

As You Arrive

Please complete the survey, and pass to the aisle, before we start

Use your name instead of the identifier

Note – it is double-sided

Although they will be scored for use in this session, the data will not be retained or used for research or other purposes.



Chair for Women in
Science and Engineering
BC and Yukon Region



Engineering

Lead Sponsors:



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Dr. Ken Spencer

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Westcoast Women in
Engineering, Science
& Technology

Designing Evaluations

Vivian Meng-Wang
Jennifer Pelletier
Dr. Elizabeth Croft



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA



Westcoast Women in
Engineering, Science
& Technology

Feedback
≠
Evaluation

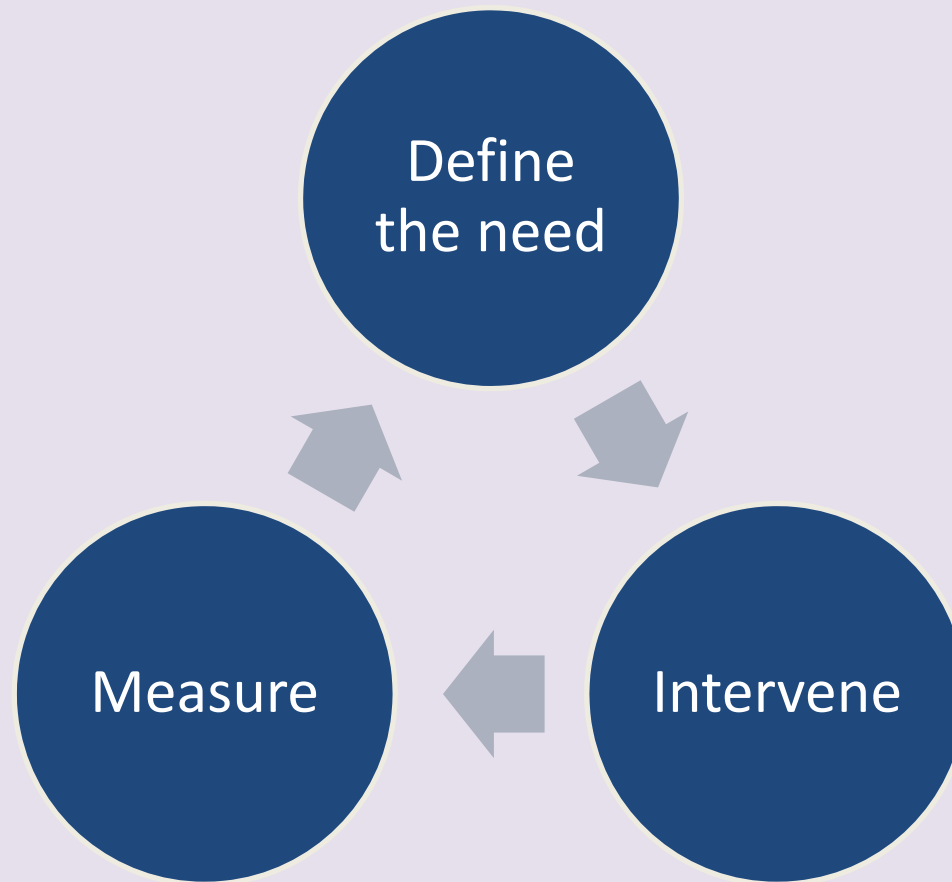
Feedback

Feedback:
How people felt
about the event

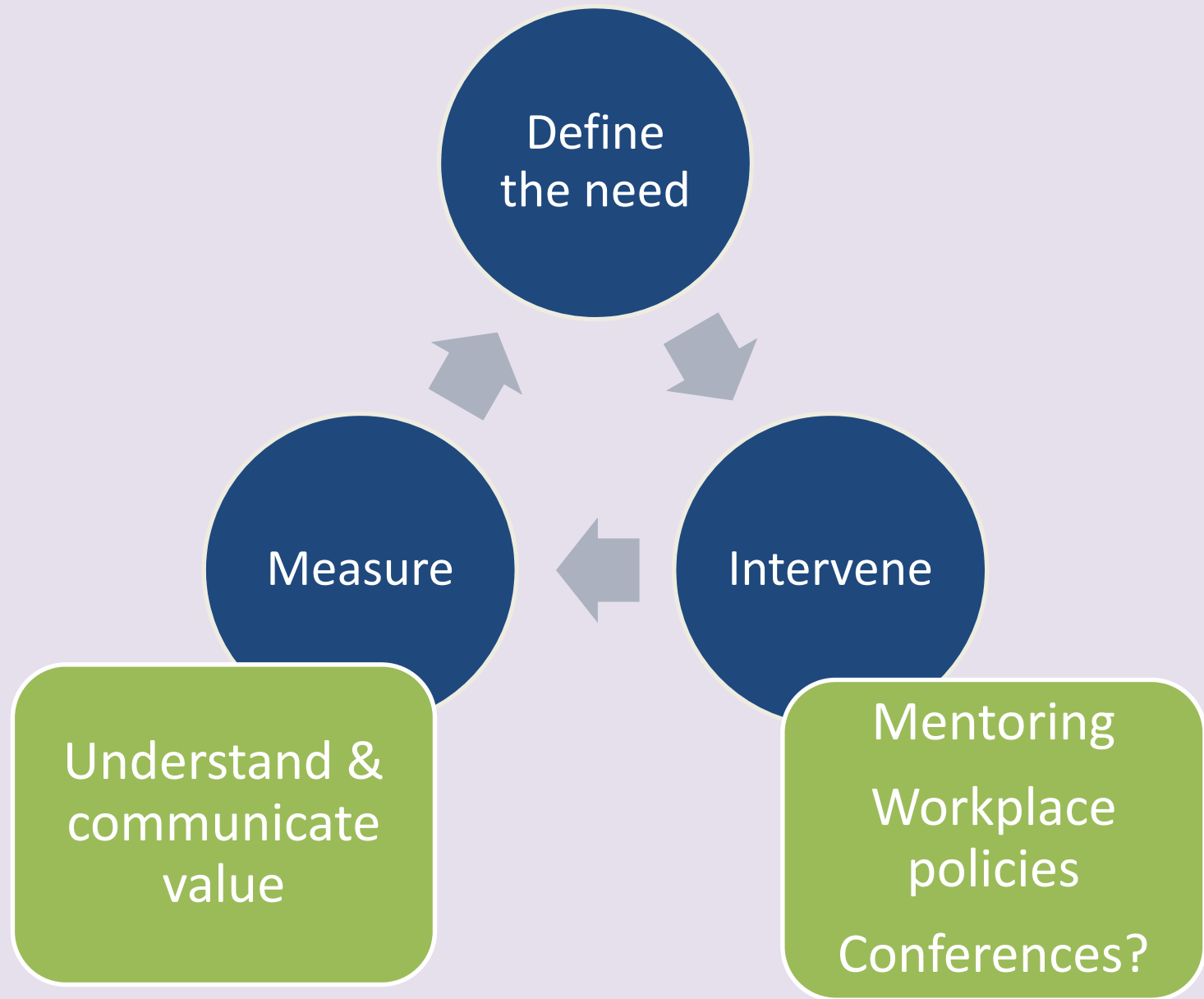
(& sub-components)

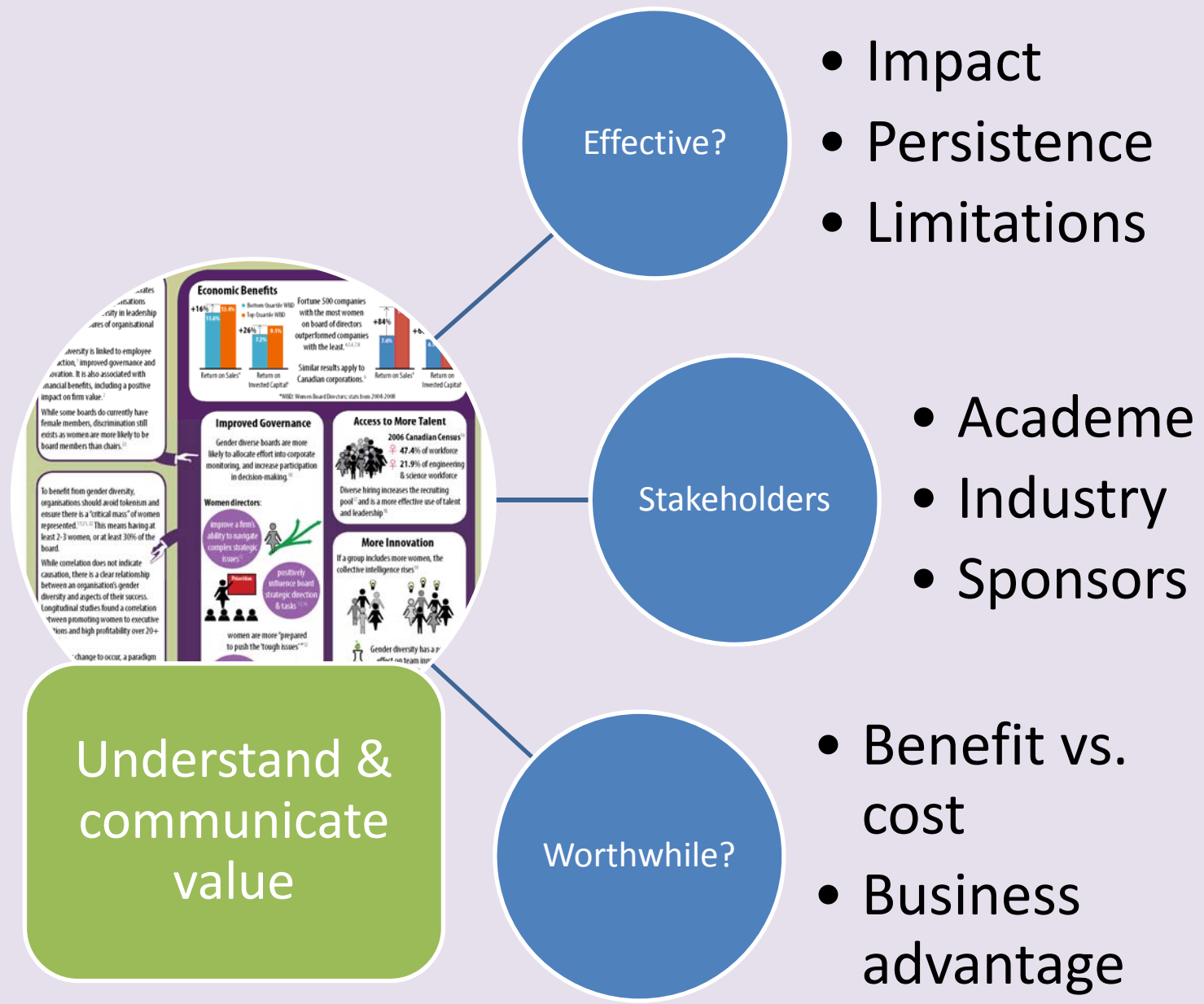
How did we do?
Useful for future
planning

- How would you rate
 - The lunches
 - XYZ speaker
 - Overall
- What was your favourite session?
- What would you want to see next time?



