There are more things in heaven and earth...than are dreamt of in your philosophy.
~ Shakespeare (Hamlet Act I, Scene V)~

1.1 Introduction

In nominating their methodological approaches, many authors adopt one of two stances: that 1) one’s methodology stems from an ‘informing waterfall’ of ontological and epistemological concerns or 2) the nature of one’s research questions dictate the nature of one’s approach. In the first philosophical determinism, the researcher has little choice in the matter once an ontological and epistemological positioning has been declared, for methodology must surely be an outflow from these. Here, one’s methodology is less a way of answering questions and more a particular way of looking into the world. Such an approach presupposes a methodological dichotomy: that quantitative and qualitative research not only differ in their respective approaches to research questions, but also capture varying types of knowledge and are therefore incompatible. In the second pragmatic stance, authors rarely, if ever, seek to justify their methodological pragmatism: the question of why one can trust the question to dictate one’s approach is seldom explored. The fact that others have come to the opposite conclusion (that one’s questions cannot drive the shape of the research) is not addressed.

It is my position that both stances are inherently flawed and logically found lacking. First, it can be shown, and indeed will be, that a methodological dichotomy presupposed by the former position does not exist, thus undermining the position itself. However, an uninhibited pragmatism (the latter position) does not necessarily follow. One cannot simply assert qualitative and quantitative research as complementary and interchangeable, leaving the argument to rest there. A negative case such as will be brought against a methodological dichotomy does not automatically translate to a positive case for methodological pragmatism.

However, it is my intention to show that, while pragmatism cannot blithely be assumed, a ‘critical pragmatism’ does logically follow from the absence of a methodological
dichotomy. This paper therefore is a construction and expansion of this position. In so doing, I first assert that a methodological dichotomy which divides quantitative and qualitative research, presupposed by much education research, does not exist due to the nature of knowledge acquisition and language, thereby ‘opening’ the educational research landscape. Second, following the deconstruction of a qualitative-quantitative divide, I delineate the necessity of a ‘critical pragmatism’ in education research: a methodology which is inherently driven by both the research questions and external critique.

1.2 Dichotomy in the literature

Many authors, though not all, subscribe to the idea of a dichotomy between ‘the two’ (qualitative and quantitative) research methodologies. Some, like Creswell (1994, 2003) recognize that the two methodologies can be combined into ‘mixed-methods research’ (2003), but their grammar/use of terms still implies a divide. Carr (1995) invokes the classic dichotomy between the quantitative and qualitative research traditions. Repeatedly, one hears of ‘paradigm wars’ (Hammersly, 1992; Schwandt 2000; Yates, 2004). As mentioned above, Creswell (1994, 2003) distinguishes two research paradigms and asserts each possesses unique epistemological and theoretical views. Guba and Lincoln (1994: 34) see a necessary link between one’s theoretical perspective and epistemology: ‘If a “real” reality is assumed, the posture of the knower must be one of objective detachment or value freedom in order to be able to discover “how things really are” and “how things really work.”’

Paradigmatic divide citations are so commonplace one can summarize the respective ‘quantitative’ and ‘qualitative’ epistemological and theoretical assumptions. ‘Classically’ (Carr, 1995) quantitative methodology presumes knowledge is gained through empirical scientific inquiry which confirms hypotheses and establishes objective information (Biddle and Anderson, 1986). Like natural science, social science can obtain and reveal knowledge of the world and its interworking mechanisms, especially inter-phenomenal causal relationships (Taylor, 2001). Research results can be used to make predictions and generalizations, since the knowledge derived is universal, value-free and impartial.1

Quantitative research visualizes reality as external and objective from the researcher; there is a discoverable, independent world ‘out there.’ This reality can be measured by instruments (Creswell, 1994) and objects of study have ‘essential’ meanings external from our understanding: there is, for example, an essential nature of an apple outside sensory experience. As Comte described, social and individual reality, like natural science, exist in a closed system, a Kantian (1999) state of natural determinism wherein everything takes place in accordance with universal laws. Natural causality influences even free ‘choice’ as humans, too, are natural organisms. Intrinsic structures, mechanisms and causal relations impact individuals and the world; human freedom and agency are dependent on the body’s neurophysiology.

1 A recent outgrowth of these presuppositions of quantitative research is the use of natural experimentation, whereby the researcher attempts to create or designate intervention and control groups, similar to natural science experiments, with a particular mind to determine causality. See, for example, Duflo and Kremer (2008).
Qualitative epistemology assumes social phenomena are complexly situated and that qualitative methodology is best equipped to unearth them. Since research objects are individuals with varying viewpoints, any account necessarily reflects partial understanding; to claim otherwise would deny this diversity of viewpoints (Said, 1978). Unsurprisingly, individualized accounts lend themselves to neither predictability nor generalization. Some researchers go so far as to claim truth is not the goal anyway, but an inherently subjective interpretation (Taylor, 2001). The aim of research, then, is to realize the nature of knowledge does not lie in truth as such, but in meaning and significance which is partial and situated.

Theoretical assumptions of qualitative research suggest that social reality is complex and constructed (Bassey, 1992). Indeed, individualized and social construction supposes multiple realities subjective to the societies or individuals that produce them. In this view, people are meaning-making ‘agents’ actively constructing reality; agency is real and society is open (Bhaskar, 1989). Unlike quantitative determinism, qualitative research presupposes an ‘indeterminism’ or ‘incompatibilism’ (Pleasants, 1999). In the former, humans can transcend laws and initiate action which impacts on causal order of nature, hence the injunction that agents could have acted otherwise (Giddens, 1976; Bhaskar, 1989), though they are still influenced by natural laws. The latter argues human freedom is transcendently and mysteriously self-originating: a dualism exists between agency and naturalism.

