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Assessing Transdisciplinary Research Collaborations: Quality, Barriers, and Competencies

Elvira Elek, Michael Halpern, and Heather Kane

RTI International, Washington, DC and Research Triangle Park, NC

Corresponding author's Email: eelek@rti.org

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Abstract: Enhancing the quality of research collaborations, improving access to those collaborations, and increasing transdisciplinary research competencies are critical goals for advancing engineering and science. To better understand factors associated with successful research collaborations, we conducted two annual surveys (administered December 2010 and 2011) as part of the evaluation of the Clinical and Translational Science Institute at Children’s National Medical Center and George Washington University. Both surveys (N=107 and N=224, respectively) assessed self-reported quality of and views about research collaborations (21-items); barriers to collaborations (7-items); and interdisciplinary research competencies (17-items). Survey respondents were primarily Ph.D. or M.D. investigators with an average of 10 years of research experience; 43% were female and 65% collaborated outside of their own discipline. Respondents rated the most important barrier to collaboration as the “lack of time necessary to communicate effectively”. In terms of competencies, respondents indicated most confidence in their ability to “Express respect for the perspective of other disciplines” and least confidence in their ability to “Draft funding proposals for interdisciplinary research programs”. Principal components analysis showed that barriers to research collaborations involved two foci: 1) information/time overload; and 2) communication issues. Scales and sub-scales demonstrated reliability (internal consistency). Notably, neither perceived quality nor perceived interdisciplinary competencies were related to perceptions of barriers to collaboration. However, the number of years one has been working as an investigator was moderately related to perceived interdisciplinary competencies and also demonstrated a weak negative relationship with perceptions of communication issues. The discussion will focus on implications of these findings, especially with regards to evaluation of changes in perceptions related to transdisciplinary collaborations and the application of these scales in other engineering and scientific research settings.

Keywords: transdisciplinary, collaboration, professional competence