumentally useful rather than true where truth means some kind of correspondence to a mind-independent reality.

## **IV REALIST RESPONSES**

One initial Realist response to these problems is a counter-attack known as the no-miracles argument (Putnam, 1979). This argument draws on the success of natural science in allowing humans to predict, manipulate and, in some way, understand the world. The argument is that it would be some form of miracle for science to have this success and yet for its theories not to be true.

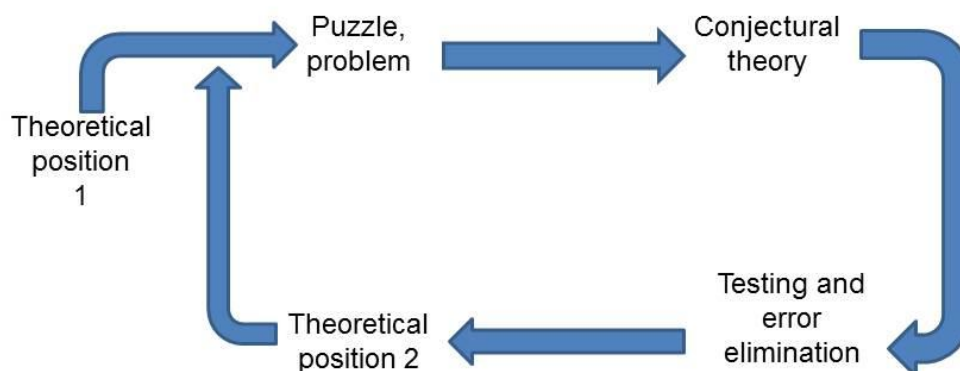
As to the specific problems for Realism set out above, part of the response is to embrace some kind of fallibilism. This is the view that scientific theories describe a mind-independent reality but do so fallibly, changing and developing as new data disproves some but supports others. Theories that pass severe tests are the best descriptions of reality we have, for now. A second part of the Realist response is rejection of at least part of the empiricist thesis. Empiricism can be thought of as having two elements. The first is that the source (or starting point) of all knowledge is sensory experience. This view is compatible with Realism. The second is that sensory experience is the endpoint of all knowledge; it is what all knowledge is about.

This is the core of the Realist/empiricist distinction. Empiricism starts and finishes with sensory experience; we start with knowledge of sensory experience and science enables us to know it better, in particular, to be able to predict and manipulate it. Scientific theories are not true or false but simply good or bad in helping us do this. For Realists, by contrast, whilst scientific theory might start in the empirical domain and is ultimately answerable to it (through testing, for example), it aims to show what lies behind or beneath sensory experience.

Furthermore, the Realist view of the empirical realm differs from that of empiricism. For empiricism, sensory experience is fairly direct; it occurs to us as humans and then we make sense of it. For Realism, humans have sensory experiences having already established frameworks by which to interpret them, they are theoretically loaded. When we experience wind in our hair as such we do so with a framework where those concepts are already established. A description of a sensory experience is at least one step removed from it and involves the selection of some elements over others.

To this extent, empirical data is pre-loaded with theoretical beliefs and assumptions. If in a scientific project I make the observation that at a time-point the sun is shining then I have i) selected this as one of infinite possibilities to describe, ii) used beliefs about what the sun is and does in making that description and iii) framed the observation in time. With scientific inquiry, this framework is sophisticated and begins with accounts of or models of sensory experience, typically in the form of language and measurement (Giere, 2006).

As such, for the Realist, inquiry should not be viewed as a process where we gather data and then construct theories to explain them. Rather, inquiry starts from a position where various theories are already in play and affect our data. We are stimulated to new inquiry by some puzzle in this position, such as that theories conflict, or fail to predict or explain. We then develop and test new theories. At the end of this process we are in a new theoretical position where either we have resolved the problem for now or, at least, we have established that some approaches to resolving the problem don't work. This view of scientific method, similar to Popper's fallibilism, can thus be represented as in Fig. 1. To varying degrees, these features tackle the problems outlined earlier.



**Figure 1: Popper's non-empiricist model of scientific inquiry**

### Pessimistic induction

This no longer applies, as there is no claim that scientific theories infallibly describe mind-independent reality. The Realist is still left with a problem; if all theories are eternally fallible in what way is Realism a good account of scientific theory, as it seems that they do not describe a mind-independent reality after all. Popper is willing to embrace this but most Realists are not, wanting to say that at least some theories are true or very close to it.

