

58. I2S and Research Development Professionals: Time to develop a mutually advantageous relationship

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This commentary presents a perspective of integrative applied research and Integration and Implementation Sciences (I2S) as they pertain to advancing research development activities² and team science.³

Research Development, Team Science and Integrative Applied Research

The National Organization of Research Development Professionals (NORDP) facilitates research excellence and enables interdisciplinary research and collaborative partnerships affecting scientific and scholarly research projects at non-profit research institutions, predominantly academic institutions, across the globe. NORDP was established in 2010 as part of a grassroots movement to build a community of research development professionals driven to enhance the research enterprise at their institutions. Research development encompasses a set of strategic, proactive, catalytic and capacity-building activities designed to facilitate teams of researchers, initiating and nurturing critical partnerships and alliances throughout the institutional research enterprise, between institutions and, importantly, with external stakeholders.

Team science is characterised by large multi, inter and transdisciplinary collaborative research projects comprising large teams of scientists, which most often integrate research with broader goals including education, technology or practice transfer, and policy change. A recent description of 'big tent team science'⁴ shares considerable similarities with integrative applied research as defined in this book.

1 Holly Falk-Krzesinski was invited as a 'research development practitioner and scholar of the science of team science'.

2 See <<http://www.nordp.org/about-us>> (accessed 14 February 2012).

3 See <http://en.wikipedia.org/wiki/Science_of_team_science> (accessed 14 February 2012).

4 See <<http://www.ipscell.com/2011/09/big-tent-team-science-new-ideas-about-clinical-trials/>> (accessed 14 February 2012).

More and more, research development professionals find that they are catalysing and facilitating team science to address complex real-world problems, in part leveraging the research and scholarship expertise found at academic institutions. But the academic resources are insufficient to fully address such problems. Consequently research development professionals are increasingly charged with reaching out beyond the ivory tower into other sectors. As action-oriented rainmakers, research development professionals serve to benefit from, and can foster the advancement of, integrative applied research and I2S.

Research Development Professionals as I2S Specialists

Integrative applied research requires the knowledge-brokerage skills and vision advantage that research development professionals practise; research development professionals can, in turn, benefit from I2S to foster efficacious real-world problem-solving teams. Integrative applied research is involved with bringing experts together and synthesising what is known from both the academic and the practical perspectives. This is becoming a critical set of activities for research development professionals fostering team science initiatives; however, research development professionals often have no formal training in these activities or formally developed skills. I2S affords the development of evidence-based approaches and methodologies—which can be used across projects—in which research development professionals can be trained.

Moreover, research development professionals are prime candidates to become a class of I2S specialists. They are already engaged in cross-disciplinary, boundary-spanning activities across units, institutions and sectors. For example, research development professionals are taking prominent roles in research centres and institutes at universities, which have historically served as the nexus of problem-based teams. These units often lack the necessary skills to effectively reach out to external stakeholders and form sustainable, strategic alliances that last beyond a cycle of grant funding. And while traditionally providing consultative services to newly developed teams, research development professionals are more often becoming embedded as integral members of the team as the driving problem gets more complex and relevant to society. Rather than ceasing engagement with the team after its initial formation and start-up phase, a recent trend is developing in which research development professionals remain engaged throughout the duration of the team-based initiative, intimately involved in the management and growth of the team and often as lynchpins in outreach activities. And importantly, research development professionals concurrently serve in that capacity on more than one team science initiative.

As trained I2S specialists, research development professionals would be a very willing group that can assist with the cross-fertilisation of ideas across projects for team science initiatives aiming to address real-world, complex problems. They can provide feedback into the development of I2S concepts and methodologies about issues related to academia and government funding agencies, which are central areas of expertise for them. The culture, structure and bureaucracies of these two sectors often baffle external stakeholders and can prove to be substantial barriers to collaboration and alliances and the success of integrative applied research.

Forming Teams

One area of significant importance for research development professionals is the formation development of teams and alliances at the beginning of new initiatives, and managing the teams and alliances over time—often considerable periods. While the science of team science field is beginning to address issues related to team composition and leadership types, thus far research focuses only on academic-based teams and has not extended to include the formation and development of teams that include external stakeholders and involve intersectoral alliances. I2S is positioned to be an important driver in this area, supporting research about the formation of real-world teams in which ‘team’ is considered both at the macro and at the meso levels and simultaneously embedded in the context of multiple organisations. The approaches developed by I2S would be immediately consumed by research development professionals who are actively seeking evidence-based guidance for effective practices around team formation.

