ONWiE Summit 2017

held Friday, November 24th 2017 at the University of Waterloo

Contents

Hosts

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ONWiE ONTARIO NETWORK OF WOMEN IN ENGINEERING

Compilation of Post-it note exercises

Prompt #1 - what is the biggest/best change you have noticed since the beginning of your time with ONWiE?

Brainstorm 1 – a

- » Reach outside Ontario
- » Sharing resources
- » Part of a community
- » Feeling supported
- » Network or support
- » Registration of ONWiE
- » Support by Council of Ontario Deans to continue ONWiE
- » National Award Promoscience
- » Public awareness
- » Increase presence on social media
- » Increased funding from more sources than universities
- » Stickiness (repeat attendees, sought after) GEG
- » Smooter co-ordination of GoEng/Code Girl
- » Stories of women in engineering
- » Public video
- » Increased percentage to 40% of grade 12 physics girls applying to engineering

Brainstorm 1 – b

- » University friends instead of competitors
- » More collaborating
- » Universities working together
- » The ONWiE Summit
- » Networking with other ONWiE members
- » Increased in participation at events
- » Looking at the root causes and influencers
- » Growth outside of Ontario
- » Reaching out for Go Eng to other communities
- » Expanding the reach of Go Eng Girl
- » How much more the girls know about Eng
- » Looking at new ways of doing things
- » New programs
- » Shift to coding content
- » Applying for various awards and programs
- » Increase education profile of ONWiE
- » Focus/resources for parents

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Brainstorm 1 – c

» Increase demand
» Increased participation
» Data on women in engineering
» Girls coming to university with purpose
» Moe events!
» Parents better informed
» Acknowledgement, attention to specific barriers
» Not fighting alone
» More female engineering profs!
» <u>Intentional</u> change by administration
» Engineering student culture (better)
» Societal acceptance towards differences
» Awareness
» Awareness of engineering
» Bette brand recognition
» Trademark
» Uptake of the program outside of Ontario
» Nationwide commitment to change
» EngiQueers Canada
» More recognition of <u>inclusion</u>
» Intersectionality
» More depth of diversity
» Indigenous issues highlighted
» More focus at university on diversity/equity/inclusion

Brainstorm 1 – d

» Culture
  » Kids are tech-savy
  » Entrepreneurship
  » Starting to look at indigenous students
» Events/demands
  » Familiarity/awareness of events
  » Greater university involvement with events, outreach
  » More and more events
  » Reaching <u>lots</u> of kids, eg makermobile
» Content
  » Social causes
  » 3D printing makerspace
  » Go Code Girl
  » Diversity of types of engineering being recognized
» ONWiE the Org
  » Growing interest in participating in multiple events
  » Number of kids taking high-school physics increasing

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» Promo-science award
» Increase in data/tracking
» Central registration process
» Formalization of process
» Interest of companies in support

Prompt #2: What are the new ideas you are most excited to incorporate into your activates? Which will have the most impact? Are there any you are struggling with? What do you need in order to get there?

Brainstorm 2 – a

» GEG award winning
» Events are better prepared
» Online registration software?
» Deliver more challenging workshops
» Seeing familiar faces through all programs
» Release of diversity stats by companies
» 40% female engineering
» Number of students who have said they attended
» Repeat students
» UWaterloo joining HefoShe global challenge
» Interest from the university
» College joining GEG
» UW gender-based faculty salary adjustment
» GEG events at out of Ontario Institutions

Brainstorm 2 – b

» Creativity is valued in Eng
» Engineering is creative and strives on the arts
» Have the messaging be more evident in the activity
» Focus on the message not the activity
» Engineering is a team support
» Approachable peer mentors
» Being a strong communicator is important
» Using storytelling in engineering
» Storytelling
» Engineering is so much more than what you think it is
» Use images and works for messaging
» My school (Ryerson) understands the narrative
» Measuring impact
» Connect with social change

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» Societal impact of engineering

Brainstorming 2 – c

- » What to do
  - » Measure and monitor
  - » More initiatives targeting men
  - » Invite more male leaders to speak at voluntary diversity education
  - » More emphasis on role modeling
  - » Reflection exercise
  - » Writing exercise
  - » 5 minutes writing exercise
- » Issues
  - » Counting issues with workplace
  - » Push hard on women specific initiatives
  - » Be careful of macroaggressions
  - » Be mindful of location
- » Action
  - » Reach out engiqueer group and offer support
  - » Sliding scale for event fees
  - » Advertise event accessibility
  - » Acknowledge expressions of other diversities within women
  - » pay closer attention to language

