

Thinking about the nature of educational research: going beyond superficial theoretical scripts

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Abstract

This paper questions the idea that there are two opposing paradigms of educational research, often called positivist versus interpretivist. It argues that the 'paradigm' term has been used to avoid philosophical discussions about the nature of educational research. This has been done by understanding 'paradigms' to reflect metaphysical positions about connect epistemological and ontological assumptions. Problems with this conception of 'paradigms' are discussed including how to justify combining different research methods. The paper also criticises treating pragmatism as a 'paradigm' by distinguishing between everyday pragmatism and philosophical pragmatism. Philosophical pragmatism is presented as a diverse approach that is naturalistic, fallibilistic and overcoming of false dichotomies, that can risk leading to a self-defeating relativism. How these have been addressed are then discussed. This has involved introducing some transcendental or impersonal elements into pragmatism without reverting to a metaphysical realism. This involves a discussion of various philosophical perspectives, pragmatic realism, evolutionary epistemology and critical realism, as relevant to educational research. The final section draws on a version of Dewey's pragmatist model of inquiry informed by some of Habermas's early and later epistemological ideas as the basis for thinking about educational research that encompasses flexible and combined methodological approaches. The paper places research methodology as having a central focus in educational research, with its links to epistemology and methods. It concludes that pragmatist assumptions contribute to understanding educational research, its methodologies and the design of plural and flexible research methods, even if there are continuing philosophical investigations.

Educational research, paradigms, pragmatism, realism, methodology

Introduction

This paper has two broad aims. The first aim is to show the limitations of the contemporary idea that there are two basic modes of educational research, sometimes called quantitative and qualitative research, or also called scientific (positivist) and interpretive research. This aim is to challenge those who are learning to do educational research and those who are currently practising it to question and think through some current dominant conceptions about the nature of this type of research. The title refers to avoiding superficiality and scripts in thinking about the nature of educational research. Superficiality is about the surface and appearance of things, not the important meaning and substance. Scripts, as in the script of a play, refer to what is written by someone else for you to read and enact. It is not authored by the script-user and does not reflect someone's own thinking. The second aim of this paper is to present a way of thinking about the nature of educational research that is informed by contemporary pragmatic and realist philosophical perspectives.

This aim is not about presenting a single definitive perspective or stance, but a way of thinking about the purposes of research and the designing of flexible research methods while still grappling with continuing philosophical questions.

'Paradigms' and philosophical assumptions

Like other abstract words, the term paradigm has a history and assumes many meanings to the point where its lack of clarity threatens its usefulness. Talk of paradigms in educational research is mostly associated with two competing philosophical camps (Pring, 2015), which captures the sense of what some have considered to be a 'paradigm war' (Gage, 1989). One camp is the so-called positivist paradigm which is represented as assuming a single reality, that the knower and the known are independent, that inquiry is value free and that time- and context-free generalizations are possible. Methodologies associated with the positivist paradigm (often called scientific too) are directed at explaining relationships between causes and outcomes in general predictive terms, sometimes referred to as nomothetic knowledge. Both correlational and experimental designs of various types are used with quantification of variables to enable generalization. (Creswell, 2009). The other camp, the so-called constructivist or interpretivist paradigm is said to assume multiple perceived realities, the knower and known as inter-dependent, inquiry as value based and constructions are local and context based. Methodologies associated with interpretivist or constructivist paradigm are directed at understanding phenomena from an individual's perspective, focusing on the interaction between individuals taking account of historical and cultural contexts. These methodologies represent diverse traditions such as case studies (in-depth study of particular in their context) phenomenology (study of direct experience without allowing the interference of preconceptions), hermeneutics (deriving hidden meaning from language), and ethnography (study of cultural groups over a prolonged period) (Creswell, 2009).

Some authors identify more than two paradigms, such as Guba and Lincoln (1994) who identified four, positivist, post-positivist, critical and constructivist in 1994 and then added a participatory paradigm in Guba and Lincoln (2005). But, on further examination these five can be reduced to two key ones, each with one or two variations, positivist and post-positivist, on one hand, and constructivist, critical and participatory, on the other.

For Guba and Lincoln (1994) a paradigm is defined as:

'the basic belief system or worldview that guides the investigator, not only in choices of method but in ontologically and epistemologically fundamental ways' (page 14)

This conception of a paradigm can be seen as unitary, in the sense that its ties together ontology (what is nature of reality?), epistemology (what is knowledge and how do we know something?) and methodology (how do we go about finding out?) into a package. This unitary sense of paradigm is also foundational as it places ontology as the key and starting point in the process of arriving at a research design and methods (Crotty, 1998). There are issues with this unitary and foundational conception of a paradigm, one of which is its unitary aspect. It tends to treat the different levels of the 'paradigm' as going together. It is what Biesta (2015) has called a 'container concept' which means that 'paradigms', so defined, have to be accepted or rejected as wholes rather than focusing on separate smaller elements,

such as methodological or epistemological aspects. This unitary feature of paradigms (as defined above) relates to the “incompatibility thesis” (Howe, 1988) and the related idea of incommensurability (Kuhn, 1962). Incommensurability means that each ‘paradigm’ has its own evaluation criteria, so sealing off criticism of one ‘paradigm’ by the other and so blocking communication between the ‘paradigms’.

Biesta (2015) argues that this idea of a ‘paradigm’:

‘becomes an excuse for not having to engage in discussions about the assumptions that underpin research’ (page 7).

‘Paradigm’ talk then becomes a way of closing the argument down by reference to philosophical foundations and tends to become a way in which researchers define themselves – I am an interpretivist not a positivist researcher’. Others have also argued that ‘paradigms’, so defined, are unhelpful. Some suggest using an alternative phrase, such as ‘stance’ (Maxwell and Mittapalli, 2010) or ‘cultures of knowledge’ (Kagan, 2009). ‘Stance’ is a more neutral term and has little history of use about basic world views. ‘Cultures of knowledge’ recognizes the social and group nature of knowledge generation as well as implying the idea that being a member of a culture can influence researcher identities. Nor does ‘culture of knowledge’ have the incommensurability connotation; it is possible to be bi-cultural and communicate across cultures.

