



Transforming Culture in
Engineering Education

WEPAN Professional Development Webinar

Building Bridges from College to Career

January 26, 2016

1:00 pm ET

WEPAN Professional Development Webinars



- **Speaker: Lisa Abrams, PhD – Associate Chair, Department of Engineering Education, The Ohio State University.** Lisa has taught a variety of engineering courses and has received numerous teaching awards. Previous positions at Ohio State include WiE Program Director and Asst. Professor of Practice - Dep't of ME & AE Eng. She's involved in faculty/staff development, course creation and community outreach.



- **Speaker: Robin Schribman – Vice President, Customer Insight and Experience, Thomson Reuters.** Robin leads global strategic initiatives, helping to drive customer experience and transform the company. A member of WEPAN's Board of Directors, she is a fervent advocate of building a workplace that values gender, racial and cultural diversity and encourages creativity, innovation and passion.



- **Host & Moderator: Glenda La Rue – Director of Corporate & University Relations, WEPAN, Women in Engineering ProActive Network.** As a former WiE program director and practicing civil engineer, Glenda brings her experience and passion to WEPAN to support its members and help drive WEPAN's strategic mission.

General Info and Q&A

- All webinar participants are muted for audio quality.
- There will be times during the webinar where we will pause for audience questions. You will have an opportunity to interact with presenters and fellow participants via the chat function.
- This webinar is being recorded and will be available for access afterwards to all WEPAN members at www.wepan.org/?page=PDWebinars.
- Each attendee of the live webinar will be provided an electronic copy of the course workbook.
- We thank our partner, the National Alliance for Partnerships in Equity and Greg Nagy at Ohio State, for use of & technical assistance with this webinar platform.

WEPAN's Big Goal: 50/50 by 2050

WEPAN is driven by the conviction that

- Both engineering higher education and workplaces must embrace inclusion and diversity to achieve innovative solutions for society
- 50/50 by 2050 can be achieved through systems-level culture changes in higher education & workplaces
- Everyone can contribute to and benefit from working together with WEPAN's network of advocates

For over 25 years, WEPAN has leveraged research and best practices to propel the inclusion of women in engineering. Join us to continue this important work.

Environments to welcome and support women



Launched women in engineering programs across the country...

Est. 1990

...when women comprised only



of the country's undergraduate engineering enrollment.

Regional training seminars spurred dramatic growth of WiE programs in North America.

140

8

Factors impacting student participation



Created first engineering college climate survey, as a standard tool to assess progress in diversity & inclusion.

Incubated MentorNet, first e-mentoring program for STEM women.



Introduced one of first K-12 engineering curricula specifically aimed at girls.

Presidential award for groundbreaking work to increase participation of women & minorities in engineering.



Research based strategies to improve retention

Established the Women in STEM Knowledge Center (wskc.org), the definitive resource for gender diversity in STEM.



Awarded National Science Foundation grants for culture-transforming projects.

Faculty support for inclusive and engaging classrooms where all students are welcomed and succeed.



Systems-level improvements so all thrive



Efforts over the last two decades have laid a strong foundation, but there is still much to do.



WEPAN believes 50/50 by 2050 can be achieved through systems-level culture changes in engineering higher education and workplaces.

Join the network that supports leaders who want to create and sustain the global and innovative engineering workforce of the future.



Ways WEPAN Members Can Work Together

- This webinar showcases an example of how universities and corporate partners can join forces to make a significant impact on student retention and transition to the workforce.
- You will have an opportunity to share information about similar initiatives in which you are involved at the end of the presentation.



BUILDING BRIDGES FROM COLLEGE TO CAREER

Women in Leadership



QUOTE 1

“In the future, there will be no female leaders. There will just be leaders.”

Sheryl Sandberg, Lean In: Women, Work, and the Will to Lead

QUOTE 2

“Lifting women up lifts up our economy and lifts up our country...We’ve got to make sure that...somebody is standing up for them.”

