
DEFINITIONS OF KEY TERMS

Discipline: A concentrated and bounded academic field of study.

Disciplinarity is what results from discipline-oriented activities and structures.

Disciplinary is the adjectival form of the word.

Examples

- *“I hope to be a math teacher, so I am studying the disciplines of mathematics and education.”*
- *“Her major demonstrates a rigid disciplinarity in that it includes courses from only one field of study.”*
- *She doesn’t always enjoy the highly disciplinary nature of her program.”*

Interdisciplinarity: Incorporates several fields of study to allow collaboration among diverse disciplines to either specify or broaden students’ education, to gain understanding, and/or to problem solve.

Interdisciplinary is the adjectival form of the word.

Interdiscipline is a field that emerges when two or more disciplines are combined.

Examples

- *“Interdisciplinarity is a more integrative approach to learning.”*
- *“His major is highly interdisciplinary in that it combines two fields of study.”*
- *“Game Studies is an interdiscipline that combines Communications with Computer Science.”*



Multidisciplinary: Drawing on information and methods from two or more disciplines. Distinct from “interdisciplinary,” in that it generally does not imply integrating the fields together into something new. Interdisciplinary educator Allen F. Repko suggests that “multidisciplinary” is like a fruit bowl, where different disciplines are represented by the

different fruits that are placed together in a bowl but which do not mix much or change shape themselves.



“**Interdisciplinarity**” is more like a fruit smoothie, where the disciplines are blended together—integrated—to create something new.

Both *multidisciplinarity* and *interdisciplinarity* are valid ways to bring different academic perspectives together.

Interdisciplinarity is like mixing paint. You can lay colors side-by-side to create beautiful paintings (multidisciplinarity), or you can mix them together to get totally new colors (interdisciplinarity).



Transdisciplinarity: This term sometimes refers to work that seems to entirely transcend the realm of the academic disciplines altogether. More helpfully, though, the term can be used to describe work in which academics, using the tools of the disciplines, partner with stakeholders from outside the university. In this sense, *transdisciplinarity* builds bridges across disciplines, but also across the disciplinary structures altogether, linking the academic world with the practical world, and scholars with non-academics who are working on similar problems or ideas.

Instrumental Interdisciplinarity: This is when you *do* interdisciplinary work in order to reach an outcome of some kind. It is the process of integrating knowledge in order to solve problems, generate new or different concepts, or provide broad context for an event.

Critical Interdisciplinarity: This is when you *use* interdisciplinarity to question the very structure of knowledge, to critique the way that education and research are carved up into silos, or to question the way that disciplines organize the world around us.

Are you more interested in INSTRUMENTAL or CRITICAL interdisciplinarity?

Key Definition

Interdisciplinary studies is “a process of answering a question, solving a problem, or addressing a topic that is too broad or complex to be dealt with adequately by a single discipline or profession,” and it “draws on disciplinary perspectives and integrates their insights through construction of a more comprehensive perspective” (Klein and Newell, 1998, 3).

This excerpt is from *Interdisciplinary Studies: A Connected Learning Approach* (Open Source Textbook) Chapter 17: *The Big Terms* Author: Robin DeRosa
<https://press.rebus.community/idsconnect/chapter/basic-terms/>

The “Fruit Metaphor” Revisited:

Experience suggests that this discussion can be best approached ... by means of a metaphor of mixing fruits. Let us fancy that we wish to determine the amalgamation quotient of fruit mixtures. When an apple, an orange, or a strawberry is served alone, this quotient is obviously zero. But connoisseurs sometimes wish to mingle fruits. One criteria in determining the amalgamation quotient of our particular dish would be the *number* of different fruits involved. A mixture involving apples and oranges is less amalgamated than one involving apples, oranges, and plums. A second criterion would be *distance*: mixing Mackintosh and Winesap apples would result in less amalgamation than the mixing of oranges and grapefruits, and still less than the mixing of oranges and cherries. Third, there is the *novelty* of the mixture itself. In Western societies now, for instance, mixing bananas, apples, and grapes is not as creative, and unusual, as the mixing of guavas, kiwis, and blueberries. Fourth, and perhaps most important, is the degree of blending or *integration*. The various fruits can be served side by side, they can be chopped up and served as a fruit salad, or they can be finely blended so that the distinctive flavor of each is no longer recognizable, yielding instead the delectable experience of the smoothie. Note that the amalgamation quotient says nothing about quality: in some circumstances, a plain mango will surpass all the smoothies in the world; in others, only a fruit salad will do.