### Under-determination

The sophisticated Realist view is compatible with there being more than one theoretical position compatible with data, all fallible although perhaps in different ways. A Realist might say, at least in principle, that as an inquiry progresses, theory under-determination diminishes.

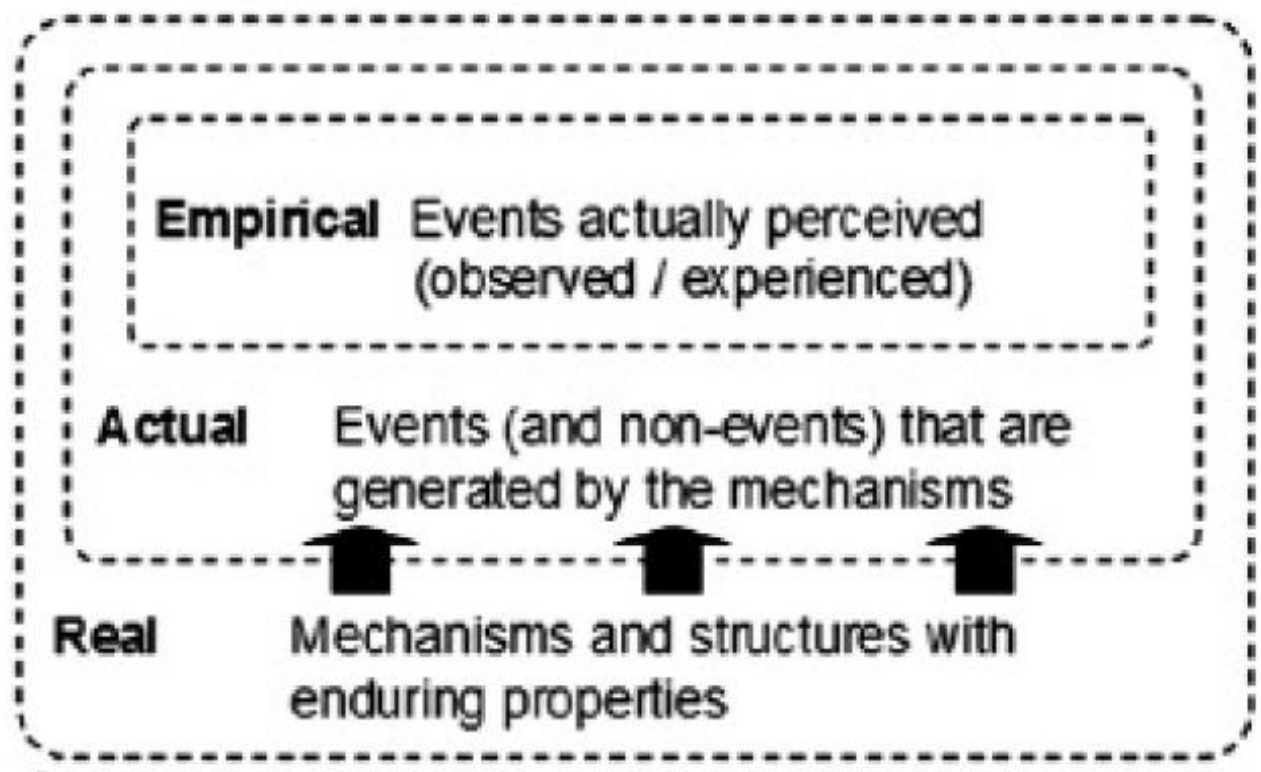
## Social Reality

Typically, a Realist approach is naturalist: human beings are animals in the natural world and can be investigated as such. The Realist can then draw on the concept of emergence, the idea that entities emerge from but cannot be adequately be described in terms of building blocks. For Bhaskar, (2008), emergence goes all the way down: from physics emerge the entities of chemistry, then biochemistry, then biology, then social science, for example.

## Metaphysics

Following Bhaskar's lead, the Realist can claim that in terms of ontology scientific research aims to uncover the reality beneath the surface that manifests in what we experience.

Bhaskar describes this in terms of a depth Realism (Figure 2).



