

It's a Jungle Out There: Territorial Imperatives in Psychological Science

February 20, 2001

Consider, for a moment, the similarities between psychologists and chimpanzees. Like their fellow primates, the psychologists muck about a dense, mysterious jungle – only in their case, it's the larger world of research psychology. Regardless of their neck of the jungle, psychologists spend their days cracking open the same kinds of nuts – the secrets of the mind and the brain. And just as chimps in different parts of the jungle crack their nuts differently, so do psychologists from different subfields approach the mind and brain differently. But unlike chimpanzees, psychologists increasingly are exploring how the nuts get cracked in the other parts of the jungle. Among the psychologists interviewed for this article, the growing consensus seems to be that cross-level analysis, integrative theorizing, and interdisciplinary collaboration may provide a better purchase on the nature and functioning of brain and mind. However, despite the best intentions of the hardiest researchers, it's clear that the gaps between subfields within psychology and between psychology and other disciplines remain difficult to traverse.

RISKING COLLECTIVE AMNESIA

Why might psychologists take that seemingly extraneous trek across the psychological jungle into the territory of other subfields? A first reason is efficiency. Surveying the fields of psychology, Stanford cognitive psychologist Barbara Tversky sees a worrying lack thereof. “The field doesn't encourage broad scholarship,” said Tversky, an APS Fellow. “As a result, people keep reinventing new terms for old phenomena, either because they don't know the relevant work from other areas or because they don't know the history of their own area.”

When insights from one area or era are not applied to related phenomena of another area or era, the field as a whole suffers from a kind of collective amnesia that represents not only an annoying waste of time and effort, but also a serious threat to the progress that we should be achieving, based on our hard-won knowledge.

A second reason for crossing subfield and disciplinary boundaries is one even a monkey could guess: certain tools crack only certain kinds of nuts; if you don't possess the correct tools, you don't even try to open other nuts. This can lead to a gradual narrowing of questions that psychologists feel they can ask.

Yale psychologist Robert Sternberg argues that the division of psychology into method-based areas has not only limited the scope of our questions, but has also led our questioning astray. “With the division of psychology into its current subfields,” he contends, “we often blind ourselves to the questions we are not asking. We become falsely convinced that our answers are right, without examining whether our questions are right.”

BROTHER, CAN YOU PARADIGM?

Harvard's Richard Hackman agrees that psychological science should be driven by questions and

problems, not by the methods that we already possess, or by the areas with which they are associated. “Problems don’t come neatly packaged within existing scientific paradigms,” he says. “Problems almost always require you to cross paradigmatic boundaries.”

Hackman, an APS Fellow and Charter Member, believes that crossing levels of analysis not only unearths new questions, but also builds better theories. For example, he notes that by integrating what is known about genes, with what is known about brain development and cognitive development, with what is known about the impact of social contexts on human performances, psychologists may transcend some of the controversies regarding important phenomena, such as human intelligence.

“This kind of approach can generate understanding that is more robust than anything any one scholar from any one of those paradigms could have developed alone,” Hackman says. “It reflects what I view as a general trend both in psychology and in my own work: a rich understanding of human behavior requires both going up and going down levels of analysis.”

While most psychologists would agree that the combination of both microscopic perspectives (the “downs” of psychology) and telescopic views (psychology’s “ups”) of a problem is beneficial, cross-level analysis has, historically, been rarely observed in the wilds of psychology.

UPS AND DOWNS

For one thing, climbing up and sliding down levels of analysis is not viewed equally in the eyes of the science. There is an implicit pecking order in which the more molecular or computational forays into the psyche are more valued than the views from the crows’ nests. As a result, psychologists of different implied statuses may be reluctant to collaborate with each other or borrow from each other’s bags of tricks.

Russell Fernald, a biological neuroscientist, who has logged his share of hours at the more pecking (as opposed to peckee) end of the spectrum, sees that “in the culture and in the science, there is ‘physics envy.’ Scientists’ respect follows a continuum from submolecular particles to foreign policy. Many want guaranteed truths, and think that the more quantitative the methods or tightly controlled the experiments, the more exact the results are, and the more deeply honored they should be.” As a result, says Fernald, attention and respect tend to flow “downward.”

At the same time, psychologists on the other end of the spectrum aren’t exactly champing at the bit for a seat in the wet lab or time in the magnet, either. Here too, breaking ranks and borrowing from other fields may sometimes be met with suspicion.

For example, Stanford social psychologist Jennifer Eberhardt feels that some social psychologists have the view “that when you’re using fMRI, you’re buying into reductionism, or you’re thinking that this is the level at which all social psychologists should work. People assume that you think that the other things we’re doing don’t matter as much. But I believe we can use fMRI to show quite the opposite-to show how powerful all these social variables really are.”

WHICH KITSCH?

The relative prestige and different methodological tendencies of the different areas are more obvious sources of divisiveness between subfields and disciplines. A more subtle reason why we chimps don’t

travel as much as we should is the cultural differences between these areas.

We often think of culture as affecting relatively superficial aspects of the field, such as the types of kitsch you have on your bookcase: personality psychologists go for the bronze miniature of Rodin's "Thinker," say, while cognitive neuroscientists dig that life-sized, rubberized human brain-on-a-stick.

