Labs That Work For Everyone

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Labs That Work For Everyone (LTW)

LTW is an online, asynchronous professional development program series tailored for lab environments to build leadership skills for better science through teamwork.

BETTER SCIENCE *via* LEADERSHIP DEVELOPMENT

Practical tools for teamwork in lab settings rooted in personal values and goals.

- Build trusting relationships
- Make effective and ethical decisions
- Have difficult conversations to solve problems
- Grow from mistakes or missteps

LTW is an online, asynchronous professional development program series tailored for lab environments to build leadership skills for better science through teamwork.

Participants (N = 171) completed an online survey and participated in the formal LTW professional development pilot program. A subset of participants completed qualitative interviews after completing the pilot program.

LTW Development Principles:

- **Evidence-based**, for transformative adult learning: present concepts; opportunities for reflection; practice; application
- **Relatable** lab-based content to support intrinsic motivation
- **Embedded** in a nuanced feature film to increase retention

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Practical Team Science Tools

- Values articulation and goals
- Reflection and analytical decision-making frameworks
- Conflict resolution skills
- Listening and asking good questions for problem-solving
- Aligning to reduce conflict and find solutions through using the "And Stance"
- Developing Individual Development Plans (IDPs)

Stackable Components

Online Program Structure

Scene + Interviews & Information + Logbook Activities = 20-30 MINUTES

Series One includes a 100-minute feature film, *A Tale of Two Labs, divided into three Acts presented through 27 Episodes + 3 Act-based Integration Segments*

Series One is foundational and designed for individual use by lab leaders and members of their labs. It includes touch points at which lab groups gather to discuss the content together.

Series Two is for researchers starting new laboratories (in development).

Mini-Series are designed to develop specific practical skills for work in team science environments: i.e., negotiation skills for teamwork and problem-solving; giving and receiving effective feedback.

Methods

Optional Program Pathways

Option[1]	Process	Time	Benefits	Drawbacks
A 2+ hour per week ~6 months	*Individually* online (individual, shared) • 1-2 episodes per week	*Individually* (up to 1 hour) *Lab discussion* (15-30 minutes/ week, occasionally longer)	• Deeper reflection (individual, shared) • Maximum engagement, skill building • Lab trust building	• Less group time • Potentially awkward discussions, difficult topics
B Act-based ~4-5 months	Lab together (e.g. 1 act per month)	• Topical discussions focused on areas practice, group reinforcement	• Less group time • More group time	• Less engagement • Potentially reduced skill building (less practice, group reinforcement)

Collective 1-3 h lab discussions or retreats / period

Lab Participation Options

Option C - A process the lab proposes, after review and acceptance by the pilot oversight group

Quantitative Design

We administered a survey via Qualtrics to lab members and lab leaders (N = 171) prior to participation in LTW including:

- The Climate of Accountability, Respect, and Ethics Survey (CARES) instrument measures interpersonal climate in labs
- Behavioral, Emotional, and Social Skills Inventory (BESSI) measures perceptions of leadership skills in the lab

Qualitative Design

After completing LTW, we collected qualitative data from a subset of participants (N = 35) through virtual semi-structured in-depth interviews conducted via Zoom. Sample questions included:

"How would you adapt LTW?" (i.e., future directions)

"What did you find helpful about LTW?" (i.e., utility)

"What did you enjoy about LTW?" (i.e., likability)

Semi-structured interviews conducted by psychologists (recorded)

Data saturation for first group of labs completed 2/23/2023

Conducted Reflexive Thematic Analysis

⏱ **Average interview time: 48.5 minutes** *(range = 32-84 minutes)*

Interviews

n:	46	-	11	=	35
	nominated or volunteered to participate		declined or didn't respond		transcripts

from 8 labs

all 8 lab leaders interviewed

- 8 lab leaders
- 11 postdocs
- 4 lab technicians
- 3 graduate students
- 2 senior scientists
- 2 lab managers

Qualitative Pilot Results

Theme 1: Instrumental Attitudes toward LTW Program
- improved interpersonal communication skills
- challenges with program engagement

Theme 2: Experiential Attitudes toward LTW Program
- perceptions of increased closeness
- collective awareness of the commons

Improved Interpersonal Skills

*"Another thing I liked was the **personal scripts**. I think that that's helpful to have that formalized."*

"It tended to really stop us in our tracks.… it changed the way we taught a lot of the teaching fellows. We noticed changes in how they phrased things. [LTW]…shifts things to a more positive, more optimistic light."

Increased Closeness

"My overall impression was that the content itself was a good vehicle for us to have discussions.… We got to know each other on a different level [even though] we've worked together for quite a while" [and that] "was really valuable for the team."

Pilot Results: Favorite Quotes

"I felt seen."
— Lab Member

"I was viewing this as an opportunity for me to become a better PI."
— Lab Leader

Shared Understanding of Common Experiences

"…hearing other people list their values and what is important to them…it was like I had a better understanding of who they are and what they like and how they work…I think it gave us that space to… be able to have a better understanding of each other."

