Box 7.2 Drawing on Disciplines

Much interdisciplinary work does not require disciplinary depth. One example is the interdisciplinarity of a policy analyst, judge, or political decision maker, who uses special interdisciplinary skills to locate information from multiple disciplines and then to understand, balance, and synthesize this information so they can make a final decision. Another possible example is the researcher in an area of study such as education, who does not have a specific disciplinary background, but who has the ability to draw on multiple disciplines when they [are] illuminating, and has general methodological skills for designing and carrying out research.

Expertise in a discipline may be useful for this kind of interdisciplinary work, making it easier to access and understand some disciplinary knowledge, but it is not necessary.... The only thing necessary... is being able to identify when disciplinary expertise is needed and knowing how to access and use this. (Golding, 2009, p. 5)

Identifying Disciplines Relevant to the Problem

One of the first questions interdisciplinarians ask as they begin studying a complex problem is, "Which disciplines are relevant to the problem?" Answering this question requires connecting the problem to disciplines that study it. To illustrate how this is done, we introduce the issue of human cloning. You can make these connections yourself by consulting Table 5.4 "Disciplines and the Phenomena They Study" in Chapter 5. Concerning human cloning, the *potentially* interested disciplines include biology, psychology, political science, ethics (a subdiscipline of philosophy), religious studies, the applied field of law, and the interdiscipline of bioethics. These disciplines are only *potentially* interested because, at the outset, it is unclear if authors from each of these disciplines have even written on human cloning. If experts from a particular discipline have not yet written on the subject, then that discipline is not relevant, at least to students in an introductory course.

However, it is not enough to connect an interdisciplinary subject as broad and complex as human cloning to a particular discipline such as psychology. Interdisciplinarians must also know the *basis* for making this connection. <u>Table 7.1</u> identifies disciplines *potentially* relevant to the subject of human cloning because they consider the problem (or some part of it) as falling within their research domain. (Note: We say *potentially* relevant because at this point we do not know if each discipline's community of scholars has published insights on human cloning.)

Table 7.1 Why Each Discipline Is Potentially Relevant to Human Cloning

Disciplines Potentially Relevant to the Issue of Human Cloning	Basis for Relevance
Biology	Analyzes the biological process of human cloning and measures the rates of success or failure
Psychology	Analyzes the psychological impact on the cloned person of a sense of personhood
Political science	Examines the role of the federal government and particular agencies
Philosophy	Probes the ethical implications of cloning a human life
Religious studies	Analyzes the sacred writings of the world's major faith traditions to see if they are consistent with human cloning
Law*	Analyzes the legal rights and relationships of the cloned child and its "parents"
Bioethics**	Examines the ethical implications of the technical procedures required to clone a human, particularly in the event of failure

Source: Repko, A. F. & Szostak, R. (2016). *Interdisciplinary Research: Process and Theory* (3rd ed.). Thousand Oaks, CA: SAGE Publications, Inc. p. 105.

*Law is generally considered a professional program.

**Bioethics is an interdisciplinary field in many taxonomies.

Source: Repko, A. F. & Szostak, R. (2016). *Interdisciplinary Research: Process and Theory* (3rd ed.). Thousand Oaks, CA: SAGE Publications, Inc. p. 105.

Law is generally considered a professional program.

Bioethics is an interdisciplinary field in many taxonomies.

After forming a list of disciplines potentially interested in the problem, and identifying which of these have produced relevant insights, the next question to ask is, "What is the perspective (in a general or overall sense) of each discipline on the problem?" Before discussing how interdisciplinarians go about interrogating disciplinary perspectives, we explain the necessity for performing this critical task.

Why Interdisciplinarians Interrogate Perspectives

Interdisciplinarians are interested in viewing the subject from the perspectives of potentially relevant disciplines for six reasons. Each of these six reasons, as we shall see, is related to the fact that different disciplines will have relevant insights into complex problems, and these insights will reflect the discipline's perspective.

No. 1: Perspective Taking Is a Key Feature of Interdisciplinarity That Is Necessitated by Complexity

The very premise of interdisciplinary studies is that each discipline is uniquely able to focus on that part of a subject it considers within its research domain and study that part in depth. But no single discipline is equipped to explain a complex subject comprehensively. This is why studying complex subjects requires tolerance for multiplicity and why the critical pluralist position is the necessary foundation for interdisciplinary work.

Viewing the problem through the lens of each discipline's perspective involves moving from one discipline to another, shifting from one perspective to another. One practitioner describes this process of "moving" and "shifting" in rather colorful terms. The interdisciplinarian, he says, must take off one set of disciplinary lenses and put on another set in their place as each discipline is examined (Newell, 2007, p. 255). Figure 7.1 depicts this process.

