**Epistemology** is the branch of philosophy that examines the nature of knowledge, the processes through which we acquire knowledge, and the value of knowledge. **Ontology** is the branch of philosophy that studies concepts such as existence, being, becoming, and reality. It includes the questions of how entities are grouped into basic categories and which of these entities exist on the most fundamental level.

Ontology is studying the structure of the nature of reality or the nature of exists and, epistemology is studying the potentiality of the knowledge of human being. Ontology is about Being that exists as self-contained or independent of human. But epistemology is about human cognition. Therefore, the research objects of that two main branches of the philosophy are different. For this reason, the ontological reality and the epistemological reality are also different.

Ontology refers to what sort of things exist in the social world and assumptions about the form and nature of that social reality. It is concerned with whether or not social reality exists independently of human understanding and interpretation; for instance, is there a shared social reality or ‘multiple context-specific realities’.

Broadly speaking, three distinct ontological positions identified are realism, idealism and materialism (Snape & Spencer 2003). Realism claims that there is an external reality independent of what people may think or understand it to be, whereas, idealism maintains that reality can only be understood via the human mind and socially constructed meanings. Similar to realism, materialism also claims that there is a real world but it is only the material or physical world that is considered to be real. Other phenomena, for instance, beliefs, values or experiences arise from the material world but do not shape it.

Epistemology is concerned with the nature of knowledge and ways of knowing and learning about social reality. Two main perspectives for knowing are positivism and interpretivism. Constructivism and ‘naturalistic’ are terms commonly referred to in the literature and sometimes in an inconsistent way for interpretivism (Guba & Lincoln 1994). The term constructivism is helpful because it identifies the basic principle that reality is socially constructed; a relativist position that holds the view that there is no external reality independent of human consciousness (Robson 2002).

**Foundationalism versus Naturalism**

A foundational approach to knowledge presumes there are a set of self-evident truths on which we can build our knowledge about the world. The quest in this case is justified true belief. The goal of research would then be to uncover these foundations or truths. (Objective)

On the contrary, a naturalist approach focuses instead on a historical account of how knowledge claims develop. (Subjective) Noddings writes that “the shift from justification to a historical or generative account directs our attention away from knowledge claims themselves to knowers. We now want to ask how knowers have arrived at their claims to knowledge. We examine a history of conjecture, test, challenge, revision, and acceptance as we consider the strength of the claim. The line between epistemology and psychology becomes blurred, and we, can no longer study knowledge without studying the knower.” (106)

**Epistemological Concerns of Researchers** For the most part, scientists have given up the quest for absolute truth. Instead, they argue that absolute knowledge of the real world is impossible. Moreover, may claim that all knowledge is socially constructed. Nonetheless, they have sought grounds on which assess whether some knowledge claims are better than others. In so doing, they have offered a variety of criteria.

These are important criteria when thinking about research and whether or not it is useful and valid.  
 Replicability - Other observers/experimenters should come to the same conclusion in investigations.  
 Falsifiablity - We can never have completely justified true belief. The best we can have is knowledge that is not refuted. Karl Popper is credited with the idea that “we can never establish the absolute certainty of scientific statements, but we can show that some are false.” (105) Thus he claims that all scientific claims must be stated in such a way that it is clear what type of evidence could falsify them.  
 Correspondence - Traditional epistemologists have suggested that true claims correspond to what we find in the real world, namely, the facts. For example, it is raining would be true if in fact it is raining.  
 Coherence - Claims are true if they cohere with a body of others which have been firmly established.  
  
**Social Science Research:** As suggested earlier, the need to ground knowledge in something other than personal whim and desire has resulted in the development of different approaches to research. Two overarching traditions of research have developed out of this need to more “scientifically” examine social phenomenon - quantitative research and qualitative research.

 **Quantitative Research:**  
 In light of the success of the natural sciences around the turn of the last century, social scientists began investigating the idea of whether or not they should borrow from the methodologies of the physical sciences (especially physics, which involved natural laws) in order to study the social and human world. Utilizing these methodologies became particularly attractive since it was believed at the time that the physical world was being mastered intellectually to a much greater extent than the social world. Those who argued for applying scientific methods to social research are often labeled positivists, and included such people as Comte, Mill and Durkheim. The positivists drew primarily from the empiricist tradition of Locke, Newton and others.  
 In terms of research, “positivism defines social science as an organized method for combining deductive logic with precise empirical observations of individual behavior in order to discover and confirm a set of probabilistic causal laws that can be used to predict general patterns of human activity” (Neuman, Social Research Methods, 45).