For Alexander (2006) ‘paradigms’ in educational research reflect epistemological differences: knowledge differences with implications for how we know something. He calls them epistemological paradigms, aligning them with the duality of positivism and constructivism. For Alexander this duality reflects what he calls a metaphysical model – a way of considering the nature of reality (what is there and what is it like: also called ontological questions). So, Alexander not only recognises the epistemological and ontological basis of what has come to be called ‘paradigms’, but also suggests that one of the advantages of the two-paradigm model is that it legitimises two basic world views and supports a co-existence between them. However, he recognizes that this co-existence leads to the problem of self-refuting relativism. His argument is that if each ‘paradigm’ has its own assumptions, it is unreasonable to criticise one paradigm from the perspective of the other. This is a critique of the incommensurability assumption of ‘paradigms’, so defined.

Alexander also questioned the use of the term ‘paradigm’ in educational research, given its origins in the work of Kuhn in his famous study on the structure of scientific revolutions (Kuhn, 1962). Paradigms for Kuhn were about shared beliefs in a community of researchers who share a consensus about what questions are meaningful and what procedures are appropriate for answering these questions. Kuhn’s analysis focussed on the changes in physics from Newtonian to Einstein’s relativity theories, not changes in the broad field of social and psychological sciences. So, the term ‘paradigm’ was transferred from its use in science studies about groups within a discipline, physics, to basic world views or philosophical issues associated with epistemology and ontology. In this respect Alexander also points out that Kuhn did not think that the social sciences had a dominant paradigm, proposing instead that it was pre-paradigmatic. So, there are problems in using Kuhn’s ideas about ‘paradigms’ across the whole social sciences. There were also doubts, according to Alexander, about whether the advent of qualitative research represented a replacement of quantitative research that could incorporate the

previous 'paradigm' or put it in a new light. This called into question the use of Kuhn's idea of paradigm change being used in this context. Finally, Alexander also pointed out that the duality of positivism and constructivism discourages the mixing of quantitative and qualitative research methods which has become more common in recent years. Researchers who adopt what has come to be called 'mixed methods' are eclectic and relate their designs to their research questions, paying less attention to 'paradigm' purity.

The incommensurability position was also criticized by one of Kuhn's contemporaries, Toulmin (1972), who presented conceptual change as evolutionary rather than revolutionary. Toulmin argued that change was not a process of mutually exclusive paradigms competing to replace one another. This was an argument, as mentioned above, about a relativism that provided no grounds for comparing and selecting a 'paradigm'. Toulmin suggested that Kuhn had ignored the common ground shared by all argumentation. It is relevant here to note that Kuhn (1970) in a postscript to a subsequent edition of his 1962 book later rejected the idea of incommensurability on the grounds that it prevents communication between 'paradigms'. Like Toulmin he portrayed persuasion as central to the conflicts about 'paradigmatic' beliefs.

Morgan (2007) in recognising that social researchers meant different things when they talk about 'paradigms' undertook an analysis of the varied usage of the 'paradigm' term. He identified four conceptions of 'paradigm' as:

- i. worldviews (most general concept),
- ii. epistemological stances,
- iii. shared beliefs in a research field, and
- iv. model examples (most specific concept).

The first 'world view' conception refers to a broad perspective on the world that is used non-technically and has little relevance to influencing research. The second epistemological stance conception, the one discussed above, relates to the ontological and epistemological aspects of research. Morgan recognizes this as the dominant conception in the social sciences but also notes that though Kuhn discussed it, he did not favour it. As for the advantages of this conception Morgan sees how it draws on historical elements from philosophy, but its breadth and abstractness distances it from direct connections to research methods. Though the third concept, shared beliefs in a research field, was the one favoured by Kuhn, its use in social research has been rare. Morgan suggests that its impact has been minor because it relates to smaller research groups. The fourth conception, as model examples, is the least used sense of 'paradigm, though Kuhn discussed and favoured it too. This is the concept of 'paradigm' as specific exemplars of typical solutions to problems. In this sense it relates to the illustrations that are evident in textbooks about how to combine qualitative and quantitative methods (for instance, Creswell and Plano Clark, 2007). One of Morgan's important points is that these four conceptions go from the very general (worldviews) to the specific with the specific (model examples) nested in the more general. Being embedded in each other, this means, for example, that the model examples used by researchers reflect a set of shared beliefs about the field. They are not mutually exclusive to each other.

Paradigms as shared beliefs in a research field

Having brought out the diverse conceptions of 'paradigms' Morgan does not replace the term by some other to avoid ambiguity, as some authors have done and as discussed above. Instead, he adopts Kuhn's favoured 'paradigm' conception - *shared beliefs in a research field* – in a novel move to examine the changes in social science research in recent decades since 1970s. Here he also deploys Kuhn's notion of a 'paradigm shift', when researchers no longer agree about which problems to pursue (Kuhn's 'normal science') and begin to call these into question and pose alternatives ('scientific revolutions'). For Kuhn 'paradigm' change involved four elements:

- i. characterisation of a dominant 'paradigm (taken as *shared beliefs in a research field*);
- ii. growing problems with existing 'paradigm'
- iii. characterisation of an alternative 'paradigm'
- iv. agreement that new 'paradigm' resolves problems with existing 'paradigm'.

Morgan's historical analysis of these changes is that the first shift was from what has been called a 'positivist' to a 'metaphysical paradigm'. The 'positivist' paradigm was taken to represent the dominance of quantitative styles of research methods but also about their epistemological assumptions and explanatory purposes. That this representation of 'positivism' had little to do with the philosophical positivism of the day, logical positivism, which was the case, was not the point. What mattered was that this was the interpretation given by those who were frustrated with quantitative styles of research and were seeking a 'paradigm' change. Morgan's analysis is that those seeking change used Kuhn's idea of a 'paradigm shift' explicitly to this end, quoting work by Guba, Lincoln, Patton and others in the 1970s who were promoting naturalistic and alternative qualitative research approaches. But, where for Kuhn the anomalies and problems with the dominant 'paradigm' were empirical concerns and failed predictions in physics, for the advocates of qualitative research the focus was on what qualitative research promised to do that quantitative research could not, on one hand, and more abstract concerns about the philosophy of knowledge, on the other. The tone of this shift therefore required criticising the dominant 'paradigm', so leading to the generalised negative connotations associated with 'positivism' (Biesta, 2015), but also to an oppositional framing of quantitative and qualitative research approaches.