Knowledge Synthesis

Research development professionals generally hold advanced degrees (masters and doctoral or equivalent) in areas of research and scholarship but do not lead research programs or initiatives of their own. They are motivated to advance science and solve problems through the use of science and scholarship as servant leaders, always partnered with investigators, scholars, practitioners and policy makers. Consequently they are afforded the opportunity to become pan-scientists, learning something about the language, concepts, models and cultures from numerous disciplines. Since research development professionals themselves are not leading the research within academia, they also have more flexibility to engage externally and become better acquainted with various stakeholder and partner groups and communities; however, they frequently lack the knowledge about how best to synthesise information across disciplinary and sectoral domains and integrate it with stakeholder knowledge necessary to

translate findings from the academic environment into the real world. With its very focus on integrative applied research, I2S offers a very exciting opportunity to develop a robust toolbox that research development professionals could access for enhanced knowledge synthesis.

Managing Unknowns

Research development professionals often encounter the problems of expertise and reputation when working with academic-based investigators considering partnerships with external stakeholders. The academic investigators and scholars are experts in their fields, with expertise defined by what they *know*. Since recognition and reputation that rely on such expertise are so critical for advancement within academia, investigators and scholars in this realm often exhibit an unwillingness to express that which they don't know or understand. Consequently the unknowns that have to be considered from the stakeholder perspective are often neglected and may, worse, even be considered irrelevant by academic partners.

Trained as a class of I2S specialists, research development professionals could help funders and stakeholders navigate the limitations academicians bring to partnerships. Moreover, they could provide professional development and training for faculty and university leadership in basic I2S concepts and methods to enable them to gain a better understanding of considering unknowns in their research and the most effective mechanisms for extending their findings.

Support for Policy and Practice Change

I2S-trained research development professionals would be important catalysts in perpetuating and extending successful integrative applied research initiatives. With one foot firmly in academia and the flexibility to move the other to a variety of stakeholder domains, these I2S specialists serve as valuable activists in creating highly effective integrative applied research teams. Through principles developed by way of I2S research findings, which include an understanding of how to manage disparate and often conflicting reward and recognition systems, research development professionals could serve to unify team members around a shared goal of translating discoveries and new knowledge from multiple domains into effective policy and practice.

I2S Impact on Research Development, Team Science and the Science of Team Science

While both research development and team science are concerned with cross-disciplinary collaborations that often involve external partners, these areas have been inwardly focused on the academic domains from which both arose. I2S offers an opportunity to change their perspective for the better. Combined with guidance from the science of team science, I2S defines the structures and processes for effective team science to address highly complex real-world societal problems. Research development, in turn, is then better able to focus on the practical issues to enable integrative applied research teams that combine academic and other sector participants by virtue of the lessons from I2S.

The synergies between research development, team science and integrative applied research are exciting. Research development professionals have served as drivers in the team science arena and could be considered as sources of knowledge about advancing I2S as much as they can benefit from I2S training and skill building.

This book is a comprehensive text that will enlighten the research development community and have a strong transformational effect on the practice of team science. The book also carefully lays out a roadmap for integrative applied research and circumspect direction for the development of I2S as a discipline. The science of team science—another emerging discipline—can build on strategies for developing I2S as the roadmap for team science research continues to evolve as well.

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Brief Biography

Holly Falk-Krzesinski PhD recently joined Elsevier as the Vice President of Global Academic Relations and Strategic Alliances, having previously served as the Director of Research Team Support and Development at Northwestern University. Her interests focus on translating empirical research findings about team science (the *science* of team science) into evidence-based effective practices for scientific teams, institutional leaders, and funders of collaborative team science (the *praxis* of team science). She is also interested in approaches to evaluating and assessing collaboration and interdisciplinary research effectiveness. As inaugural chair of the Annual International Science of Team Science (SciTS) Conference, she has been instrumental in developing a strong, interdisciplinary community of practice for team science and interdisciplinary training.

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