1.3 An unsatisfactory and impractical dichotomy

At this point, it is evident a simplistic dichotomy of ‘warring traditions’ is rather unsatisfactory, as it glosses over differences and denies the diversity of viewpoints. This is the first reason why the idea of a dichotomy is inadequate: not all researchers subscribe to a divide in the educational research landscape. Indeed, Crotty (1998), despite his affinity for ontological maps, recognizes the paradigmatic distinction exists at the methodological, not epistemological, level. The two methodologies differ in their respective approaches to gathering data, but they do not, according to Crotty, have exclusive epistemologies and underpinning theories. He suggests the ‘real’ divide exists between objective/positivistic and constructionist/subjectivist research. In his words, ‘there are few limitations’ when drawing lines from epistemology to theoretical perspective to methodology. Firestone (1987) positions qualitative and quantitative paradigms as complementary, not rival, ways of gathering data; one can use them in a mixed-methods approach to maximize their strengths and minimize weaknesses.

The classic dichotomy is also practically unappealing because historically, philosophers and researchers have ‘leapt’ across the so-called paradigmatic divide; not all stick to one side or the other to reconcile their views of social reality. All objectivists do not follow Crotty’s arrows into positivism or post-positivism; the same may be said for some subjectivists. This is precisely what a reading of Heidegger (1927) reveals: he believed

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2 Crotty gives the exceptions of links between positivism or post-positivism, phenomenology and postmodernism; he suggests one cannot draw a line from one of those to the other.
in a world ‘always already there’ but his theoretical perspective was certainly not positivist. Instead, his work focused on hermeneutics, a ‘classically’ non-objective standpoint. Similarly, Eisner (1979; 1981) ‘leaps’ in the other direction: from an instrumentalist/subjective worldview to positivist grammar. In a discourse with a respondent to his 1979 article, Eisner (1981) firstly asserts his instrumentalist view, with which the respondent disagrees and criticizes. But Eisner, instead of allowing that the respondent found his arguments unhelpful and was therefore entitled (by his own criteria) to reject them, wrote back citing ten mistakes made by the respondent. In so doing, Eisner declared that one point ‘is simply not true’ and another is ‘naïve.’ Nowhere does he evaluate the usefulness of the respondent’s claims; rather, he seems to think that he is ‘right’ (Philips, 1983). Certainly Eisner is swimming in positivistic waters and he, too, does not obey the methodological/epistemic divide.

Third, individuals can share epistemological and ontological views yet differ in their research methodologies. Here, the debate regards the issues of social complexity and the importance of context. Qualitative researchers generally stress social phenomena’s complexity and accuse the quantitative researcher of reductionism inherent in the process of boiling things down to statistics. Thus, qualitative researchers desire to understand a phenomenon within a particular context. Quantitative researchers, on the other hand, may agree with notions of societal complexity, but assert that research is concerned with knowing and identifying processes in order to control them. They critique the qualitative researcher for similar reductionism in choosing what to include and omit in the description of objects or phenomena. Reconsider the example of Heidegger’s realist view: he held a positivist/objectivist worldview, but did not conduct survey research or quasi-scientific experiments. The difference was in his approach.

A fourth reason the idea of ‘warring traditions’ is unsatisfactory is that it results in each side producing unfruitful attempts to defend their paradigm choices. Theories of social and individual reality are cravings for generality (Wittgenstein, 1968) and their defences ultimately fall into performative contradiction (Habermas, 1990) due to circular logic. Kuhn (1962: 93) states: ‘When paradigms enter, as they must, into a debate about paradigm choice, their role is necessarily circular. Each group uses its own paradigm to argue in that paradigm’s defence’. Wittgenstein sees this as a product of a simplistic ‘name-object’ view of language in which words have one-to-one correspondence with ‘real’ objects. Because one can name something (e.g. agency) and define it, one supposes it is legitimate to formulate a set of propositions based on the object’s ‘essential’ properties (1972), which eventually break down into contradiction (Habermas, 1990).

Such a performative contradiction based on constructed social theory is Eisner’s aforementioned ‘extreme’ instrumentalism (1979). Philips (1983: 11) summarizes this

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3 Here I do not suggest that Heidegger is somehow intellectually weak or that his arguments fall apart at this point. Rather, I assert simply that he does not obey the classic dichotomy outlined above.

4 ‘The differences in basic assumptions…are not resolvable through science…and there is no critical test that will resolve the truth or falsity of their respective belief systems…My point here is simply this: objectivity is a function of intersubjective agreement among a community of believers. What we can productively ask of a set of ideas is not whether it is really true but whether it is useful.’ (1979: 214)
view: ‘So long as members of a group of believers maintain their agreement, and so long as they can point to things that they would count as instantiating their theories, the views that they hold are true, for them’. Despite Eisner not tolerating opposing views which may be useful for others (see above), his view is nominally extremely tolerant. ‘Nazis, flat-earthers, astrologers, paranoids, Freidians, Skinnerians and anyone else who ever believed in a theory, in principle could satisfy Eisner’s criteria’ (Philips, 1983: 11). Presumably, even those with non-instrumentalist views should be included in Eisner’s umbrella theory of epistemic instrumentalism, causing it to fall into meaninglessness.

