The Philosophical Underpinnings of Educational Research

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Abstract

This article traces the underlying theoretical framework of educational research. It outlines the definitions of epistemology, ontology and paradigm and the origins, main tenets, and key thinkers of the 3 paradigms; positivist, interpetivist and critical. By closely analyzing each paradigm, the literature review focuses on the ontological and epistemological assumptions of each paradigm. Finally the author analyzes not only the paradigm's weakness but also the author's own construct of reality and knowledge which align with the critical paradigm.

Key terms: Paradigm, Ontology, Epistemology, Positivism, Interpretivism

The English Language Teaching (ELT) field has moved from an ad hoc field with amateurish research to a much more serious enterprise of professionalism. More teachers are conducting research to not only inform their teaching in the classroom but also to bridge the gap between the external researcher dictating policy and the teacher negotiating that policy with the practical demands of their classroom.

I was a layperson, not an educational researcher. Determined to emancipate myself from my layperson identity, I began to analyze the different philosophical underpinnings of each paradigm, reading about the great thinkers' theories and the evolution of social science research. Through this process I began to examine how I view the world, thus realizing my own construction of knowledge and social reality, which is actually quite loose and chaotic. Most importantly, I realized that I identify most with the critical paradigm assumptions and that my future desired role as an educational researcher is to affect change and challenge dominant social and political discourses in ELT.

The following literature review is the product of my transformation from teacher to educational researcher. I will begin by defining the operational definitions of ontology, epistemology and paradigm. Then, I trace the origins, main tenets, and key thinkers of the 3 paradigms; positivist, interpetivist and critical, focusing on the ontological and epistemological assumptions of each paradigm. Through this analysis of different paradigms, I will expose not only each paradigm's weakness but also my own construct of reality and knowledge.

1. ONTOLOGY, EPISTEMOLOGY AND PARADIGMS

Simply put, one's view of reality and being is called ontology and the view of how one acquires knowledge is termed epistemology. Ontology is the starting point which will likely lead to your own theoretical framework. For this paper, I employ Blaikie's (as cited in Grix, 2004, p. 59) definition of ontology as the study of "claims and assumptions that are made about the nature of social reality, claims about what exists, what it looks like, what units make it up and how these units interact with each other." In other words, if someone studies ontology they study what we mean when we say something exists.

If ontologists study what we mean when we say something exists then an epistemologist studies what we mean when we say we know something. For this paper, I utilize Crotty's definition of epistemology, defined as "the theory of knowledge embedded in the theoretical perspective and thereby in the methodology" (1998, p. 3). Together, ontological and epistemological assumptions make up a paradigm.

The term paradigm, first termed by Thomas Kuhn in his 1972 book, titled "The structure of Scientific Revolutions", refers to an overall theoretical research framework. In this paper, I employ Bodgan & Biklen's (as cited in Mackenzie and Knipe, 2001, p. 2)

definition of a paradigm as "a loose collection of logically related assumptions, concepts or propositions that orient thinking and research."

Why does one's view of knowledge and social reality relate to educational research? One view is that the researcher's intentions, goals and philosophical assumptions are inextricably linked with the research they do. Grix, (2004) warns that people who want to conduct clear, precise research and evaluate other's research need to understand the philosophical underpinnings that inform their choice of research questions, methodology, methods and intentions (p. 57). Therefore, how one views the constructs of social reality and knowledge affects how they will go about uncovering knowledge of relationships among phenomena and social behavior and how they evaluate their own and other's research.

Crotty (1998) argues that researchers can choose which stage to begin at, ontological, epistemological, methods or methodology. Other authors stress that research is best conducted by identifying your ontological assumptions first. According to Grix (2004) research is best done by:

> setting out clearly the relationship between what a researcher thinks can be researched (her ontological position) linking it to what we can know about it (her epistemological position) and how to go about acquiring it (her methodological approach), you can begin to comprehend the impact your ontological position can have on what and how you decide to study (Grix, 2004, p. 68).

Moreover your ontological assumptions inform your epistemological assumptions which inform your methodology and these all give rise to your methods employed to collect data.

2. THE POSITIVIST PARADIGM

The positivist paradigm is also called the scientific paradigm. The purpose of research in this paradigm is to prove or disprove a hypothesis. Other characteristics of positivist research include an emphasis on the scientific method, statistical analysis, and generalizable findings. Furthermore, positivist research usually has a control and experimental group and a pre/test post method.

The term positivism was first coined by the founder of positivism, Auguste Comte, the French philosopher who believed that reality can be observed. Cohen, Manion, and Morrison (2007) claim that "Comte's position was to lead to a general doctrine of positivism which held that all genuine knowledge is based on sense experience and can be advanced only by means of observation and experiment" (p. 9). Positivism maintains that the scientist is the observer of an objective reality. From this understanding of ontology, the methodology for observation in natural science was adopted for social science research.