President Barack Obama

QUOTE 3

“Women are a purchasing power that might bring different perspective in decision making. I really believe that the key to success doesn’t depend on gender rather than on skills. We...believe that gender equality is key to business success.”

Dietlof Mare, CEO, Vodafone Albania

LEGAL



of Fortune 500 companies use Thomson Reuters legal research offerings, including **WestlawNext**, an online service for legal professionals.

OVER 5.5 MILLION users visit **FindLaw.com** every month.

INTELLECTUAL PROPERTY & SCIENCE



individuals use IP & Science products and services (which include **Thomson IP Manager** for asset management, **Thomson Innovation** for patents, **InCites** for analytics, and **Thomson Reuters Integrity** for drug discovery and development) in academic, government, corporate, and legal institutions.

FINANCIAL & RISK



49/50 top banks choose **Thomson Reuters Accelus**, an audit, risk and compliance solutions offering for corporations and financial institutions.

OVER 400,000

professionals use our financial desktops including our flagship **Thomson Reuters Eikon**.

TAX & ACCOUNTING

100 of the Top 100 CPA firms use our flagship tax & accounting knowledge solution, **Thomson Reuters Checkpoint**.

A LEADING INNOVATOR *International Tax Review* named **Thomson Reuters OneSource** tax technology solution as America's Tax Innovator of the Year in 2012.



65 MILLION

land parcels around the world are managed by local governments using **Thomson Reuters Aumentum**.

REUTERS

NOTICIAS DE ULTIMO MOMENTO Reuters has over 2,800 full-time journalists on the ground in 200 bureaus around the world reporting news in 20 languages.

1,000,000,000

people are reached by **Thomson Reuters News** and **Insights** every day.

500,000 are captured and published **PHOTOS & IMAGES** by Reuters every year.

1,100 BANKS actively trading over 65 currency pairs use **Thomson Reuters Spot Matching**, a foreign exchange trading platform.

350+ exchange-traded and OTC markets have their low latency data distributed to trading and investment applications through **Thomson Reuters Elektron**, a cross-asset trading and data infrastructure.

>2,400 customers use our **Enterprise Platform** solution to manage and distribute real-time data.

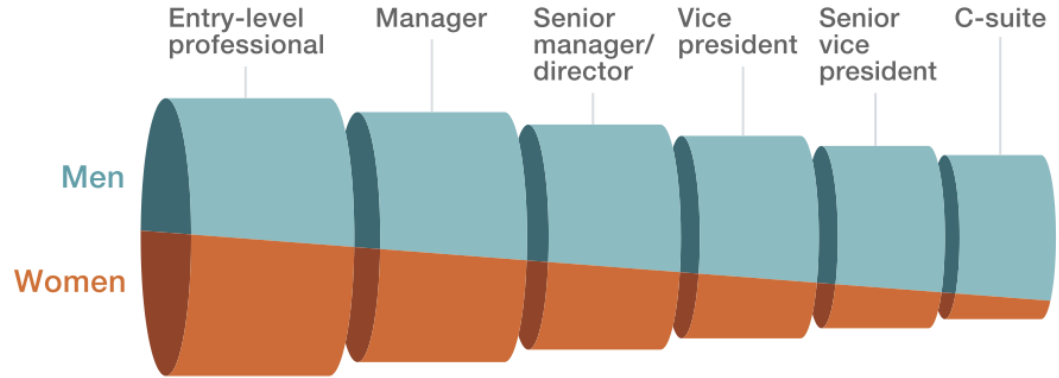
McKinsey research shows that gender equality requires executive intervention and highlights **helping women become better leaders**, as key solution to progression.