Brainstorm 2 – d

- » discuss gendered wording with companies recruiting on compass
- » the engendered success plan
- » create better networks for collaborators
- » will look at Ontario K-12 data…
- » data need
- » how to integrate boys and girls in camp activities?
- » Think about inclusive programs
- » How to get voluntary engagement (forced training – maybe not?)
- » Inclusive intentionality for any new programs
- » Struggling with intersectionality
- » Getting buy in from stakeholders
- » How to concretely implement intersectionality
- » Need more people to engage in this discussion
- » Tools to overcome accommodation needs? Transition to workplace
- » Partner with universities
- » The length of time of involvement in equity/inclusivity work

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Prompt #3: What messages have worked well for you? What are the specific things you could use to make your messaging more powerful? To what extent does your school understand the narrative you are creating for girls about engineering? How could they support you better?

Brainstorm 3 - a

- » Good messages
  - » Help the world
  - » Community
  - » Creative problem solving
  - » Creativity is part of engineering
  - » "helpful" profession
  - » Engineers find solutions to the world's biggest challenges
  - » Engineering is so vast that there is something for everyone
- » To make more powerful
  - » Content must be linked to activity and message (power)
  - » Link tools to solutions (more powerful)
  - » [fear of disillusion] misalignment?
  - » More complex challenges?
  - » Coding challenges that are fun and youthful

Brainstorm 3 – b

- » Engineering as a helping career
- » How people are helped with engineering
- » Helped people, illustrate how different disciplines help
- » Human elements
- » Tie-in to humanities
- » Prevalent
- » accessible
- » close loop

Brainstorm 3 – c

- » struggle: how keep accountable?
- » Excited about intersectionality
- » Examining networks within K-12
- » Incorporating mixed gender groups at camp
- » Language use in marketing can impact registration
- » Be mindful of the language I use
- » Work with co-op/internship employers on gendered language in postings
- » More inclusive language/how does that impact girls only
- » Language change think about words and impact on audience

- » Identify when there may be biases in the awards process
- » Blind evaluation in admission and scholarship when use video interviews
- » Building more inclusive communities
- » Putting inclusion at top of mind
- » Leaders as vocal advocates
- » Need time and resources
- » Think about how write letters of recommendation
- » Gender equality? What does that look like?
- » Equity at a staff and faculty level
- » Educational and leadership support
- » Dealing with prejudices
- » Measuring and monitoring over time

Brainstorming 3 – d

- » New ideas
    - » Engage male students in outreach to girls
    - » Inclusive language
    - » Writing activity
    - » Feedback of impact of female mentors/instructors
- » Most impact
    - » Accessibility promotion for P/G send out
    - » Advertising accessibility
    - » Normalizing women in STEM
    - » Shifting to incorporate "intersectionality"
- » Struggle
    - » Struggle: barriers to access socio-economic class
    - » Ignorance
    - » Struggle with time commitment
    - » Ensuring lessons/activities are using gender neutral language
- » Need
    - » Wider community promotion
    - » $
    - » Industry support
    - » People
    - » Accurate data

Notes from agenda items

9:00am – Welcome Speech, Mary Wells

9:10am – Intro, Dr. Valerie Davidson

highlights from the 2015 Summit

1. Doing creative, purposeful engineering outreach
2. Parents as partners

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3. Changing the narrative
4. Reshaping ideas and inspiring possibilities

ONWiE is committed to: collaborating, engaging, sharing best practices & providing opportunities.

Questions

1. Regarding the female, high school physics enrollment problem, how do we get more girls involved or should we be changing the requirements to university programs?
   » Both, some schools do not require a physics course (UBC & Guelph – 2 of the 3 sciences)
   » Ministry of Education (Lisa)
      » Discussions related to changing the curriculum (projects, approaches to teaching) are currently underway

2. Is there any data on the gender of a physics teacher? If so, does that affect the gender split at all?
   » Lisa
      » We do not have a sense of the split because it is difficult to track, we have licencing data but does not indicate that the teacher is teaching it (they have teach-ables but also get pulled into classes sometimes), some teachers need to teach it in areas of declining populations
      » Male teachers are not necessarily less effective, there is more of a difference they are open to talking about it and have more awareness
      » Lisa, as a teacher, would address the more vocal students (typically more male) vs. a gender preference

9:30am – Brainstorming Session #1

Prompt #1: what is the biggest/best change you have noticed since the beginning of your time with ONWiE?