By adopting Kuhn's ideas of 'paradigm shift', the leading advocates of qualitative research moved up to the next level of generality in 'paradigm' conceptions, that of epistemological stances (see four levels above). So, positivism came to be framed as a 'paradigm' in this philosophical sense and so was defined in terms of the triad of ontology, epistemology and methodology, as realist, objectivist and seeking general causal relationships. But, the priority feature of 'paradigms' that reflected epistemological stances were assumptions about ontological issues. This is why Morgan (2007) opted for the term 'metaphysical paradigm' to understand how alternative approaches, such as constructivism were accommodated at this ontological level. In his interpretation the 'metaphysical paradigm' conception incorporated positivism as one option and made space for the alternative, constructivism too.

Problems and changes to the metaphysical paradigm

Morgan's analysis of paradigm changes, within the conception of shared beliefs in a research field, assumes that the 'metaphysical paradigm' conception has become the dominant shared belief within the social sciences. But, as has been discussed above, it has over time accumulated some limitations and problems. We find here some convergence between Morgan's analysis of these problems and those identified by others, for instance by Alexander (2006) and Biesta (2015), as discussed above. These problems are about: i. how 'paradigm' boundaries are defined, ii. the issue of 'paradigm' incommensurability and iii. whether the 'metaphysical paradigms', the dominant conception, affects research design and practice.

Morgan's analysis of the dominant 'metaphysical paradigm' conception starts with questions about how many paradigms there are, the basic two (positivism and constructivism) or more as others have been added (post-positivism, critical theory and participatory research). This is about who decides and whether an approach fits the requirements of a distinctive mix of the triad of ontology, epistemology and methodology to warrant being called a 'paradigm'. Morgan writes critically about the moves to legitimise belief systems as worthy of being a 'paradigm'. The introduction of post-positivism as another 'paradigm' followed criticisms about how positivism was portrayed in very general negative terms. Labelling post-positivism as a another distinct 'paradigm' was based only on minor changes to the representation of 'positivism'. Its ontology was also represented as 'critical realist' (Guba and Lincoln, 2005), when this had no connection with the tradition of 'critical realism' (Bhaskar, 1986). The lack of reference to the epistemological stance of pragmatism as a 'metaphysical paradigm' is a further indication for Morgan of problems in defining the kinds of 'metaphysical paradigms'. Morgan concludes that what counts as a 'paradigm' is not so much about ontology and epistemology as about 'ongoing struggles between interest groups' (page 61).

Morgan's analysis of the issues about incommensurability reflects those discussed above, but further highlights the significance of the foundational and unitary nature of 'metaphysical paradigms' for perceptions about incompatibilities and communication between 'paradigms' at epistemological, methodological and method levels. While some researchers support combining qualitative and quantitative methods, but not at the ontological level, others deny even method combining. This uncertainty contributes to another weakness of the 'metaphysical paradigms' approach which is whether the philosophical commitments of paradigms have any bearing on the design and methods used in research. As discussed above, the moves to combining qualitative and quantitative methods calls into question the definition and boundaries of the different kinds of 'metaphysical paradigms'. This is the basis on which Morgan continues to use Kuhn's concept of 'paradigms', as shared beliefs in a research field, to call for an alternative 'paradigm to the 'metaphysical paradigms' given its limitations. In this way he uses Kuhn's idea of a 'paradigm shift' against what he calls the dominant 'metaphysical paradigms' conception. And, in doing so, he admits that what he is doing is to create a further 'paradigm shift' towards what he calls a 'pragmatic approach'.

Pragmatic turn

To many in educational research the rationale for mixed methods or combining qualitative and quantitative methods has been justified as a pragmatic one. This is

often framed as not deriving methods from philosophical assumptions but from the research questions. This way of framing it detaches the rationale for designing research studies from metaphysical considerations, as in the metaphysical paradigm perspective, and links the rationale merely to practical methods. There is nothing inappropriate about invoking practical considerations in research design, what Biesta (2015) called 'everyday pragmatism'. But, when as some authors have claimed that mixed methods research can be justified in terms of philosophical pragmatism, that is another matter (Tashakkori & Teddlie, 1998). Other authors have suggested that an appropriate justification of mixed methods research could be found in classical pragmatist philosophy which justifies knowledge in terms of its practical applicability rather than its truthfulness or correspondence with an external reality (Burke Johnson and Onwuegbuzie, 2004). But, as Morgan (2013) and Biesta (2015), amongst others, have pointed out, there is a difference between being pragmatic about research methods and pragmatism as an epistemological or philosophical stance.

To avoid the caricature of pragmatism as about 'what works' it is important to understand that pragmatism initially was about clarifying the meaning of terms or ideas, following the Peirce's 'pragmatics maxim' that the practical effects of a concept is its meaning (Peirce, 1931-58). However, there were divergences between Peirce and James, another founding philosopher of pragmatism. For Peirce the maxim tied meaning to the experiential consequences of applying the concept, while for James the maxim ties meaning to the practical consequences of belief, possible differences of practice (James, 1898). As Haack (2018) notes these early differences illustrate continuing differences within pragmatism, with Peirce being towards the more realist wing and James the more nominalist wing (denying the existence of abstract objects). Nevertheless, within this range of views, pragmatism has been seen to reflect the philosophical move away from abstract concerns about what exists to an emphasis on human experience and practices. As such, pragmatism is not best understood as another philosophical or metaphysical stance like the duality discussed above, but as a set of tools to address problems (Biesta, 2015). This explains why, as Morgan (2007) has pointed out, the 'metaphysical paradigms' did not recognise pragmatism as a paradigm. Pragmatism focuses on the interaction of action and beliefs in which inquiry is a form of social action rather than an abstract philosophical system.

