Developing engineering capacity through structured programmes

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An initiative of the South African Institution of Civil Engineering (SAICE)

Developing a leader

1. Initially develop competence to contribute to production

2. In time works in a team and contributes towards group objectives

3. Progresses to manage people and resources to deliver objectives

4. Becomes specialist or technical manager who elicits innovation and high performance from staff (generally post professional registration)

5. Finally builds and leads great teams through humility and professional will

Age profiles – municipal civil engineering
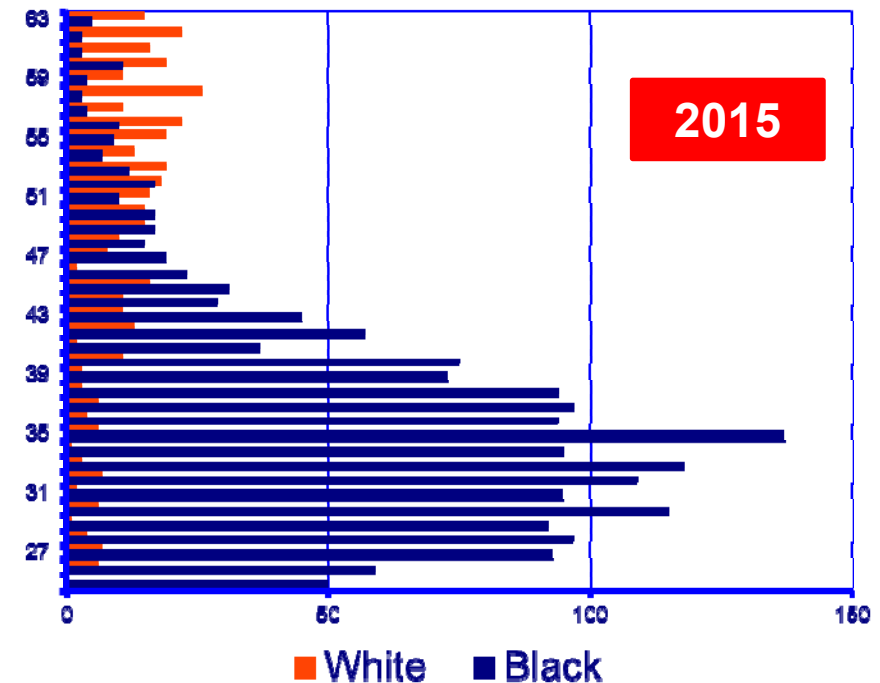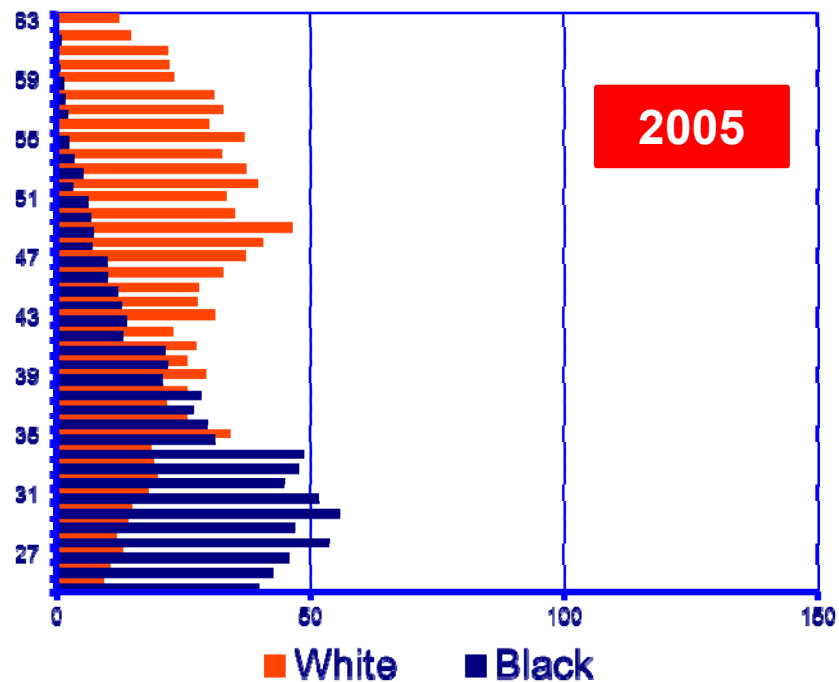
Competent engineering professionals