**Fundamental assumptions of positivistic research include:**  
- The purpose of research is to learn about how the world operates so that we can both predict and control phenomenon. The orientation is instrumental, that is, knowledge is used as an instrument to satisfy human desires and to control the physical and social world.  
- Like the physical world, the social world contains existing regularities (laws) which can be discovered as social reality is pattered and ordered.  
- Human activities and events can be explained with reference to causal laws. Human behavior is caused, for the most part, by external forces and the idea of free will is pretty much a fiction.  
- Positivism is deductive. Thus, a researcher begins with a general, higher level, abstract law or theory and tries to deduce more specific generalization. The path is from the abstract to the concrete.  
- Positivists argue that scientific knowledge is shared, that all who follow the same methods will come to the same conclusion (intersubjectivity).  
- Social research must be value-free and objective. It can occur independent of social and cultural forces. The researchers claim they can free themselves of prejudices, biases, and values.  
 Three basic ideas undergird positivistic research, out of which quantitative research methods emerge. These are that the researcher can adopt an external position that does not effect the research (the independently existing reality); that social investigation is value neutral; and that social investigation, as science, can serve in the project of social engineering to improve society. Social science knowledge  
 would thereby help in mastering the social world. This type of research has three key features:  
- it is theory-driven (i.e., you have a theory and test it),  
- proceeds by hypothesis testing, and  
- aims for generalizability.

**Qualitative Research:**  
 Soon after the idea of using scientific methods to study social phenomenon became popular, a counter-movement arose with significantly different fundamental assumptions and orientations toward research. Among the proponents of this alternative approach were Dilthey and Weber. Dilthey argued that while the physical studies dealt with inanimate objects existing outside of humans, social science did not. Here, the subject of investigation and the object of investigation were both humans, and thus subjectivity, emotions, bias and values all come into play. His basic point was that it was impossible to separate out what existed in the social world from what we “thought.” The qualitative paradigm in research grows more out of an idealist tradition, where the emphasis is more on interpretive understanding (hermeneutics) than control or prediction.

Human experience, according to qualitative researchers, is context-dependent, there is no neutral, value-free way of examining the world. Thus everything we know is somewhat mind-dependent, and filtered through our lenses first. Unlike positivists, interpretivists suggest that there is no external or independent reality that exists apart from the shaping or creating efforts of the mind.

In terms of research, “the interpretive approach is the systematic analysis of socially meaningful action through the direct detailed observation of people in natural settings in order to arrive at understandings and interpretations of how people create and maintain their social world” (Neuman, Social Research Methods, 50).

 **Fundamental assumptions of interpretive research include:**  
- The purpose of research is to understand social life and to get a better sense of how people make meaning in their lives. Rather than prediction or control, interpretive researchers want to understand how individuals experience the world around them.  
- The social world is not something out there to be discovered but is created by the purposeful actions of human beings who interact in social settings. For the most part, the social world is what people perceive it to be.  
- While human behavior is often patterned and regular, it is not because of pre-existing social laws but because of evolving social conventions that individuals create. It makes no sense to start from abstract generalization to try and understand human behavior.  
- Theory for interpretive researchers is inductive and grounded in the particular details of observed social life. Qualitative researchers attempt to offer a rich and thick description (emic) of the social world.  
- There is no external test of validity (i.e., hypothesis testing). Rather, a theory is true if it makes sense to the people involved and helps them to better make meaning in their lives.  
 One of the key ideas behind qualitative research is that what is investigated can not be separated from the process of investigation, as there is no external world out there to be codified, predicted and controlled. This is because how we view the world, as well as our knowledge of it, are necessarily impacted by our interests, values, previous experiences, biases, and prejudices. Interpretivists argue that what we think is objective is that way because we have decided that it is that way-intersubjective agreement.

Consider the difference between quantitative and qualitative approaches in the following questions.  
 1. What is the relationship between the investigator and that which is investigated?  
 2. What is the relationship between facts and values in the process of investigation?  
 3. What is the goal of the research (better picture vs. prediction and control)?  
 Over the course of the quarter we are going to be looking at both positivistic and naturalistic forms of research and learning how to better understand them so as to critically evaluate them.