Top Changes from Groups

   » More awareness and brand recognition of engineering
   » At a societal level there is more recognition of change of areas other than gender (intersectionality, indigenous, etc.)
   » More events, more participation & more demand
   » Networking and collaborations amongst universities
   » More programming like CodeGirl
   » Culture (entrepreneur, tech savvy), content (social issues, recognizing different types of engineering), events (more university investment), as an organization (communication, interest of companies, data tracking)
   » Repeated enrollment into programs, familiar faces, & more consistency at events
   » Public recognition of ONWiE (continues support from CODE)
   » social media presence increased, public video
   » increased vending
   » reach outside → SFU accessibility to programming
   » network feels more supported

10:15am – "Beyond Bias: Deploying Diversity Science in Engineering", Dr. Hilary Bergsieker

» lunch time topics: breaking down prejudices between group, how to engage with the STEM community
» implicit bias, when you change what you see around you (equal success) then there is less of an unconscious association of engineering & male, or engineering & female
» Gendered works using job ads, done at UW *list available upon inquiry
  » Real wording using real ads were analyzed
  » Looked at target audience (faculty level in terms of %male/%female enrollment in co-op)
  » Question: what does the hiring look like?
    » The group is working closely with companies to be optimally inclusive
» O'Brien (2017) has a 5 minutes exercise
» Biases can shape how women are perceived
  » Must produce more papers to be comparable
  » Male applicants get more glowing adjectives and superlatives, written by both men and women
» Blind Evaluations
  » Question: North American studies, how does this play against other cultures
    » Different ideologies regarding gender in other places
» Voluntary training in more effective than mandatory
» Question: Fathers have a greater impact on daughter's aspirations study?
  » In terms of equal work within the household, what they help out with
» Undergrad women see unsupportive male colleagues is a barrier, undergrad males think women generally lack the interest in STEM
» Camp study – best friend results
  » Ages 12-14
  » Control for pre-existing friendships
  » Would be interesting to do this with current engineering students
    » 5 males and 3 female engineering friends (from a women in engineering)
  » Matters because: the most girls like you, the more likely they feel like they belong in STEM

11:00am – "The Future of Diversity: Intersectionality & EngiQueers Canada", Vanessa Raponi

» EngiQueers strategy included visible student leaders in campaign
  » Community group and not a separate club
  » Work with other student groups (Black Engineers, WiE)
  » Started doing charity events, Valentine's Day event (grown to include faculty)
  » Created and delivered workshop to other engineering students and fraternities
  » Maintain social elements
  » EngiQueers Canada: Registered Canadian Not-for-Profit Corporation
    » Encouraging schools to get a chapter, sustainability/longevity of chapters, branching out into the profession
    » Canadian Federation of Engineering Students (CFES) Partnership
» Questions:
  » How does the structure work now that you're graduating?

- » CFES National Councillor will have this under their profile
- » Profession: Vanessa will stay in that capacity
- » University space is at a positive space, want to ensure the safe environment in the work force
    - » Do your partner with other organizations?
        - » Yes, discussing partnerships and how to utilize their networks
- » Inclusivity Training Programs
    - » Engineering culture and traditions are prevalent in the work force
    - » Begin with a stereotype, move to prejudice, onto discrimination
    - » Systems of oppression
    - » Classism: social classes, wealth imbalances, homelessness, socioeconomic impacts
        - » Activity discussion: charging for outreach events, the location of the programs (i.e. need a car), more likely to become an engineer if a family member is one, mark based entry programs (having time to study), policy (free tuition policy is not inclusive to entire professional program tuitions), be cognisant of casual conversations, sports inclusion
        - » Avoid: never assume something is "cheap enough" (sliding scale), don't equate aesthetics to seriousness of work or education, recognize your own privilege
    - » Ableism: able-bodied people, mental and physical impairments, can be invisible
        - » Activity discussion: language stigma, design building with inaccessibility in mind, labs are often inaccessible, avoid labelling people (you have an illness vs you are the illness) – "always a person first", winter – wheelchair ramps are the last ones cleared, share when elevators are down so route planning is easier
        - » Avoid: advertise accessibility, educate on ableist speech, recognize invisible disabilities
    - » Racism: different race, believe own race is superior, overt vs. covert, don't be a bystander
        - » Activity discussion: not measuring it or American-izing it, making alcohol apart of every event, removing police from schools,
        - » Avoid: recognize the drastic complexity
        - » Invite people of all colour to be guests "tokenize", host non-drinking events
- » Gender & Sexual Diversity
    - » Gender is fluid
    - » Genderbread Person
- » Discussion: What can we add to a system that is oppressing
    - » Reflect on implicit biases, advocate against stereotype threat, beware of gendered language
    - » Be conscious of your speech
    - » All gendered washrooms
- » Intersectionality
    - » Recognize that people may face multiple systems of oppression
- » Key Takeaways
    - » Expand the conversation
    - » This matters A LOT to us