Another way to regard pragmatism is that it aims to naturalise concerns that have historically been given a metaphysical perspective. This is exemplified in Dewey's focus on action and inquiry (Dewey, 1915), in which pragmatism can be seen as less a theory of knowledge than as a theory of the process and practice of knowing. It veers away from metaphysical issues about whether there is an external reality or not by focusing on what sense humans make of living. The pragmatic turn as exemplified by Dewey's perspective can be seen as a way of going beyond the epistemological tradition that goes back to Descartes which adopted a sceptical approach to what is known in the pursuit of certain conclusions and foundations to knowledge. Though this Cartesian use of doubt led to certainty about the thinking self and mind, it continued to grapple with certainty about a world, both the material and social world beyond experience. This mind-world scheme has been associated with what Bernstein (2010) has called the 'Cartesian anxiety', a longing for certainty and unchanging knowledge about the world as a thing separate from humanity. The

pragmatist turn therefore opposes simple dichotomies, the inner life versus objective reality, but also theory versus practice, a dichotomy which Dewey criticised as the basis of his epistemological stance.

In building the case for a pragmatic stance, Alexander (2006) discusses how metaphysical perspectives veer between reality (realism) as existing or not (idealism / constructivism), with realism versus constructivism representing the two-paradigm model. Alexander summarises the key problem with metaphysical realism as about the issues of how knowledge can act as a copy or correspond to reality (correspondence or representational views). This arises because humans do not have direct access to reality; there is no view from nowhere to check representations or knowledge against. The parallel problems of constructivism, according to Alexander, are about how personal consciousness can construct a reality, whether physical or social. This is the critique that there can be no basis for inter-subjectivity that depends only on personal consciousness (Alexander, 2006; Pring, 2015). In this context, Schwandt (1997) has pointed out that qualitative researchers, who adopt constructivist perspectives, tend to take the existence of things seriously in practice. He argues that this contradicts radical constructivist assumptions that deny any reality apart from constructions.

Maxwell and Mittapalli (2010) also provide examples of actual research studies that adopt constructivist assumptions which presume that constructions are of something external. In this context, Searle (1995) developed the distinction between brute facts and institutional or social facts in which socially constructed facts involve brute facts; for example, schools which are socially constructed involve some brute facts, whether they are, for instance, bricks, mortar and/or paper. For Searle, socially constructed 'things' can be investigated in different ways including objective or mind-independent ways. These ideas are compatible with Hacking 's (1999) analysis of social constructionism as about constructions of something. Hacking identifies four distinct approaches to the assumptions underlying social constructionist assertions. Assuming that X is said to be socially constructed, e.g. a curriculum, learning style, intelligence or learning difficulty, then there are different levels of assumptions about social construction:

1. X is taken for granted and appears as inevitable
2. X is taken for granted and appears as inevitable, need not exist and is not inevitable
3. X is taken for granted and appears as inevitable, need not exist, is not inevitable and is bad
4. X is taken for granted and appears as inevitable, need not exist, is not inevitable, bad and is to be done away with or abandoned.

Each successive assumption includes the previous ones. For example, level 2 assumptions about 'intelligence' could involve that 'intelligence' is taken for granted and its existence is made to appear inevitable, but its existence is not inevitable. This version of social constructionism could be said, according to Hacking, to be associated with historical and reformist commitments. But, level 4 assumptions about 'intelligence' would go further and assume that it would be better to abandon 'intelligence' for some other way of framing learning potential. This version of social

constructionism would be associated with unmasking and revolutionary commitments. Hacking's perspective illustrates the complexity of social constructionist assertions.

Pragmatism and its limits

Pragmatism derives its name from the Greek word *pragma* meaning action with its implication that pragmatism focuses on human action in relation to the environment. In pragmatism inquiry is about resolving problems that present in experience with practice as the driver for inquiry or research, a perspective developed by Dewey (1915). For Dewey theory is on a continuum with practice, so the opposition to theory – practice dichotomy. Everyday inquiry has links to professional inquiry and academic research inquiry. As Alexander (2006) put it, there is nothing as theoretical as intelligent practice.

However, there have been criticisms of pragmatism that it results in an unacceptable relativism (Pring, 2015). Scott (2007) identifies these issues in terms of Peirce's pragmatic maxim, which Scott takes as implying that truth is understood in terms of the practical effects of what is believed, and particularly, how useful it is.

Two main problems are identified with this perspective: i. if practical or usefulness criteria are used to judge research assertions, then current ways of understanding the world will take priority over alternative conceptions; and ii. given that there are different and conflicting research methodologies in use, there is the question of how to judge which is more appropriate given particular social arrangements which in turn calls for value judgements. In a similar way Alexander (2006) sees pragmatism as succumbing to a self-defeating relativism. For Alexander pragmatism needs to assume some conception of what is beyond human action without reverting to a metaphysical realism (a view from nowhere); what he calls a 'transcendental pragmatism'.

It is interesting that Bernstein (2010) a contemporary advocate of pragmatism recognises this oscillation between those who have a 'realistic intuition' and those who see any reference to correspondence or representation as a dead-end leading to contradictions. However, from a pragmatic perspective this clash can be seen more as a matter of human temperament than of metaphysical positioning (James, 1906). This 'realist intuition' was considered by James to reflect a tough-minded temperament, that involved going by the facts, being materialistic and sceptical amongst other traits. This contrasted with those who were tender-minded, who went by principles, were intellectual and idealistic amongst other traits. This temperamental way of regarding historical philosophical issues is a further illustration of the naturalising of philosophy associated with pragmatism. The tough versus tender-minded distinction can be seen as a continuum and people might have a mix of these tendencies. So, the tension between those with a 'realist intuition' and those with an ideas/idealist intuition can be seen as a difference in the emphasis; whether to be answerable to the 'world' or to our partners in conversation in giving social justifications.

