Piqueiras, E., Stanley, E., & Laskey, A. (2023). Mitigating challenges of collaborative science through team ethnography. Journal of Organizational Ethnography, 12(2), 162-180. <https://doi.org/10.1108/JOE-06-2022-0017>

Piqueiras et al. (2023) explore the integration of ethnographic methods into the study of team science to address the various barriers that emerge in collaborative research. The paper's primary aim is to uncover and mitigate challenges in team science across institutional, cultural, and interpersonal levels. The authors conducted a detailed ethnographic study within a larger, federally-funded, interdisciplinary scientific team, employing participant observation, semi-structured interviews, and a focus group over six months. Their findings emphasize the significance of understanding and addressing barriers at three primary levels: academic culture, institutional structures, and interpersonal dynamics. These barriers, often overlooked, interact and influence collaborative efforts at multiple scales.

The authors argue for the value of ethnography in both advancing research on collaborative science and providing teams with a reflective tool to understand their challenges. They suggest that ethnographic methods can effectively identify and address practical tensions and contextual factors that hinder scientific collaboration. This approach is particularly relevant in light of increasing federal funding initiatives in the US that require collaborative research across various disciplines.

Piqueiras et al. (2023) highlight the effectiveness of ethnography in exploring multilevel contextual barriers, such as academic structures, interpersonal dynamics, and institutional cultures. Their findings demonstrate ethnography's potential to answer critical questions in the study of collaborative research. The paper emphasizes the need to consider the dynamic, interactive, and multidimensional system in which teams function, including their social relationships and the cultural and institutional power structures influencing them.

The methodological approach of the study included intensive data collection, the composition of 'thick description' to provide detailed portrayals of the setting, and theory development for application in other contexts. The authors used codes derived from literature to analyze data from focus groups, interviews, and surveys, comparing findings across multiple data sources for validation.

This study aligns well with our research, as we also employ ethnographic methods in the study of team science at BSU. The methods and findings of Piqueiras et al. (2023) can guide our analysis of ethnographic data and help develop hypotheses about the culture of collaboration at BSU. Specifically, their approach to identifying and mitigating barriers in collaborative science can inform our investigation into small teams and grant proposal networks. The insights from this study will be instrumental in understanding the challenges faced by research teams and in formulating strategies to overcome these barriers.

Piqueiras et al. (2023) identify three primary contexts—academic culture, institutional structures, and interpersonal dynamics—that significantly influence team functioning but often remain unexamined. Through ethnographic exploration, they uncover key areas within these contexts that are typically taken for granted or normalized in both active research teams and the team science literature.

* **Academic Culture**: The study reveals how academic culture, characterized by entrenched norms and resistance to change, impacts collaborative research. Despite a shift from a single-author, disciplinarily bounded culture, challenges persist in navigating and challenging disciplinary boundaries within team science. [Jana discusses this in her interview]
  + **Disciplinary Boundaries**: Team members often reverted to thinking through their disciplinary lens, leading to conflicting ideologies and tensions in knowledge integration.
  + **Scarcity of Time**: A constant perception of being behind and urgency affected project management and task division.
  + **Trust & Accountability**: Differences emerged between trusting team members' expertise and trusting them as individuals, highlighting the necessity of actively creating a culture of trust.
* **Institutional Structures**: The team's interaction with various institutional structures, including funding agencies, universities, IRBs, and bureaucratic partners, highlights how these structures shape collaborative research. Issues like time scarcity, incentive mechanisms, and IRB processes were found to significantly influence the research process.
  + **Disciplinary Boundaries**: The study identifies that institutional mechanisms often conflict with the goals of interdisciplinary research. For example, Institutional Review Boards (IRBs) are not typically designed to accommodate multidisciplinary research. Additionally, academic organizations and journals are predominantly organized along disciplinary lines, posing challenges for publishing multidisciplinary research.
  + **Scarcity of Time**: The research team faced challenges with project management due to a lack of dedicated coordinators and unrealistic funding expectations. This was exacerbated by funding institutions' requirements for principal investigators to propose ambitious project timelines, often beyond realistic scopes (e.g., a 10-year project within a 5-year timeframe).
  + **Trust & Accountability**: Unrealistic timelines and conflicting responsibilities placed a strain on both investigators and trainees. Pre-existing collaboration histories among senior team members set implicit expectations for new members, complicating the team dynamics and contributing to a feeling of overwhelm.
* **Interpersonal Dynamics**: The study emphasizes the importance of trust, vulnerability, and accountability in developing effective team collaborations. Despite the value placed on working together, teams often struggled to address tensions that impacted the team science environment.
  + **Disciplinary Boundaries**: Team members sometimes shied away from responsibilities outside their expertise, using discipline-specific terminology that led to confusion and hindered clear communication.
  + **Scarcity of Time**: A consistent issue was the regret and guilt expressed by team members regarding their inability to dedicate sufficient time to the project. This scarcity of time also affected the follow-through on tasks, depending on each member's availability and capacity.
  + **Trust & Accountability**: The study found a tendency for self-deprecation among team members as a means of managing accountability. This behavior, along with a reluctance to upset others, impacted both accountability and the trust within the team.

This detailed analysis is particularly pertinent to our research at BSU, as it highlights similar challenges we might encounter in our ethnographic study of team science and collaborative research.