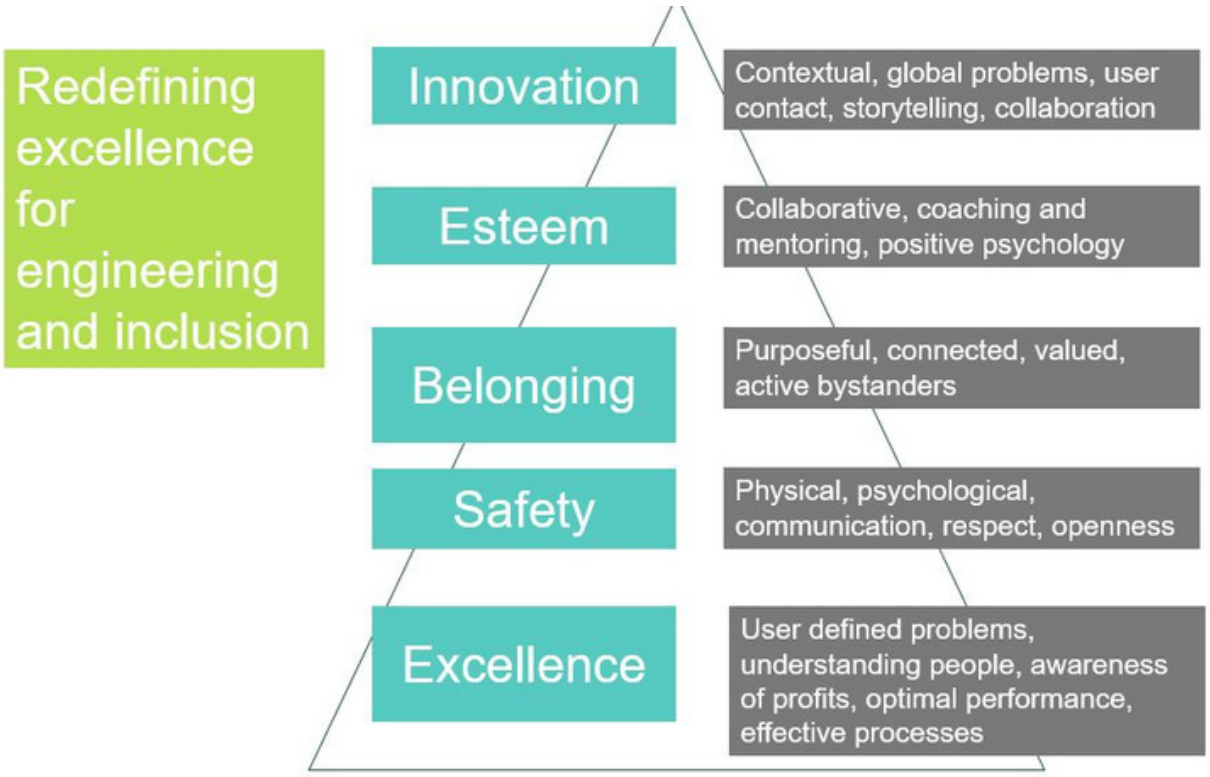
Katalytik

MANIFESTO

For people-centred engineering education

September 2021
UPDATE

EXCELLENCE to INNOVATION



If enriching the student experience, closing the achievement gap, and maintaining the diversity of your cohort into relevant work is important, then these five points will help you build creative, engaged, and innovative teaching and learning spaces and shape people to produce inclusive engineered solutions.

All too often equality, diversity, and inclusion (EDI) seem disconnected from the nuts and bolts of engineering and technology. While teaching been transformed in recent times and Inclusion was on the agenda, too often it focuses on accessibility. For this, read disability.

This Manifesto is shaped to help you explore how to transform the undergraduate experience.

A different view: our Manifesto

Why we need to change

While institutional equality, diversity and inclusion (EDI) practices are widespread there are few places where inclusion is threaded into engineering course design, content, and delivery. The speed with which problem-based approaches are being introduced is not matched with an increase in communication and interpersonal teaching of inclusion. For example, communication is limited to presentation and writing skills.
The Manifesto addresses the achievement gap for minoritised e.g., women, socially excluded, and or Black and minority ethnic students by boosting professional role competence and confidence: increasing their sense of belonging, being valued and being useful.

