

A Route to Boundary Crossing?

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A Route to Boundary Crossing?

Many thoughtful observers of the scientific scene have stressed the need to encourage more research that crosses traditional disciplinary boundaries. Although few argue against that proposition in the abstract, turning the aspiration into reality has often seemed difficult, largely because the traditional reward systems of academia and grant giving have tended to favor work that, instead, fits into well-known categories and so can be more easily assessed.

The article by Todd Crawl and his colleagues that appears on p. 282 of this issue should therefore be of interest to researchers and administrators who have contemplated this conundrum. The reported study provides some welcome information on the possible effects of a major effort to boost interdisciplinary research networks that was launched over a decade ago. The National Science Foundation's Research Coordination Networks in Biological Sciences (RCN) provided over \$1 million per year, starting in 2001, to support the efforts of investigators to "communicate and coordinate their research efforts across disciplinary, organizational, institutional, and geographical boundaries." Crawl and his colleagues examined various indicators of research output and collaboration for 13 research groups that received five-year RCN awards in plant science, ecology, and environmental science and technology before, during, and after their awards. The authors also looked at similar indicators in a small sample of groups that had sought but failed to win RCN awards.

The limitations of the available data prevented the authors from making the ideal comparisons for examining RCN award effectiveness—which would have been between groups that were the same in all pertinent respects except for receiving an RCN award. In fact, the unfunded group scored lower by the assessed measures of research output before the awards were made. Further complications were that coauthorship, cross-institutional collaboration, international collaboration, and the "integration score" of publications increased in the unfunded group as well as in the funded group in comparisons of the periods before the awards were made and after they had ended. Still, the increase in collaboration seemed more robust in the RCN-funded group, as did an increase in the "integration score" on an article-by-article basis.

The level of cross-citation of researchers within a network also showed some evidence of having increased more in RCN-funded projects than in unfunded ones. And articles published with RCN support during the award period were clearly cited more than the others and were published in higher-impact-factor journals than the others. Yet the data also suggest that some of the increase in the interdisciplinarity of research output stimulated by an RCN award did not persist after the end of the award; interested readers should consult the article for details.

Despite the complications, the authors argue that their data support the conclusion that the provision of RCN funds between 2001 and 2005 did foster new problem-focused research networks; it clearly supported high-quality research. More definitive evidence must await further study, as must an evaluation of how this particular funding mechanism compares in effectiveness with other ways of encouraging interdisciplinary research, such as funding physical research centers where there is face-to-face collaboration.

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