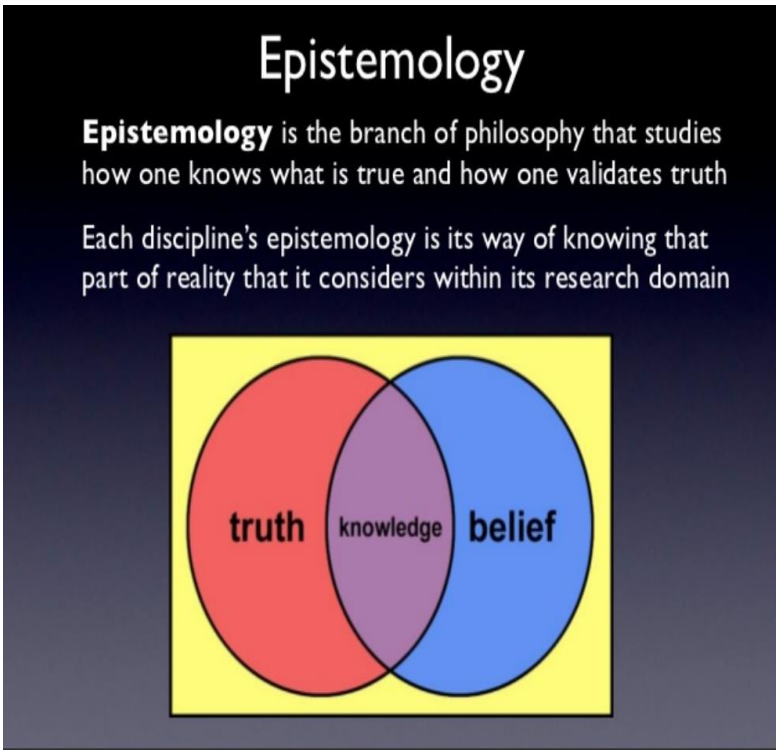
The Nature of Disciplines

In this narrative, we will explore the nature and landscape of academic disciplines and the challenges associated with bridging disciplinary perspectives.

What is a "disciplinary epistemology?"



Disciplinary epistemologies are like maps - they represent the "terrain" of the discipline. These different maps represent different perspectives that each disciplinary insight provides around some common theme or issue. There's a connection here to the idea of *mental models* as well – a concept we will explore in great depth in this course. Mental models are the lenses through which we view the world. In that respect, disciplinary epistemologies build the cognitive frameworks (mental models) in our minds that allow us to "see the world" through the lens of a particular discipline.

In a general sense, the term "epistemology" could be defined as "the nature and grounds of knowledge" – including what counts as knowledge and the limits and validity of various forms of knowledge. Academia had done a thorough job in "carving out" specific domains of knowledge associated with each discipline. The "nature and grounds of knowledge" for a person studying Art History is quite different than "nature and grounds of knowledge" for a person studying Physics.

In exploring the **epistemology** of a discipline, you would be considering and evaluating the following:

- **General ideals** (what's important)

  Check out any introductory textbook within any specific discipline to get a feel for the general ideals of the discipline.

- **Basic models** (core assumptions / systems that investigations are based on)

  In Economics, human beings are considered autonomous, rational, self-interested; but in Sociology, human beings are considered to be shaped and controlled by social forces.

- **What counts as a problem** (types of issues being researched and taught)

  What kinds of issues / phenomena / problems are investigated within the domain of this discipline?

- **Observational categories and representation techniques** (how problems or issues are mapped out / defined / represented)

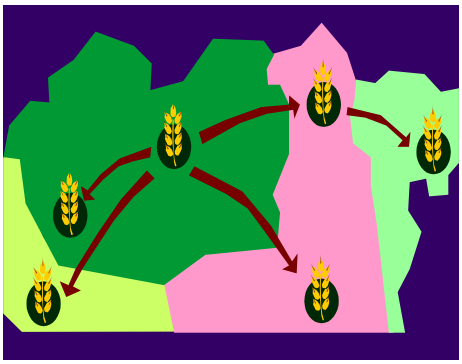
  In Education, a couple of examples of observational categories would be: 1) Intelligence (as represented by IQ); and 2) Academic performance (as represented by GPA, for example). Of course, there are many others as well.