1.4 The epistemic evidence against a methodological divide

Until this point I have only spoken of the practical implications of a methodological divide in research and philosophy. That is, we have seen how a dichotomous view of research methodology and the ensuing knowledge impinges upon one’s practice, creating arbitrary categories which stultify any potential interactions between qualitative and quantitative researchers. Moreover, the above practical critique is negatively framed in that it highlights the researcher does not act in accordance with such categories, despite literary assertions to the contrary. Thus, I have outlined what the researcher does not do: she does not walk on either side of a fault-line which partitions qualitative and quantitative research. Last, I have asserted that this view results in ‘opposing’ methodological camps attempting to justify their tradition, attempts which ultimately end in performative contradictions (circular logic).

Though the idea of a methodological divide may be practically unappealing as discussed above, it does not necessarily follow that one does not exist. To so assert and articulate the shape of an inclusive research landscape, one requires positive logic to delineate the nature of research and knowledge acquisition. This latter task inherently involves expanding our discussion to epistemic reality: the nature of knowledge. As we will see, the nature of knowledge acquisition exposes the notion of a methodological divide as nonsensical at best and epistemologically regressive at worst.

1.4.1 A brief historical narrative on the nature of knowledge: Plato, Locke and Kant

One could generalise that knowledge is the result of a dynamic relationship between a ‘knower’ and a known object (Munz, 2004); indeed, we have known this since the philosophy of Plato, and the relationship holds so long as the knower can predict the known’s behaviour. However, the precise nature of this relationship, and therefore the definition of knowledge, continues to engender contemporary debate. Plato hypothesized that we enter into the world with ideal forms of objects and concepts imprinted upon our minds; when we encounter theses in reality, we thus recognize them (Ross, 1951). As

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5 To consider whether the researcher can in fact draw one’s methodology from one’s question rather than have it dictated via a methodological divide requires us to ask what research is. One could logically conclude, in so many words, that research is the pursuit and acquisition of knowledge (knowing what is the case). Therefore, the nature and acquisition of knowledge must both be treated when defining one’s research methodology.

6 These three philosophers are consciously chosen as representative, in varying degrees, of the classic position of the ‘passive’ mind, refuted by the subsequent section.
such, ‘forms’ or ideas comprise the highest structure of reality and constitute real knowledge; all else is material sensation, a reflection of reality. This is seen in Plato’s cave analogy wherein individuals are from birth chained in a cave; their only interaction with reality comes in the form of shadows of people and objects passing before the cave’s mouth, casting shadows on the walls (Plato, 2009). The individuals inside cannot see the objects (reality) which cause the shadows (material sensation) and therefore mistake the shadows for reality. According to Plato, the job of the philosopher is to release individuals from the confines of the cave via an embracement of forms (ideas); only then, when thought is allowed to supersede sense impressions, is knowledge of ‘real’ reality possible.

John Locke, in contrast, held that the human mind was a tabula rasa, or blank slate; rather than coming into the world with Plato’s ideal forms, the mind instead is seen as a bucket or blotting paper (Lowe, 1995). In the former metaphor (brain as bucket), the brain collects and stores sensory information from the environment, acting as a receptacle of informational input. In the latter (brain as blotting paper), the brain has the same function (collecting and storing sensory information) but is also able to create an image of this environmental ‘information’ for future use. Regardless of what analogy is used, Locke envisions the brain as a passive recipient of environmental data, an impressionable sponge which soaks up and is informed by material sensation. In other words, there is, in Locke’s view, an unbalanced relationship between the knower and the known (environment), whereby sense and observational data are equivalent to knowledge of reality (Yolton, 1956, 1970).

Over two millennia later, Kant expanded upon Plato’s dialectic of ideal forms and sensory perception. Kant, too, advocated a dichotomy between the world as it is in itself (noumenal) and as it seems under our observations (phenomenal) (Kant, 1999). Unlike Plato, however, Kant did not envisage a philosophical bridge connecting the two worlds and took the proposition of such a connection as absurd. Indeed, he considered the question ‘what does the world look like when we’re not looking’ (i.e. what does the world really look like?) to be useless and misleading, as the noumenal world did not resemble anything we would remotely recognize, so great was the chasm between the ‘real’ and the phenomenal. Kant, melding Platonic and Lockean thought, hypothesized that we come into the world not with ideal forms, but with general categories of reality already imprinted in our minds (Munz, 1999). It is left to us to fill in such categories with sensory observations of the phenomenal world. Thus, there is room for both inductive observation and agentic interaction (Gardner, 1999). He is careful, however, to assert that we do not arrive at general theories or laws via inductive reasoning and observation; we instead prescribe general laws to nature which make assertions of the phenomenal world. The Kantian view of knowledge and its acquisition, it could be said, is more of a delicate balance between the knower and the known than was proposed by Plato or Locke.

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7 The date refers to the translation by Jowett.
8 The date refers to the translation edited by Guyer and Wood.
It is important to note that in the above theories of knowledge, the relationship between a knower and a known, the human mind is pictured as a collector of information, a mirror of reality (Rorty, 1982; Munz, 1987). These theories feed into the classic view, put forward by the Enlightenment, that the way to distinguish between superstition and knowledge was to stop submitting to ancient authority and to begin observing the world with one’s eyes. In this view, though humans may enter the world with general conceptual categories, the actual knowledge within those parameters comes mainly from observation and induction.

