ABOLLE-OKOYEAGU, C.J., MAHON, R., OKPU, A. and CHIMA-AMAESHI, N. 2024. Bridging the gender gap in engineering: strategies for retention and advancement of women in STEM fields. Presented at the 8th World conference on Future of education, 12-14 December 2024, Cambridge, UK.

Bridging the gender gap in engineering: strategies for retention and advancement of women in STEM fields.

ABOLLE-OKOYEAGU, C.J., MAHON, R., OKPU, A. and CHIMA-AMAESHI, N.

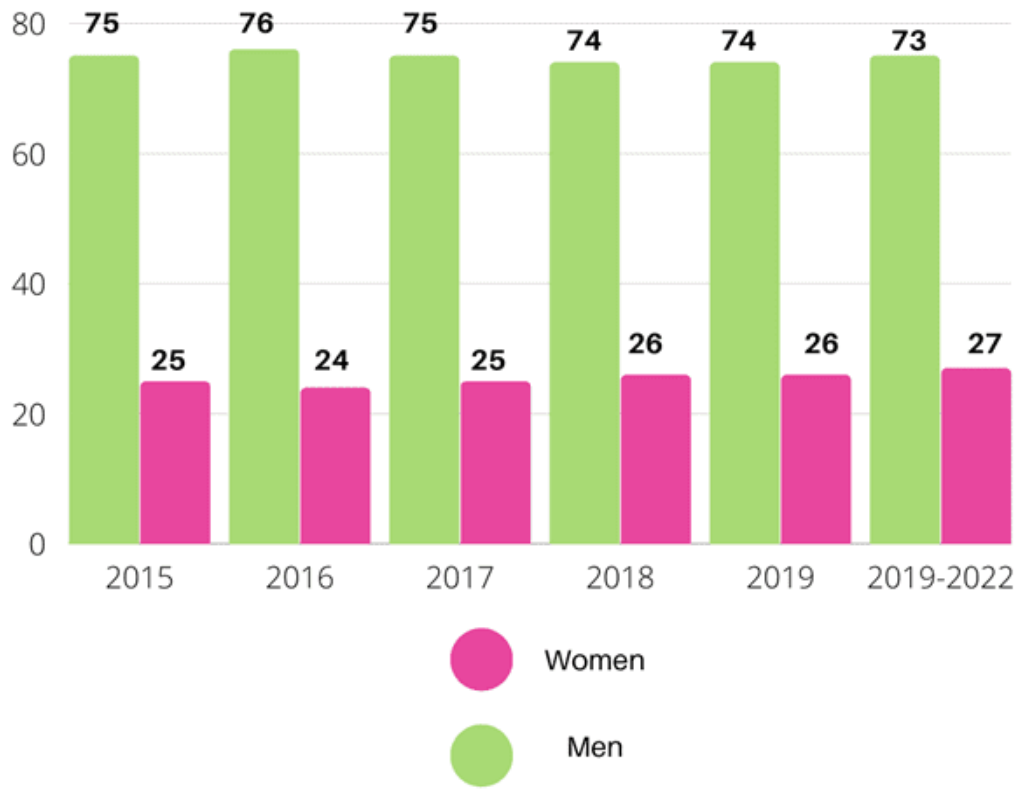
2024

Bridging the Gender Gap in Engineering: Strategies for Retention and Advancement of Women in STEM Fields

8th World Conference on the Future of Education Cambridge, UK

Dr Chika Judith Okoyeagu, Dr Ruissein Mahon, Dr Ambrose Okpu & Njideka Chima-Amaeshi

The Gender Gap in Engineering and STEM



- Despite progress, women remain underrepresented in engineering and STEM fields.
- Women make up 25.5% of the STEM workforce with even lower representation in leadership positions.
- Importance of addressing this gap is for innovation, diversity, and sustainability.

Challenges

Unconscious Bias

Female engineers often face unconscious biases and stereotypes from colleagues, employers, and even clients, making it harder for them to be recognized and promoted.

Lack of Mentorship and Networking Opportunities

Female engineers may have limited access to mentors and professional networks, hindering their career development and limiting their exposure to industry opportunities.