## Figure 2: Bhaskar's depth Realism

Adapted from Mingers (2004: 94)

The figure suggests that our empirical experience of the world is underpinned by two further layers or domains, the actual and the real. For example, we experience a rain shower. This exists in the domain of the empirical. Its causes are various processes, which are experienced or could be experienced in principle, such as the formation of water vapour and droplets in a cloud. But these events and experiences are generated by processes that are mind-independent (or what Bhaskar calls 'intransitive'). These are many processes behind the events that manifest as clouds and rain, evaporation and condensation being the most obvious; all involve causal mechanisms, such as energy as heat causing molecules in a liquid state to turn to vapour as they transfer energy to each other. For the Realist, the key concept here is 'cause' - it is the non-observed and non-observable mechanism by which events and experiences are rendered.

In social science, the real domain will consist of mechanisms and causes that are not empirically seen or experienced, but which have effect, such as social class, stigma and ethnicity. These emerge from an interplay between structures and individuals (Hillel-Ruben, 1998). A Realist might describe workers thinking their situation as being one of free exchange of labour for money as masking a reality of wage slavery and exploitation, for example.

Credible forms of Realism, then, have developed in social and natural science. Typically, they are:

- i) Theory-led: the starting point of inquiry is dissatisfaction with the current theoretical position rather than unbiased (or theoretically untouched) empirical data;
- ii) Fallibilist: they assume that theory aims at a true account of the real domain but acknowledge that most accounts are incomplete and many will turn out to be false or have some false components;
- iii) Cyclical and mixed method: the cyclical method follows from the previous two characteristics and is shown in Figure 1. This cyclical theory-led approach also tends towards mixed method as in social science each cycle will involve new iterations of theory that will require new methods of testing using a variety of method, often combining qualitative and quantitative.

Let us now turn to how Realism informed a particular study before considering Pragmatism as an alternative approach.

## **V A MIXED METHOD STUDY**

The project was funded by the Project HOPE as a commission to investigate issues of patient safety in European hospitals. At an early stage the team decided that the process of patient handover might be important. Patient handover, here, means the points at which responsibility for a patient's care is handed over from one medic or team of clinicians to another. Typically, it happens at the end of a shift, or when a patient moves around the



hospital, or when a patient's care is transferred to a new team. It causes patient safety problems when carried out ineffectively (The Joint Commission, 2017).

The team decided to run a side project to the main commission that would investigate the barriers and enablers to effective handover in one European State. It took place in two major teaching hospitals and had ethical approval from the in the country's health system and from the researchers' home institution in the UK.

The project is reported in more detail elsewhere (Machaczek et al, 2013). For the purposes of this paper, only a brief summary is required. There were three to four cycles of theory-led research activity. Starting from the basis of initial ideas and theory about barriers and enablers, theories were developed in Table 1.

Cycle	
First	Initial theories about barriers and enablers were developed based on the researchers' prior work in similar areas, initial discussion with the key stakeholders, and background knowledge of the literature.
Second	These initial theories were tested through Realist research synthesis of existing peer-reviewed studies. At the end of this process the researcher had a reasonably well developed set of theories of enablers and barriers to take through to the next cycle.
Third	<p>A questionnaire survey was undertaken of clinicians working in the two hospitals. The target sample was 525 clinicians (212 doctors and 313 nurses). The questionnaire evaluated clinicians' perceptions of barriers to handover, including individual performance-related, work environment and system factors. The purpose of conducting the questionnaire survey was to test theories of enablers and barriers from the second cycle.</p> <p>A total of 181 doctors and 118 nurses returned the questionnaire. A subset of the key, statistically significant, barriers to handover identified in Phase II, were selected for further exploration in Phase III, using a qualitative approach (semi-structured interviews). Also, at this stage some of the theories from the second stage were discarded.</p>
Fourth	Exploring the causal mechanisms behind the barriers and

	enablers required a qualitative approach. Qualitative in-depth interviews with a sample of fourteen clinicians. Their purpose was to test hypotheses, or theories, which were taken forward as plausible from the questionnaire survey.
--	---

Table 1: Cycles of theory testing and development in realist study

Realist philosophy affected the conduct of the study in the following ways.