1.4.2 Giving teeth to Kant: a Darwinian view of knowledge

Known generally for his contributions to science other than in the theory of knowledge, Darwin challenged the classical passive view of the human mind outlined above (Gruber, 1974; Munz, 1993). As such, he disputed the metaphors of the brain as a bucket, a mirror or blotting paper, which absorbs sensory information in order to fill in one’s preconceived general categories. Like all of the individuals mentioned previously, he embraced the interaction theory of knowledge, but ultimately rejected the Kantian dichotomy between the noumenal and phenomenal worlds. In this vein, Darwin argued that the ‘noumenal’ world, the world as it is in itself, probably does not look terribly different that the phenomenal world. That is, the world in all likelihood looks much the same when we are not looking as it does under observation. This follows the simple logic behind The Origin of Species (1859): that our ability to look has evolved in the wake of a reality that there are, in fact, objects to look at. Our eyes, and thereby visual perception, are adaptations to the real features of the world. This extension of Darwinian evolution logically breaks down the epistemic wall, erected by Kant, between perception and what is there to perceive, between knowledge and the known.

But Darwin’s biological explanation of the acquisition of knowledge cuts deeper than the observation that eyes are mutations selected due to the nature of the (noumenal) world. In this respect, his greatest contributions were the concepts of mutation and selection in biological organisms. This dual pattern of mutation and selection, whereby random genetic changes are offered up to the environment for critique, also sheds light on the nature of knowledge, depending upon which step in the process is emphasized. A mutational emphasis has historically been associated with a sort of biological determinism: that the organism is the passive recipient of environmental information until it becomes adapted. This adaptation, then, is genetically installed and passed on to future organisms. Such ‘Instructionism’, in which the mind is the obedient recipient of a set of environmental instructions, leads back to positivism: theories must be verified via observational information.

To emphasize selection, on the other hand, is to depict the organism as a free agent putting forth undetermined proposals in the form of mutations which are then presented before the environment for selection. The reality of selection, in this view, is a direct function of the nature of genetic reproduction and is influenced by, rather than contingent upon, the environment. ‘Selectionism’ sees the organism as freely operating, creating mutations that are, in fact, theories about its surroundings.
These two features of Darwinian evolution, however, raise a conundrum in terms of knowledge acquisition: which phase, mutation or selection, is given primacy? Traditional views of science (knowledge acquisition) emphasize the former (instructionism), depicting the brain as more or less a passive mirror or sponge, an organ which processes environmental information and compartmentalizes it into knowledge and theories (Munz, 1993). This is logical as Instructionism is ‘simpler’ in that it requires only one step: acceptance of information by the brain. Selectionism, in contrast, is comprised of two processes: free mutations and environmental selection. Thus, it is evolutionarily more complicated and more difficult to grasp. Despite this, we shall see that the latter (selectionism) is indeed the process of knowledge acquisition, which goes on to have a great deal to bear on educational research.

1.4.3 Popper and Darwin: a theory of knowledge acquisition

Popper’s contribution to knowledge acquisition theory was to extend Darwinian evolution to theory creation and scientific inquiry. If humans themselves are products of biological evolution, human brains are logically to be seen as evolutionary by-products; thus, brain functionality is subject to the same processes as biological organisms. The acquisition of knowledge is, in this sense, an adaptation, a continuation of biological evolution following the pattern of chance mutation and selective retention. As such, theories of the world should be seen as ‘disembodied organisms’ and biological organisms as ‘embodied theories’ (Popper, 1972; Munz, 2004). Just as organisms’ mutations are offered up to the environment for selection, a human mind creates free propositions or theories (mutations) while the environment selects the most suitable.

Popper therefore emphasized selectionism, rejecting the classical notion of the mind as a bucket waiting to be filled with sensory stimulation. He recognized that one could not build a theory of knowledge upon instructionism, based as it is upon passive knowledge gathering. For instructionism is akin to verificationism, the attempt to prove theories by building up the number of observations in support of that theory, and no matter how many observations one has in favour of a theory, one would still only have a limited set of observations and therefore could never verify it. Popper (1984) himself articulates:

I have developed a view of the growth of knowledge – of human knowledge but also of animal knowledge – which differs greatly from nearly everybody else’s. According to this view, our knowledge is not in the main derived from experience, not even from experience as I see it: the elimination of bad guesses. Most of our knowledge, and animal knowledge, and even vegetable knowledge, is rather the result of sheer invention...

Instead, Popper saw the human brain as a free-ranging agent, creating proposals and offering them up for community-based critique (selection); for when we build theories, we do not just look at nature and gather verifying information. Reasons in support of Popper’s selectionist theory of knowledge acquisition are two-fold: 1) the history of

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9 We will see that ‘environment’ here refers to the individual’s speech community, the community in which the individual lives and acts.
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science shows that no discoveries have been made via instructionism (blind observation) and 2) current neuroscience findings identifying a division of labour in the human brain. First, major scientific breakthroughs have not been facilitated by instructive observation, despite claims to the contrary, but by theory creation and subsequent critique. An illustrative example is that of the efforts of Francis Crick and James Watson as compared to Rosalind Franklin. Franklin, Watson and Crick were all working toward the same goal: the pattern and functionality of human DNA. Franklin approached her task classically, via environmental instructionism, and hoped the answer would one day stare her in the face (Sayre, 1975). Crick and Watson, however, created free proposals or theories of the DNA structure which were then subject to testing (i.e. critique) (Watson, 1980). As we know, the selectionist approach of Crick and Watson made the ultimate discovery, while Franklin’s instructionism did not.