The problem, depicted by the multisided figure, is complex, meaning that it has multiple parts or facets. Each disciplinary lens is able to focus on only one facet.

No. 2: Perspective Taking Is a Prerequisite for Turning Multidisciplinary Work Into Interdisciplinary Work

We established the critical role that perspective taking plays in interdisciplinary work. Here we add that perspective taking is a prerequisite for turning multidisciplinary work into interdisciplinary work. In multidisciplinary work, we are *not* interested in the discipline's **perceptual apparatus** (i.e., its defining elements) because it is enough to point out that each discipline sees the subject in a certain way but not explain *why* this is so.

The focus of multidisciplinary work is on *comparing insights* rather than integrating them. Hugh Petrie (1976) describes multidisciplinary work this way: Two disciplines "look at the same thing [but] do not see the same thing" (p. 11). The fable of the blind men and the elephant depicts how disciplinary experts, though looking at the same phenomenon (i.e., the elephant), are compelled by their disciplinary training to quickly zero in on those parts they are trained to study (e.g., ears, tails, legs).

Figure 7.1 Viewing the Problem Through Different Disciplinary Lenses



But in interdisciplinary work, interdisciplinarians must understand the significance of each discipline's perspective (i.e., its cognitive map) so that they can think critically about how its insights illumine some part of the problem. Insights from different disciplines often conflict, as in the case of the blind men who described different parts of the elephant. We can only integrate these insights (see <u>Chapter 9</u>) after first evaluating them in the context of disciplinary perspective.1

No. 3: Perspective Taking Enables Us to See the Relevance of Other Perspectives

Complex problems such as human–environment interactions generally involve interactions among phenomena studied by different disciplines. One practitioner explains why interdisciplinarians cannot ignore the perspectives of other disciplines in these cases:

[A reason] for this is that . . . the environment is a complex system where the factors addressed by one discipline are affected by factors addressed by other disciplines. The environmental factors studied by a biologist may have effects on the health factors studied by a medical scientist. The culture of a group of people studied by an anthropologist may affect their use of the technology developed by an engineer. In order to solve an engineering problem about the best location of wells in Papua, New Guinea, the engineer . . . had to first use anthropology to help him understand how the local people used water. (Golding, 2009, p. 3)

Only if we can appreciate multiple perspectives will we be able to properly appreciate the insights developed by disciplines that study each relevant phenomenon.

No. 4: Perspective Taking Illumines Our Understanding of the Problem as a Whole

Perspective taking also illumines our understanding of the problem *as a whole*, as illustrated in this example:

Implementing an environmental solution from one discipline often requires dealing with factors from other disciplines. For example, to implement new health care or contraceptive methods, we have to understand not only medicine, but also education. To find out what would be the optimal place to dig a well, we have to consult geologists about the hydrogeology and sociologists about how the people currently use water. To build something, architects have to consult engineers, and engineers have to consult mathematicians. Even something as simple as deciding where a bike path will go and how it will be constructed requires the input from multiple disciplines: we may have to consult an engineer about the composition of the pavement, the ergonomist about the design of signs that are noticed by pedaling cyclists, the transport planner about the likely users and their intended trips, the sociologist about the potential impact on neighboring land holders, the licensed surveyor about land titles on the proposed path, the stream ecologist about proposed fords and bridges and their effects on the waterways, and even the animal behaviorist about swooping magpie risks. (Golding, 2009, p. 3)

No. 5: Perspective Taking Reduces the Possibility of Making Poor Decisions

Perspective taking reduces the possibility of making poor decisions resulting from failure to take important perspectives into account. When it comes to making decisions and policy recommendations on a host of complex and costly public works projects, bad decisions are likely to result if important perspectives are overlooked:

Someone might calculate the most efficient energy use for a new community center without considering how people will interact with the center and so they build an efficient center that no one wants to use. Alternatively, someone might argue that, because of sociological factors, fire-destroyed communities should be rebuilt where they are, but because they ignore what planners and architects might say about mitigating fire risk, they rebuild communities that are in imminent danger. (Golding, 2009, p. 4)

No. 6: Perspective Taking Exposes Strengths and Limitations of Disciplines

Interdisciplinary subjects bring together multiple disciplinary perspectives. Therefore, one of the responsibilities of the interdisciplinarian is to know the strengths and limitations of each discipline's perspective on the subject. These are more readily apparent when perspectives are juxtaposed, as they are in <u>Table 5.3</u> from <u>Chapter 5</u>, reproduced here for your convenience.