Informatics Tools for Meeting Information and Communication Needs Related to Interdisciplinary Research Competency Development
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Abstract
We conducted focus groups with junior investigators to assess their information and communication needs related to interdisciplinary research competency development and to identify the potential for informatics tools to assist in meeting these needs. Thematic analysis suggests that Wikis, web-based profiles, and digital portfolios might be useful.

Introduction
Health-related research is increasingly interdisciplinary yet few scientists are formally prepared to participate in interdisciplinary research. The purpose of this study was to describe junior investigators’ information and communication needs related to interdisciplinary research competency development and to identify the potential for informatics tools to assist in meeting these needs.

Methods
A purposive sample of junior investigators associated with Columbia University’s Clinical and Translational Science Award (CTSA) training initiatives was invited to participate in a focus group via an email invitation. Participants were segregated into homogeneous focus groups based on level of research experience: T32 predoctoral trainees, K-12/Patient-Oriented Research (POR) trainees, and Irving Fellows (junior faculty). Focus group questions addressed participants’ perceptions of the main learning tasks associated with interdisciplinary as compared to disciplinary research competency development and how informatics tools could assist in their competency development. Other questions centered on documentation of competency development and organization of artifacts related to competency development. The focus groups were tape recorded and verbalizations were thematically analyzed.

Results
The sample (n=20) included T32 (n=4), K12/POR (n=12), and Irving Fellows (n=4) and was 60% female with an age range of 25-49. Thematic analysis revealed four main learning tasks: find collaborators, engage collaborators, understand the language of other discipline, and retrieving and organizing literature. Participants indicated that finding collaborators was “difficult, time consuming”. Moreover, engagement was seen as an issue that is “more difficult for the proposal submission than after funded.” Communication needs included “understanding how to formulate the questions in such a way that I can get the answer I need” and “translating what I know to another person so that we can communicate”. Participants felt that informatics tools could be helpful to: find collaborators with required skill set, electronically communicate with collaborators in secure manner, find services, share ideas, share materials, find out what others are doing, and retrieve and organize literature.

Participants identified artifacts associated with documentation of interdisciplinary research competencies including:
- Biosketch, curriculum vitae
- Grants – versions, summary statements
- Publications – versions, reviews
- Mentor assessment form
- Paper notebooks for note taking during meetings – separated by topic; typically not reflective
- Email summary of mentor meetings

Junior investigators organized these artifacts in a variety of ways, both paper-based and electronic, but for the most part felt that their organizational methods were unsatisfactory to meet their needs.

The themes identified in the focus group suggested that a number of informatics tools might be useful in meeting information and communication needs including:
- Wiki for communication and document sharing
- Web-based research profiles suitable for assisting to locate potential research collaborators
- Digital portfolio for organization and storage of artifacts for personal use and for sharing with a larger community of practice

Conclusions
Junior investigators expressed information and communication needs and identified areas for application of informatics tools to meet these needs. These needs are serving as input to design goals for informatics innovations that are being developed through our CTSA Biomedical Informatics Resource.

Acknowledgments
Funded by P20RR020616 and UL1RR024156