- **Modes of inquiry** (research techniques, how questions are answered)

  What research methods are used to investigate issues / phenomena / problems within the domain of this discipline?

- **Standards of proof** and types of explanations offered (on what grounds do researchers claim they have discovered the "truth" about something?)

EPISTEMOLOGICAL CONSIDERATIONS



ROADMAP FOR A DISCIPLINE

Given the above discussion regarding the nature of disciplinary epistemologies, let's explore our "maps" analogy a little more deeply. We'll use the state of Arizona as an example. There are many different ways to represent the state on paper: topographic maps give us a feel for elevations and ground contours; street maps give us a feel for how we might get around in our cars; recreational maps give us a sense of the location and nature of recreational opportunities; city maps give us information on how specific populated areas are laid out; the water company has maps that detail the stream and river sources and flows, etc. The point is that there are many different ways to represent the state of Arizona – each map includes valuable information, but no map could possible include all information about the state. The maps may be completely accurate – but they are all incomplete.

The epistemology of a discipline could be considered that discipline's "detailed map" – it includes representations of all of the important elements of the terrain associated with the discipline. Across disciplines, these maps are many and varied, just like the different types of maps used to describe Arizona. Some of these maps may share some common ground (a USGS map includes some vague information on city streets / a sociological map includes some anthropological concepts), but each has a specialized purpose – they each provide us with a specific and unique perspective.

Experts in a given field carry around their disciplinary map in their heads and use it to make sense of the various phenomena they encounter. But, as mentioned above, using only one map to try to learn about the overall nature of something isn't a good strategy. The map may be completely accurate – but it is certainly incomplete.

Thus, one begins to see the value of an integrative perspective and a growth mindset. We all have our own maps (complete with errors, such as assumptions and biases), but if we consider how different maps show us

different aspects of the "reality" of the terrain – and if we can gain some insight into the nature of these different maps – then we may begin to understand how integrative thinking, and interdisciplinary collaboration, have the promise of helping us get a little closer to the reality of the issue.

This idea is akin to the notion of "perspective taking." Being able to understand (and respect) different perspectives on an issue, driven by each individual's understanding and experience, is something we will explore in more depth when we get into the nature of "mental models" a little deeper in the course. Disciplinary epistemologies provide the framework for the formation of mental models – the disciplinary lens we use to view an issue.

DO YOU SEE WHAT I SEE?

The educational philosopher and professor, Hugh Petrie, wrote a seminal article that was way ahead of its time *(Petrie, Hugh G. (1976). Do You See What I See? The Epistemology of Interdisciplinary Inquiry. Educational Researcher, 9-14)* in which he makes a number of interesting and relevant points regarding the nature of disciplinary perspectives, interdisciplinarity, and the problems associated with developing effective integrative collaboration.

Following is a summary of the main ideas from his article along with some connections to the challenges of achieving intellectual fusion with collaborative work.

A primary advantage (and a potential problem) of an integrated approach to problem-solving is the presence of multiple perspectives. In his article, Petrie does a good job of outlining the nature of this dichotomy.

- **Interdisciplinarity is a group endeavor** – Individuals rarely develop significant expertise in more than one discipline. Individuals must, therefore, collaborate to accomplish interdisciplinary goals. This means that interdisciplinarity happens most often in ***cross-functional teams***. This notion relates to the concept of interpersonal integration that we have been discussing.

- **Perspective differences between disciplines is driven by disciplinary epistemologies** – Different disciplines use different "cognitive maps" or "observational categories" to view the nature of a problem or issue. If participants in an interdisciplinary endeavor do not share these cognitive maps, they may be unable to see the relevance of their colleagues' points of view. Thus, turning multidisciplinary work into interdisciplinary work (effectively integrating diverse perspectives) REQUIRES at least some understanding of the perspectives dominant in other disciplines.