- ❖ Investigate problems
- ❖ Solve problems considering constraints and impacts
- ❖ Implement solutions managing resources, risks, expectations
- ❖ Take responsibility for their decisions
- ❖ **Require mentorship, coaching and working on meaningful projects in a community of practice to develop these characteristics**

Developing professionals is a TEAM effort

- ❖ **Candidate** – who must commit to the process and put in the effort etc.

- ❖ **Supervisor** – who directs and controls the work of the candidate and is the prime interface for skills transfer

- ❖ **Mentor** – who guides and facilitates professional development

- ❖ **Employer** – who commits to providing the time and resources

Understanding the development process

Training principles

- Activities must focus on professional competencies (11 Outcomes)
- Experience must cover a variety of engineering activities
- Activities must increase in responsibility
- Activities must be at the appropriate level of complexity

Increasing responsibility

Level	Nature of work : The Candidate	Responsibility of Candidate	Level of Supervisor/ Mentor Support
A. Being Exposed	Undergoes induction, observes work of competent practitioners	No responsibility	Mentor explains challenges and forms of solution
B. Assisting	Performs specific processes under close supervision	Limited responsibility for work output	Supervisor / Mentor coaches, offers feed back
C. Participating	Performs specific processes as directed with limited supervision	Full responsibility for supervised work	Supervisor progressively reduces support
D. Contributing	Performs specific work with detailed approval of work outputs	Full responsibility to supervisor for immediate quality of work	Candidates articulates own reasoning and compare it with those of supervisor
E. Performing (Responsible but not accountable)	Works in team without supervision, recommends work outputs	Responsibility to supervisor is appropriate to a registered person	Candidates takes on problem solving without support, at most limited guidance

Candidacy recognised in South Africa

❖ " .. the practical and work experience training that is an occupational qualification as determined by the relevant professional body and follows the completion of an academic qualification required for access to the assessment for the issue of a professional designation"

❖ Recognised in the:

❑ Dept Higher Education and Training Draft Learning Regulations, *Government Gazette 35489, July 2012*

❑ DTI B-BBEE Codes of Good Practice, *Amendment Act 46 of 2013*

❑ cidb Training Standard, *Gazette 36760, August 2013*

❑ **Now funded training phase – must include coaching ……**

The need for coaching

Supervisors

❖ Do not always believe in the potential of younger staff

❖ Complain that it is quicker to do work themselves than let younger staff solve problems

❖ Frustrated with different approach of younger staff

The coach's toolkit

❖ Active listening and powerful questioning

❖ Regular reviews, feedback and ensure reflection

❖ Develop strong relationships

❖ **Slow down to speed up** – spend time in one-on-one and group sessions
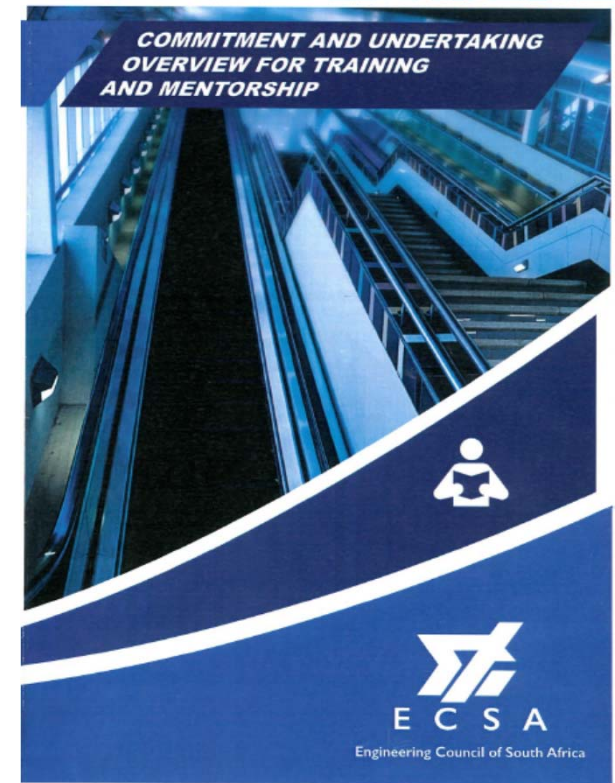
Groups comparing project notes