[Source: McKinsey, Women Matters]

While internal company measures help in the short term... **longer term solutions need to be found**. The most obvious answer **is starting with education**. **Getting more girls interested in technology from a ...young age...it needs a much bigger change from the roots**

Aileen Allkins, VP of Global Support Delivery: Great Business Debate

Corporate-talent pipeline by gender

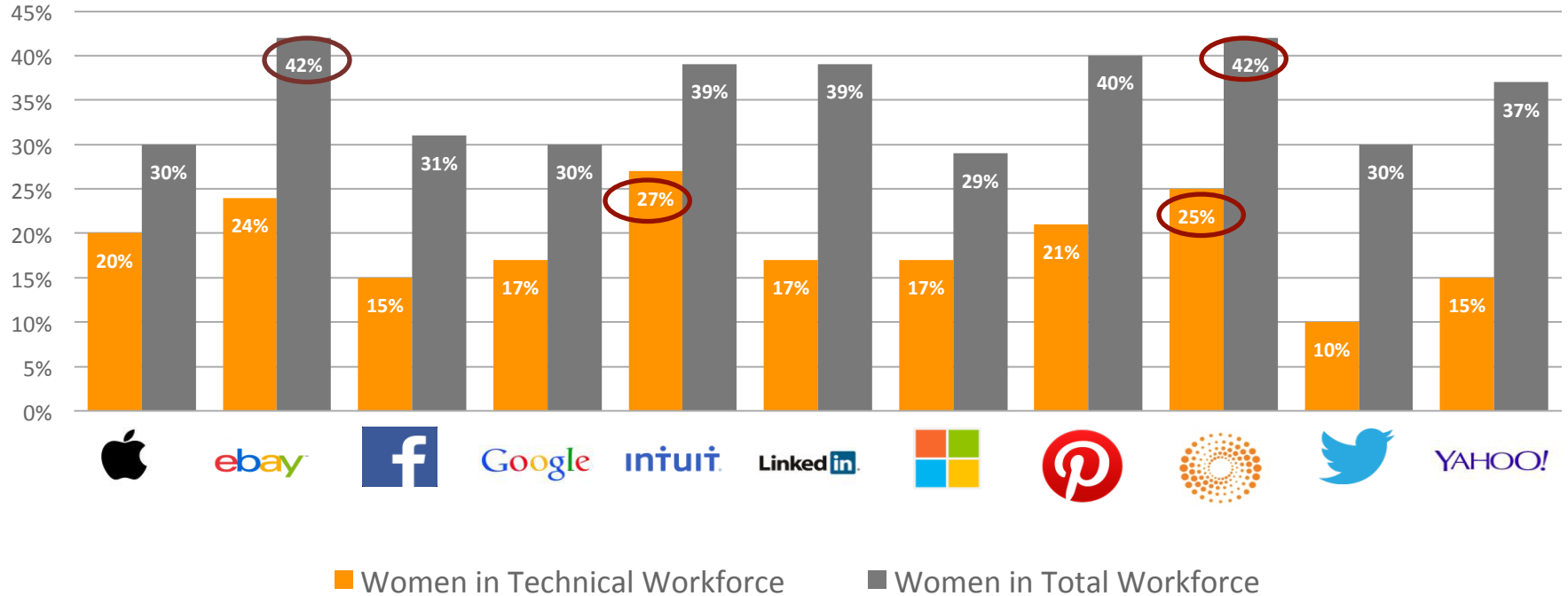


Women in the pipeline, %

2012	42	33	28	23	20	16
2015	45	37	32	27	23	17

Source: Data from Unlocking the full potential of women at work, in which McKinsey examined the employee pipeline of 60 US Corporations. Data from 2015 from *Women in the Workplace*, in which LeanIn.Org and McKinsey examined the employee pipeline of 118 US Corporations

Women are Underrepresented in Technical Workforce



Vacancies at Thomson Reuters were viewed over **8 million** times in 2015.