These issues with pragmatism have been debated from the early to mid-twentieth century, for example between Bertrand Russell and John Dewey. Russell held a classical correspondence theory in which truth was about the relation between beliefs and an independent reality, to empirical facts. For Dewey (1941) assertions

were warranted (assured or justified) if they produce more useful effects, such as being more predictive. For Russell (1961) this means that knowledge loses its privileged status. One way of putting this key difference in perspective is as follows: for Russell whether an assertion is 'true' is decided by the *causes* of an assertion (something independent of the assertion), while for Dewey whether an assertion is 'true' depends on the *effects* of an assertion (its usefulness). But, as Ostbring (2009) points out, Dewey denies that assertions are warranted only by their usefulness in reaching personally desired results. Dewey is aware of how a superficial perspective on pragmatism goes against the deep intuition that whether the usefulness of a belief does not make it true.

As Ostbring notes, Russell failed to notice that in Dewey's perspective an inquiry is influenced by a problematic situation which controls the inquiry throughout; it is this situation that influences whether an assertion is valid. For Dewey the problematic or indeterminate situations are impersonal; they are existential situations in which humans, as organisms, find themselves when they interact with their environment. Russell's misunderstanding stems from a failure to understand the pragmatic interest is in naturalising epistemology. For Dewey the impersonal or 'objective' nature of the indeterminate or problematic situation has a biological Darwinian sense with the concern with how we cope with the world rather than how the world is. The implications from this discussion of the Russell – Dewey debate is that Dewey did recognise that the naturalising trend of pragmatist epistemology required some impersonal or 'objective' condition which drove inquiry. This resembles Alexander's (2006) conclusion that pragmatism required some transcendental element to avoid the warranting of assertions only in personal terms.

Pragmatic realism, evolutionary epistemology and critical realism

This section relates pragmatist ideas to other related philosophical perspectives. The term pragmatism / pragmatist can be qualified by another term, in the way Alexander chose the term 'transcendental', somewhat provocatively to qualify his pragmatic stance as *transcendental pragmatism*. By contrast, Putnam (1990), a contemporary philosopher with a pragmatist leaning, opted for the phrase *pragmatic realism*, where pragmatic is not qualified but qualifies another term, in this case realism. With 'pragmatic realism' Putnam attempted to connect a pragmatic perspective (the world does not impose a single language on humans; fields of knowledge reflect conceptual schemes, human interests and choices) while recognising that there are facts of the matter (though these facts are relative to conceptual schemes). This pragmatic realism was aiming to avoid both metaphysical realism and a strong relativism.

Another perspective with clear links to pragmatist thinking was that of Karl Popper. Despite Popper being presented as a post-positivist, in the metaphysical framing of paradigms, as discussed above (Guba and Lincoln, 2005), he had very strong affinities with pragmatist assumptions. Though Popper has not been identified as a pragmatist, he is referenced as recognising Peirce as one of the greatest philosophers and quoted as wishing that he had known Peirce's work earlier in his career (Houser and Kloesel, 1992). Bernstein (2010) identifies this link in both Peirce's and Popper's critiques of Cartesianism; that the search for epistemological origins was misconceived. Both tried to switch the focus to the consequences of ideas. This relates to one of Popper's central ideas which was about the falsifiability

of knowledge linked to his scheme that knowledge developed through a process of conjecture and refutation. His approach was to counter the verificationist approach associated with positivist and empiricist philosophers (that statements are meaningful only if empirically verifiable or true because of the meanings of their terms). Popper favoured a deductive rather than an inductive basis for scientific inference (Popper, 1973). For Popper life was about problem solving, in line with pragmatist thinking. Knowledge growth was seen to involve a process that started with a problem situation that led to a tentative theory. This was then subjected to rigorous attempts to falsify empirically. This was about error elimination or what Popper called refutation. The theories or ideas that withstood or survived this scrutiny were retained. This scheme expressed his evolutionary epistemology, the idea that knowledge growth reflected a similar process to biological evolution. Theories surviving attempts to falsify or refute them had parallels with genetic variation that were retained through natural selection in Darwinian evolution theory. The connections between Popper's conjectures and refutation scheme and Dewey's (1915) action-inquiry epistemology are also clear.

However, Popper's pragmatist stance like Putnam's also recognised the independent status of knowledge from the knower or subject. Here he recognised what he called 'objective knowledge'; what withstood refutation attempts, rather than discussing reality and correspondence ideas associated with metaphysical realism. For Popper there were three 'worlds': World one was about the physical world; World Two was about mental states and ideas and World Three was the body of human knowledge expressed in various forms. World three was seen as the cumulative product of the second world (mental states and ideas) embodied in the materials of the first world (books, papers, artifacts and electronic forms)

Though Popper was focussed on empirical testing he did not give priority to the empirical and believed that theories and ideas direct social research. It is in this sense that Popper did not adopt logical positivist ideas with their priority to the empirical. Like Searle (1995), as discussed above, Popper saw social objects as abstract concepts that were social constructions, but still open to empirical study including experimental study (Popper, 1957). However, Popper was careful to avoid mistaking trends found in statistical generalisations as general laws that determine outcomes. This distinction depends on recognising the context factors that might affect similar trends in other samples, places or times. So, though Popper believed in the unity of methods across the physical and social sciences, he was clear that generalisations needed to be considered as tentative given the contingencies that might influence outcomes. In this regard some authors have considered that Popper's stance on causal generalisations as similar to realist ideas about generative mechanisms and the contexts that can affect these mechanisms in producing outcomes (Bonnell et al., 2018).