Second, current neurological evidence shows that the brain is not a single organ but rather a compilation of complex processes: human minds register different stimulations in different areas of the brain. For example, the properties of a bouncing red ball would be processed differentially: motion is processed separately from colour. But this creates a neurological ‘binding’ problem (Munz, 1993, 2004) of stratified information: how are motion and colour contextualized to create knowledge of what is going on? Given this division of labour, how is it we are able to talk about our observations of the bouncing red ball? Here we see that there must be a binding process which pre-dates and is external to our observations in order to bring separate and functionally distinct reactions together to form knowledge. Without such a process, there would indeed be no way to understand our observations. Thus, the brain does not act as blotting paper, soaking up environmental stimulations and subsequently creating intelligible representations of what is the case. Rather, we are forced to suppose our presentations (that we see a bouncing red ball) are due to linguistic ability to create meaningful proposals which tell us more than we physically observe. As such, language is the biological solution to our binding problem.

Knowledge, therefore, proceeds in the pattern of biological evolution: minds, like organisms, put out free proposals which precede sensory experience and observation. In this way, theories are neither built upwards from environmental input nor contingent upon observation. It is important here to note the order of knowledge acquisition: theories are made before sensory stimulation and are then offered up to the environment for critique (via observation). Such ordering (free propositions, then critique) presupposes our ability to understand proposals’ meanings before the availability of observational evidence. Popper, of course, took meaning to be synonymous with falsifiability (i.e. the capacity to prove a proposal false) and therefore there was little need to consider meaning separately. Indeed, for Popper, a meaningful theory is inherently

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10 As science was classically denoted as simple observation (looking and finding), scientists have had to pay lip service to instructionism while doing nothing of the sort. Indeed, they have practiced the exact opposite.

11 This is not to discount Franklin’s contribution to science, as her observations proved invaluable in terms of critiquing Crick and Watson’s proposals. She, however, adopted an approach to science which was in line with the dominant discourse (instructionism), but in opposition to the pattern of knowledge acquisition.

12 Indeed, if theory (or proposals) did not come first, one would not know where to look (Popper, 1984).
falsifiable whereas non-falsifiable proposals were to be disregarded as meaningless and therefore insignificant. But this does not solve the problem of meaning; it does not explain how our proposals are intelligible in the first place, for a falsifiable proposal means the state of affairs which falsifies it (Popper, 1974). This however, is not what they say; indeed, they state the opposite.

How, I repeat, can one ascertain the meaning of a proposition or theory which is not rooted in observational experience? It is obvious that a freely-constructed theory cannot be a report or representation of what is the case, but is instead a proposal of what one ought to observe: theories thus tell us where to look, but cannot predict if we will actually find anything. If propositions don’t mean what they are referring to and are not based on observational evidence, how can we know in advance what they are referring to and, by extension, what they mean? Put oppositely, how do we know what proposals mean when we don’t know to what they are referring? When meaning and truth (what is the case) don’t coincide, there is a language problem (Munz, 2004).

Second, if proposals are freely constructed and only provisionally accepted until shown to be false (i.e. falsified), as Popper asserts, one can never be sure that one’s proposals are accurate theories of reality. As current theories may be found wanting in due course, we cannot truly ascertain their correspondence to what they claim to refer to. We have seen that theories are not contingent on observations and therefore it is clear we cannot point ostensively at what we mean (Wittgenstein, 1968). So we are left to wonder how we can know what our proposals mean when they could be falsified in the future. How can we establish the meaning of something which could turn out not to be the case?

This meaning problem in the theory of knowledge acquisition cannot be solved with syntax and grammar (as Chomsky (1957) attempted); what is needed is an ability to discern the semantic meaning of a proposition, something which Popper’s theory alone does not allow, but without which the acquisition of knowledge is stunted. As mentioned above, Popper asserted that meaning stemmed from falsifiability, but this is easily shown to be untrue. For example, the phrase ‘God is omnipotent’ would not, in Popper’s sense, be intelligible. However, it is clear that this unfalsifiable proposal is both intelligible and meaningful in certain societies; indeed it is often taken to be truthful because it is meaningful. Thus, it becomes evident that semantic meaning plays a vital role in knowledge acquisition and hence we must attempt to explain how meaning can exist prior to, and not be contingent upon, sensory perception.

1.4.5 Wittgenstein, meaning and communal language

To fully appreciate Wittgenstein’s theory of meaning as complementary to Popper’s, we must first address the deficiencies of the ‘name-object’ view of language proposed by
Augustine and many thinkers since. When learning language, Augustine in his *Confessions* (1963) recalled his elders pointing to an object and uttering words and phrases: ‘When [they] named some object… I grasped that the thing was called by the sound they uttered’. Wittgenstein (1968: 1) explains this theory:

> These words, it seems to me, gives us a particular picture of human language. It is this: the individual words in language name objects – sentences are combinations of such names. In this picture of language we find the roots of the following idea: every word has a meaning. The meaning is correlated with the word. It is the object for which the word stands.

Such a relationship between language and reality is problematic, however, as it suggests words are defined by ostensively pointing at objects; there exists an essential link between words’ names and objects. Wittgenstein showed, though, that ostensive reference (silent, non-verbal pointing) is irrelevant to meaning and therefore no basis from which to build propositions (and thereby knowledge). This is readily seen. If we take a language learner and imagine, akin to Augustine, that the learner’s family pointed to an object, say a table, and named it, how would the learner know what the teachers are saying? Are they referring to the object’s name, colour, or are they asking the learner to crawl under the object? In such a name-object relationship between language and reality, the learner, who does not claim previous linguistic knowledge, cannot determine this via ostensive definitions alone (Munz, 2004). And so we must acknowledge there is a different, non-referential way to determine meaning; that it does not derive from words’ relations to reality. The elusiveness of such an objective event signifies that semantic meaning in a private language would be subject only to one’s whims; meaning would be manipulated and changed according to one’s subjective feels and not sufficiently constant.