We hired almost **8,000** people externally (7,836) in **62** countries

We received nearly **1 million** applications for employment last year



Global Tech Dev & Ops:
24% Female
75% Male
 Source: Headcount Data: Jan 2016

United States Tech Dev & Ops:
26% Female
74% Male

Technology hires:
1,639 - in our Tech Dev and Tech Ops job families

We retain **87.2%** of our overall employee population and we retain **91.8%** of our high performers

“Almost all of the women on Fortune’s Most Powerful Women list 2015 - including those not at tech firms - had majored in STEM studies.”

Source: Erik Sherman, Fortune, March 2015

In **2013**, only **26%** of computing professionals were female — down considerably from **35%** in 1990.
Source: Erik Sherman, Fortune

Some **55%** of girls **15 to 18** years old say they find engineering attractive, compared with **54%** boys.
Source: Ali Jaffer and Mona Mourshed, McKinsey & Company

By the time they reach college **1 out of 5** young men plan on majoring in engineering or computing. For young women, the number is **1 out of 17**
Source: American Association of University Women, Solving the Equation, March 2015

18% of bachelor’s degrees in computing were earned by women in **2013**. compare to **37%** in the early **1980’s**.
Source: American Association of University Women, Solving the Equation, March 2015

.By the age of **23 to 25**, the disparity is sizable: only **46%** of women are attracted to engineering, for example, compared with **62%** of men
Source: Ali Jaffer and Mona Mourshed, McKinsey & Company

In some STEM fields, women have made strides.
39% of chemists and material scientists and **53%** of professionals in the biological sciences are female
Source: AAUW, 2015



“The number of young women completing engineering and technology programs has dropped significantly in the past **30 years**.”
Source: Kara Sprague, McKinsey & Company



In Engineering women are subject to “historic ties to male-dominated apprenticeships and powerful cultural norms [that] marked engineering as ‘male.’”
Source: AAUW, 2015

A McKinsey study of the **89** European-listed companies with the highest proportions of women in senior positions concluded they far outperformed industry averages.

[Source: McKinsey, Women Matter]

Catalyst Research findings found that companies with more women board directors outperform by an average **26%** return on investment.

[Source: The Bottom Line Corporate Performance and Women's Representation on Boards]



Sample: 95 Countries:

Source: Data: HIS: ILO Oxford Economics: World Input- Output Database: national statistical agencies McKinsey Global Institute analysis

“Our findings support the view that diversity and lowering barriers to entry can help attract talent and generate technology based growth”

Technology and Tolerance: The Importance of Diversity to High Technology Growth’, Centre on Urban and Metropolitan Policy, Richard Florida

ATTRACT

- We **partner** with carefully selected universities in key locations with leading diversity and STEM programs
- We have a clear and compelling proposition that reflects our diversity priorities and our brand
- We have a recruitment program that deploys creative and proven methods of attracting diverse technological talent

SELECT &
ONBOARD

- We recognise the assessment process is two way and provide candidates with **unique experiences** which competes with other organisations
- Our process enable us to creatively assess for the **skills, technical competence and behaviours** we require, recognising where variation may be required for different groups or locations

RETAIN &
DEVELOP

- We have a structured and proven diversity program that attracts and delivers high performing candidates
- We secure high performing candidates in permanent roles and in turn enrich our future talent base
- We have a development framework which builds technical and business skills throughout the program and beyond

ABOUT THE OHIO STATE UNIVERSITY

- Large (**58,322** students) public university located in the Midwest
- **14** majors within the College of Engineering (COE)
- **7752** undergraduate students in the COE (not including the Knowlton School of Arch)
- **20.1%** female
- **6.3%** under-represented minority

WE HELD FOCUS GROUPS WITH STUDENTS TO INFORM THE DESIGN AND CONTENT OF THE COURSE:

“I want to work in a company where...there is an opportunity for career progression... where there is collaboration and equality.”

“Support in transitioning from college to career is important...Mentoring and personal development that allows me to learn from others is key.”

