

PROJECT SUMMARY

Interdisciplinary research (IDR) teams play a critical role in advancing science through collaborations that integrate ideas and techniques from two or more specialized bodies of knowledge with capacity to address complex societal problems. This research studies the social dynamics of IDR groups in field settings from the perspective of IDR researchers. Small group theory, based on laboratory research, is well developed in sociology; however, the dynamics of IDR groups are likely quite different than previously studied groups. The focus is (1) how social dynamics contribute to, or impede collaboration; and (2) how social dynamics within groups change over time or differ among groups of varying longevity and disciplines. Systematic study of the social dynamics of IDR teams in the field is rare; theory and evidence identifying optimal social structures and roles to promote IDR team efficacy are underdeveloped. Thus formal study involving design and adaptation of data collection instruments to acquire data from a spectrum of academic IDR teams types—differing in composition (disciplines represented, faculty rank, gender), research focus, activity level, and duration of collaboration (new groups and established teams)—will contribute empirical knowledge and promote theory-building relating to the social dynamics of such groups. University at Buffalo and K-State, the two research sites for the project, encompass a range of IDR teams of varying “age,” size, composition, and complexity, appropriate for maximizing variation in exploratory work.

INTELLECTUAL MERIT

The project advances knowledge of the increasingly common practice of interdisciplinary research. Investigators will develop and test new data collection instruments and extend theories previously applied to multidisciplinary groups in other settings. Data acquired will promote scientific understanding of the social processes that affect IDR teams, create tools for future larger-scale study, and enhance theory-building relating to the social dynamics of group development. Project outcomes contribute to sociology (theoretical advances in social dynamics of organizations) and communications (translational aspects of interdisciplinary work). The work is particularly relevant because it can inform IDR scientific audiences about social dynamics that improve or impede their own work. Breakthroughs and bottlenecks in their IDR experiences have encouraged the investigators to study scientific collaboration more closely. Investigator expertise from diverse disciplines, innovative methodologies, project leadership, and scientific discovery will advance understanding of the social processes underlying interdisciplinary research.

BROADER IMPACT

Student researchers have active project roles in the research; participation by under-represented undergraduates will be explicitly sought for substantive research roles. Expanding scholarly networks will create new opportunities for collaboration among investigators, students, and subject researchers. Findings of beneficial and detrimental social processes affecting IDR teams, disseminated on a project website, to audiences at K-State and UB, and publication of journal articles, will provide empirical insights and theoretical advances with potential to impact practices of funding agencies, universities, and IDR teams. The research will also identify “best practices” for structuring social relations in IDR teams. Although a framework for problem-free social dynamics in any type of group is elusive, the research will identify optimal social processes that enhance scientific advancement. Finally, theories and instruments developed may have broader application to other types of interdisciplinary teams, even outside research venues—for example, disaster response teams—where interdisciplinary efficiency is important.