1 Excellence

Researching, teaching, tutoring

- What is your peak performance on engineering and its teaching?
- What is your peak performance on inclusion and how do you measure the student experience?
- Do you know who your students are and how they learn?

Breaking down engineering education, and asking how or what can be done to improve the learning outcomes can stimulate thinking and conversations. Reach for excellence by studying engineering failures and their impact on: problems, people, profits, performance, processes.

Nationally in the UK female students studying engineering make up on average 16% of students compared to only 12% in the professional engineering workforce.

2 Safety

A safe space to work and learn, tutoring

To what extent would all your staff or your students be able to say they feel safe and can be the best version of themselves, without fear of risk, reproach, or ridicule?
People in a minority have an added cognitive burden; second-guessing what is expected, or safe, to contribute to a project or discussion and is acceptable to the cultural norm of a group.

- Set standards for the language you use, a professional approach in communications, and clarity on styles and phrases.
- Level 1: knowing what constitutes illegal communication: verbal threats, racism, hatred and innuendo that would be subject to prosecution
- Level 2 is when a student or tutor feels they can share who they really are at the start, not the end, of a course.

Develop communication, establish respect, create openness

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3 Belonging

A safe space to work and learn, tutoring

It can be so easy to exclude people unintentionally: not speaking to female students in class, or not noticing the contributions of minoritsed students.

Small, repeated biases can be evident in everyday acts and comments and accumulate. Small shifts in your language and acts can convey messages that can build a sense of belonging.

Create purposeful, connected, valued, active bystanders

Engineers are stereotyped to be logical, rational and un-emotional beings. Yet, many are not. Those who aren't strive to be and suppress natural tendencies. Those who are needing the tools and experience of connecting and checking in with their peers and colleagues. Building bridges, belonging, and engagement. A sense of belonging defines how students interact, can learn about others, and get the most from working relationships. Let's adjust our language, thinking and behaviours to purposefully include others. These practices develop good habits and mindsets and help ensure students are fit for employment by employers that value diversity more and more, such as HS2, BAE Systems, National Grid, Arup, and many, many, more.

4 Self-esteem

Focus on career confidence

There's an esteem and career confidence gap for minority and women students in engineering compared to white male students.

Students who are more culturally familiar with a collaborative, rather than competitive approach, can feel isolated. While introverted or sensitive students lose their engineering confidence easily in the face of robust peers. The few become fewer as they leave.

Experience, practice, and formative feedback contribute to personal growth. Learning to ask good questions and introducing coaching styles of communication contributes to professional skills' growth for all students. These build a powerful sense of belief and usefulness within each of us. When coupled with technical competence this leads to confidence and self-belief that leads to being a useful member of the professional engineering community.

Build a community of practice that involves a collaborative, coaching approach with mentoring and peer coaching: life and employability skills that build improved self-awareness, through positive psychology, and appreciative approaches.

5 Innovation

Diversity driven creativity

Combine technical knowledge with inclusive thinking, behaviours and practices. This will provide inclusion-led innovation when engineers: connect with and value human differences; and explore population groups to inform design thinking. A fertile landscape of cross professional interactions, research, and new conversations will contribute to solving the immense challenges facing society. Engineering and design become innovative, driven by inclusion.

Contextual, global problems, user contact, storytelling, collaboration

Excellence and innovative solutions to society's problems. This is why we address equality, diversity, and inclusion in engineering. Here at Katalytik, we're full of ideas to kick start a conversation and raise your excellence rating.

We are inclusion innovators

Our Approach

Katalytik was founded by Jan Peters in 2004 and started exploring engineering cultures in earnest in 2010. The catalyst was a report from UKRC/WISE showed men transitioned into technical STEM jobs at twice the rate of women. This catalysed the Set to Lead project with UCL Engineering.

An intersectional analysis of the updated Set to Lead dataset in 2015 showed further disadvantages for Black, Asian and 'first to university' students.

Why was this? Did it matter? What were the reasons?

The Manifesto outlines an approach for focus and development.

Our Team

Jan Peters

Lead Inclusion Innovator

Helen Shipton

The people person

Sean McWhinnie

The detail ideator

It's now time to take an intentional approach - book a chemistry call to see how we can help

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