- 1) Study design: the design was cyclical, with four cycles of theory development and testing. This led into a mixed method approach as different methods were required in each cycle, from accounts of the world as it appears to participants and accounts of how it might be different from this in depth. For example, in interviews people may give an account of how they view their choice-making that is betrayed by quantitative data. Or they might give details that explain puzzles in quantitative data, where our earlier theory had led us to expect one result but the quantitative data had shown another. In this study, for example, the researcher anticipated from the interviews that unclear division of responsibility would correlate with 'unavailable information' but no such correlation was found.
- 2) Data collection: Each phase of data collection was theory-led. This is philosophically different to any approach that attempts to gather data that is relatively pure or unsullied by prior opinion, as an empiricist would prefer. In practice this is seen most clearly in the conduct of interviews. In this Realist study there was open discussion of the theories being tested at this point.

3) Data interpretation: Realist mixed method studies, with their cyclical and iterative nature, invariably combine data in ways that render the study truly mixed. The interpretation of each new tranche of data is made in the light of earlier data (Machaczek et al, 2013).

4) Conclusions: The theories that were the endpoint of the study, the conclusions in other words, reflected depth Realism; they were attempts to show the forces at play during handover, which tended towards or against it being effective. The typically empiricist question, "Is handover effective?" would be unsatisfactory; the researcher would develop markers of success and then perhaps test a sample of handovers. The result of this would invariably be that it was sometimes successful and sometimes not, perhaps with some correlations such as that handover between teams was more effective than between individuals. This would be of limited use to policy makers.

Realist approaches to evaluation in social science developed largely in response to a perceived need for research that was useful to policy makers (Pawson & Tilley, 1997; Pawson, 2013). The Realist philosophy developed from asking questions about what goes on beneath the surface in these socially complex situations. The theories adopted in this light typically take the form of a Context-Mechanism-Outcome (CMO): in other words, in what contexts do mechanisms trigger that tend towards certain outcomes. An example in the handover study is that in the context of hierarchy a mechanism of, say, caution might trigger in the junior staff that tends towards incomplete and unsatisfactory handover. Here the non-empirical, non-sensory component of a social hierarchy nonetheless is viewed as real.

## **VI PRAGMATISM**

How would the conduct of this mixed method study have differed if Pragmatism rather than Realism were its philosophical basis? The founder of Pragmatism was Peirce (Thayer, 1982). The etymology of the term is significant. It derives from the Ancient Greek verb *prasso* meaning 'I do' or 'I create'. The term applies primarily to the doing of human, purposeful activity, which is in turn termed *praxis*. The products of *praxis* are *pragma* (plural *pragmata*), it:

'being the concrete of [*praxis*] but approaching to the abstract sense' (Liddell & Scott, 1882) [p.1262 & 1264]

Hence someone's *prasso* might be typing, her *praxis*, writing a book and the *pragma*, the book itself. However, as the dictionary definition just given shows, *pragmata* is a term also used in an abstract sense, as the world of outcomes from human activity. This etymology shows us the central point of Pragmatism, its focus on purposeful human activity.

Peirce coined what is termed the Pragmatist maxim, the purpose of which was in part to rid philosophy and science of pointless activity that had no effect on humans. The maxim has been expressed in several ways but is roughly that any difference we employ in terms, concepts and theories must make a practical difference to us; it must be known by its consequences. For example, the concept "sweet" is known by its consequences to us as tasters.

From this maxim, Pragmatism cut a swathe through much philosophy it deemed inconsequential and thus pointless or even meaningless, particularly metaphysics.

Pragmatism would have no truck with Realism and its invocation of a realm of the world as it

really is but which our scientific theories cannot describe reliably. If we can never know this realm what practical use is it? The very term "mind-independent" suggests this gap. As such, it falls foul of the pragmatic maxim.

Peirce's Pragmatism was developed in other directions by two philosophers viewed as its co-founders, James and Dewey (Thayer, 1982). However, their development of Pragmatism places them considerably apart from Peirce. What they have in common is placing purposeful human activity at the heart of philosophy and science. This pushes them in the direction of positivism; the purpose of inquiry was not to be taken to be the acquisition of beliefs that were true in an abstract sense of coordinate with a mind-independent reality but rather the acquisition of beliefs that were useful. People should believe what it serves them well to believe.