> » No one is immune to boas
> » Questions:
>> » Systematic coalitions?
>>> » Change Lab, trying to do this exactly, bring together bodies into one space to talk

1:00pm – Update from the NSERC Chair for Women in Science and Engineering (ON), Dr. Catherine Mavriplis

> » Graduate students: Engineering or science, co-supervised by people in other faculties

1:10pm – Brainstorming Session #2

Topic: What are the new ideas you are most excited to incorporate into your activities? Which will have the most impact? Are there any you are struggling with? What do you need in order to get there?

> » What to do: reflection exercises, emphasis on role modeling, more initiatives targeting men
> » Issues: men don't know how to be allies
> » Actions: macro-aggressions, languages used, reach out, sliding scales for fees
> » Male and female co-chair of ONWiE?
> » Partnering with universities, engendered success plan, discussing gender wording with coop recruiters, need more data, how to approach training opportunities, how to make programs intentionally inclusive
> » Engaging in male students to help with issues, normalizing women in STEM, advertising accessibility, general ignorance, redefining what engineers do
> » Disconnect between what women face compared to the university level
> » Language: how we have to think about it in terms of reference letter
> » How to add intersectionality to the conversation

1:30pm – "Engineering Messaging: Simple ideas to maximize impacts and promote diversity", Rebecca White

> » More about the experience than the activity
> » Messaging:
>> » How many messages do we have?
>> » Innovation: innovative outreach, flexible outreach that can incorporate new data
>> » Whole-systems lens: take time to train volunteers
> » National Academy of Engineering – Changing the Conversation campaign
> » Questions/Discussion
>> » Any classic mistakes of "what not to do"
>>> » See a lot of repetition of events that includes outdated messaging
>> » Do we run the risk, with different messaging, are we giving a false message of what engineering is?
>>> » Can incorporate into all activities
>>> » Can layer activities
>> » Have you come across a definition of engineering or relying on the changing conversation?
>>> » Try to stick to the four messages

» Kids and strict definitions can be confusing for them
» Keep it accessible and open enough to encourage questions
» Activity for students: split the groups into two, the morning group write instructions on the bridge and the afternoon group does the build – include judging on how well the built bridge mirrored the planned bridge; donate lb for lb the amount of weight bridges could hold to a food bank

2:00pm – Brainstorming Session #3

What messages have worked well for you? What are the specific things you could use to make your messaging more powerful? To what extent does your school understand the narrative you are creating for girls about engineering? How could they support you better?

» Engineering as a helping career, help the world, helpful profession, social cange
» Human elements, prevalent, accessible, close loop, importance of communication
» Creativity, creative problem solving, find solutions to the world's biggest challenges, engineering values creativity
» Community, team support
» Link content to activities and messages, link tools to solutions, fun and youthful challenges, approachable peer mentors
» Excited about: intersectionality, what gender equality looks like

3:00pm – Member Open Forum, Nika Zolfaghari, Marisa Stirling, Joanne Moniz, Val Davidson

Nika: inclusion and changing the culture in engineering is a focal point, ways to do that, students form decisions very young, co-ed GoEng(Girl) → very successful

» Worked well (80 students, 63 showed up, roughly 50/50 split)
    » Boys got to see that engineering is also for girls, got to see female leaders
    » Girls didn't feel isolated, learning about engineering as a group
    » Trained volunteers (not all women) to be mindful of participants who are sitting in the back
» Needs improvement
    » Registration still done through the WiE Site to question if it was co-ed
    » Diversity and inclusion introduction but the students didn't pay attention
        » Weave them into the activities
    » Would want to cap the gender split at 50% boys max
» Still have the single gender event
    » The panel discussions were different
» Discussion
    » 9/10 students
        » Boys would take over and girls would hang back
        » Not the case at Ryerson
Marisa: Inclusion Lens, YorkU aggressively trying to address the gender gap (50/50 challenge)

