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NSF/SBE 2020: Future Research in the Social, Behavioral & Economic Sciences

The Grand Challenge of Understanding Group Effectiveness

Joseph A. Bonito, University of Arizona (jbonito@u.arizona.edu)

Joann Keyton, North Carolina State University (jkeyton@ncsu.edu)

and

Robert E. Sanders, University of New York, Albany (r.sanders@albany.edu)

Abstract: Human beings are social and have devised their cultures, societies, communities, organizations, and families in such a way that the group is the primary social unit. This is *prima facie* evidence that acting in concert—collaboration in group effort—is a human universal. This ubiquitous formation and reliance on groups indicate that generally groups do succeed naturally in achieving a minimally adequate level of performance. However, we are not quite sure how group members address interactional (in)consistencies; nor, are we clear how groups achieve a level of minimally acceptable competence. This grand challenge response moves the central question about groups and teams from individual-level examination to examination of the interdependencies of group members. We posit that group and team scholars need to make headway on the more productive question of what the naturally occurring basis for collaboration in group effort is, and from there, what is contingent and improvable.

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The Grand Challenge of Group Effectiveness

Small groups are ubiquitous in human affairs. Human beings are social and have devised their cultures, societies, communities, organizations, and families in such a way that the group is the primary social unit across all of these. This is *prima facie* evidence that acting in concert—collaboration in group effort—is a human universal, an indispensable part of our social landscape that serves essential cultural and institutional functionalities. As social scientists have noted, these functionalities are diverse and open-ended within and across cultures, including not only the wide range of practical matters that groups work on in organizations and communities, but also the intellectual, social, cultural, and ceremonial matters that depend on group collaboration, from classrooms to athletic teams, support groups to surgical teams, and so on.

This ubiquitous formation and reliance on groups across cultures and institutions indicate that generally groups do succeed naturally, without the intervention of experts, in achieving a minimally adequate level of performance. However, we are not quite sure about how group members address interactional (in)consistencies; without this knowledge it is not clear how groups achieve the minimally acceptable competence. Clearly, group scholars have demonstrated that the potential that can be achieved by groups and teams is only partly influenced by what individuals bring to the table. What remains to be clearly elucidated, is how communication among members provides opportunities to make decisions that are not possible by examining only individual competencies, abilities, and motivations. This grand challenge moves the central question about groups and teams from individual-level examination to examination of the interdependencies of group members. We posit that the next challenge is to change our focus and

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make headway on the more productive question of what the naturally occurring basis for collaboration in group effort is, and from there, what is contingent and improvable.

The fact that groups generally do complete their work and tasks suggest that participants are at least minimally competent at sustaining interaction and moving their collaboration forward. Yet, the social sciences have not captured what collaborative competence consists of, and this is the basic research question that sustains a grand challenge. **What do competent members have to know about interaction, the subject matter the group addresses, the task(s) the group engages in, the way responsibilities and entitlements are allocated among members, and the precedents and traditions of the group's work--and how do they acquire this knowledge?** The secondary question, related to this primary one, is: How do these answers vary across cultures, institutions, and tasks? Based on answers to those two questions, scientists can turn to the complementary applied question, **How can what we learn about group members' collaborative competence be used to design interventions (e.g., training) to lead to greater productivity, stability, and efficiency in group interactions?**

The answers for the basic and applied questions will come, in part, from work foundational to several social sciences, but also from interdisciplinary research that illuminates new possibilities. This lies at the center of the grand challenge we propose, and the scientific capabilities and strategies we envision. Much lip service has been given to interdisciplinary undertakings in the social sciences, but little has come of it. In our view, this is because, in general, the phenomena of interest have been identified through the lens of one discipline or another. We contend that for interdisciplinary efforts to be productive and successful, they have to be done under the umbrella of a phenomenon that actually has interdisciplinary scope—that is, groups. The specific phenomenon we have identified--collaborative competence--provides just

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such an umbrella. Addressing this topic across the work of several disciplines thus promises both to shed new light on a core aspect of human social life, but also an opportunity to learn how to coordinate and integrate work on a common topic across disciplines.

There is first and foremost the communication aspect of collaborative competence. Group members have to discipline their talk in such a way as to be multi-functional, to be at the same time responsive to the talk of others sufficient to sustain collaboration and interdependence, substantively addressing the matter at hand, supportive of whatever position or action one favors, and attentive to the social organization and interrelations of the group's members. There is also the anthropological aspect. The need for and functions of groups are almost certainly culturally variable, as is the matter of who is entitled to participate. But of greatest importance is how members are acculturated within the broader culture and institution to participate in group effort. There is the social psychological aspect, particularly in regard to group-wide phenomena following Karl E. Weick's lead having to do with the emergence of stable practices and the distribution of responsibility over time. And there is the political and managerial aspect, which focuses on power differentials both within the group and between the group and its political/organizational context.