Like Realism, Pragmatism is fallibilist regarding knowledge. Inquiry begins with a practical problem and ends, hopefully, with for-now resolution of that problem. Knowledge is not an accurate picture of reality but rather what it behoves us to believe given our ends, what we have 'warrant' to believe (Morgan, 2007; Thayer, 1982). Support for this view is found in the fact that our inquiries end rather than carry on forever in a search for a completely accurate picture of reality; they end when we know enough for our practical purposes.

Thus, modern Pragmatism and Realism have apparently profound differences with regard to ontology, Realism positing and Pragmatism rejecting the notion of a mind-independent world. Alongside this are differences in epistemology and attitudes to truth: for Realism, knowledge is the possession of an account that best describes the mind-independent world; for Pragmatism, knowledge is the possession of an account that best serves your purposes.

However, the extent of these differences depends on whether the modern Pragmatism is that of Peirce's camp represented by, for example, Haack (Haack, 2007), James's, represented by Rorty (Rorty, 2009), or Dewey's, represented by several philosophers of education (Biesta, 2003). To some extent this makes it difficult to see how Pragmatism and Realism would differ in practical research; however, it is to this we turn next.

## **VII COMPARISON OF PRAGMATIC AND REALIST APPROACH**

We have seen that a core difference between empiricism and Realism lies in their view of the start at end points of scientific inquiry. For empiricism, sensory experience is both: science takes our sensory experience as data, constructs theories about it which we then take back to sensory data to predict and explain; these theories are not true or false, in the sense of corresponding to a world beyond sensory experience, but useful or not. For Realism, sensory experience is a starting point of a sort although it is always structured by theory. Inquiry aims to get beneath the surface of experience and construct the truest account possible of the (mind-independent) world beyond sensory experience. For Pragmatism, the start point of scientific inquiry is a human purpose, the endpoint, whatever behoves us to believe to serve that purpose best. How would adopting a Pragmatist approach have affected the mixed method inquiry described above?

### **Research starting point**

The stimulus for the study was the desire to improve patient safety and more specifically to do this through examination of and recommend changes to the handover process. This starting point in a practical problem fits well with a Pragmatist view of research. It is not obvious from the Realist view why researchers might choose to uncover the contexts and mechanisms underlying one phenomena rather than another. When the Realist Popper

described all life as problem solving the view he took was as much pragmatic as Realist (Popper, 1999).

### Research topic

There are no inherent reasons why Pragmatism or Realism would be unable to tackle the topic as stated, the barriers and enablers to effective handover. The research aim, however, might be stated slightly differently. For a Pragmatist the aim is to meet the practical needs of the researcher and other stakeholders using whatever works to this end. The Realist researcher has the same pragmatic aim; indeed, the Realist Pawson's criticism of other approaches to social research, particularly those informed by the empiricist notion of a hierarchy of evidence with randomized trials atop, is that they deliver results that are to a high degree of certainty but practically useless. However, Realism characterizes this practical mission as being a process that reveals the contexts and mechanisms that lead to specific outcomes, such as an effective handover. For Realism, science serves our purposes by giving true accounts; for Pragmatism, the truth of science is indicated by the fact it serves our purposes (on a Peircean account) or simply serves our purposes and as such is no better or worse than any other type of inquiry (on Rorty's post-modern and Jamesian account).

### Choice of mixed methods

As suggested earlier, the Realist approach to social science is tightly wedded to mixed methods as it requires iterations of theory using a variety of methods; in this study, theory developed from a literature review and qualitative work was tested and generalized using survey method. By contrast, Pragmatism seems less so. From the notion of 'what serves our purpose' there seems no particular reason why, for example, a Pragmatist might not take a solely quantitative or qualitative approach to a particular problem. However, the Pragmatist



Biesta suggests that key concepts in a (Dewey-influenced) pragmatic approach to social science are experience, actions and consequences (Biesta, 2010). Qualitative approaches are required to examine experience and quantitative to examine consequences; either or both can be used to examine actions. As such, Biesta suggests, Pragmatism will usually imply mixed method approaches. It is our contention that realism, with its non-pragmatic aim of uncovering the hidden reality behind phenomena, is likely always to require mixed methods.