Quantitative Pilot Results *(Sample)*

The CARES Survey
Interpersonal Accountability
- Civility
- Conflict Resolution

BESSI
- Anger Management Skills
- Optimism Capacity
- Trust Capacity
- Social Warmth Capacity
- Cultural Competence Capacity
- Leadership Skills
- Perspective Taking Skills
- Responsibility Management
- Teamwork Skills

The blue (largest) triangle ▲ represents the mean of that scale across all pilot labs.
The green triangle ▲ represents the mean for the comparison group.
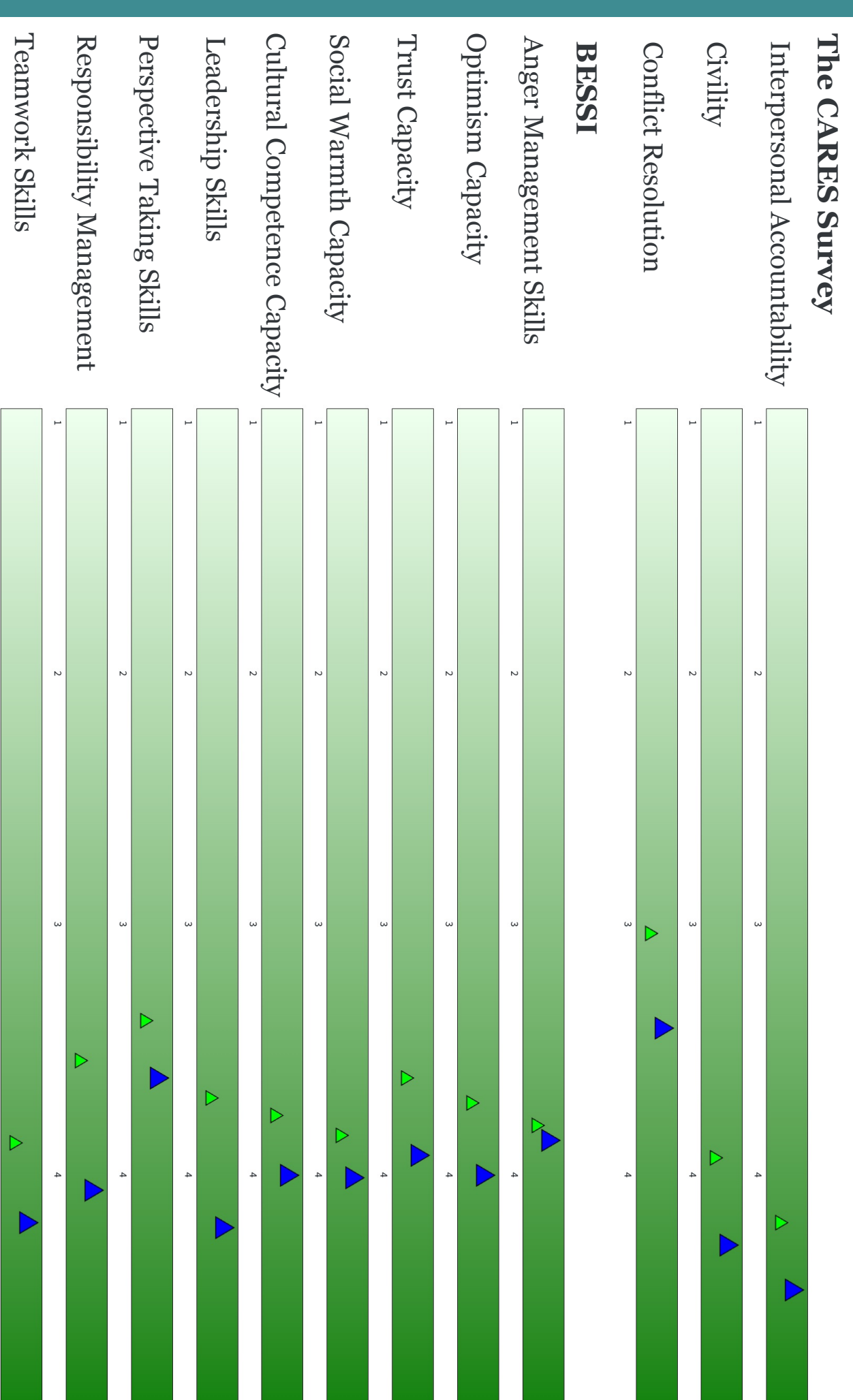
Note: The comparison group included an amalgamated set of participants from research intensive universities across the United States (n = 2374 for the CARES survey and n = 226 for the BESSI comparison groups)

Conclusions

Participants generally enjoyed the program and found value in both the lab discussions and in the practical skills and tools.

Elements participants consistently reported liking:
- Quality and resonance of the film
- Talking with each other
- Moving to the "And Stance" for aligning to solve problems
- Learning about and developing Personal Scripts
- Decision-Making Framework concept
- Normalizing sensitive topics for discussion

Pilot Results

"I would say that this is the best program for accomplishing those kind of communication/ interpersonal goals."

"LTW had the most tangible strategies that could be implemented in a practical sense."

Pilot Lessons Learned

- Lab leaders needed more orientation, information, and support before their labs start the program
- Improved advance framing would help both leaders and lab members
- Discussion support materials need streamlining
- Improved connection between film and content would support stronger engagement and learning

Ongoing NCPRE Work on LTW

- At least two Mini-Series are in development, focusing on topics of "negotiation skills" and "effective feedback"
- Developing and producing Series Two "On Starting A Lab"

NCPRE

Developing values-driven, effective leaders and advancing institutional integrity through intentional professional development