This introduces another contemporary perspective in educational and social research, realism or critical realism. Maxwell and Mittapalli (2010) note how some versions of pragmatism have been linked to versions of realism, as illustrated by Putnam's *pragmatic realism*. But, in doing so these authors also highlight how little influence realist ideas have had in qualitative research, with some notable exceptions, e.g. the realist evaluation of Pawson and Tilley, (1997). Maxwell and Mittapalli also suggest that where realist stances differ from other perspectives, such as constructivism, is in a commitment to the existence of a real world. What they do

not mean by 'realism' is that claims, theories or assertions *reflect or 'correspond' to reality* (not a metaphysical realism), nor that theories or ideas *construct or constitute reality* (a radical constructivism). Based on Keller's (1992) idea of theories being adequate to work in the world (enabling prediction and action on things and people), Maxwell and Mitternagel see theories and concepts as *working in relation to reality*, in the sense of testing assertions and claims against evidence about the nature of a phenomenon. The naturalising and pragmatist stance in this account of realism is clear. These authors also elaborate on the types of evidence relevant to this testing: whether the claim is about beliefs, outcomes or causal relationships. So, claims about meaning and perspectives would require different evidence from claims about behaviours or the relationships between measured variables. For Maxwell and Mitternagel, the idea of testing claims against evidence depending on the kinds of claims (whether qualitative and/or quantitative) provides a unifying way for their pragmatist inclined version of realism. Their realism offers a productive and even-handed stance to encompass combined or mixed methods research.

Scott (2007) proposes a form of critical realism developed by Bhaskar (1986) as providing the philosophical means to make sense of decisions about educational research methods and strategies at an ontological level. This resembles the use of philosophical pragmatism, as discussed above, to inform research design and methodologies. Where it differs from pragmatism is in its more explicit ontological assumptions about what exists, though without laying claim to absolute knowledge of this ontological framework. For Bhaskar, to understand how knowledge and science can be constructed one has to ask: what must the world be like for knowledge of the world to be possible? (a version of what philosophers call a transcendental argument). Critical realism is said to be realist and critical for two reasons. First, objects in the world including social objects, exist whether the observer or researcher is able to know them or not. Secondly, knowledge is fallible in that the objects of knowledge might change and be other than they are taken to be. Here critical realism separates out ideas, beliefs and knowledge (epistemology) from things, objects and events (ontology) to resist the collapsing of 'mind-independent' being into our knowledge or experience of being. This collapsing of what exists into what is experienced is what critical realists call *the epistemic fallacy*. The purposes of calling this collapsing a fallacy is to oppose the radical constructivist and anti-realist assumption that reality arises from the active creation of observers. Here Bhaskar distinguishes between:

1. The real: underlying structures and mechanisms which generate events in the natural and behaviours in the social world
2. The actual: this is the generated events and behaviours
3. The empirical: what humans experience of events and behaviours.

The generative mechanisms at the real level have causal powers that might or might not be realised, this depending on contexts that trigger them or not. Bhaskar also assumed that the social world is stratified, incorporates mechanisms at different levels and elements of these mechanisms cannot be reduced to those at the level from which they emerged. In this critical realist scheme, the relation between structure and agency is also assumed to operate at the ontological level.

Though these three critical realist levels parallel Popper's three world distinction, the realist stance has firmer and more elaborate ontological assumptions about causation. In a realist stance, the real mechanisms (or structures) are distinct from

the actual pattern of events, requiring experimentation to make sense of their operation in controlled or closed environments. This is where critical realism has a distinctive model of causation from the Humean one, associated with empiricism and positivism, that causation can be inferred from constant conjunction (when one event X follows another Y, X is said to cause Y). However, from a critical realist stance, causation can be inferred from constant conjunction only in closed systems, where conditions are controlled such as a laboratory or a controlled situation. Most of reality is assumed not to be closed but an open-system, where Y does not always follow X (as a constant conjunction) as other contextual factors might operate. This is the basis of the critical realist distinction of mechanisms (the real) from their exercise that produces events (the actual) which are apart from our experience (the empirical level). These ideas underpin the programme evaluation stance taken by Pawson and Tilley (1997) who adopt this generative model of causation in understanding how social and educational programmes operate. Programmes are understood to embody processes in which the context triggers mechanisms to result in outcomes – what they call context – mechanism – outcome sequences (CMOs).

From a critical realist perspective structure precedes human agency, as it provides the material causes of human action: humans come into a socio-linguistic-epistemic context in which they act. But, the structures of society operate through the mediation of human agency and social activity (they are not treated as fixed). So, society is seen as both a condition for but also reproduced through human agency: what Bhaskar called a *transformational model of social activity* (TMSA) (Bhaskar, 1979). In this model, people do not simply create society, as it pre-exists them and society is the necessary condition for their activity. Humans reproduce and transform society, as a set of structures, practices, and relationships, without which society would not exist. From this Scott (2007) argues that social events and processes cannot be reduced to the intentions of agents without reference to structural properties. Nor can processes be reduced to structural properties without reference to the intentions and beliefs of agents. Methodologically critical realism implies that research needs to reflect the close relationship between structure and agency. Scott concludes that research strategies and methods need to be chosen to adopt this overarching frame. Accounts which focus on either structures or agents cannot account totally for social experience. In this view qualitative and quantitative research focus on different aspects of social objects, with quantitative data about extensional meaning (which refers to some object or person) and with qualitative data about intensional meaning (focussed on interpreting meanings). For Scott this enables a resolution of the quantitative/qualitative divide, by keeping these modes as distinct but enabling the combination of quantitative and qualitative data sets, methods and analytical frames; while giving this an account at the ontological level.