Moreover, the name-object view of language presupposes a private language which could be understood and spoken by a single individual: words have essential definitions which relate to essential properties of reality that we must discover. This, according to Wittgenstein (1968), is impossible, as words’ definitions do not relate directly to reality, but stem from our subjective experiences. Observation is here equated to sensory sensation, and though similar observations lead inevitably to similar sensations, it remains that these sensory stimulations are private abstractions. Thus, given two observations (and therefore two sensations), how do we know the first is similar to the second and can be described in identical language? This of course requires memory and judgment, both of which, again, are private and subjective ‘feels’ (Wittgenstein, 1968; Munz, 2004). In this sense, to have a language is to be able to apply words to similar, but distinct events in history. But this ability requires a third, objective (beyond memory and perception) event to compare against; it is this objectivity which is lacking in the name-object view of language.

We are left to conclude that language is a public, not individual, phenomenon: to understand a language is a mastery of a technique, which is, in turn, following a rule.

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14 This date references the publication date of the English translation by Rex.
Rules of language are neither a type of calculus, wherein the answer is independent from us,\textsuperscript{15} nor an inner mental activity. This is to say that language is not rigid and coercive; it does not function as a railroad track, guiding the user to one correct answer or use. Language, rather, is like a signpost, insofar as we have a custom of following signs (Wittgenstein, 1968). The sign (language) guides us, not because of its essential nature, but because this is how signs are used. Thus we see that rules, and therefore meaning, are wrapped up in communal collective practice: meaning is a result of social language use, or ‘forms of life’. Language is woven into the underlying consensus of linguistic and non-linguistic behaviour, traditions and propensities that humans share.

In answer to the Popperian problem of meaning, above, we know what our proposals are saying because we are following a rule. Following a rule (participation in social practise), then, conforms to the habits of the speech community in which we find ourselves. If meaning is conceived as ‘use’ and public tradition, this 1) gives sense to our propositions and 2) precedes individual observation. Language is therefore the basis of our proposals and, by extension, the basis of knowledge.

1.4.6 Two problems: closed communities and abstraction

Wittgenstein’s ‘answer’ to the meaning problem posed above is not a final answer, for if one accepts that communal use, tradition and practise impart meaning on one’s concepts and words, and that meaning allows individuals to freely create understandable propositions which allow one to test and acquire knowledge via critique and selection, two problems arise: closed communities and abstraction. First, communities which impart meaning through use and tradition are closed communities in that they do not tolerate external critique. Indeed, such external critique is impossible as traditions and habits presuppose the authority of the speech community. Wittgenstein remained adamantly indifferent to the ‘shape’ of a given speech community, holding that there cannot be ‘pre-linguistic’ meanings; there is not our language and the thoughts hidden behind our language. He is saying that in order to have perfect meaning, the community cannot be open to external critique; to be true, any such critique would be nonsensical, since there is no objective speech from which to critique a society’s speech habits, as we have seen. Rather, the only conceivable critique is whether one’s speech conforms to the norms proposed and practised by one’s given community. Community habits are, in the end, self-justifying: ‘What has to be accepted, the given is – so one could say – forms of life’ (1968: 226). The external critique of a community itself is impossible as this requires the critique of one society by the rules of another. ‘If I have exhausted the justification I have reached bedrock, and my spade is turned. Then I am inclined to say: “This is simply what I do” ’ (1968: 217).

Communities which are thus closed to external critique are ultimately stultifying, as closedness does not permit the full cycle of knowledge acquisition: the creation of proposals/theories exists independent from critique/selection. This allows parochial, untested propositions to remain unscathed under the guise of information; colloquial beliefs and superstition thus preclude the pursuit of knowledge.

\textsuperscript{15} As the statement 2 + 2 has an answer seemingly independent of the author.
Popper, by contrast, was careful to highlight the necessity of open societies (communities open to critique), particularly concerning the acquisition of knowledge. ‘Republics of Science’ (Popper, 1962) are societies that embrace both free proposal-creation and critique, those which employ the pursuit of knowledge as a model for a politically and morally sound community (i.e. ‘civil society’). More pertinent to this paper, knowledge acquisition requires ‘open’ critique and selection, as we have seen. Indeed, knowledge cannot be defined as such if it is not constantly tested and thus differentiated from superstition.\textsuperscript{16} Openness, in and of itself, is not a guarantee that true knowledge will dethrone all superstitions and ghost beliefs.

The second problem unearthed by the proposed ‘solution’ to the above meaning problem becomes apparent in Popper’s notion of ‘verisimilitude’ and Wittgenstein’s critique of a private language. Popper asserted that general laws and theories (proposals) can never be completely true, but just truth-like: they can never fully correspond to what is the case. Human minds create propositions which are theories of their environment and the world, not facts. Proposals, then, even if they pass examination, cannot be said to constitute reality; there is no one-to-one association with reality. In Popper’s mind, there is a real difference between ‘real’ reality, what the world looks like when we are not looking, and our proposals, or knowledge, of it. While this is not a problem as such (indeed, it is part of the knowledge acquisition process), it speaks to the necessity of critique and examination, for without these elements, a society has only propositions which cannot be distinguished from superstitions.