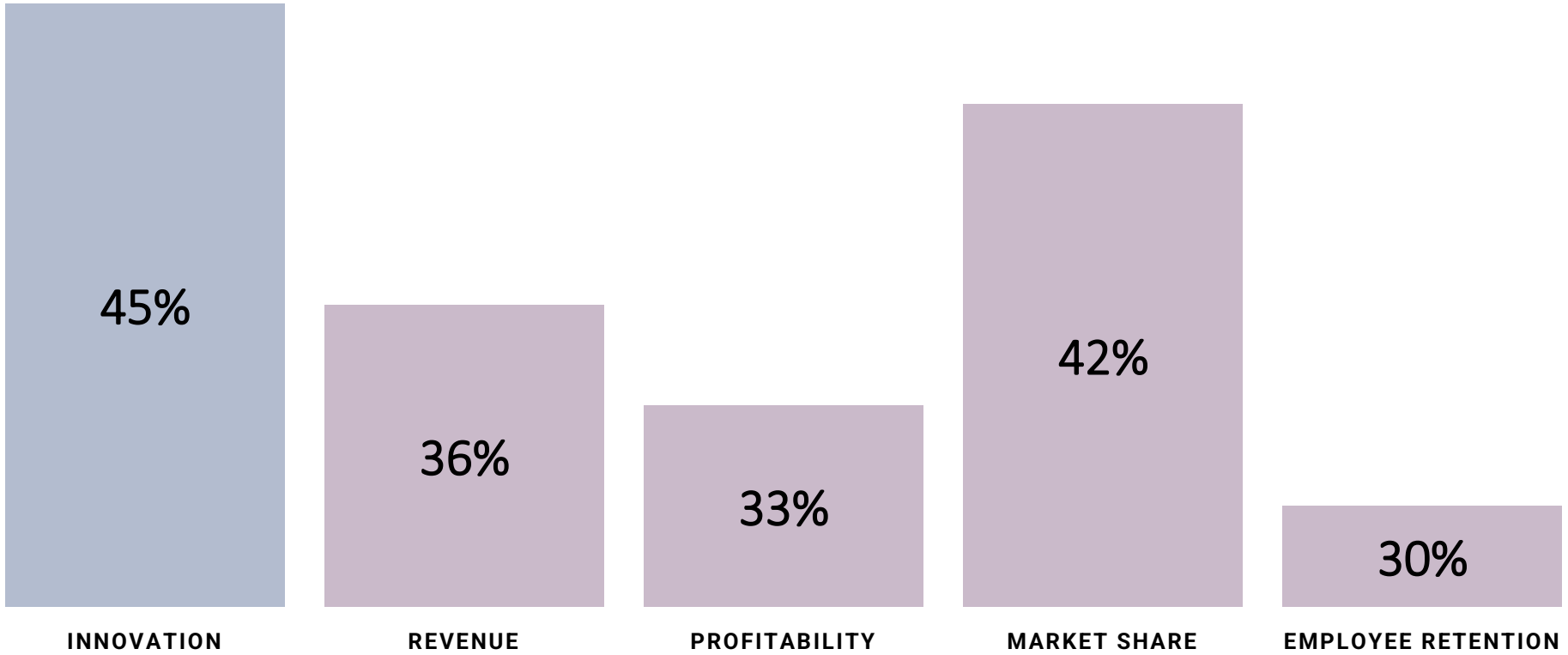
Work-Life Balance Challenges

Female engineers, especially those with family responsibilities, often struggle to balance their work and personal commitments, leading to burnout and career setbacks.

Harassment and Discrimination

Female engineers have reported experiencing various forms of harassment, discrimination, and workplace hostility, creating an unwelcoming and unsafe environment.

Importance of Gender Diversity in Engineering



Strategies for Retention and Advancement

OVERCOMING STEREOTYPES

Challenging the perception that engineering is a male-dominated field and encouraging women to pursue their passions.

MENTORSHIP AND NETWORKING

Providing women in engineering with role models, guidance, and opportunities to connect with experienced professionals.

WORKPLACE EQUALITY

Addressing issues of gender bias, pay disparity, and lack of representation in leadership positions.

EDUCATIONAL OPPORTUNITIES

Ensuring that women have access to quality STEM education and resources to develop their technical skills.

WORK-LIFE BALANCE

Advocating for flexible work arrangements and supportive policies that enable women to thrive in the engineering field.

ROBERT GORDON UNIVERSITY ABERDEEN

The Path Forward

Mentorship Programmes

Establish robust mentorship programs that pair experienced women engineers with aspiring students and early-career professionals to provide guidance, support, and career development opportunities.

Targeted Outreach

Expand outreach efforts to engage with young girls and high school students, showcasing the diverse career paths and rewarding experiences available in the engineering field.

Scholarships & Internships

Increase the availability of scholarships, internships, and co-op programs specifically designed to support and retain women in engineering programs.

Workplace Culture Transformation

Implement initiatives to foster an inclusive and supportive work environment, addressing issues such as gender bias, work-life balance, and opportunities for advancement.

Advocacy & Visibility

Amplify the voices and achievements of women engineers, highlighting their contributions and serving as role models to inspire the next generation.

The Role of Education and Awareness

- **Ecstemtic Network**

  Diverse team of STEM Enthusiasts aiming to close the gender gap in STEM and pave the way for a future driven by diversity, equality, and innovation .

- **Camps for Girls**

  Weeklong residential camps that expose young women to hands-on learning in science, technology, engineering, and mathematics.

- **Mentorship Programmes**

  Initiatives that pair female STEM professionals with young women to provide guidance, support, and advice on pursuing STEM careers.

- **Scholarship Opportunities**

  Scholarships and financial aid targeting female students interested in studying engineering, computer science, and other STEM fields.

- **Outreach Initiatives**

  School visits, workshops, and conferences that encourage and inspire young women to explore STEM subjects and careers.

- **Girls Who Code**

  After-school programs and summer camps that teach computer science and coding skills to girls in grades 3-12.

Conclusion and Call to Action

- **Progress is Happening**: Significant strides have been made in encouraging women to pursue careers in engineering, but challenges remain.
- **Key Strategies**: Implementing mentorship programs, fostering inclusive work environments, and promoting STEM education for young women are essential.
- **The Future is Inclusive**: Gender diversity in engineering leads to more innovation, better problem-solving, and a stronger, more equitable industry.
- **Call to Action**: Continued commitment from educational institutions, corporations, and policymakers is needed to ensure that the gender gap in engineering continues to narrow.

References

1. British Science Association, 2023. *Report on equity in STEM education released*. https://www.britishscienceassociation.org/News/report-on-equity-in-stem-education-released (Accessed 10 December 2024)

2. *STEM Women. (n.d.). Women in STEM statistics: Progress and challenges.* Women In STEM Statistics: Progress and Challenges - Stem Women (Accessed 9 December 2024)

3. *World Economic Forum Global Gender Gap Report 2023* Global Gender Gap Report 2023 | World Economic Forum (Accessed 9 December 2024)

Dr Chika Judith Abolle-Okoyeagu
j.abolle-okoyeagu@rgu.ac.uk

"Let's work together to create a more inclusive and diverse future in engineering.

Together, we can ensure that women have equal opportunities to contribute to and lead in the engineering industry, advancing both the profession and society as a whole. The time for change is now—let's take action!