**Critical Research:**  
 The underlying themes of this type of research is social responsibility and linking research with activism. The overriding concerns are with social justice and equity issues. “Research, for most critical investigators, either must help us understand the sources of inequity (and the social processes that sustain it) or must go beyond that to serve as an agent for remedial change by helping to empower members of an oppressed group (usually as a consequence of being participants in the study).” (142)

Critical researchers argue that there is no such thing as objectivity. “They simply believe that all research is value bound and see it as appropriate that they make their subjectivity (personal values about the question and commitments about their role as researchers) explicit and public, for both participants and readers.” (143)

Rethinking Critical Theory and Qualitative Research. Joe L Kincheloe and Peter L. McLaren. From: The Handbook of Qualitative Research, Eds. Norman K. Denzin and Yvonna Lincoln (Thousand Oaks, CA: Sage Publications, 1994):  
- “We are defining a criticalist as a researcher or theorist who attempts to use her or his work as a form of social or cultural criticism and who accepts certain basic assumptions.  
- That all thought is fundamentally mediated by power relations that are social and historically constituted;  
- That facts can never be isolated from the domain of values or removed from some form of ideological inscriptions;  
- That the relationship between concept and object and between signifier and signified is never stable or fixed and is often mediated by the social relations of capitalist production and consumption;  
- That language is central to the formation of subjectivity (conscious and unconscious awareness);  
- That certain groups in any society are privileged over others and, although the reasons for this privileging may vary widely, the oppression that characterizes contemporary societies is most frequently reproduced when subordinates accept their social status as natural, necessary, or inevitable;  
- That oppression has many faces and that focusing on only one at a the expense of others (e.g., class oppression versus racism) often elides the interconnection among them; and finally  
- That mainstream research practices are generally, although most often unwittingly, implicated in the reproduction of systems of class, race, and gender oppression.”  
- Critical research can be best understood in the context of the empowerment of individuals. Inquiry that aspires to the name critical must be connected to an attempt to confront the injustice of a particular society or sphere within the society. Research thus becomes a transformative endeavor unembarrassed by the label “political and unafraid to consummate a relationship with an emancipatory consciousness. Whereas traditional researchers cling to the guard rail of neutrality, critical researchers frequently announce their partisanship in the struggle for a better world. Traditional researchers see their task as the description, interpretation, or reanimation of a slice of reality, whereas critical researchers often regard their work as a first step toward forms of political action that can redress the injustices found  in the field site or constructed in the very act of research itself. Horkheimer (1972) put it succinctly when he argued that critical theory and research are never satisfied with merely increasing knowledge.” (pp. 139-140)

**Knowledge, Culture, Power and Epistemological Racism:** A number of scholars, frequently those of color, argue that the epistemologies that all people use to comprehend the world are culturally laden. However, these works often are marginalized in the academy as non-Western ways of knowing are dismissed as superstition or as inherently subjective. The cultural groundedness of epistemology is an issue that has not been adequately addressed.  
 For example, Stanfield writes about the ethnocentric basis of knowledge production in the social sciences. His argument is that:  
- social research instruments and theories are created by humans, and thus they are necessarily developed within certain cultural frames of reference, and effected by the cultural backgrounds of the researchers.  
- As human constructs, theories and frames of vision are tied to particular cultural worldviews.  
 People from all different cultures have developed bodies of knowledge in order to make sense of, and best function, in the world. Yet certain approaches to knowing, as well as particular knowledge bases, historically have been deemed objective, and elevated above all others. This is due significantly to the exercise of power and privilege.  
- Stanfield writes that “knowledge becomes the official way of interpreting realities through the ability of a privileged subset of the population to exert its will on others through its control of such major institutions and resources as the media, legislation, and compulsory schooling.”  
 - Knowledge is thus linked to power, as those with power get to decide which theories will prevail, and in essence, what constitutes knowledge.  
- Knowledge is also linked to culture, as the dominant (read white) culture controls the bulk of the material resources in this society, and hence wields the most power.  
- Not all people “know in the same way” and that cognitive styles are influenced by cultural experiences, priorities, and differing ideas about what is relevant.  
- Furthermore, “dominant racial group members and subordinate racial group members do not think and interpret realities in the same way because of their divergent structural positions, histories, and cultures.”

**Epistemological Racism:**  
 To argue that many scholars and educators practice a form of epistemological racism is to suggest that they fail to acknowledge that knowledge is socially constructed, and moreover, constructed in such a manner that favors some groups over others. Three interrelated points are useful in developing this argument.  
 1. Epistemologies are grounded in experience, and therefore they are grounded in culture, since there is no experience outside of culture.  
 2. The bulk of the modern era has been an extended process of global domination by the white race both physically, in terms of imperial aggression, and ideologically, in the entrenchment of Eurocentric ideas in schools and society. In the course of this history of domination, white, Western epistemology has also become dominant. More importantly, this long history results in a universalizing form of amnesia, where the dominant ways of a group become so deeply embedded that they typically are seen as “natural” or appropriate norms rather than as historically evolved social constructions. (look at major social figures and school curriculums to see this dominance)  
 3. Third, Western epistemology is positioned as superior by virtue of something outside of it, namely that it transcends cultural particularities. Yet in reality, this positioning is related to historical domination, to selective interpretation of superiority, and to universalizing amnesia.