### Study design

The Realist methodology resulted in the cyclical theory-led design described above. Whilst this is probably compatible to a Pragmatist approach there is little obvious to suggest why it would commend such a design. Indeed, the literature on Pragmatism as a philosophy of science is short of detail for the practical researcher. This cannot be said of Realism with, for example, resources available on the RAMESES website. The same is true with regard to the conduct of a study during, for example, in-depth interviews.

### Study conduct and analysis

Study conduct also was theory-led, as shown by the example of interviews discussed above. Similarly, the data in each cycle were analysed within a framework of testing and then developing theory. Again, as Pragmatism too is a theory-led approach, it seems compatible with this. This is in contrast to approaches such as Grounded Theory or Phenomenology, which are data led and where, for example, theories are said to emerge from the data.

### Study endpoint

Realism's ultimate goal is the accurate description of the depth of reality beneath surface phenomena. However, at what point does this stop? For example, beneath the surface of

effective and ineffective handovers it was apparent that mistrust between seniors and juniors would sometimes lead to the latter holding back information from the former. So this gives a potential CMO theory:

Context = hierarchical system with seniors holding power of rewards and punishments over juniors

Mechanism = juniors hold back information that they believe might worsen the seniors' view of them

Outcome = missing information in handover

But at this point it is possible to switch the mechanism to an outcome and ask what are the mechanisms that trigger this mechanism; a process that presumably could carry on *ad infinitum*. This is an area of debate in the Realist community. In practice with this study and presumably most others, the process stops when there is enough theory to act on, or to answer the practical question. But this endpoint is not intrinsic to Realism. It is, by contrast, intrinsic to Pragmatism.

The philosophical differences between pragmatism and realism are profound. Pragmatism views scientific inquiry as the attempt to find theories that work, that make a difference, to a practical or intellectual problem. Those that work best are true; or to put it another way, true theories are those that work best in resolving our problems. By contrast, for realism, scientific theories are true if they correctly describe the mind-independent natural and social

worlds, worlds which consist of mechanisms, entities and forces that lie beneath the world we actually experience.

Despite these differences, however, the individual nurse researcher undertaking a mixed method study will find little practical difference; whether adopting pragmatist or realist methodology s/he will collect and analyse data in similar ways. And as pragmatism has less philosophical baggage than realism, that is, it makes fewer assumptions about a world beyond experience, it might seem preferable. There are reasons to oppose this conclusion, however.

The study described in this paper could have used a pragmatist approach and would have looked similar in terms of conclusions and impact. One problem with adopting a pragmatist approach however is the difficulty in developing a body of knowledge. The realist posits a mind-independent world that scientific theories attempt to describe. As it is mind-independent, this world does not vary with human purposes; Mount Everest remains the tallest mountain whether or not it suits our purposes to believe it is. As such, our theories can become a coherent body of knowledge in a way that is not open to pragmatists, for whom our knowledge (or our beliefs) are purpose dependent. This ability to draw together knowledge is seen in the development of realist syntheses of evidence. Realist researchers have useful resources available, such as those on the RAMESES website (RAMESES n.d). By contrast, Pragmatism is under-developed as a resource and its wide range, from the post-modern Rorty to the more Realist Haack, suggests it may be a problematic foundation for mixed method researchers. As such, we conclude cautiously in favour of Realism.

## **VIII IMPLICATIONS FOR NURSING**

The main implication of this paper relates to research. In the first place, nurse researchers undertaking mixed methods studies need not necessarily adopt a Pragmatist methodology; a Realist one is compatible with the approach. Further, Realism has attractions both on its own behalf, as seen in its increasing popularity and in relation to Pragmatism. However, a knowledge of Pragmatism and its relation to mixed methods is helpful as there are insights to be gained for the Realist researcher, for example, in relation to the beginning and end points of research projects.

**ACKNOWLEDGEMENT AND FUNDING:** To be added following anonymous refereeing

### **Acknowledgements**

The authors thank the clinicians who participated in this study and the Project Hope team, who facilitated data collection process. Thanks also to John Paley for reading and commenting on an earlier version.

**Conflict of interest:** No conflict of interest has been declared by the authors

### **Funding statement**

This discussion paper received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. The empirical study discussed was funded by Project HOPE and is reported elsewhere.

