Enhancing Reproducibility Through Big Team Science

Summary of Webinar

This webinar, presented on January 20th, 2026, by Dr. Krista Byers-Heinlein, Concordia University and Co-Director of CONNECT, explored how Big Team Science can address persistent challenges in research reproducibility, particularly in psychology and infant research.

The meeting recording is available [here](). The presentation slides are available in [French]() and [English]().

Key Themes from the Webinar

1. The Reproducibility Crisis

The webinar contextualized Big Team Science within the reproducibility crisis, where large-scale replication efforts revealed low replication rates. Contributing factors include:

- Small, underpowered samples
- Selective reporting and analysis practices
- High attrition and noisy data in infant research
- Substantial methodological variation across labs

These issues are particularly acute in developmental and infant research, where individual labs lack the resources to address them alone.

2. ManyBabies: A Big Team Science Model

The ManyBabies collaboration (launched in 2015) was presented as a foundational example of Big Team Science. Key features include:

- Large, international, multi-lab collaboration
- Shared protocols, open materials, and open data
- Use of Registered Reports and transparent workflows

The ManyBabies 1 project involved 69 labs, 2,329 infants, and 149 authors, demonstrating that large-scale collaboration can yield more reliable effect size estimates and uncover sources of variability across methods, populations, and labs.

3. Direct and Indirect Benefits to Reproducibility

Big Team Science provides direct reproducibility benefits by:

- Dramatically increasing sample sizes
- Improving diversity of samples and researchers

- Enabling open data, code, and materials

- Supporting computational reproducibility

Indirect benefits include cultural change within labs. Exit surveys from participating labs showed widespread adoption of open science practices such as pre-registration, open data, OSF use, and power analysis.

4. Growth and Fragmentation of Collaborative Networks

Following ManyBabies, multiple domain-specific networks emerged (e.g., ManyPrimates, ManyDogs, ManyBirds, Psychological Science Accelerator). While impactful, these networks often developed in isolation, leading to:

- Duplication of infrastructure and tools

- Limited cross-network knowledge sharing

- Missed opportunities for coordinated training and evaluation

5. CONNECT: A Network of Networks

To address these challenges, CONNECT was established with support from a $2.5M SSHRC Partnership Grant (2025–2032). CONNECT aims to strengthen Big Team Science through three core initiatives:

1. Understanding existing Big Team Science workflows and challenges

2. Improving efficiency and effectiveness through shared tools, policies, and infrastructure

3. Promoting Equity, Diversity, and Inclusion (EDI) across all stages of collaborative research

CONNECT uses metascience and participatory action research to iteratively study, refine, and implement improvements within and across networks.

6. Infrastructure, Training, and Community Building

Key CONNECT activities include:

- Quarterly cross-network meetings

- Development of templates, workflows, and evaluation tools

- Working groups focused on metascience, tools & infrastructure, and EDI

- The annual Big Team Science Conference (held each October)

These efforts aim to move Big Team Science from ad hoc collaboration toward a sustainable, evidence-based research ecosystem.

Conclusions

The webinar emphasized that while the reproducibility crisis persists, Big Team Science offers a powerful response. By combining large-scale collaboration and open research practices, initiatives like CONNECT can produce both methodological rigor and lasting cultural change across the social sciences.

Acknowledgements

Sincere thanks to Dr. Krista Byers-Heinlein for sharing insights on advancing reproducibility through collaborative, open, and inclusive research practices.