Yet the cultural differences can be more than shelf deep. For example, University of Michigan developmental psychologist Jacquelynne Eccles, an APS Fellow, relates that colloquium comportment varies quite a bit across subfields, even within a department: "In some subfields, the norm is to attack another person's work. That's a very different orientation than trying to understand what a person did and then learning from it."

Likewise, UC Berkeley social psychologist Robert MacCoun sees how perceived cultural differences may prevent psychologists from collaborating with practitioners in other disciplines. MacCoun has collaborated with economists in his policy research, and views the marriage of psychology and economics as a strong one, which would ideally blend psychology's appreciation of real-world complexity with economics' mathematical sophistication. Yet, he observes that, "psychologists often suspect a politically conservative bias in economics, but of course many economists see psychologists as biased in the opposite direction."

The norms governing what a paper should look like in order to be published may also hinder the sallying forth into new subfields and disciplines. For example, Eberhardt reports that single-study papers are less likely to be published than multi-study papers in some social psychology journals. But the fMRI studies that Eberhardt conducts are extremely costly, and thus usually occur in the singular. As a result, Eberhardt's publishing triumphs are somewhat Pyrrhic – her most recent paper is under review in a prestigious neuroscience journal that is not generally read by her fellow social psychologists.

WHO WAS THAT MASKED SCIENTIST?

Although some subfields of psychology do not honor single-study papers, almost all revere single-author papers. This reflects the persistence of our fields' "lone-ranger" model of the good scientist, which may ultimately serve to keep psychologists isolated from each other. According to the lone ranger model, psychologists should generate brilliant questions alone, hack away at them in the lab, perhaps with the assistance of a few pale, Igor-like grad students, publish mostly single- or two-author papers, then ride off, alone, into the sunset of tenure. While the shadows of this tradition are definitely receding, vestiges of it remain in hiring and promotion practices, where single- and first-author papers are still the coins of the realm.

Perhaps the greatest asymptote of all our cross-level, integrative, collaborative endeavors, however, is time. "There are only so many hours in the day," says MIT neuroscientist Nancy Kanwisher. "You spend so much time learning the methods of your own field, there is very little time left to learn those of other fields."

That doesn't keep psychologists from trying to squeeze a few more minutes out of their clocks. Kanwisher, for example, once increased the efficiency of her own research program by having a complete EEG orientation array tattooed on her scalp. Two of the 32 markers glow under black light.

Clinical psychologist Bruce Compas of the University of Vermont steals time in a less invasive way – by “sneaking in” his personal, continuing science education “on the side.”

“I find that the best ideas for my research and the largest gains I’ve made in my own thinking have come when I read way outside of clinical psychology,” he says, listing an impressive array of non-fiction books and journals that stand sentinel on his night stand. “Sadly, I gave up reading novels a long time ago,” admits Compas, an APS Fellow.

However, he adds that reading outside of one’s field is not enough; the second half of integrative research success is to “pick good colleagues.”

Fernald agrees. “It is at the human level that we need to enhance interactions. All of us can read papers, but it’s only when you engage at the level of discussion that you get down to questions of detail, application, and the relative importance of certain ideas. Through these discussions, you shape the scientific questions you choose to work on, and see new dimensions to them.”

INSTITUTIONAL CHANGES

While bedtime reading and chance meetings of minds will doubtless continue to feed many a sojourn across subfields or disciplines, psychologists are increasingly recognizing that changes at the institutional level should be made to insure ample cross-fertilization within psychology.

A first area for improvement, notes personality psychologist Walter Mischel of Columbia University, is graduate training. “Psychologists who are going to be serious in the next generation are going to have to know an awful lot,” said APS Fellow Mischel. “We need more integrated training programs that teach people to be at the vanguard of several different areas simultaneously.”

Eccles suggests that post-doctoral fellowship opportunities should be offered at many points throughout one’s career – not just during those first few years while the ink on the Ph.D. is still drying.

Like Fernald and Compas, Eccles also stresses the need for more interdisciplinary encounters at the individual level. She believes that these encounters should not be left to chance, but through formal, institutionally-supported research networks. As a participant in the MacArthur Foundation Research Network on Successful Pathways through Middle Childhood, Eccles has experienced first-hand that “such networks are quite functional, because they provide the time for true conversations across fields. These conversations take time, because participants must learn each others’ language and overcome the defensiveness of their own field. Only after this common ground has been reached can we begin to have a conversation about the research questions at hand.”

AN EVOLUTIONARY COUP

More radically, APS Fellow and Charter Member Sternberg believes that the very skeleton of psychology departments should be re-engineered to encourage more meetings of different minds. As he proposed in an article in the January 2001 *Observer*, Sternberg thinks that psychology departments should be organized around phenomena, rather than around the current method- and tradition-based areas. His own PACE (Psychology of Abilities, Competencies, and Expertise) Center at Yale University, provides a model for such a system.

At the opening of 2001, the year, as at the opening of *2001*, the movie, we psychologist-chimpanzees feel ourselves to be on the brink of great sea-changes. While we may be less definite about the shape and nature of the changes that need to be made, opinions are converging to the idea that borrowing from and collaborating with the chimps in the other junglehoods may prove to be our field's evolutionary coup.

This is the second of two articles in which Conner examines the common issues and elements shared across the subfields of psychological science. The previous article appeared in the January 2001 Observer.