## References

- Bhaskar, R. (2008). *A Realist Theory of Science* (Second). London: Routledge.
- Biesta, G. (2003). *Pragmatism and Educational Theory*. Lanham, MD, US: Rowman & Littlefield.
- Biesta, G. (2010). Pragmatism and the philosophical foundations of mixed methods research.pdf. In A. Tashakkori & C. Teddlie (Eds.), *Sage handbook of mixed methods in social and behavioural research* (Second, pp. 95–117). Thousand Oaks, Ca.: Sage.
- Chakravartty, A. (2007). *A Metaphysics for Scientific Realism*. Cambridge: Cambridge University Press.
- Feilzer, M. (2010). Doing Mixed Methods Research Pragmatically: Implications for the Rediscovery of Pragmatism as a Research Paradigm. *Journal of Mixed Methods Research*, 4(1), 6–16.
- Giere, R. (2006). *Scientific Perspectivism*. London: University of Chicago Press.
- Haack, S. (2007). *Defending Science, Within Reason: Between Scientism and Cynicism*. New York: Prometheus.
- Hillel-Ruben, D. (1998). The philosophy of the social sciences. In A. Grayling (Ed.), *Philosophy 2: futher through the subject* (pp. 420–69). Oxford: Oxford University Press.
- Kukla, A. (1998). *Studies in Scientific Realism*. Oxford: Oxford University Press.
- Ladyman, J. (2002). *Understanding Philosophy of Science*. London: Routledge.
- Laudan, L. (2012). *Science and Relativism*. Chicago: University of Chicago Press.
- Liddell, H., & Scott, R. (1882). *A Greek-English Lexicon* (Eighth). New York: American Book Company.

- Machaczek, K., Whitfield, M., Kilner, K. & Allmark, P. (2013). Doctors' and nurses' perceptions of barriers to conducting handover in hospitals in the Czech Republic. *American Journal of Nursing Research*, *1*(1), 1-9.
- Maxwell, J., & Mittapalli, K. (2010). Realism as a stance for mixed methods research. In A. Tashakkori & C. Teddlie (Eds.), *Sage handbook of mixed methods in social and behavioural research* (Second, pp. 145–167). Thousand Oaks, Ca.: Sage.
- Mingers, J. (2004). Real-izing information systems: critical realism as an underpinning for information systems. *Information and Organization*, *14*, 87–103. Morgan, D. L. (2007). Paradigms Lost and Pragmatism Regained: Methodological Implications of Combining Qualitative and Quantitative Methods. *Journal of Mixed Methods Research*, *1*, 48–76.
- Papineau, D. (1995). Methodology: the elements of the philosophy of science. In A. Grayling (Ed.), *Philosophy* (pp. 125–79). Oxford: Oxford University Press.
- Pawson, R. (2013). *The Science of Evaluation*. London: Sage.
- Pawson, R., & Tilley, N. (1997). *Realistic Evaluation*. London: Sage.
- Popper, K. (1999). *All Life is Problem Solving*. Abingdon: Routledge.
- Popper, K. (2002a). *The Logic of Scientific Discovery*. London: Routledge.
- Popper, K. (2002b). *The Open Society and its Enemies: Volume 2: The high tide of prophecy: Hegel, Marx and the aftermath*. London: Routledge.
- Putnam, H. (1979). *Mathematics, Matter and Method (Philosophical Papers, Vol. 1)*. Cambridge: Cambridge University Press.
- RAMESES (n.d.) The RAMESES Projects. Retrieved from [http://www.ramesesproject.org/Home\\_Page.php](http://www.ramesesproject.org/Home_Page.php).

Rorty, R. (2009). *Philosophy and the Mirror of Nature* (30th Anniv). Princeton, USA: Princeton University Press.

Scott, P. J., & Briggs, J. S. (2009). A Pragmatist Argument for Mixed Methodology in Medical Informatics. *Journal of Mixed Methods Research*, 3, 223–241. Sosa, E. (1993). Putnam's Pragmatic Realism. *The Journal of Philosophy*, 90, 605–626. Thayer, H. (Ed.). (1982). *Pragmatism: The Classic Writings*. Indianapolis: Hackett.

The Joint Commission. (2017). National Patient Safety Goals. Retrieved from: [https://www.jointcommission.org/standards\\_information/npsgs.aspx](https://www.jointcommission.org/standards_information/npsgs.aspx)