Why this challenge now? Early group research by Robert F. Bales, B. Aubrey Fisher, George C. Homans, and Talcott Parsons, and the research based on their foundational principles, focused on group process in terms of identifying characteristics of interaction (e.g., Interaction Process Analysis). That research, however, characterized interaction in terms of input-throughput-output models that made unrealistic assumptions about the functions of interaction and its sequential nature. That work could not, and was not designed to capture, for example, how participants address the multiple, simultaneous problems that characterize conflict, how

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jurors use court-based instructions to gain and resist compliance during deliberations, and how senior executives fail to recognize discursive options for advocating a restructuring plan and how such failures lead to undesirable outcomes. Still, that early research pointed, we believe, in the right direction by asking what interaction does (relative to a set of initial conditions and possible outputs). But the promise of that early research gave way to conceptualizing group and team members and their tasks as group inputs from which to predict outcomes. The result of this approach has been a decreasing focus on group process and examination of group members' interdependent behaviors (see Moreland, Fetterman, Flagg, & Swanenburg, 2010). Not only has the input-output model overshadowed process, constructs central to our understanding of group interaction, the influence within, and its outcomes have not been well articulated or generally agreed upon in the scholarly community. This point was forcefully and convincingly made by Dean E. Hewes (2009), who argued that inattention to features of interaction has muddled the effects of both input factors and process on outcomes. Any system designed to assess interaction from an input-output model relegates interaction to a mediated role, and any effect attributed to interaction could be made to statistically vanish (i.e., controlled for) if the right set of inputs are included in the model. Moreover, he argued, the effects of input factors on outcomes are likely overstated in such models. But intuitively, at least, we know that interaction matters, or organizations, universities, and governments would not waste their employees' time by having them work in groups. If managers see value in interaction, it is because it can produce effects on outputs that cannot be accounted for by knowing, for example, what participants prefer prior to discussion, the context (however defined), decision rules (e.g., majority rule), and the nature of the task (including a plausible set of outcomes known in advance to participants, e.g., a jury). In

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short, interaction is constitutive, and it is identifying the constitutive nature of discussion and its effects on outcomes that is the centerpiece of our grand challenge.

Through its review, integration, and synthesis of the group and team literature, the 2005 volume edited by Poole and Hollingshead volume identified key points of intersection across disciplines; however, it was relatively silent on the issue of understanding how interaction creates the potential for minimally acceptable group progress. Since that publication, members of the group scholar community have become better acquainted and established relationships (i.e., Interdisciplinary Network for Group Research or INGRoup; www.ingroup.info) that will foster greater interdisciplinary collaboration. Evidence of greater interdisciplinary collaboration can be seen in the authorship of competitively selected papers presented at the annual INGRoup conferences. Although organizational behavior, psychology, and communication dominate disciplinary homes of first authors, co-authors represent behavioral economics, cinema and media studies, cognitive science, computer science, economics, education, engineering, entrepreneurship, human factors, industrial design, industrial and systems engineering, information science, management, marketing, medicine, nursing, operations management, philosophy, sociology, software engineering, and technology management. The development of this community of scholars and the new *team science* initiative has brought group and team scholars out of disciplinary silos into contact with one another and with disciplines who regularly use groups and teams (e.g., medicine), but do not possess disciplinary expertise in groups and teams. In our view, the burgeoning group and team community is maturing as an identifiable domain of study with the ability to tackle significantly challenging research agendas.

Thus, as interdisciplinary efforts coalesce, they can be brought to bear on the core of this grand challenge, which is a focus on what group members say and what group members do. The

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core reality of any small group is that the members have to interact with each other to carry out whatever responsibility, activity, or task with which they are collectively charged. The benefits of assigning such responsibilities, activities, and tasks to groups rather than individuals are well understood; such benefits for example as canceling out the biases and special interests of individuals, and ensuring at least some measure of communal representativeness in whatever results from the group's effort. When people interact (face-to-face or through technology), they progressively provide each other with opportunity spaces that constrain what can and cannot relevantly be said and done. Interacting with others is more than just expressing whatever is on one's mind regarding the matter at hand. Rather, in the give and take of interaction, people end up saying things it might not otherwise have occurred to them to say, and take positions it might not otherwise have occurred to them to take. That is, group members are both strategic and spontaneous. If we believe that groups are a fundamental social unit that has implications in our personal, professional, community, and civic lives, they deserve our attention—but not in bits and pieces, but in elegant grand designs that incorporate the best the social sciences have to offer.

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