Problem Solving





Creating Connections 2013



- May 2013 at UBC Vancouver
- Over 300 participants: women and men, engineers, scientists, and business people
- Main objectives:
 - Build awareness of the importance of gender diversity in STEM
 - Encourage career persistence for women in STEM attendees



Creating Connections 2013

Defining objectives (desired outcome) is key to evaluation



Women's
participation
and persistence
in STEM

“help increase women’s participation
and persistence in STEM”

Direct measures:
participation rate and attrition rate

Problems:

- Takes too long to observe statistically significant change
- Longitudinal studies suffer from participant attrition; sample size insufficient
- Need to report back to stakeholders quickly

Solution: Proxy Outcomes

(Rossi et al., 2004)

A good proxy outcome:

- Can be captured in a timely fashion
- Has a *demonstrated* relationship with the ultimate outcome
- Bonus points:
 - Availability of pre-existing measuring instrument
 - Have undergone psychometric validation

Finding Proxy Outcomes: Literature Review

Proxy outcomes	Measures	Reason
Increase career self-efficacy	Short instrument on career self-efficacy (Rigotti et al., 2008)	<ul style="list-style-type: none"> - One of the best indicators of career persistence (Hackett & Betz, 1981; Ballout, 2009) - Recognized barrier for women in STEM (Orser et al., 2012)
Increase public awareness of the benefits of gender diversity	None exist in literature	<ul style="list-style-type: none"> - Awareness raising is key to behavior and culture change (Prochaska et al., 1992; Kloos et al., 2011; KOTLER, 1971)

Developing the Awareness-BGD Instrument

Item pool generation



Review by experts



Pilot study



Psychometric testing

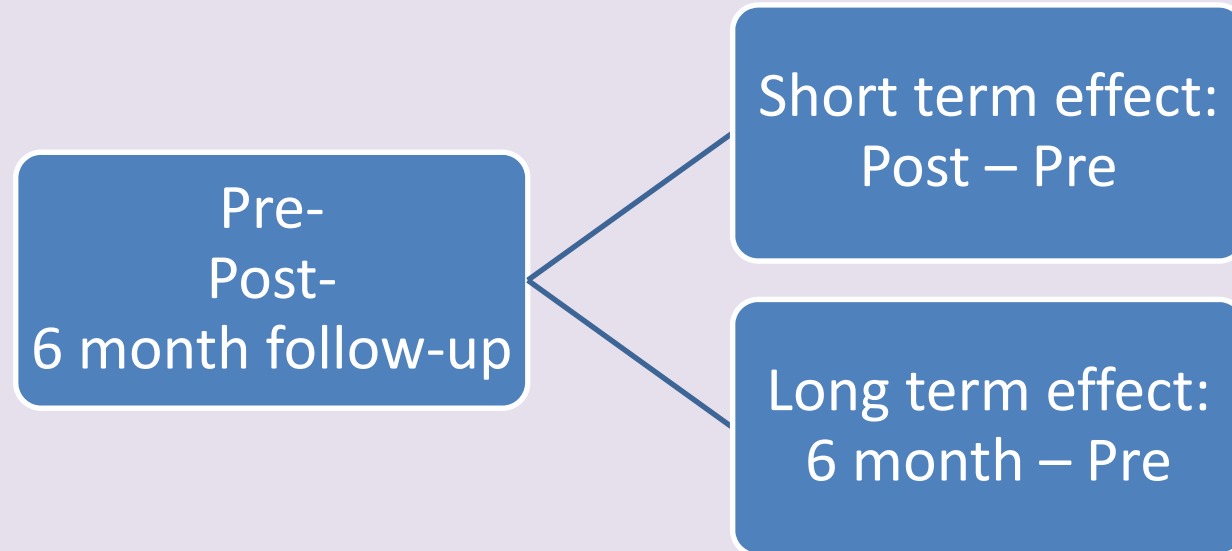
Test / re-test
reliability

Internal
consistency

Construct
validity

Sensitivity

Capturing and analysing changes

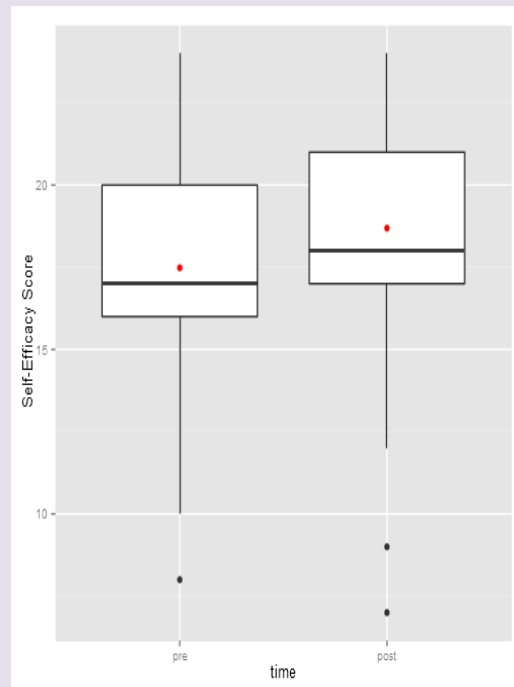


Paired T-Test:

Non-zero effect on participants?