“It is important to have on campus presence, Thomson Reuters ambassadors would be good-if someone that I know is an advocate of a company, this influences my view”

“It is important that the company where I choose to work, treats me equally; and respects my opinion no matter my gender”

“Mentoring training and small group learning for more personal development-building relationships peer-to-peer learning...[is extremely important]”

THE OHIO STATE UNIVERSITY

We implemented a pilot partnership with The Ohio State University which focused on developing the soft skills of their female STEM students. The overall outcome was a great success:

“This was an exciting and innovative collaboration with the College of Engineering at Ohio State. We developed a professional development course for women STEM students with a focus on identifying strengths, values and creating their own mission/personal brand statement and elevator pitch...I am highly impressed by the synergy that developed among this cohort of young, highly talented women.... Thomson Reuters commitment...has made a real and lasting impression upon our workforce in a way that most university courses cannot convey through formal curricula.”

Dr. Mary C. Juhas, Associate Vice President for Ohio State ADVANCE

COURSE OVERVIEW

- **Credit:** 1 credit hour
- **Duration:** Met once a week for 1 1/2 hours over 14 weeks
- **Entitled:** Leading With Confidence
- **Invite:** Email invitation to all undergraduate women STEM students with GPA > 2.5, rank 2+
- **Enrollment:** 15 students enrolled
- **Discipline:** Varying STEM majors
- **Level:** Sophomores through seniors

COURSE CONTENT OUTLINE

The tools and techniques of the course are intended to combine the skills, knowledge and talents of the participants to recognize what motivates and triggers them and begin to prepare them for their transition from academia to the workplace and towards successful careers.

- **Week 1:** Welcome, Introductions, and Syllabus
- **Week 2:** Review the Results of Strengths Finder; Resilience and Mindfulness
- **Week 3:** Your Values and How They Relate to Your Strengths
- **Week 4:** Mission Statement and Personal Brand Creation
- **Week 5:** Present Brand/Mission/Elevator Pitch
- **Week 6:** Social Identity Wheel
- **Week 7:** Unconscious Bias
- **Week 8:** Crucial Conversations
- **Week 9:** Women in Leadership Panel
- **Week 10:** Interview Skills and the Emotional Intelligence *IQ*
- **Week 11:** Emotional Intelligence *IQ* Review
- **Week 12:** Personal Board of Directors
- **Weeks 13/14:** Presentations

COURSE WORK AND OUTCOMES INCLUDES:

- **Workbook:**
Participants have to complete a workbook alongside the syllabus
- **Journaling:** Participants are asked to complete a journal entry each week chronicling their journey and development throughout the course.
- **Interviewing:** Participants are asked to interview a woman they admire and think is successful, strong and resilient.
- **Guest Speakers and Panel Session:** Participants actively take part in a guest speaker session and complete accompanying exercises that feed into the wider course work.
- **Presentation:** Through guided exercises, participants are prepared for a personal presentation to the class and course instructors.

- Students welcomed being brought out of their comfort zone:
 - ✓ Elevator speech
 - ✓ Relationships with their peers
 - ✓ Being vulnerable
- Great networking with high level women
- Students gained “just in time” skills
- Need time for checking in with others and self-reflection
- Face to face worked much better than Skype
- “Lean In” text needs to be removed or put into context

“Loved it! This was my best class this semester.”

“It was simply amazing. The single best learning experience I have ever had the opportunity to participate in.”

“I really loved it and think it has been invaluable in my development this semester.”