Main Thinkers	Philosophy
Aristotle	Deductive reasoning
Descartes	Realism
Galileo	Scientific method
Auguste Comte	Positivism
Vienna Circle	Logical positivism
Francis Bacon	Inductive reasoning
Karl Popper	Post positivist

Fig. 1: Postivist Thinkers and Philosophies.

The above is a table highlighting the main thinkers associated with positivism and the philosophies they championed, all of which were influential in some way to the formation of present-day positivism.

Ontological assumptions and epistemological assumptions tend to overlap. As Crotty points out, "to talk of the construction of the meaning is to talk of the construction of meaningful reality" (Crotty, 1998, p. 10). These assumptions can be divided into two broad categories. The following chart outlines the ontological and epistemological assumptions of positivism.

Ontological Assumptions	Epistemological Assumptions
• Reality is external to the researcher and represented by objects in space. • Objects have meaning independently of any consciousness of them. • Reality can be captured by our senses and predicted.	• The methodology of the natural sciences should be employed to study social reality (Bryman, as cited in Grix, 2004, p. 64). • Truth can be attained because knowledge rests on a set of firm, unquestionable, indisputable truths from which our beliefs may be deduced (Hughes and Sharrock, as cited in Grix, 2004, p. 64). • Knowledge is generated deductively from a theory or hypothesis. • Knowledge is objective.

Fig. 2: Positivist Ontology and Epistemology.

2.1 Post positivist

There has been criticism of the positivist paradigm for applying the scientific method to research on human affairs. These opponents argued that uniform causal links that can be established in the study of natural science cannot be made in the world of the classroom where teachers and learners construct meaning. In response to this criticism, Karl Popper argued that we should not quickly disregard all the good qualities of the scientific method. Rather, we can make small adjustments that can be improved upon to provide objective research within the social sciences. In his famous book, "The Logic of Scientific Discovery" Popper declares that there are no absolute truths. Moreover, he claims that scientific theories cannot be confirmed but only falsified. Theories can never obtain the real truth they can only get closer to the truth (Ernest, 1994). Today a positivist, "claims a certain level of objectivity rather than absolute objectivity, and seeks to approximate the truth rather than aspiring to grasp it in its totality or essence" (Crotty, 1998, p. 29). In general, when people refer to themselves as positivists they are talking more about probability than absolute certainty.

2.2 Limitations

Despite Popper's criticism I still question the certainty that one can apply a methodology used to research a natural science to research a social science. I disagree that "positivist science provides us with the clearest possible ideal knowledge" (Cohen et al, 2007, p. 11). Even if you are falsifying a hypothesis instead of affirming it, you are still assuming that this research is objective and reflects social reality. No matter how stringently a scientist adheres to the scientific method, there is never an outcome that is objective. Although behavioral uniformities exist, they are not, "evidence [of an] underlying essential uniformity among entities, but [an] illusion - a social construction." (Erikson, 1986, p. 126 as cited in Gage, 1989, p. 5). The critical theorist, Habermas emphasizes the determinist view of science as the "ideal knowledge" which ignores the moral choices, values and judgments scientists make (Cohen et al, 2007, p. 18). Furthermore, I find fault with the positivist ideology of parsimony (theories should be as simple and concise as possible). It is impossible for any theory in social science to be simple and precise because the world we live in and peoples' multiple perspectives and interpretations of events make theories complex and chaotic. So many variables affect different events and people's actions that it is impossible to determine an absolute truth. The above criticism led to the formation of a different paradigm, the interpretivist paradigm.

3. THE INTERPRETIVIST PARADIGM

The interpretivist paradigm can be also called the "anti positivist" paradigm because it was developed as a reaction to positivism. It is also sometimes referred to as constructivism because it emphasizes the ability of the individual to construct meaning. The interpretivist paradigm was heavily influenced by hermeneutics and phenomology. Hermeneutics is the study meaning and interpretation in historical texts. This meaning-making cyclical process is the basis on which the interpretivist paradigm was established (Ernest, 1994). Another strong influence is the philosophical movement, phenomology. A phenomologist advocates the "need to consider human beings' subjective interpretations, their perceptions of the world (their life-worlds) as our starting point in

understanding social phenomena" (Ernest, 1994, p. 25). Therefore the ontological assumptions of interpretivism are that social reality is seen by multiple people and these multiple people interpret events differently leaving multiple perspectives of an incident.

