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TRACKING TRENDS & PERFORMANCE IN BASIC RESEARCH

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2008 : December 2008 : Daniel Stokols, Shalini Misra, Richard Moser, Kara Hall, & Brandie Taylor

EMERGING RESEARCH FRONTS - 2008

December 2008



Daniel Stokols, Shalini Misra, Richard Moser, Kara Hall, & Brandie Taylor talk with ScienceWatch.com and answer a few questions about this month's Emerging Research Front Paper in the field of Social Sciences, general.



Article: The ecology of team science - Understanding contextual influences on transdisciplinary collaboration

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Journal: AMER J PREV MED, 35 (2): S96-S115 Suppl. S AUG 2008

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SW: Why do you think your paper is highly cited?

Over the past 10 years, government research agencies and public foundations have invested heavily in promoting interdisciplinary team science and training initiatives. As interest and investment in interdisciplinary team initiatives have grown, the demand for evaluative information about the effectiveness of these collaborative projects has increased as well.

Our article provides an overview of important personal and situational factors that either constrain or facilitate successful interdisciplinary collaboration in scientific, training, and applied research settings. This article is part of the rapidly growing "science of team science," broadly concerned with understanding and managing the circumstances that influence the effectiveness of interdisciplinary collaboration in scientific, training, community practice (e.g., clinical), and public policy contexts.

SW: Does it describe a new discovery, methodology, or synthesis of knowledge?

The article provides a critical and integrative review of several research literatures which, when considered together, shed light on key determinants of collaborative success in interdisciplinary research, training, and translational contexts.

Four major research domains are reviewed, including (1) the social psychology of teams and group dynamics; (2) organizational science studies of corporate teamwork and productivity; (3) evaluative studies of university-community partnerships undertaken to promote improved population health practices and outcomes; and (4) evaluative studies of large scale interdisciplinary science and training initiatives such as those funded by the National Institutes of Health, the National Academy of Sciences, the National Science Foundation, and private organizations such



as the Robert Wood Johnson, Keck, MacArthur, Carnegie, and WT Grant Foundations.

SW: Would you summarize the significance of your paper in layman's terms?

Our review of earlier research on the determinants of effective interdisciplinary collaboration identifies certain pivotal and recurring factors such as leadership styles, shared history of prior collaboration, opportunities for frequent face-to-face communications among team members, as well as the availability of cyberinfrastructures (e.g., intranet web sites, listserves, teleconferencing facilities) to support smooth collaboration) that exert a profound influence on the effectiveness of interdisciplinary teams.

In the article, we present a typology of major contextual determinants of collaborative success that are organized into six categories: intrapersonal, interpersonal, organizational/institutional, technological, physical environmental, and sociopolitical.

SW: How did you become involved in this research and were any particular problems encountered along the way?

The co-authors of this article share a strong interest in understanding the circumstances that influence the effectiveness of interdisciplinary collaboration in scientific, training, community practice, and public policy contexts. Our collective experiences span those of faculty members and administrators based within interdisciplinary academic schools and departments, as well as scientists working within the National Institutes of Health who conduct interdisciplinary intramural research projects while also creating, managing, and evaluating large-scale extramural science and training initiatives—especially those designed to promote interdisciplinary collaboration and integration.

SW: Where do you see your research leading in the future?

The science of team science is a relatively young field that has relied heavily on anecdotal reports and retrospective case study designs in prior years. The field is now moving toward more diverse and increasingly rigorous research designs—for instance, quasi-experimental time-series studies of the scholarly productivity and impact of scientists working as members of large, multi-site interdisciplinary research centers, as compared to those working in the same field (e.g., tobacco use and control, cancer communications research, or health disparities) who are supported by traditional single-investigator grants such as NIH R01 awards; or by funds provided through smaller-scale research centers administered by a single university.

SW: Do you foresee any social or political implications for your research?

In both scientific and non-scientific sectors of society, an increasing emphasis is being placed on training individuals to participate effectively as members of collaborative teams. The research findings summarized in our article, as well as in the other papers published in the 2008 *American Journal of Preventive Medicine* supplement on the science of team science, extend our understanding of key factors that either facilitate or hinder effective interdisciplinary collaboration in research, training, clinical, and public policy contexts. This research offers a useful foundation for subsequent studies that will broaden our understanding of these issues further.

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Keywords: interdisciplinary team science, effective interdisciplinary collaboration, social psychology, group dynamics, organizational science studies, university-community partnerships, cyberinfrastructures.

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