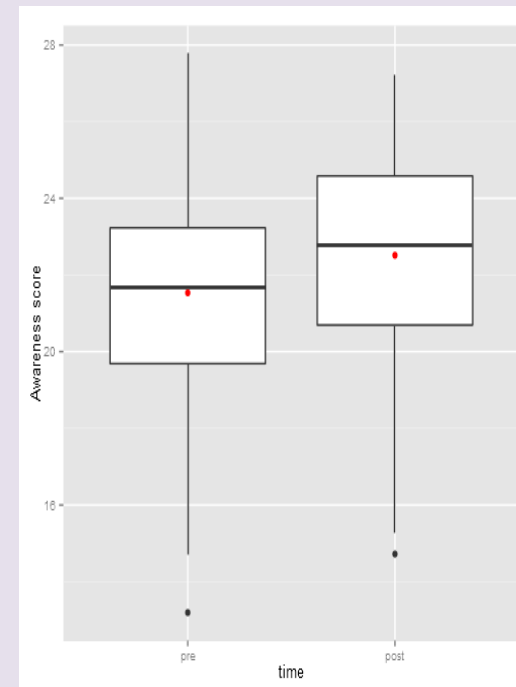
Short Term Results: Creating Connections 2013

Self-Efficacy



- n = 135
- Pre-event average: 17.5
- Average change: 1.3
- P-value << 0.01

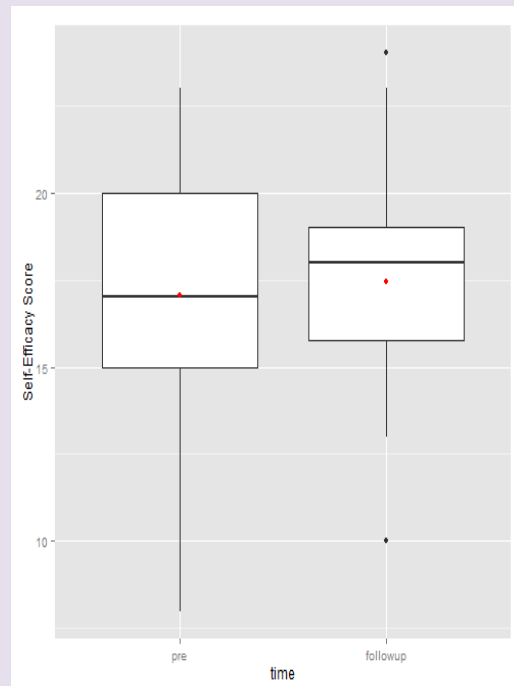
Awareness-BGD



- n = 113
- Pre-event average: 21.5
- Average change: 1.0
- P-value <0.01

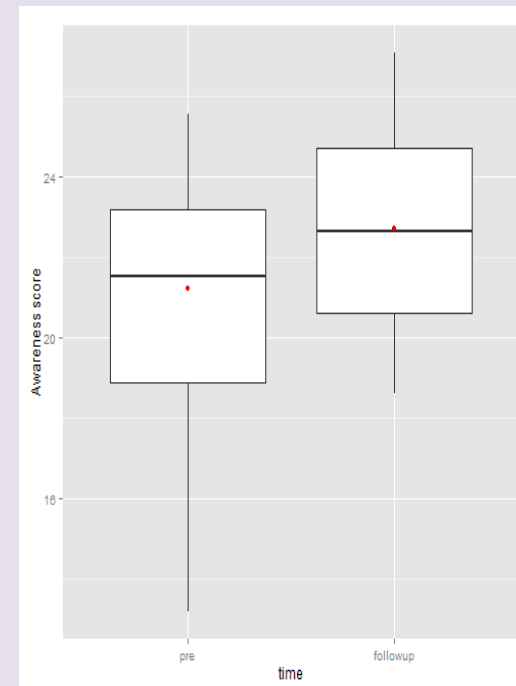
Long Term Results: Creating Connections 2013

Self-Efficacy



- n = 33
- Pre-event average: 17.5
- Average change: 0.4
- P-value = 0.34

Awareness-BGD



- n = 32
- Pre-event average: 21.5
- Average change: 1.5
- P-value <0.02

Interpretation

- The conference was able to help increase self-efficacy and public awareness-BGD, two important factors that influence women's participation and persistence in STEM
- The result suggests the effect on self-efficacy does not persist over a 6 month interval
- An increase over baseline on public awareness-BGD was sustained over the same period

Please note that, as this presentation and the next are closely related, we have coordinated our conclusions and discussions of the results.



NCWiE
2013

Veronica Knott
Alexandra Dozzi
Andrea Palmer
Eleanor Li
Vivian Meng
Jennifer Pelletier

STARTING CONVERSATIONS: THE NATIONAL CONFERENCE ON WOMEN IN ENGINEERING



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What is NCWiE?