In a similar manner, at any given historical point, the interdisciplinary richness of any two exemplars of knowledge, research, and education can be compared by weighing four variables: the number of disciplines involved, the “distance” between them, the novelty and creativity involved in combining the disciplinary elements, and their degree of integration.

This excerpt is from Moti Nissani’s “Fruits, Salads, and Smoothies: A Working Definition of Interdisciplinarity,” available in its complete version at his [website](#).

(Excerpts from) Ten Cheers for Interdisciplinarity: The Case for Interdisciplinary Knowledge and Research

Nissani, M. (1997). Ten cheers for interdisciplinarity: The case for interdisciplinary knowledge and research. *The Social Science Journal*, 34(2), 201-216.

To begin with, a *discipline* can be conveniently defined as any comparatively self-contained and isolated domain of human experience which possesses its own community of experts. *Interdisciplinarity* is best seen as bringing together distinctive components of two or more disciplines. In academic discourse, interdisciplinarity typically applies to four realms: knowledge, research, education, and theory. Interdisciplinary knowledge involves familiarity with components of two or more disciplines. Interdisciplinary research combines components of two or more disciplines in the search or creation of new knowledge, operations, or artistic expressions. Interdisciplinary education merges components of two or more disciplines in a single program of instruction. Interdisciplinary theory takes interdisciplinary knowledge, research, or education as its main objects of study.

Many complex or practical problems can only be understood by pulling together insights and methodologies from a variety of disciplines. Those who forget this simple truth run the intellectual risk of tunnel vision and the social risk of irresponsible action. In some areas, interdisciplinary research has long been practiced, e.g., materials research or American studies. Such areas, and the habit of holistic vision they foster, should become more numerous. Future specialists will perhaps be able to see their field as part of a wider context, to reflect on the impact of their discipline's activities on society, and to enhance their ability to contribute to social developments.

Unity of Knowledge: It is of course impossible, in our age, to become an expert in everything. But if we mistake disciplinary knowledge for wisdom; if we forget how much we don't know; if we forget how much we cannot know; if we don't set for ourselves, in principle at least, the ideal of the unity of knowledge; we lose something of great importance. By persistently aiming at the hazy target of omniscience, interdisciplinarians help us remember these things. They thus spur us to see the various components of human knowledge for what they are: pieces in a panoramic jigsaw puzzle. And they inspire us to recall that the power and majesty of nature in all its

aspects is lost on him who contemplates it merely in the detail of its parts, and not as a whole.

Law of Diminishing Returns: The law of diminishing returns states that, beyond a certain point, the yield on fixed increments of input gets progressively smaller. It takes hours to learn chess, months to get to be reasonably good, and years to become an expert. A similar situation seems to prevail in the world of learning. An insect anatomist, for instance, must keep abreast of his field. He might have never read Tolstoy or Plato; never heard Bach or Vivaldi. As a human being, he could undoubtedly gain more from getting acquainted with these authors and composers than from spending the same amount of time on insect anatomy. But life is short. In a better world, we would all have "world enough, and time." In this world, a champion marathoner, a concert master in a major orchestra, a Stakhanov, or a liver toxicologist, are the victims of the law of diminishing returns. To reach the pinnacle of their profession, they often end up exploring one interesting feature of a single atoll. Interdisciplinary, by contrast, are forever treating themselves to the intellectual equivalent of exploring exotic lands.

CONCEPTS FOR *DOING* INTERDISCIPLINARITY

Drilling Down: Sometimes we break problems down into smaller parts so that we can solve it piece by piece. This is called "drilling down" a problem. We can also think of breaking a larger whole into its parts in order to understand the whole more fully, and this is called "systems thinking." Both are very useful for interdisciplinary, since breaking a problem or concept down may help us see the different disciplines that are involved, which will then allow us to organize our research approach.

Example

In order to understand why so many college students do poorly in the first semester at college, we may need to break the question up into parts and look at study time, social life, living away from home, economic issues, mental health, oppression, and more. Studying these parts will help us get a sense of the overall reasons for the problem.

Setting in Context: Sometimes we actually *don't* want to carve a problem or concept into small bits, but instead want to see how something specific fits into a larger pattern or fabric. This is called "setting the problem or issue in context."

Examples

Someone might tell you that Plymouth, New Hampshire only has a handful of violent crimes per year. They might also tell you that NYC has thousands more violent crimes per year. That makes Plymouth sound so much safer, but in order to know for sure, we have to set the numbers into context, asking how many crimes *per capita* (or per person) each location has. Small pieces of information (such as how many children in a certain school go without breakfast each morning) are more illuminating if they are presented in relationship to other pieces of information (such as the poverty level of the town, the subsidized meal programs at the school, the start time of the school day, the funding formula for the school district, etc.).

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