The following is a table highlighting some of the main thinkers and their philosophies associated with interpretivism

Main Thinkers	Philosophy
Edmund Husserl, Arthur Schultz	Phenomenology
Wilhelm Dilthey, Han-Georg Gadamer	Hermeneutics
Herbert Blumer	Symbolic interaction
Harold Garfinkel	Ethnomethodology

Fig. 3: Interpretivist Thinkers and Philosophies.

Interpretivism's main tenet is that research can never be objectively observed from the outside rather it must be observed from inside through the direct experience of the people. Furthermore, uniform causal links that can be established in the study of natural science cannot be made in the world of the classroom where teachers and learners construct meaning. Therefore, the role of the scientist in the interpretivist paradigm is to, "understand, explain, and demystify social reality through the eyes of different participants" (Cohen et al, 2007, p. 19). Researchers in this paradigm seek to understand rather than explain. The following are the main epistemological and ontological assumptions of the interpretivist paradigm.

Ontological Assumptions	Epistemological Assumptions
• Reality is indirectly constructed based on individual interpretation and is subjective • People interpret and make their own meaning of events. • Events are distinctive and cannot be generalized. • There are multiple perspectives on one incident. • Causation in social sciences is determined by interpreted meaning and symbols.	• Knowledge is gained through a strategy that "respects the differences between people and the objects of natural sciences and therefore requires the social scientist to grasp the subjective meaning of social action" (Bryman as cited in Grix, 2004, p. 64). • Knowledge is gained inductively to create a theory. • Knowledge arises from particular situations and is not reducible to simplistic interpretation. • Knowledge is gained through personal experience.

Fig. 4: Interpretivist Ontology and Epistemology.

3.2 Limitations

One of the limitations to interpretive research is that it abandons the scientific procedures of verification and therefore results cannot be generalized to other situations. Therefore, many positivists question the overall benefit of interpretivist research. However, I respond to this by pointing out that the research will resonate with other teachers, so it will be similar to other peoples' work. For example, action research, one of the methodologies from the interpretivist paradigm, shows teachers how issues can be problematized and addressed in productive ways. It deliberately intervenes in the research setting to achieve change or improvement. Its goal is the creation of local theories for practice rather than generalizable findings. Later, I will discuss the different methodologies associated with each of the different paradigms.

Another criticism of interpretivism is that the ontological assumption is subjective rather than objective. As mentioned in the positivist paradigm section, I believe all research is subjective. By selecting your paradigm you are being subjectively oriented towards one way of doing research. You cannot divorce yourself from your perspective as the researcher. In qualitative research, you are being more subjective in the sense that you are not using a hypothesis and you are involving yourself in the research. However, interpretivists still take an objective stance when analyzing the data they collect. By bracketing their assumptions, they look at the data thoroughly so that the data informs the researcher about what is going on in the environment, instead of the researcher's own preconceptions.

The strongest criticism of interpretivism is that it neglected to acknowledge the political and ideological influences on knowledge and social reality. Moreover, interpretivism was not radical enough. While the positivist researcher seeks to explain social phenomena, and the interpretivist researcher seeks to understand social phenomena, the researcher who seeks to change and to challenge social phenomena is not represented. This concern is addressed in the next section, on the critical paradigm.

4. THE CRITICAL PARADIGM

The critical paradigm stems from critical theory and the belief that research is conducted for "the emancipation of individuals and groups in an egalitarian society" (Cohen et al, 2007, p. 26). The critical educational researcher aims not only to understand or give an account of behaviors in societies but to change these behaviors. The critical paradigm embodies different ideologies such as postmodernism, neo-Marxism and feminism.

The following is a table highlighting the main thinkers and their philosophies that are associated with the critical paradigm.

Main Thinkers	Philosophy
Theodor Adorno, Max Horkheimer, Herbert Marcuse, Erich Fromm	Frankfurt school and Critical Theory (1930s)
Karl Appel, Jurgen Habermas	Critical Theory (1970s)
Paulo Friere	Critical Pedagogy
Michel Foucault	Structuralism
Alastair Pennycook	Critical Applied Linguistics
Norman Fairclough	Critical Discourse Analysis
Eve Kosofsky Sedgwick, Judith Butler	Queer theory
Simone de Beauvoir, Betty Friedan	Feminism
Thomas Kuhn, Jacques Derrida	Post modernism

Fig. 5: Critical Theorist Thinkers and Philosophies.

Critical theory originated from the criticism that educational research was too technical and concerned with only efficiency and rationality of design, neglecting social inequalities and issues of power (Gage, 1989). According to the critical theorists, researchers should be looking for the "political and economic foundations of our construction of knowledge, curriculum, and teaching." (Gage, 1989, p. 5) Schools play an explicit part in this construction of knowledge based on power in society. In other words, education serves the interests of those who have power, usually rich white males. Schools function to reproduce these inequalities and maintain the status quo (Gage, 1989).