» Art was put up and was graffiti
» Ran a community forum with students to deal with reactions

- » Inclusivity workshop stemmed from this forum
- » A lot of people want to do the right thing but don't know what to do
- » Inclusion Lens is a website/check list
- » Goal: not the checklist and the doing but rather, does it change behaviour?
- » Cultural appropriation: do the research a head of time
- » Discussion
  - » Have you tried with faculty and staff?
    - » Yes

Kelsey

- » EngSquad
  - » Mentorship for gr 9-12
  - » Meet 4 times throughout the year, first 3 are geared towards local, industry visits
  - » 4th meeting is a weekend at Western
- » Discussion
  - » 20 did the overnight, 5 attended western

Liza

- » Design thinking: can be about ideas, things, processes
- » Change and transform relationships between Ministry of Education and the sector
- » Team has very different perspectives
- » Changing the website
- » Design process
- » Discussion
  - » Computer programming in the core curriculum?
    - » Team not consulted on major announcements
    - » Pushing to broadening that to computational thinking & coding as a tool set

Edwin

- » Build a dream, imposer symposium
- » Started more from skilled trades side and engineering was added afterwards

Design Objectives

1.0 Proposed Goals of Engagement (G of E):

1. Share best practices on diverse and inclusive messaging to ONWiE network
2. Present expansion of Women in Engineering mandate only to Diversity and Inclusion
3. Introduce university culture as a powerful lever for change, and connect ONWiE to it
4. Create an environment for ONWiE members to share ideas and catch up
5. Provide interesting takeaways for ONWiE members
6. Reflect on the impact ONWiE has had leading up to its transitions coming in 2018
7. Check in on progress made since last ONWiE summit
8. Establish plan to generate more website traffic to ONWiE website
9. Collect material for the ONWiE website (equal distribution of profiles from all ONWiE member schools)
10. Recognize efforts of CSE Chair (to transform workplaces) in complement to ONWiE

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members' work on outreach and university environments
11. Extend an offer to discuss or implement best practices in improving gender representation in first year engineering enrolment

2.0 Benefits of achieving G of E:

1. More effective outreach across ONWiE networks, ability to progress toward targets, strengthened community and consistency of approach
2. More best practices applied, leading to more consistent and powerful engineering outreach done across the country
3. Inspiration for new connections and support to ONWiE's student volunteers
4. An expansion and modernization of ONWiE's approach to reflect recent social progress, more opportunities for people at various intersections to enter engineering
5. More application of practical tools, resources and high quality conversations
6. Clarity on the most valuable aspects of ONWiE's activities for the members, input for planning and future activities
7. Positive momentum and commitment to champion further progress
8. Greater visibility for high quality content and resources available on ONWiE's site
9. Continued relevance and equal school representation on ONWiE's site
10. Enhanced ONWiE member understanding of how various change efforts interconnect
11. Higher adoption rate of best practices for improving first year enrolment representation; higher 'diverse' enrolment numbers at member schools

3.0 Proposed method of achieving G of E:

1. Erica/Becky to present an overview of tangible strategies for inclusive outreach
2. Vanessa to present an Intersectionality 101 and explain its benefits
3. Vanessa to outline the Red-Suits to EQ shift at McMaster to establish the power of student-led culture change within universities
4. Agenda to include exercises and time to reflect on what has gone well
5. Mary to curate a list of videos, resources, articles for members to explore and share
6. Erica and Val to design and lead a reflective exercise (building on 2015 summit)
7. Mary to present an overview of ONWiE's history/progress at Thursday's dinner. Mary to send request each member submit a simple survey as pre-work, highlighting their wins. Erica to create visuals based on those wins to place around the room
8. Erica to design a comprehensive web traffic strategy in collaboration with Rohini
9. Rohini to prepare a request for members to nominate their own alum and students to be profiled on the ONWiE site. Erica to include in presentation on messaging techniques
10. Erica/Val to present a message on behalf of the CSE chair during the summit
11. Mary to offer followup support to all ONWiE members

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