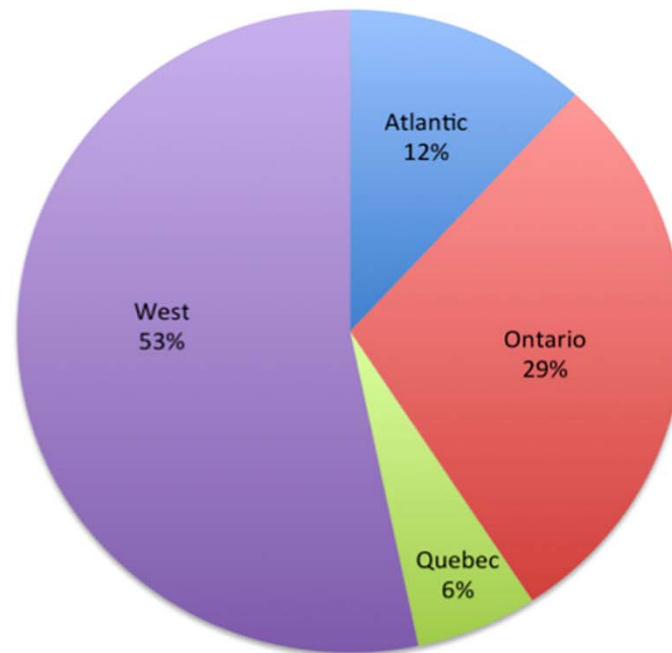


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About NCWiE 2013

Attendee Breakdown

Delegates by Region





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NCWiE Objectives

Start a conversation: put diversity on the table in student government

Increase awareness of the importance of diversity in engineering

Encourage the retention of women in engineering



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Objectives-Focused Program Design



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Goals

Start a conversation: put diversity on the table in student government

- Tangible takeaways: templates and delegate packages
- Safe space for discussion
- Tools for difficult conversations

Increase awareness of the importance of diversity in engineering

- Guided learning
- Diversity from a holistic perspective: not just women
- Accessibility for **all** delegates

Encourage the retention of women in engineering

- Proven practices for WiE groups







A photograph of a round wooden table covered with numerous colorful sticky notes (pink, yellow, blue, green) arranged in a structured manner. The notes contain handwritten text in various colors, including phrases like "Investigate", "Connect", "Share", "Building a culture", "Bringing up the corporate ladder", "Larger goals", "Social media", "Hiring a life group", "Big school outreach", "Planning for a year/semester", "Moving up the corporate ladder", "Work-life balance", "Membership", "Selling the vision", "Building a culture", "Bringing up the corporate ladder", "Larger goals", "Social media", "Hiring a life group", "Big school outreach", "Planning for a year/semester", "Moving up the corporate ladder", "Work-life balance", "Membership", "Selling the vision". Other items on the table include a laptop, a cup of coffee, a water bottle, and several markers. The scene suggests a collaborative brainstorming session.



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Programs with Impact

Think of a program you want to design

On your own or with a friend:

- Pick an overall objective (eg. persistence)
- Match an approach
 - Discussion you want to have
 - A skill you want to learn
 - A relevant issue that is in the news
- Write down the specific takeaway for the session
 - How does it contribute to the overall objective?





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Conference Streams





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Keynote Speakers

- **Diversity**
– Elizabeth Croft
- **Careers**
– Judi Hess
- **Outreach**
– Catherine Mavriplis
- **Conversation**
– Margaret Kelch
- **Closing: Inspiration**
– Roger Garriock





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NCWiE Programs/Workshop Examples

Start a conversation: put diversity on the table in student government

- Re-Imaging Engineering Community: Lessons from Frosh 2013

Increase awareness of the importance of diversity in engineering

- Diversity in the Workplace

Encourage the retention of women in engineering

- Salary Negotiation Seminar
- Non-Traditional Engineering Careers Panel
- Forming the Community: Running a WiE Group



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Reflection

The good:

- Importance of having male presence
- Used our network very well
- Talked to everyone and consistently
- Requested constant feedback

To improve:

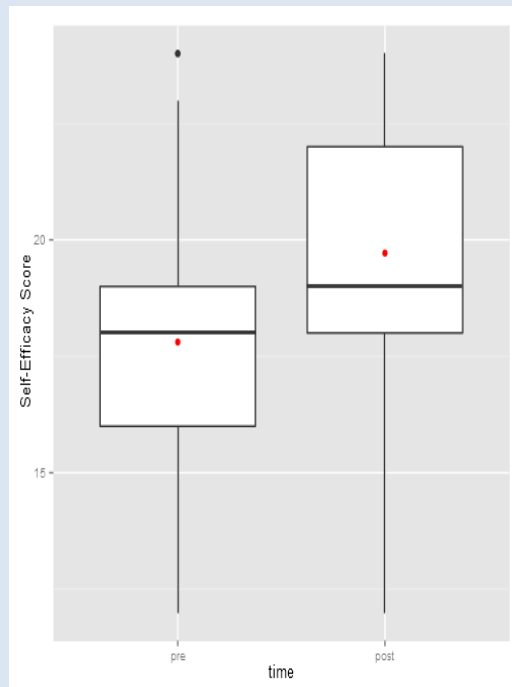
- Think more about speakers' credentials
- Make better use of volunteers
- More conversations with speakers in advance about session outcomes