**Is Science Universal?**  
 Exploring the question of whether science is multicultural, Harding offers several arguments which challenge the universality of Western approaches to epistemology most systematically developed in the natural sciences. She shows both that  
“modern science has borrowed much from non-European cultures, often without acknowledgment, and that there are other knowledge traditions that also work, that is, they reasonably account for natural and social phenomena.  
- More significantly, she cites evidence that the perceived universality of Western science is the result of European expansion and aggression, and is not due to “an epistemological cause of valid claims, to be located “inside science”.” Among the evidence she cites to support this claim is that fact that the traditional problems counted as scientific were ones that supported European expansion: e.g. - improvement of travel; mining of resources; identification of economically useful minerals, plants, and animals from around the world; development of encampments to separate colonizers from the indigenous; capitalizing on the labor of indigenous peoples, etc.  
 The consequences for non-Europeans (disease, depletion of natural resources, destruction of communities) have rarely been considered. Nor has the fact that the benefits of Western science have been distributed disproportionately to already overadvantaged groups in Europe and elsewhere, and the cost disproportionately to everyone else.

Alternative Epistemologies and Education Practice:  
 While they are rarely discussed, incorporated, or even considered in mainstream educational discourse, there are a number of thoughtfully developed and comprehensive alternative epistemological approaches worthy of attention.

The point of looking at these is largely so that dominant cultural members can understand our own cultural worldviews and biases, and the deleterious impact these can have on others. It is also to allow the variety of epistemological approaches to be mutually informing, and to integrate them into educational practice in such a manner that it contributes to the empowerment of traditionally marginalized populations. Failure to take alternative epistemologies seriously is to systematically privilege white, Western ways of knowing above all others, which is racist.

**African American Epistemology:** Perhaps the most well developed example of an alternative approach to epistemology is that constructed by African American feminists, such as Patricia Hill Collins and Beverly Gordon. In Black Feminist Thought, Collins critiques positivistic, Eurocentric epistemology for its abstractness and because it denies the importance of community, experience, ethics and values to knowing.  
 While she does not suggest all dimensions of Western epistemology are inherently problematic for oppressed populations, she does argue that alternative approaches may be more useful in both capturing the unique knowledge of African Americans and in creating knowledge that fosters resistance to oppression and domination.

Delpit maintains that African Americans have good reasons to be skeptical of traditional epistemological approaches used in educational research, as they have had considerably negative consequences, for example, showing people of color to be genetically inferior, culturally deprived, and verbally deficient.

The foundation for black feminist epistemology is that it takes the actual experiences of the African-American community as the starting point.

From there, Collins outlines four dimensions:  
- Concrete experience as a criterion for meaning. In describing the importance of concrete experience, Collins distinguishes between knowledge and wisdom, suggesting that while scientific and text-based knowings are useful, the ultimate guide for survival in African American communities is wisdom, or knowledge gained from concrete experiences. Often this wisdom is passed on through oral stories and narratives, forms which are typically not highly valued in schools.  
- Use of dialogue in assessing knowledge claims. In contrast to Western epistemology which calls for distance, objectivity, and separation, for Black women new knowledge claims are rarely worked out in isolation from other individuals and are usually developed through dialogues with other members of the community.  
 - An ethic of caring. Black feminist epistemology is grounded in an ethic of caring which is premised on the belief that personal expressiveness, emotions, and empathy are central to the knowledge validation process. An ethic of caring, combined with the importance of dialogue, is characteristic of the traditional call-and-response mode of discourse in black churches where the intonation and inflection of voices matter, and where speakers ideas are appraised as part of the listeners responses.  
- An ethic of personal accountability. The character, value, and ethics of individual knowers are integral to the assessment and evaluation of knowledge claims they make.

**Native American Epistemology:** Similar to black feminist thought, many Native American tribes cultivate alternative epistemologies for understanding the world. Often these are rooted in:  
- connectedness between individuals and the world around them,  
- non-linear concepts of time,  
- oral traditions, and  
- integrated and anti-hierarchical relations among spheres of knowledge.

Where Western epistemology values compartmentalization and categorization of knowledge claims, the core of the native worldview is the Wheel or Circle of Life - an organic rather than synthesizing or synthetic view holding that all things are equally and indispensably interrelated.  
Vine Deloria argues that the key distinction between Western epistemology and native worldviews lies in the premise accepted by Indians and rejected by scientists: the world in which we live is alive. Thus it is problematic from a native perspective to draw firm lines between science and spirituality. Moreover, the value of detached objectivity is questioned, as “Indians know that human beings must participate in events, not isolate themselves from occurrences in the physical world.”