

Commentary:  
Complementary Perspectives  
on “Speaking at Cross-Purposes  
or across Boundaries”

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**I**N THEIR PROVOCATIVE PAPER, CRAIG MITTON AND ANGELA BATE MAKE three claims: first, they contest the view that the university incentive system is incompatible with knowledge transfer; second, they contend that the lack of in-house research and development (R&D) capacity of health services organizations prevents knowledge uptake; and third, they argue that in order to enhance knowledge transfer, health services organizations should be given resources necessary to develop their own research agendas. I would like to consider these three claims in turn.

The first claim developed by the authors is supported by an increasing volume of evidence in the field of knowledge and technology transfer. Here is a brief summary of the argument and evidence emerging from this literature: Academics engage in three broad categories of activities – the creation of knowledge (research), the transmission of knowledge (teaching) and the transfer of knowledge. The knowledge transfer activities include patenting, spin-off formation, consulting and the production of knowledge spillovers<sup>1</sup> (which is what most of us do in health services and health policy). Given free choice, the resources dedicated to different academic activities are likely to differ

from one academic to another. This raises the question: "How do academics decide what academic activities to invest their resources in?"

Two hypotheses emerge (Mitchell and Rebne 1995; Colbeck 1998; Walckiers 2004; Landry et al. 2007). The first, a complementary hypothesis, suggests that resources invested in one activity predict performance in that activity as well as in other associated activities. The second, a substitution hypothesis, rests on the idea that investments in one activity come at the expense of investments, and therefore performance, in other activities.

The complementary hypothesis suggests that each academic activity generates ideas that become inputs for other activities. More concretely, the outputs of certain academic activities may become the asset base upon which other academic activities may be built. As a consequence, performance in certain academic activities may generate a leverage effect on other activities. There is a growing empirical literature pointing to the fact that publications are not in conflict with patents and may even be complementary (Godin and Gingras 2000; Van Looy et al. 2004; Meyer 2006; Landry et al. 2006a,b). Similarly, Mitchell and Rebne (1995) have shown that consulting and research performance are complementary up to a certain point.

A recent study based on data regarding 1,554 faculty members supported by the Natural Sciences and Engineering Research Council of Canada (Landry et al. 2007) pointed to the existence of three very different types of academic portfolios. The first portfolio is made up of complementary activities that are interdependent and reinforce one another. This portfolio included publications, patenting, spin-off creation, consulting and production of knowledge spillovers. A second portfolio includes teaching activities and publication outputs that are substitutes for one another. A third portfolio comprises teaching and other activities independent from teaching, namely, patenting, spin-off creation, consulting and the production of knowledge spillovers.

The evidence provided by the literature on knowledge transfer and technology transfer suggests that the existence of complementary activities may facilitate entry into and successful performance of other activities, while the existence of substitution effects may hamper entry into some activities and come at the expense of successful performance in those activities. The management of complementary, substitute and independent academic activities is important if one aims to facilitate entry and derive the benefits resulting from involvement in different academic endeavours. Hence, a failure to recognize complementarities between publications, patenting, creation of spin-offs, consulting and production of knowledge spillovers may lead to the under-exploitation of synergies, and therefore lower performance. Consequently, university managers and policy makers should attempt to provide incentives that would induce academics to use the outputs of their complementary activities as inputs for other activities, instead of attempting to prevent entry into new and complementary activities. I therefore agree with Mitton and Bate, and I would support their first claim:

increasing high-quality research fosters knowledge transfer. Ultimately, knowledge transfer is a tool used to promote evidence-based decision-making, and evidence-based decision-making must rest on solid scientific evidence.

I also agree with the second claim made by Mitton and Bate but, again, for different reasons. The evidence on innovation in manufacturing firms shows that the absorptive capacity of external research knowledge by firms depends on their in-house R&D investments. I suggest that this argument also applies to health services organizations. The lack of in-house R&D limits the capabilities of health services organizations to identify, assess, integrate and exploit research knowledge produced by other organizations in order to develop or improve services and practices. The acquisition of external knowledge by health services organizations provides opportunities to recombine internal and external knowledge in order to innovate, that is, to develop new or improved services and professional practices based on evidence.

Let us now turn to Mitton and Bate's third claim, which proposes to "bring together those conducting and applying research into the same organization." I agree with the idea, but I am not comfortable with how they propose to implement it. If we want to promote evidence-based decision-making in health services organizations, we should consider more than just how to create and consolidate research capability

within these organizations. Until now, existing R&D units in university hospitals have contributed more significantly to the advancement of knowledge than to the development or improvement of services and professional practices in their host hospitals. We need to develop a complementary model in which

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### **The lack of in-house R&D limits the capabilities of health services organizations to identify, assess, integrate and exploit research knowledge ...**

R&D would be more closely coupled with the production and delivery of services. Such R&D departments or units would be mandated to conduct research and development activities that support the development, but primarily the improvement, of the services provided by their host organizations, as well as clinical and management practices. This R&D model would improve the capacity of health services organizations to absorb external research knowledge and, therefore, their ability to integrate external and internal knowledge in order to develop and improve their services and professional practices. In the end, one has to keep in mind that more than 99.99% of the research

evidence will always be developed by other organizations, often in other countries. As a consequence, it is important to develop and consolidate strong knowledge absorptive capabilities in order to benefit from the knowledge created by others.

In short, we will increase knowledge transfer to the extent that we reinforce our university research capacities, as well as the research absorptive capabilities of health services organizations.

#### NOTES

1. Research knowledge accessed by people based in firms, government agencies and other organizations, for which university researchers are the source of the knowledge but are not fully compensated (Landry et al. 2006a).

#### REFERENCES

- Colbeck, C.L. 1998. “Merging in a Seamless Blend. How Faculty Integrate Teaching and Research.” *Journal of Higher Education* 69(6): 647–71.
- Godin, B. and Y. Gingras. 2000. “The Impact of Collaborative Research on Academic Science.” *Science and Public Policy* 27(1): 65–73.
- Landry, R., M. Aaihi, N. Amara and M. Ouimet. 2007. “Evidence on How Academics Manage Their Portfolio of Activities.” Paper presented at the 6th Triple Helix International Conference on University, Industry & Government Linkages, Singapore, May 16–18.
- Landry, R., N. Amara and M. Ouimet. 2006a. “Determinants of Knowledge Transfer: Evidence from Canadian University Researchers in Natural Sciences and Engineering.” *Journal of Technology Transfer* DOI 10.1007-s10961-006-0017-5.
- Landry, R., N. Amara and I. Rherrad. 2006b. “Why Are Some University Researchers More Likely to Create Spin-offs Than Others? Evidence from Canadian Universities.” *Research Policy* 35(10): 1599–1615.
- Meyer, M. 2006. “Are Patenting Scientists the Better Scholars? An Exploratory Comparison of Inventor–Authors with Their Non-Inventing Peers in Nano-Science and Technology.” *Research Policy* 35(10): 1646–62.
- Mitchell, J.E. and D.S. Rebne. 1995. “The Nonlinear Effects of Teaching and Consulting on Academic Research Productivity.” *Socio-Economic Planning Sciences* 29(1): 47–57.
- Van Looy, B., M. Ranga, J. Callaert, K. Debackere and E. Zimmermann. 2004. “Combining Entrepreneurial and Scientific Performance in Academia: Towards a Compounded and Reciprocal Matthew Effect?” *Research Policy* 33(3): 425–41.
- Walckiers, A. 2004. “Multidimensional Screening and University Output, Part Two: Should Universities Produce Both Research and Teaching?” Mimeo. Department of Economics, Université Libre de Bruxelles.