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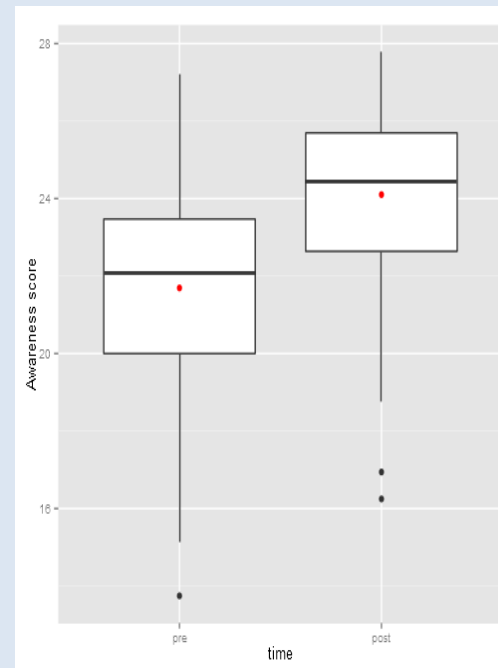
Short Term Results: NCWiE 2013

Self-Efficacy



- n = 109
- Pre-event average: 17.8
- Average change: 2
- P-value $<< 0.01$

Awareness-BGD



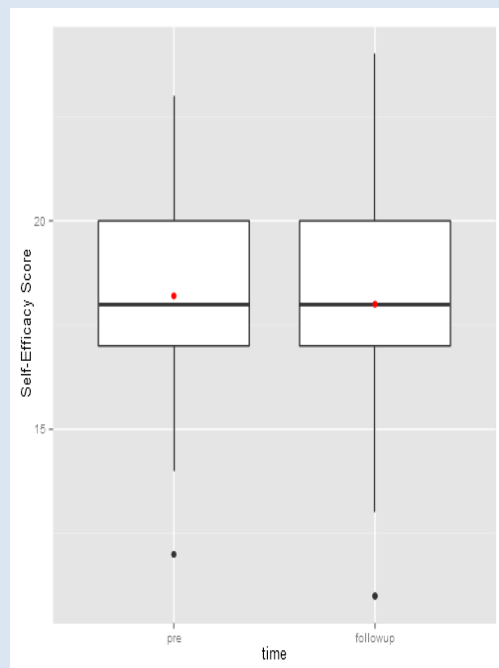
- n = 71
- Pre-event average: 21.7
- Average change: 2.4
- P-value $<< 0.01$



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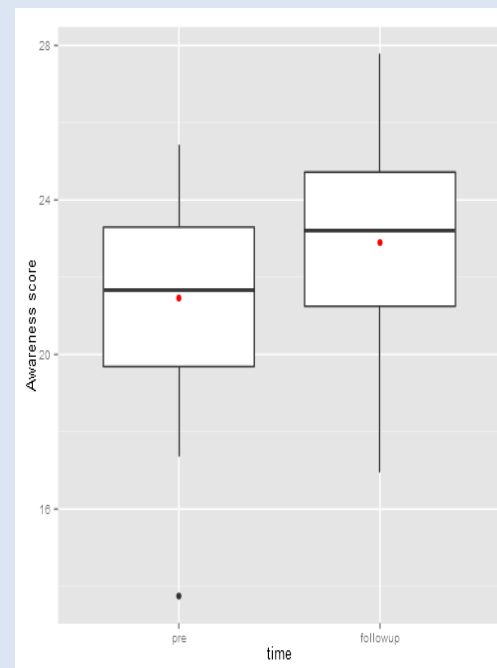
Long Term Results: NCWiE 2013