Though Popper never articulated the reasoning behind his notion of ‘verisimilitude’, rather founding his conclusion on faith, Wittgenstein showed (as we have seen) that one cannot build up a private language through sensory experience and observation. To re-emphasize, observations of the natural world lead to sensations, or subjective feels. As one might surmise, these subjective feels are by their nature ultimately private and not available for public inspection. We can say, then, that the feel one experiences is an abstraction from the event. Events, of course, occur chronologically through time and thus we must use personal memory and judgement in order to detect similarities between events, therefore giving them similar (or identical) names, which is the basis of language, meaning and knowledge, as we have seen. But this ability requires a pre-linguistic knowledge of the essence of language, something that we cannot access apart from community.

This, in essence, is the problem highlighted by critical realists: though there are real things in the world which can be measured and manipulated, our measurements are abstractions of those things (no one-to-one correspondence) and therefore tell us more about our way of measuring than they do about the objects themselves (Bhaskar, 1989).

\textsuperscript{16} Of course, openness in and of itself is not a guarantee that true knowledge will dethrone all superstitions and ghost beliefs, as all societies hold these to one degree or another. Rather, openness should be seen as fertile soil for the cultivation of the pursuit of knowledge, though the produce (knowledge) is not guaranteed to germinate and flower. The ‘Republic of Science’, in this sense, is an ideal which can never be realised, yet is worthy of pursuit.
The situation is aggravated by the fact we mistake our measurements, and their inherent abstractions, for facts about the object in question; we forget they are abstractions. Regardless, we continue on to create postulates and theories about those objects based on our measurements, and though we believe we have collected a body of factual evidence around a research object, in reality we simply have a theory which doesn’t conform to a name-object view of the world.

The problem of abstraction, however, cuts deeper into the acquisition of knowledge than one might initially recognize. We have seen that abstraction results from the lack of a ‘picture theory’ of language and reality, that there is not a direct correspondence between our words, concepts, proposals and ‘what is there’. Recall that Popper viewed critique not only as the way to eliminate unsuitable (untruthful) proposals, but also to overcome, insofar as it is possible, the inherent disconnect between ‘real’ reality and our theories. But if our sensory perceptions are private and do not conform precisely to the subject matter, this is of course true of our critique, which is built upon sensory experience and observation. Critique, based in community, perception and language, is ultimately subject to the lack of one-to-one correspondence between our experience of an event and the event itself. Indeed, we cannot have it both ways: we cannot claim in the first instance that knowledge is fallible because of the above language and perception problem and then rely on language and perception (observation) to critique our theories, treating it as an objective phenomenon. Thus we must admit the language problem goes all the way down: even proposals which temporarily pass examination do not contain ‘true’ knowledge about a concept.

Notwithstanding this revelation, it does not follow that critique is toothless. To be true, it becomes ever the more apparent that a research community must rely upon it to constantly refine and test its theories and bases of knowledge. In the absence of a picture theory of reality, open critique becomes the only feasible way to prevent societies from lunging into ‘closedness’, to avoid the creation of parochial ‘echo chambers’ which become more and more disconnected from other speech communities and reality. It has become obvious one cannot build up knowledge and theories of the world via language and observation alone; transparency (open critique) and examination are essential elements in the acquisition of knowledge.

1.5 Implications for methodology and education research

Given the pattern delineated above, it is evident that there can be no methodological divide in terms of knowledge acquisition. The act of research itself is the examination of proposals and theories; the shape of our research is therefore determined, not by any external necessity (i.e. an informing waterfall of ontology), but by the proposal itself. In other words, any methodology is simply an expression of how the researcher intends to test a proposition. As such, the test is inherently tied to the nature of the proposal; it is an appropriate way of looking and observing, based on a theory or proposal. What I am outlining is in essence a ‘critical pragmatism’ wherein one’s research methodology is driven by the proposal or question one seeks to examine. One’s question, therefore, drives one’s way of looking. Indeed, there is no other basis from which to divide
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methodologies into two separate camps, as we have seen. The pattern of knowledge acquisition is similar for all types of knowledge and proposals; it does not differ for qualitative and quantitative proposals, creating incompatibility.

It is important to note, however, that a critical pragmatism does not claim that the question drives the research methodology and that is the end of it, as does regular pragmatism. Rather, a critical pragmatism conveys biological, linguistic and epistemological reasoning behind its ultimate pragmatism. In other words, I have attempted to show why I believe the question can ultimately drive one’s research, one’s methods of examination. It is not enough to fall upon the mercies of pragmatism and exempt one’s self from justifying one’s approach. To be true, it is no justification at all to claim one’s approach is warranted by the nature of the proposal or research question. For one could ask: why can the proposal drive one’s approach? And perhaps more pertinently: how do you know your approach is in fact justified by the proposal when that justification is based upon your perception of the proposal?

Critical pragmatism answers these questions and proposes a methodology appropriate to examine a theory or question. However, it is recognized that the chosen methodology is not the only examination possible; other permutations and proposals surely exist. Thus, the proposed methodology is in many ways a theory of how to answer a specific question or set of questions and as such is subject to the non-picture theory of reality (that is, a methodology as a theory does not fully correspond to the nature of the question). By extension, the chosen methodology is therefore open to critique.

With reference to educational research, attempts to systematically categorise and differentiate qualitative and quantitative research (see section 1.2) should be seen as effectively establishing exclusive speech communities which preclude any sort of interactive critique. Wittgenstein, as we have seen, prescribed such categorisation when he declared that forms of life (speech habits of a given community) must be taken for granted and cannot be externally criticised. But I have shown that such practices stifle and suppress the acquisition of knowledge (i.e. research). Indeed, one could say that exclusive speech communities of qualitative and quantitative research are, in essence, ‘echo chambers’ (Sustein, 2007) which over time become less concerned with the acquisition of knowledge and more absorbed with conforming meaning. In this sense, holding to the classic view of differing research traditions is regressive and counterproductive.