- **Necessity of a clear goal, measurable results, appropriate resources and support** – A certain organizational culture and some specific criteria are needed to facilitate effective integration. Leaders of integrative collaborative efforts need to her the ability and authority to structure their projects in an effective manner. Developing a project around a clear goal, measurable results, and access to appropriate resources and support involves many of the transferable skills that effective interdisciplinarians must possess.

AN INTERDISCIPLINARY PANEL OF EXPERTS "THINKING IN TONGUES"

AN INTERDISCIPLINARY PANEL?

Imagine the above "panel of experts" discussing an important issue – healthcare reform, for example. It's not hard to imagine why each panel member is mystified by the nature of the other panel member's questions. Why would a Psychologist be concerned with how "politically acceptable" a proposed healthcare reform plan would be? Why would an Economist care if the proposed plan will "make people happy?"

Remember, the epistemology of a discipline serves as the roadmap (or template) for how experts within that discipline will make sense out of the issue at hand; it forges their perspectives on the issue. In many cases, the "cognitive terrain" that integrative team members share around an issue is small. This makes for some interesting communication problems early in the development of many interdisciplinary projects. Add to that the big egos that many people with significant expertise in their respective fields have, and you can begin to see why integrative work has the well-earned reputation of being anything but easy!

Of course, from an ***intra****personal* perspective (integrating ideas from diverse disciplinary perspectives in one's own mind – integrative thinking), we can begin to see that, each integrative team member must possess a certain mindset and skills to work integrate effectively together – characteristics such as comfort with ambiguity, humility, a growth mindset, etc. (which we also discuss in this module).

A VISUAL METAPHOR (DO YOU SEE WHAT I SEE?)

This popular visual metaphor is helpful to illustrate how two people (for our purposes here, how two people with two very different epistemological perspectives regarding an issue) could look at the same thing, see two completely different viewpoints, and yet both be right.

Can you identify the two different images (the young lady and the old lady), or do you see only one image (either a young lady or an old lady)?

Looking at an issue and seeing something

completely different than someone else (based on completely different perspectives / viewpoints / epistemological models) is much like looking at this illustration and seeing an old lady, while at the same time someone else is seeing a young, attractive woman.

Do you understand how it might be possible for two different disciplines to look at the same idea or problem and see two completely different things? Can you think of some examples of this?

Another great connection to this idea is the "Blind Men and the Elephant" also included in this module's readings.

A great example of this idea in the "real world" is that of the "*medical masquerade*." Let's say a patient goes into a doctor's office complaining of fatigue and depression. Can you imagine that a psychologist might initially view the problem differently than an MD? In the case of these symptoms, the problem could certainly be either psychological or physiological. For the sake of the patient, let's hope that he doesn't receive 10 weeks of counseling sessions if the problem turns out to be a brain tumor! There's a great old saying, *"If all you have is a hammer, everything looks like a nail."*

Using the above image to gain deeper insight, image your friend saying something like, "Oh, that old lady looks like my grandma." If all you see is the image of a younger woman, you might think that your friend is crazy! "You mean your grandma when she was a young woman?" you inquire. "No, my grandma now!" "But you're 35 years old, and that woman looks like she could be in her 20's!" Who's the crazy one – you or your friend?

The answer is that neither of you is crazy – you're just seeing the reality of the image differently. This is visual metaphor a good analogy for how people can look at the same problem or issue and come away with very different interpretations. How do you solve this problem? A critical first step is to understand how the other person is interpreting the issue; learning how to see the issue from another perspective or point of view.

This idea of different perspectives (mental models) has implications for both integrative thinking as well as interdisciplinary collaboration – both of which are key aspects of intellectual fusion, and both of which we will explore in greater depth.