Self-Efficacy



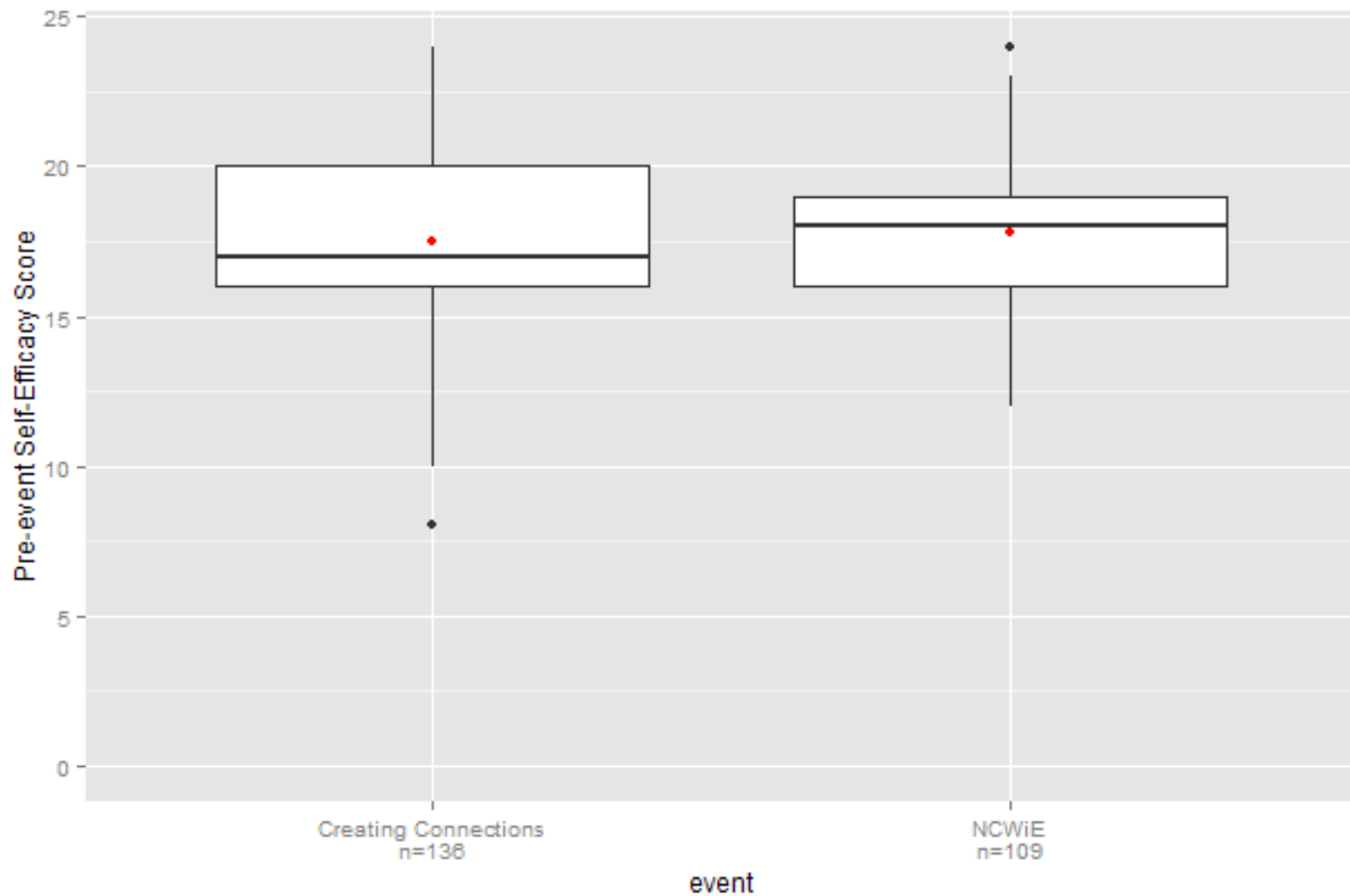
- n = 30
- Pre-event average: 17.8
- Average change: 0
- P-value = 0.98

