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.
Designing Evaluations

Vivian Meng-Wang
Jennifer Pelletier
Dr. Elizabeth Croft
Feedback ≠ Evaluation
Feedback

Feedback:
How people felt about the event

(& sub-components)

• How would you rate
  – The lunches
  – XYZ speaker
  – Overall

• What was your favourite session?
• What would you want to see next time?

How did we do?
Useful for future planning
Problem Solving

- Define the need
- Intervene
- Measure
Define the need

Measure

Understand & communicate value

Intervene

Mentoring Workplace policies

Conferences?
Effective?
• Impact
• Persistence
• Limitations

Stakeholders
• Academe
• Industry
• Sponsors

Understand & communicate value

Worthwhile?
• Benefit vs. cost
• Business advantage
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
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

<table>
<thead>
<tr>
<th>Proxy outcomes</th>
<th>Measures</th>
<th>Reason</th>
</tr>
</thead>
</table>
| Increase career self-efficacy                         | Short instrument on career self-efficacy (Rigotti et al., 2008)           | - 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                                                | - Awareness raising is key to behavior and culture change (Prochaska et al., 1992; Kloos et al., 2011; KOTLER, 1971) |
Developing the Awareness-BGD Instrument

1. Item pool generation
2. Review by experts
3. Pilot study
4. 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.
STARTING CONVERSATIONS:
THE NATIONAL CONFERENCE
ON WOMEN IN ENGINEERING

Veronica Knott
Alexandra Dozzi
Andrea Palmer
Eleanor Li
Vivian Meng
Jennifer Pelletier
What is NCWiE?
About NCWiE 2013

Attendee Breakdown

Delegates by Region

- West: 53%
- Ontario: 29%
- Quebec: 6%
- Atlantic: 12%
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
Objectives-Focused Program Design
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
How we brainstormed
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?
Conference Streams

Diversity

Careers

Outreach

Conversation
Keynote Speakers

- **Diversity**
  – Elizabeth Croft

- **Careers**
  – Judi Hess

- **Outreach**
  – Catherine Mavriplis

- **Conversation**
  – Margaret Kelch

- **Closing: Inspiration**
  – Roger Garriock
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
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
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
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
Custom, Validated Measures

Validated Measures

Pre/Post Measures

Define objectives
THANK YOU