It is clear that critical realism takes a form that is distinct from the elements of realism associated with Putnam's pragmatic realism, Maxwell and Mittapalli's pragmatically oriented realism as well as Popper's World three. Though Bhaskar's theorizing was focused on a kind of naturalism (as opposed to meta-physics), his assumptions about the Real give it a central role in understanding the basis of knowledge and science. Though he avoided metaphysical realism by using a type of transcendental argument (by addressing the question: what must the world be like for knowledge of the world to be possible?), his answers distinguish his approach from the above forms of realism. His priority to what is assumed to exist, the Real, rather than to

human action or practice (as in pragmatism) is made clear in his example about the relationships between the solidity of things and human action in relation to them:

‘it is because sticks and stones are solid that they can be picked up and thrown, not because they can be picked up and thrown that they are solid (Bhasker, 1979, page 25)

However, Bhaskar recognised that how objects are handled by humans is relevant to human knowledge of them, a nod to a pragmatist view of knowledge production. This critical realism can also be contrasted with Alexander’s (2006) transcendental pragmatism, discussed above. For Alexander, the transcendental is more about the place of human purposes and ethics in understanding the basis of social knowledge. For Alexander human actions are not only to be explained by statistical regularities over which actors have no control, but also in terms of purposes and social norms. His argument is that the aims of human enquiry are primarily ethical and political and only secondarily epistemological. He moves to this conclusion by assuming that we understand behaviour by reference to human purposes. By doing so, this leads to us connecting basic human purposes, such as for security and esteem, to higher ideals, such as respect and solidarity, what he calls strong values.

However, in basing social and educational research on ethical ideals Alexander realises that this basis might be seen to be threatened by disagreements over ethics. To this he has two lines of argument. The first is about the nature of ethics that informs this transcendental pragmatism. For ideals to be ethical he adopts the principle of fallibility; ideals need to be dynamic and not fixed nor dogmatic. This implies the possibility that traditions and individuals could be wrong even about basic commitments. For Alexander, it is human choice of commitments that implies fallibility and for ideals to be ethical also requires fallibility about these ideals. His second line of argument is epistemological, in the sense of assuming that knowledge is of

‘an embodied agent constrained by culture, language and tradition, who grasps albeit imperfectly the contours of an entity or of an idea that transcends – exists independently or outside of – his or her limited experience’ (page 214).

This is how Alexander gives priority to meaning and purposes over causal explanation in education. Causal links in education depend on meanings and purposes within a culture; this is the qualitative basis on which measurement of variables is built to make qualities more precise. For Alexander the logic of illustration takes precedence over that of generalisation. Human ideals are in this view understood first through concrete examples and only secondarily through abstract regularities. He illustrates his point with the example of IQ measurement. Underlying such measurement, he contends, is a construct of intelligence which reflects social and ethical ideals. So, assessing IQ through measurement procedures is based on commitments to the kind of society and human flourishing that is valued. This is the way in which Alexander presents educational research, as a practice grounded in an explicit and well defended view of the good, avoiding dogmatic ideals and using qualitative and quantitative research to interpret and develop those traditions. The priority he gives to the logic of illustration is itself illustrated by likening education research more to a legal analogy than discovering statistical generalisations (through randomised controlled trials [RCTs] and other designs). In

the legal model warranted evidence about the legal case is presented to those who make a judgement. The process involves both evidence and interpretation of the law (in the case of educational research, interpretation of educational values). From this perspective:

‘inquiry at its best endows us with insights to better control ourselves not generalisations to more efficiently control and dominate others (p 216-7)

An inquiry model as informed by pragmatist ideas

The final section draws on a version of Dewey’s model of inquiry informed by some of Habermas’s (1971/81) early and later ideas about epistemology as the basis for thinking about educational research that encompasses different methodological approaches. The proposed model draws mainly on Dewey’s ideas, as discussed above, and to a lesser extent on Habermas, who has been recognised less as a pragmatist philosopher (Bernstein, 2010). Dewey’s (2008) pragmatist stance adopted the concept of experience built around two key questions: What are the sources of our beliefs? And, what are the meanings of our actions? The answers are seen as linked in a cycle, in which the origins of beliefs arise from our prior actions and the outcomes of actions are found in beliefs. As Morgan (2014) explains, for Dewey experiences bring beliefs and actions into contact in an interpretive process; beliefs being interpreted to generate action, and actions interpreted to generate beliefs. For Dewey, as discussed above, this inquiry process was relevant across a continuum of everyday, professional and academic research inquiry, representing a continuum epistemology and underpinning his critique of a theory – practice dichotomy.

Morgan (2014) has represented Dewey’s systematic approach to inquiry as having five steps:

1. Recognizing a situation as problematic;
2. Considering the difference it makes to define the problem one way rather than another;
3. Developing a possible line of action in response to the problem;
4. Evaluating potential actions in terms of their likely consequences;
5. Taking actions that are felt to be likely to address the problematic situation.

For the purposes of this account Dewey’s concept of inquiry will be represented as a continuous cycle of beliefs that lead to inquiry actions that result in outcomes which are the basis for future beliefs:

belief > action > outcome > belief > action > outcome.....

Habermas early ideas about *knowledge constituting interests* are used to make sense of the different ways in which this cycle is approached. His theorising was an attempt to develop an inter-disciplinary critical social theory that was distinct from the then dominant empiricist-positivist views of science and historicist hermeneutics. These knowledge-constitutive interests can be seen as pragmatist and pluralistic: pragmatist as it is human interests that constitute knowledge and are pluralistic in recognising different forms of inquiry and knowledge. For Habermas there were three knowledge-constitutive interests found in human practices that express different kinds of inquiry:

1. A technical interest: an interest in the prediction and control of the natural environment based on empirical-analytic sciences, as in the natural sciences and social science that aim at testable general explanations. This interest approaches nature and society as objects of possible knowledge linked to systematic surveys and controlled experimentation. It treats the objects of study as governed by predictable general regularities.
2. A practical interest: an interest in securing and expanding mutual and self-understanding in the conduct of life, based on interpretive, or cultural-hermeneutic sciences. This reflects a kind of enquiry based on and expressing action-orientated personal and interpersonal understanding. Society is seen to depend on such understanding which involves meaning-making competence. For Habermas the hermeneutic sciences bring methodical discipline to everyday interactions.
3. An emancipatory interest: Habermas's intention in being explicit about technical and practical knowledge interests was a form of critical methodological reflection to free science of what he called 'positivist illusions' and to put the practical interest on a par with the technical interest. The emancipatory interest reflects an approach to use reason in overcoming dogmatism, compulsion, and domination.