Awareness-BGD

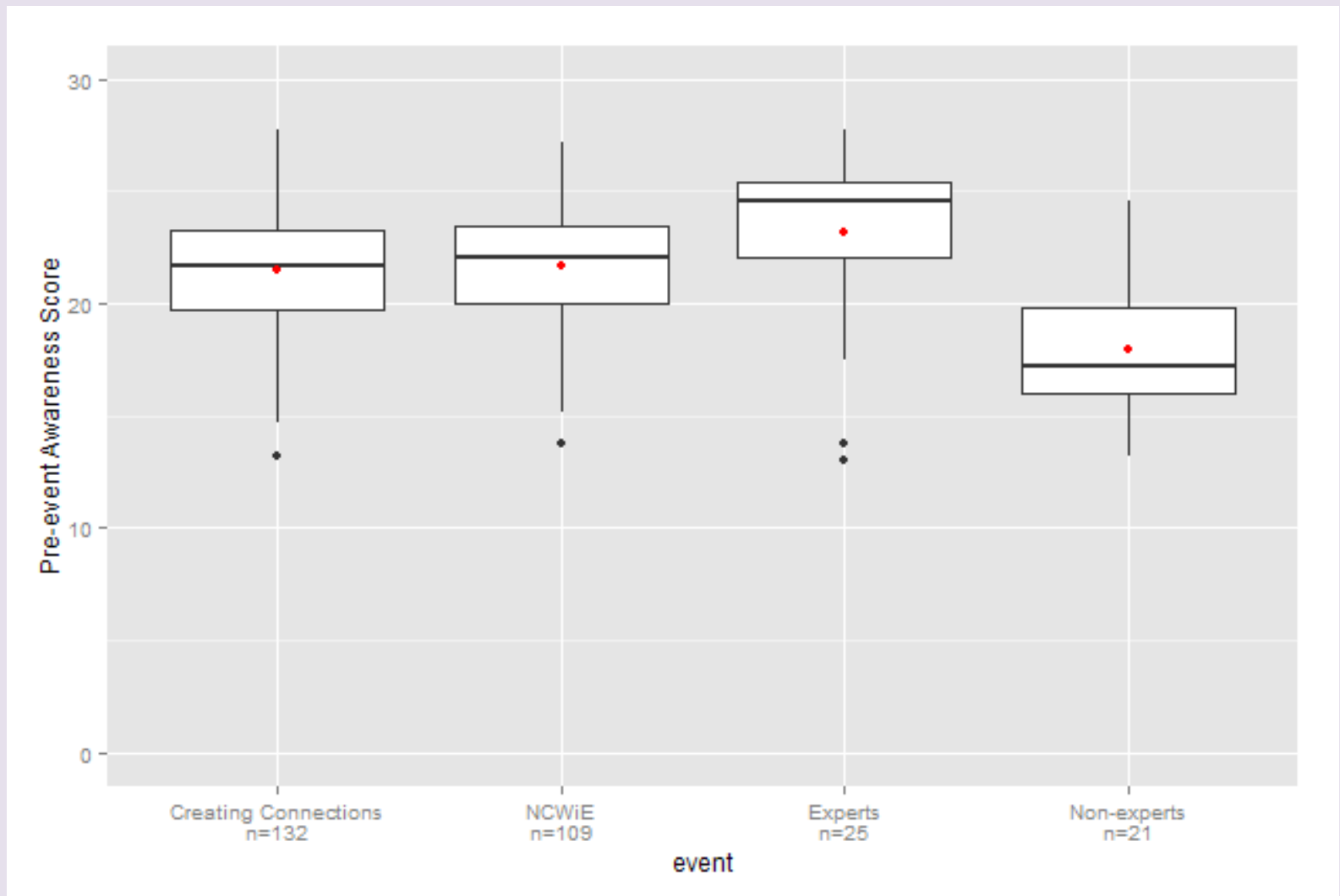


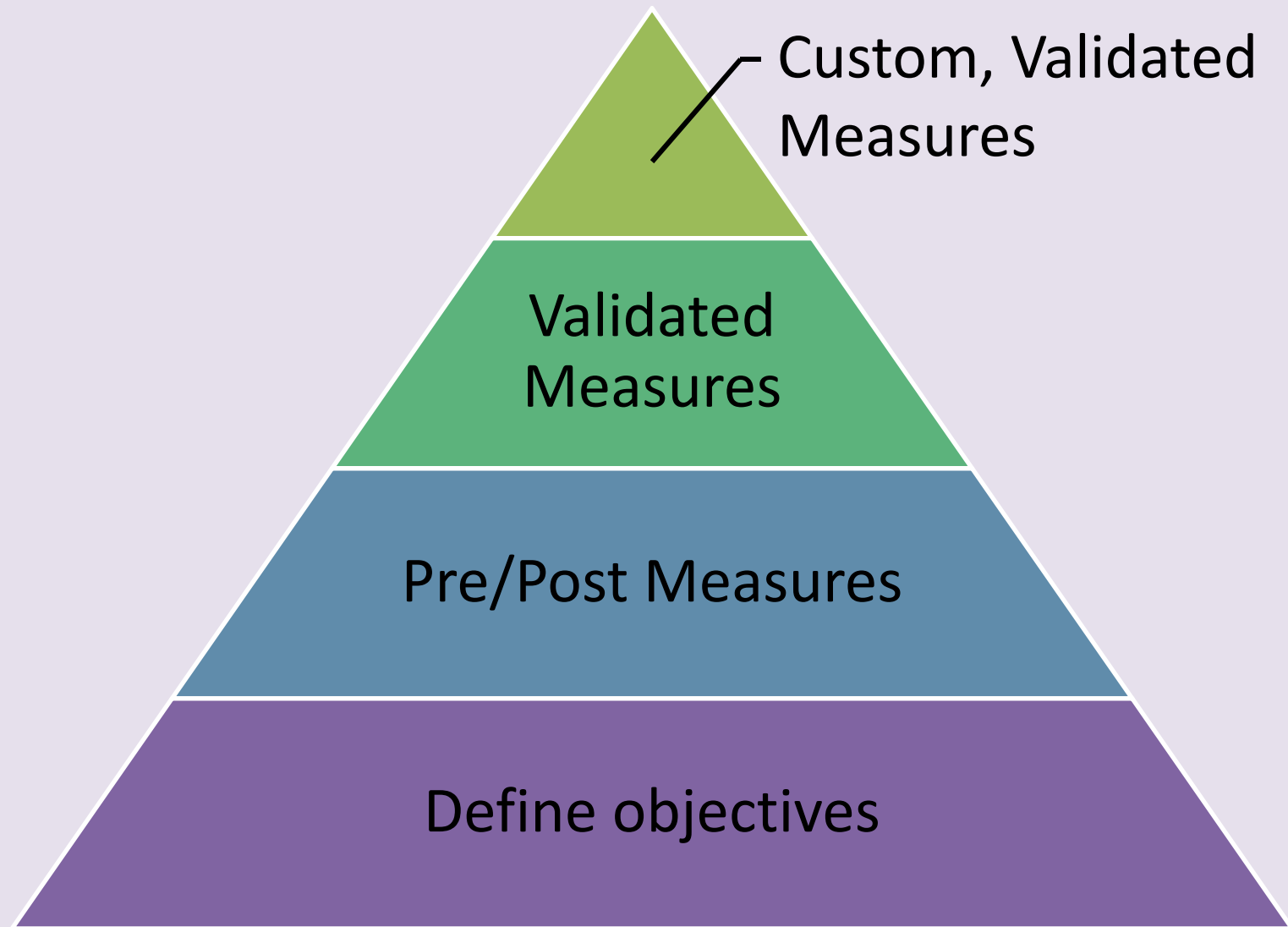
- n = 29
- Pre-event average: 21.7
- Average change: 1.5
- P-value <<0.01

Comparison: Self-Efficacy



Comparison: Awareness-BGD

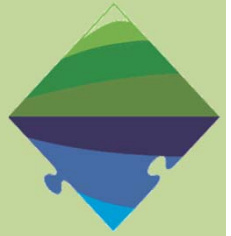




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THANK YOU



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