Supervisors ask questions

* **Why?** – requires **analysis of cause-and-effect** and the relationship between variables

* **How?** – is the basis for **problem-solving** and synthesis – continue using how questions to help candidates grapple with the problem until a new, better solution emerges

* **Which?** – requires thoughtful **decision-making** – a reasoned choice based upon clearly stated criteria and evidence

New ECSA Commitment & Undertaking

- ❖ See brochure

- ❖ R-11-P Commitment & Undertaking

- ❖ Complete Employer Form

- ❖ Complete Mentor forms

- ❖ You SIGN and then ECSA will SIGN

COMMITMENT AND UNDERTAKING OVERVIEW FOR TRAINING AND MENTORSHIP

ECSA
Engineering Council of South Africa

The ENERGYS candidates of 2006

- These candidates were the 'unemployables' of 2005
- Today they are technical directors, middle managers, or owners of emerging consulting and contracting companies
- **It takes time ……**
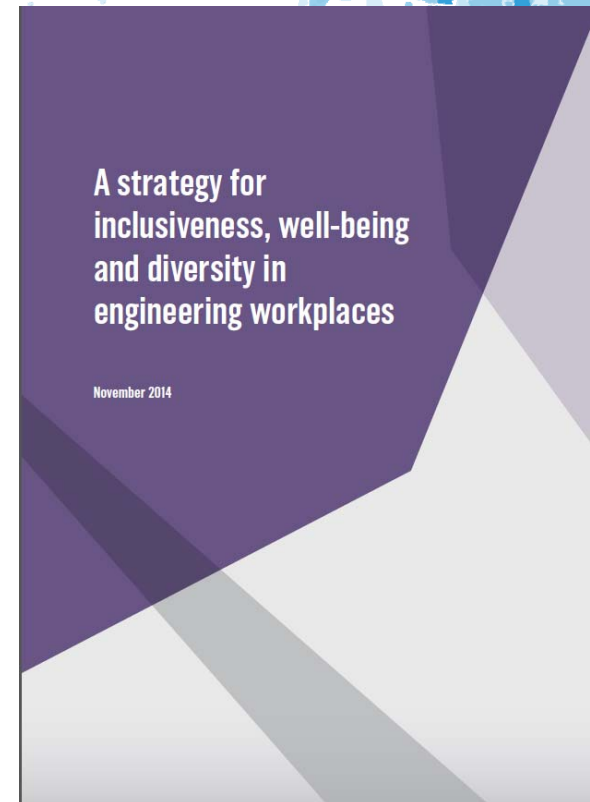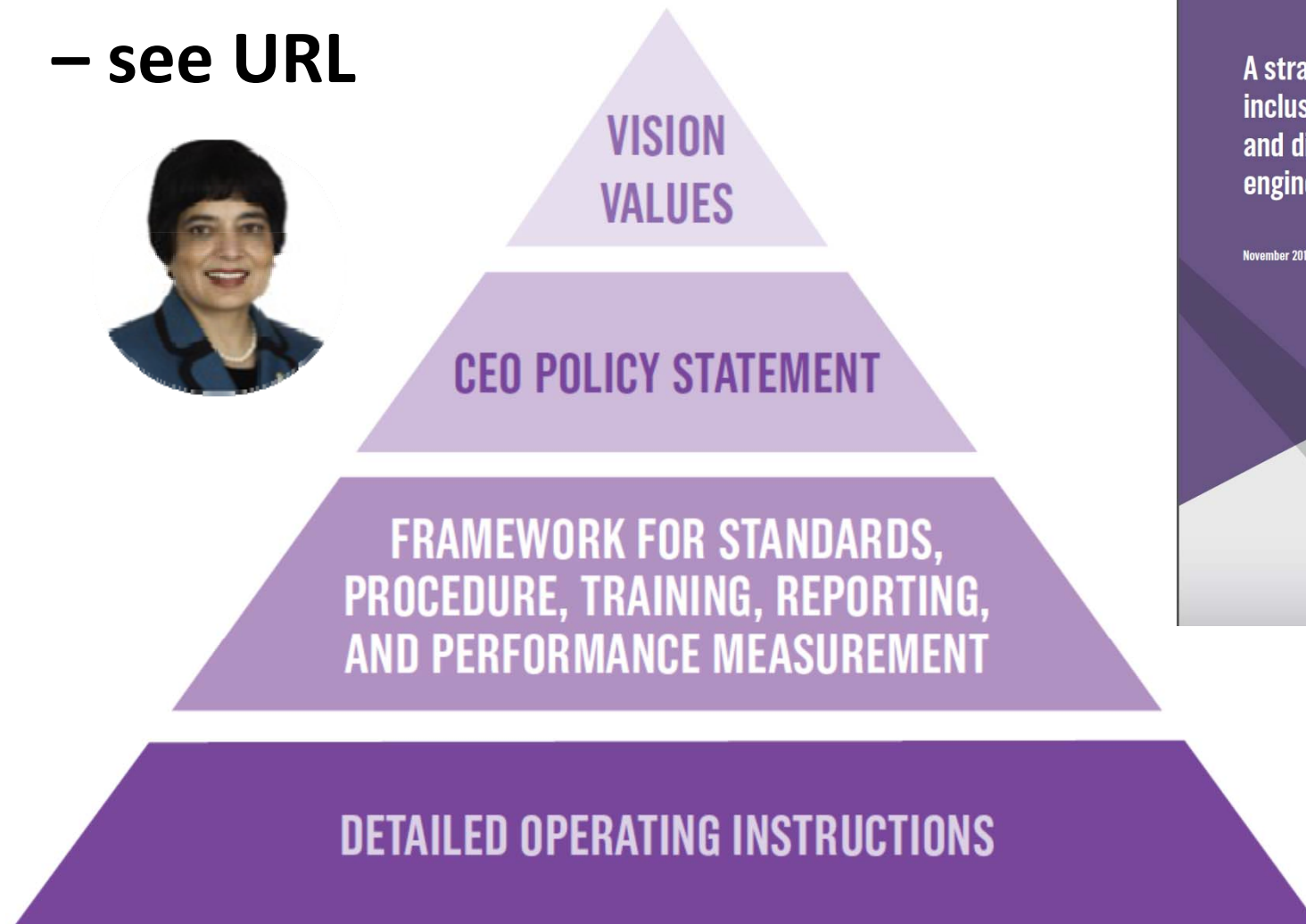- **Start developing your graduates today – they are the leaders of tomorrow**
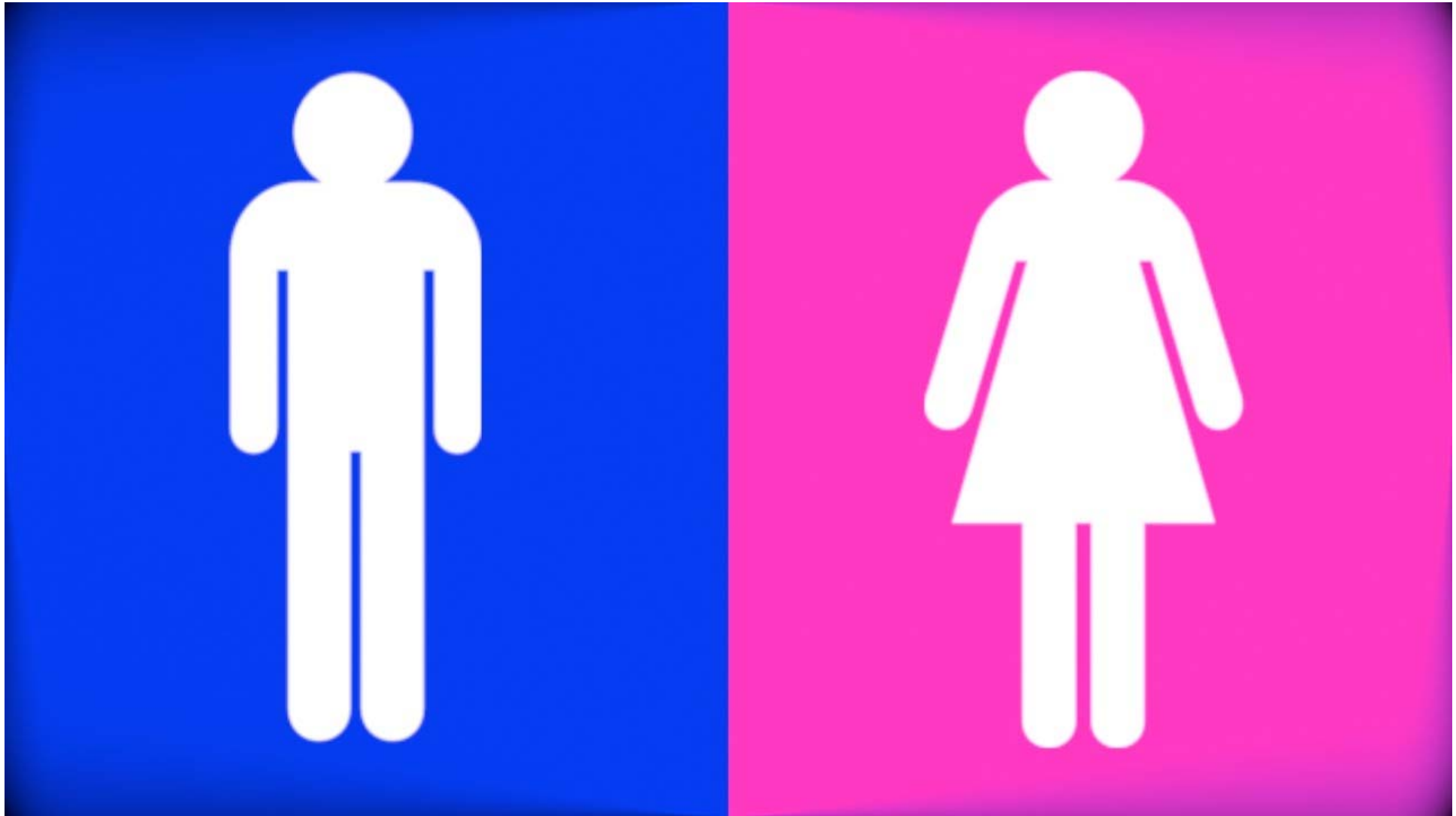
Women in engineering challenges