However, Habermas's use of Freudian psychology (self-deception) and Marxist social theory (socio-political ideology) as expressions of the emancipatory interest was problematic. There were issues about psychoanalysis being emancipatory and Habermas was focussing on two kinds of critical reflection: of formal approaches to knowledge (technical and practical interests) and concrete theories. There were also issues about these knowledge interests still assuming a subject-object frame and not taking account of the discursive aspect of inquiry. It was later that he revised his critical framework to involve a theory of communicative action (Habermas, 1987). In this he elaborated two forms of reason – communicative action and strategic or technical action, which can be aligned with but go beyond his earlier ideas of the practical and technical interest. Given Habermas's more recent theorising, the practical and technical interests will be taken as primary as they concern the content of the knowledge interest, while the emancipatory interest reflects a political-ethical interest. So, the emancipatory interest will not be a stand-alone knowledge constituting interest: it can be combined with either a practical or technical interest.

In developing this inquiry model based on pragmatist ideas from Dewey and Habermas, some recent theorising by Morgan (2007) has also been used. From a pragmatist perspective Morgan suggests that research methodologists should give equal attention to epistemological and technical (methods) questions. However, Morgan presents a framework of the key issues in research methodology which contrasts his pragmatist perspective with what he calls a qualitative and a quantitative approach. The terms within which he compares these three approaches are about:

1. Connection between theory and data
2. Relationship to research process
3. Inference from the data.

The table below draws on his framework but presents options to the issues framed as dimensions. It does not use the language of qualitative and a quantitative research, as qual. and quant. refer strictly speaking to types of data and the way Morgan uses them, they seem to be proxies for positivist and interpretivist research, terms which he aims to avoid. The following framework is informed by pragmatist

ideas but does not present a single or definitive pragmatist position. It is a way of considering the complexity of epistemological issues in relation to educational research methodology. It needs to be read as a developing way of thinking rather than a definitive scheme.

In this framework the primary issue is about the knowledge interest that drives the inquiry process. This is where Habermas’s three knowledge constituting interests are used but not as three alternative knowledge interests. As explained above, the technical and practical interests are taken as primary and as alternatives to each other. However, they can each be combined with an emancipatory interest or not – resulting in four options, as shown in the Table 1 options. These different interests, as discussed above, take different knowledge stances which drive the inquiry process in particular directions and therefore have some influence on these other dimensions but in a loose way. Knowledge production logic involves four

Purposes: knowledge constituting interests	practical – communication (single)	practical – communication with emancipatory – critical	technical – predictive (single)	technical – predictive with emancipatory – critical
Knowledge production logic (connection theory to data)	Illustrative: to illustrate through particular case	Inductive: particular to general	Abductive: Inductive – deductive	Deductive: General to particular
Researcher’s relation to phenomena	Connected – inter-subjective		Detached - objective	
Scope of knowledge	Particular contextual	Situated general	General	

approaches. The first is the logic of illustration, based on case studies, as presented by Alexander (2006), that aligns with practical interest. But, the practical interest is also aligned with an inductive logic in which particular cases become the grounds for generalising, not just making illustrative points. By contrast, deductive logic is aligned with the technical interest with its focus on testing hypotheses empirically to arrive at generalisations. The fourth type of logic, abductive, involves a cycle which goes from the particular to the general (inductive) and then tests the general against the particular (deductive). This form of logic has been associated with pragmatist and critical realist assumptions.

The last two dimensions have clearer alignments with knowledge interests. In the dimension of the researcher’s relation to the phenomena, there being two options. The first, that involves a connected -inter-subjective relationship, is more aligned with practical and emancipatory interests. By contrast, the detached-objective relationship is more aligned with the technical interest. There is a similar alignment for the final dimension. In the scope of knowledge dimension, the particular and situation general

scope of knowledge options align with the practical and emancipatory interests, while the general scope aligns with the technical interest.

This framework also makes it possible to illustrate how, i. knowledge interests can be single or combined and ii. when combining technical and practical interests designed into stages in sequence. These examples are indicative and do not cover all design options.

Table 2: Illustrative methodological designs using framework				
Knowledge interest:	Version of inquiry model (taking different starting point)	Knowledge production logic	Researcher relation to phenomena	Scope of knowledge
<i>Single methodological</i>				
Technical – predictive interest / falsifying stance	belief > action > outcome	deductive	detached - objective	General
practical interests exploratory or illustrative stance	action > outcome > belief	inductive	Connected – inter-subjective	Particular in context or situated general
<i>Combined / mixed methodological</i>				
<i>1st: Practical / exploratory</i> THEN <i>2nd: technical / falsifying</i>	<i>1. action > outcome > belief</i> THEN <i>2. belief > action > outcome</i>	Inductive Deductive	Connected – inter-subjective Detached - objective	Particular in context or situated general General
<i>1st: technical / falsifying</i> THEN <i>2nd: practical / exploratory</i>	<i>1. belief > action > outcome</i> THEN <i>2. action > outcome > belief</i>	Deductive Inductive	Detached – objective Connected – inter-subjective	General Particular in context or situated general

Table 2 above shows some illustrative methodological designs using the above framework:

Concluding comments

The aim of this paper has been to show the limitations of regarding educational research in terms of two ‘paradigms’ which involve incompatible assumptions about what exists (ontological assumptions). It has argued that this persistent mode of thinking about educational research, associated with wider social research assumptions, reflects particular social research interests and has been based on a limited understanding of paradigms. The paper has also presented a pragmatist philosophical approach to replace the dominant ‘metaphysical paradigm’ conception in a way that focuses on inquiry and knowledge production. This places research methodology as the central focus with its links to epistemology and methods. This is not to discount ontological considerations, as shown in the exploration of the issues about whether pragmatist assumptions require some impersonal, transcendent or realist assumptions to avoid a strong relativism. As Bernstein (2010) notes, in pragmatist circles there is some oscillation between those with ‘realistic intuitions’ and those more idealistically inclined. Whether pragmatist thinking requires some

form of realism or transcendental element is an important philosophical debate. But, it does not bear directly on the contribution of pragmatist assumptions to educational research methodologies and the design of plural and flexible research methods.

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