Educational research in the critical paradigm should challenge these reproductions of inequalities. People must challenge dominant discourses. Educational research and schools, "like other social institutions, such as the media and the legislatures must be the scenes of the necessary struggles for power" (Gage, 1989, p.5). Moreover this research has an agenda, to change the participants' lives or the structures of the institution. The following are the main epistemological and ontological assumptions of critical theory.

Ontological Assumptions	Epistemological Assumptions
• Social reality defined from persons in society • Social reality is socially constructed through media, institutions and society • Social behavior is the outcome of "particular illegitimate, dominatory and repressive factors, illegitimate in the sense that they do not operate in	• Knowledge is socially constructed through media, institutions and society. • "What counts as worthwhile knowledge is determined by the social and positional power of the advocates of that knowledge" (Cohen et al, 2007, p. 27).

general interest- one person's or group's freedom and power is bought at the price of another's freedom and power" (Cohen et al, 2007, p. 26).	• Knowledge is produced by power and is an expression of power rather than truth.

Fig. 6: Critical Theory Ontology and Epistemology.

4.1 Critical Pedagogy and Critical Applied Linguistics

In the last 20 years, the ESL field has seen an influx of literature dealing with Critical theories and approaches. Under this umbrella, critical applied linguistics (CAL) and critical pedagogy, CP, have been touted by recent theorists as an important aspect of effective English language instruction towards culturally and linguistically diverse classrooms. Theorists, including Canagarajah (1999) and Pennycook (2001), emphasize that critical pedagogy is not a settled body of practices that teachers can emulate but rather a framework, a way of thinking and a way of problematizing ESL. According to Shor (1992) critical pedagogy refers to,

> Habits of thought, reading, writing, and speaking which go beneath surface meaning, first impressions, dominant myths, official pronouncements, traditional clichés, received wisdom, and mere opinions, to understand the deep meaning, root causes, social context, ideology, and personal consequences of any action, event, object, process, organization, experience, text, subject matter, policy, mass media, or discourse. (p. 129)

In other words, critical pedagogy requires students to examine their own society through the lenses of power in order to expose structural inequalities and marginalized groups. The main goal of critical pedagogy is to draw on the strengths of students' lived experience to create a forum for their analysis of the world around them (Giroux, 1992).

To me, CP and CAL are not only about challenging dominant theories and the status quo, but rather raising a critical consciousness in students, to question dominant cultural, political, and social domains (Freire, 1968; Giroux, 1992, Gore, 1993). Raising one's critical consciousness is the first step needed in the transformative process in which a lesson and skill is enacted and practiced, otherwise known as a "praxis." Praxis leads to social transformation in the classroom and in the collective societal level (Stevens, 2009).

4.2 Limitations

Critical theory is criticized for its elitism. By assuming that everyone needs to be emancipated, critical theorists assume that they have been emancipated and therefore are better equipped to analyze society and transform it than someone else. Furthermore there is a lack of evidence that illustrates what happens when you become emancipated and gain a critical consciousness. Is their any evidence that shows that once someone attains a critical consciousness he/she stops reproducing inequalities that subtly oppress people? Furthermore, positivists criticize critical research for their deliberate political agenda and failure to remain an objective neutral researcher.

Critical pedagogy in ESL is criticized for its limited work on concrete teacher practices (Johnston, 1999). Self proclaimed critical pedagogues are left to their own devices to translate this framework into their everyday teaching. Other scholars question the appropriateness of CP and argue that CP is not always suitable for the periphery and is informed by pedagogical assumptions that are not always in line with the local community's and students' expectations and preferences (O Mochain & Perkins, 2010). Canagarajah (1999) warns against critical pedagogues thinking that, "students have freedom to transcend the institutionalized forms of power in the classroom to engage creative linguistic experimentation and text production."(p. 191)

6. Conclusion

Through this detailed analysis and reflection on the different philosophical underpinnings of educational research I was able to discover my own purpose for doing research. I discovered that I align my research interests with the critical paradigm. Originally, I began teaching to effect change, promote student agency and help fight against the achievement gap in American urban public schools. Now my role as an educator has changed but I still believe in those original principles that led me to teaching in the first place: social equality, and teaching as being transformative and emancipatory. For me, the definition of educational research has always been "critical enquiry aimed at informing educational judgments in order to improve educational action" (Bassey, 1999).

The educational practice has a broader moral purpose (Pring, 2000) and educational research has a moral obligation to address these social and political inequalities. My own goal is to enter education to address social and political inequalities, "so as to reconstruct education and the society at large for the achievement of greater social justice" (Gage, 1989, p. 5). I hope my own reflection and enquiry will encourage other teachers turned researchers to discover which paradigm they align with and their own construct of knowledge and power in order to give new meaning to their research.

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