- **Retention** – Disproportionate number leave the industry in 30 to 50 age group

- **Progression** – limited opportunities to assume management, leadership, partner positions

- **Pay** – lower salaries, less training and development investment or variety of work

- **Motherhood penalties** – not accommodating parental duties, although studies show that women put in the extra hours to make up

- **Toxic workplaces** – bullying, sexual harassment and lack of inclusion

Inclusiveness, well-being and diversity

❖ **Corporate commitment required**

– see URL

VISION
VALUES

CEO POLICY STATEMENT

FRAMEWORK FOR STANDARDS,
PROCEDURE, TRAINING, REPORTING,
AND PERFORMANCE MEASUREMENT

DETAILED OPERATING INSTRUCTIONS

A strategy for
inclusiveness, well-being
and diversity in
engineering workplaces

November 2014

Inclusiveness, well-being and diversity

- ❖ **Commitment –** Corporate commitment from the Chief Executive and Board with visible policy statement

- ❖ **Corporate enablers –** practices and procedures mandatory – not optional

- ❖ **Management responsibility** – KPIs relating to staff development and diversity

- ❖ **Corporate monitoring and reporting** – monitor, set leading and lagging indicators which are reported and ensure awareness of the programme

Two stories

- Diamonds are for males
- No babies please we are consulting engineers
- The message.....
- **Accommodate women**
- **Don't loose out on high potential staff because of stereotypical views**
- **Embrace and integrate the female engineering species ….**