- Candisse Fejer
Sophomore
Chemical Eng



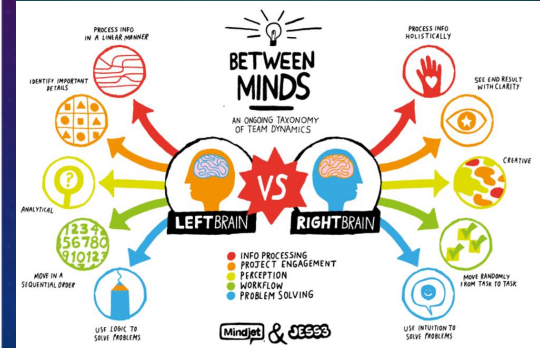
- Njoki (Jo) Mwangi
Senior
Eng Physics

RULES FOR LIFE AND LIVING



How to be a leader

THE ROXANNE METHOD



Self-knowledge

Strengths & Values

Mindfulness & Resiliency

Connection of Self to Others

Peer Connection

Professional Connection

Presentation of Self to the World

Mission Statement & Personal Branding

Elevator Pitch & Ted Talk

How to Flourish in a STEM Career

Visiting Professionals

Interviews

OPPORTUNITY FOR QUESTIONS

- What questions do you have for Robin, Lisa, and/or the students?

Type your question in the Chat window

FEEDBACK

- What initiatives have you been involved with that are similar to this?

Respond in the Participant Question window on the right of your screen

Continuing the Conversation



www.wepan.org/?page=2016CLF

Closing Remarks

- The course workbook will be emailed to all in attendance
- Links to the presentation, recorded webinar and workbook will be available to all WEPAN members and posted at www.wepan.org/?page=PDWebinars
- If you are not yet a member, visit us at www.wepan.org/?page=Join or contact Glenda La Rue at glarue@wepan.org
- Share this membership opportunity with your colleagues and employer
- Survey following the webinar—please respond!
<https://www.surveymonkey.com/r/BuildingBridgesWebinar>
- Support WEPAN by making a donation www.wepan.org/?page=GivingOverview

Thank You!

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Lisa is currently serving as the Associate Chair, of the Department of Engineering Education at The Ohio State University.

Lisa received her Bachelor's and Master's Degrees in Mechanical Engineering and PhD degree in Industrial Engineering from Ohio State. She has seven years of industry experience in the areas of Design and Consulting. She was previously the Director of Women in Engineering Program at Ohio State and the Assistant Dean of the School of Engineering and Applied Science at Miami University.

She has previously held the position of Assistant Professor of Practice in the Department of Mechanical and Aerospace Engineering where she taught a wide variety of engineering courses in First Year Engineering and Mechanical Engineering. In the last several years, she has received four teaching awards including the 2013 Boyer Award for Excellence in Undergraduate Teaching Engineering Innovation and the Charles E. MacQuigg Award for Outstanding Teaching.

She is involved in faculty and staff development, course creation and implementation, and community outreach. She is currently overseeing a grant to train male engineering students to be allies for women.

She also advises a number of student organizations including Engineering Allies, Tau Beta Pi, and the American Society of Heating, Refrigerating, and Air Conditioning Engineers.



As Vice President of Customer Insight and Experience at Thomson Reuters, Robin leads global strategic initiatives for customer insight research, voice of the customer strategy, brand initiatives, content development for advertising and leadership events such as Aspen Ideas Festival, and Washington Ideas Festival. She supports across the Thomson Reuters business helping to drive the Customer Experience agenda to help transform the company into a customer centric organization.

Since joining Thomson Reuters twelve years ago, Robin developed and built out the primary research group for both the Legal and Financial and Risk businesses. This included competitive intelligence, segmentation, workflow mapping and value proposition work. Prior to Thomson Reuters, Robin spent a number of years in technology, retail and advertising. First, as an account executive for a full service advertising agency then as a creative director for a large specialty retail chain with over 800 locations. Prior to joining Thomson Reuters she acted as both the Managing Editor for retail.com and director for Customer Relationship Management systems at Retek (Oracle's retail division) which included consulting to Fortune 500 retailers.

Robin is an invited member to the top 50 future CMO's, a member of CXPA (customer experience), ANA and AMA.

Robin is fervent advocate of building a workplace that values gender, racial, and cultural diversity and encourages creativity, innovation and passion. Robin is currently serving on the Board of Directors for WEPAN.

Robin lives in Minneapolis with her two active boys and happily spends her free time watching them play tennis, soccer, hockey and track.