While qualitative and quantitative researchers may occupy distinct speech communities in reference to their research approaches and language use, this does not rule out inter-community critique. To be true, such interaction is essential in the knowledge acquisition process. Critical pragmatism emphasises this, taking speech communities’

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17 It is outside the scope of this chapter to determine whether qualitative and quantitative researchers in fact represent two distinct speech communities. Moreover, it is ultimately irrelevant; in either case, the nature of knowledge and language requires both sides to engage in a critical dialogue. If pressed, however, I would argue that the dominant position is that the two methodologies do comprise separate speech communities, based on much the same discourse as presented in Section 1.2.
free propositions as its starting point and inserting external critique based on the nature of knowledge and language.

Unfortunately, much of contemporary education research is epistemologically regressive rather than knowledge-enhancing. Educational research infrastructure and processes are constructed in a fashion which either fails to recognise or incorporate the nature of knowledge acquisition, as outlined above, in its customary habits. They fail to integrate into daily practice how theories are tested and how knowledge is expanded; namely, a genuine ethos of critique is lacking. External critique is not cultivated; instead, the fragile notion of within-group critique is favoured in our institutions of higher learning, turning veritable research communities into closed communities and ‘echo chambers’. We have seen that this is stultifying and knowledge-regressive and yet, if we look critically, we will observe such practice is rampant.

In closing, let us consider an example which highlights the ubiquitous nature of within-group critique. If I were to author a paper on the extent to which educational user fees impact upon government supply and household demand for education in South Africa, I very well may seek to publish it in the Economics of Education Review or another economically-minded journal. This of course is based on the simple reasoning that Economics of Education Review readers will likely be interested in my article and the referees in all probability will be familiar with the methodology and techniques I employ. On one hand, this publishing focus is quite logical: my paper is likely to be received more warmly and realise more success in the Economics of Education Review than it would in a journal devoted to, say, Grounded Theory. On the other hand, we must consider who will read my article given my journal submission. Who will critique it? Naturally, it will be read, reviewed and eventually critiqued by other researchers interested either in economics of education issues or South Africa. They will critique my methodology, consider whether my sample is representative, question if my paper employs the most current econometrics and data modelling. In other words, they will provide within-group critique. No external critique will be forthcoming. Such pragmatic decisions are made everyday; they are logical reactions to the orientation of the academic publishing universe. But it is important to note that the shape of this universe contributes, perhaps inadvertently, to closed communities and within-group critique, neither of which promotes knowledge.

The response to this illustration is not, of course, to demolish the infrastructure of academic publishing; rather, a more nuanced rejoinder is warranted. A ‘critical pragmatism’ inquires how often we are engaged in external critique. Following the above example, I should ask whether I am making my article accessible to individuals and groups outside of my ‘speech community’. How often do I engage with those who do not share my views? Do I elicit and consider their critiques? This does not necessitate a ‘dumbing down’ of our research, nor does it require refrain from technical and specific methodologies so that ‘outsiders’ may understand. Within-group critique is still essential. It cannot, however, form the basis of knowledge acquisition and therefore, it should not be the basis of our universities and research cultures; in this, external critique is indispensable.
Let us consider another quote from Wittgenstein: ‘A philosopher who does not participate in debate is like a boxer who does not set foot in the ring’. Though he is here referring to philosophers, we can extend his meaning to include educational researchers: if we are not engaged in external critique, then our research behaviour, with all its publishing and writing, only amounts to following a rule. All we are doing is replicating our closed culture.

1.6 Conclusion

This paper begins by delineating two common positions vis-à-vis research methodology: a methodological dichotomy informed by philosophy determinism and ‘simple pragmatism’. Both positions are discredited as viable rationales for methodology selection. The former (methodological dichotomy) has been shown to be not only practically unappealing, but also epistemologically regressive. The latter (‘simple’ pragmatism) never considers why one’s research questions can drive one’s approach and therefore opens itself to performative contradiction (Habermas, 1990): it is circularly defined by its own logic.

However, the exposure of these two positions as logically baseless engenders the question as to how the researcher goes about selecting a methodology. To this end, we have seen that an answer to this enquiry necessitates the consideration of epistemology, the nature of knowledge and its acquisition. As outlined above, the acquisition of knowledge requires the dual process of free proposal creation from within a particular speech community and critique from without. Research (i.e. the acquisition of knowledge), which inherently involves the testing of proposals, must therefore be constructed to complement a specific proposal and in so doing define an appropriate test. And yet this is not the end of the matter, for even accepted theories (proposals) are abstractions from reality and subject to the lack of a private language. Hence, external critique is central to the knowledge acquisition and refining process; internal critique (determining whether a proposal conforms to the rules of a speech community), by contrast, cannot ultimately test propositions and therefore leads to ‘echo chambers’ of parochial rule-following.

The process just outlined is a brief summation of what I have in this paper deemed ‘critical pragmatism’. Where philosophical determinism and ‘simple’ pragmatism fail to justify methodological choice, ‘critical pragmatism’ acknowledges how the nature of language and knowledge necessitate proposal creation, accordingly-designed examination and continual critique. Rather than employing methodological stances (i.e. philosophical determinism and ‘simple’ pragmatism) which stultify knowledge acquisition and settling for paternalistic echo chambers, educational researchers are called on to embrace a ‘critical’ pragmatic approach to methodology and with it a means of creating a knowledge-enhancing and epistemologically-progressive dialogue.
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