The Structure of Psychology

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In my first three Presidential Columns, I discussed the evidence that psychology has become a hub scientific discipline, that the creation of psychological knowledge is increasingly the product of scientific teams, and that psychological scientists are ideally positioned to contribute to and lead interdisciplinary research teams addressing a wide range of theoretical and practical questions. These developments are changing the landscape of psychological science, but what might they mean for the structure of academic psychology departments?

During the better part of the 20th century, psychological science could be described as a set of balkanized fields with specialized journals regarded as the place to publish by those within a field and read by few outside that field. By the early 1990s, concerns were emerging that these fields had common historical and administrative elements but had few if any substantive connections, resulting in projections of the demise and calls for the disbanding of psychology. In a personal view of the future of psychology departments, for instance, Thomas Scott (1991) opined that:

Psychology lacks a clear identity. It is a federation of often-unrelated disciplines placed in one administrative category during their first century of existence because each could be defined by taking an experimental approach to the study of human behavior….Some of the vectors along which the subdisciplines have matured are separated by such…+obtuse angles to one another, and as the distance between them grows, they strain against the departmental membrane and are irritated by the requirements of common membership in a distended administrative unit. Social and biopsychology are an example. Most biopsychology students consider a core course in social psychology to be an impediment . … I assume that our students in social psychology reflect that sentiment about their core experience in biopsychology (Scott, 1991, p. 975).

Things appear to be changing in psychological science, however. The centrifugal forces that not long ago threatened to splinter the discipline appear to be receding in the face of new centripetal forces fueled by the search for more comprehensive theories. The notion, less than two decades ago, that social and biological psychology had nothing substantively to offer one another, for instance, has been replaced by the rapidly growing field of social neuroscience (Cacioppo et al., 2007) and the expressed view that uncovering the biological mechanisms underlying social interactions is one of the major problems for the neurosciences to address in the 21st century (Frith & Wolpert, 2004).

No longer simply a collection of independent subspecialties based on historical or administrative distinctions, psychology in the 21st century appears to be becoming an integrative, multilevel science. Specifically, there has been a trend in the direction of partitioning the science of mind and behavior into different levels of organization, with each contributing to our understanding of human behavior (see Figure 1. The biological perspective in psychology concerns the material substrates for the mind and behavior; the cognitive perspective emphasizes the information processing representations and operations; and the social perspective stresses the role of the presence of conspecifics, imagined or real,

and of the sociocultural context.

Additionally, there are various cross-cutting perspectives that offer invaluable insights into the mind and behavior. The study of the nature and influence of changes over time (e.g., growth, decay) in neural substrates, information processing representations or operations, and social influences and processes represents a *developmental* perspective in psychology; the investigation of the causes and consequences of failures in neural substrates, cognitive operations, and social organizations and what such failures mean for understanding the healthy system represents a *clinical* perspective; and attention to reliable variation around the central tendency to gain leverage in formulating and testing psychological theory represents an *individual differences* perspective. These cross-cutting vectors are illustrative rather than exhaustive, of course. The development and application of new methodological and statistical techniques to quantify, model, and test psychological theory represents a *quantitative* perspective on the mind and behavior, and other cross-cutting perspectives exist or are possible.

The important point here is that each perspective has substantive implications for the others in the pursuit of comprehensive psychological explanations. The in-depth study of any one of these perspectives is essential, but a comprehensive understanding of the mind and behavior is likely to be achieved by an integration of what we know and can learn across multiple perspectives. Reductionism, or the breaking apart of nature into its natural constituents, is a proven approach in scientific inquiry. Reductionism is not substitutionism, however. Reductionism provides points of entry into complex systems, with the reason for such an entry being not simply to describe the parts, but to develop a better intellectual model of the complex system. If this is so, then understanding the mind and behavior — as well as the precise role of each perspective in the production of the mind and behavior — is promoted by study of these perspectives not only in isolation, but in various combinations and as a whole. The proven promise of comprehensive scientific accounts for behavioral phenomena constitutes an important source of the centripetal forces contributing to psychology as a coherent scientific discipline, and it is one important reason why all Members of the Association for Psychological Science (APS) receive all APS journals.

Are academic psychology departments ever likely to be structured anything like the matrix in Figure 1? Perhaps not, but it does seem that departments are increasingly likely to be searching for faculty who might be able to contribute to more than a single, isolated training program. To get a bit more data on this question, I perused the websites of eight psychology departments that are generally regarded as among the most prestigious in the discipline. The departments were listed among the top-10 in the last ranking of doctoral programs provided by the National Research Council and among the top-10 in a recent *U.S. News and World Report* ranking. Additionally, half were selected because they are in private universities, and half were selected because they are in public universities. The doctoral training programs and the number of faculty in each program were determined by the descriptions provided on

their departmental websites. The total number of faculty was higher for public than private universities, so the percentage of faculty within each program was calculated to avoid weighting large more than small departments.

The areas represented in at least half of the departments were cognitive psychology/brain and cognition (100 percent), social psychology (100 percent), developmental psychology (75 percent), clinical psychology (75 percent), and biological psychology/behavioral neuroscience (62.5 percent). Among the "other" programs, 25 percent listed personality programs (and a quarter of the social psychology programs were listed as "social/personality"), 25 percent listed quantitative programs, and 25 percent listed neuroscience programs (in one case, in addition to a biopsychology program) that cut across other areas.

The distribution of faculty across the programs was also instructive. An average of 27.42 percent of the faculty in these departments were listed under cognitive, 22.87 percent were listed under social, 13.04 percent were listed under clinical, 11.66 percent were listed under developmental, 8.50 percent were listed under biological psychology, 5.04 percent were listed under integrative neuroscience or its equivalent, 3.75 percent were listed under personality, 2.05 percent were listed under quantitative, and 4.73 percent were listed under other programs. Some of the leading academic departments may not be organized as formally as a matrix, but the perspectives outlined above are represented in many of these departments, and many of the collaborations among faculty that were described cut across traditionally balkanized fields.

In sum, the centrifugal forces produced by scientific specialization and differentiation are powerful, but the countervailing centripetal forces that come from the pursuit of comprehensive scientific explanations and effective practical applications have the very real potential of maintaining psychology as a strong and coherent scientific discipline for many years to come. ?

References

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