



Enhancing Long-term Retention of South Africa Women in Chemical and Metallurgical Engineering Careers

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Background

- SA needs to graduate 40% more engineers per year to sustain economic growth targets
- Women enter engineering degree programmes in greater numbers each year
- Higher rate of attrition of female students before completion of degree programme
- Very high numbers of female engineers leave the profession within 5 years of graduation



Objective

- Survey of women engineers to identify significant cultural, environmental, support, and personal characteristics that influence long-term retention
- Recommendations to improve workplace practices and environments to facilitate retention of women in these industries



Survey Structure

Section 1: Demographic information

- age
- race group
- educational level
- marital status and children
- employment sector

Section 2 : Survey

- 38 multiple choice questions

Section 3: Comments

- Optional personal comments on selected topics



Survey Topics

- Family, spouse, other support structures
- Mentors and teachers
- Role of other professional women
- Experience of workplace gender-related issues
- Expectation of long-term retention in SA industry
- Employer responses to women's workplace needs
- Role of professional societies (ECSA, SAIMM, SAIChE)
- Individual characteristics



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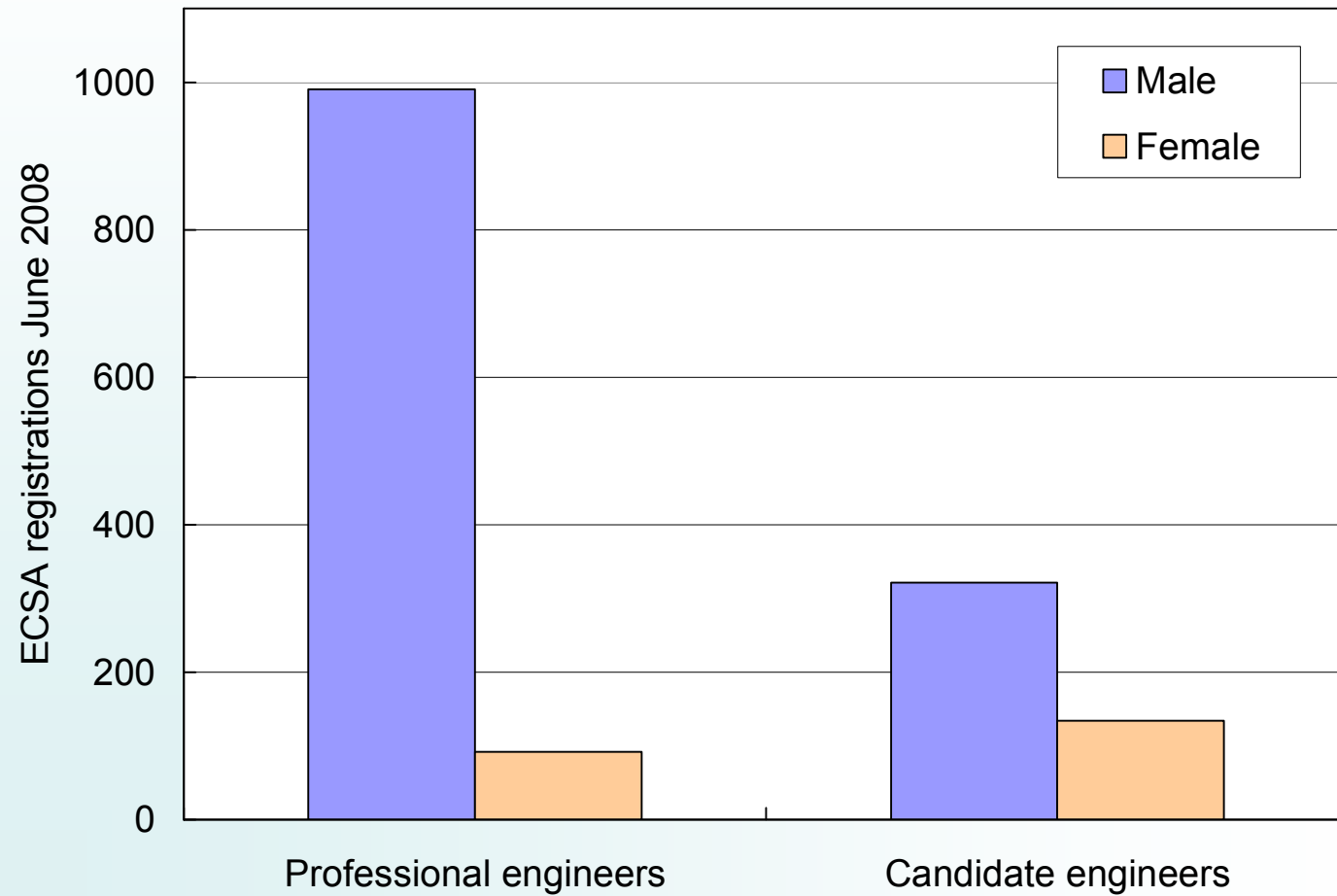


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Demographics of Survey



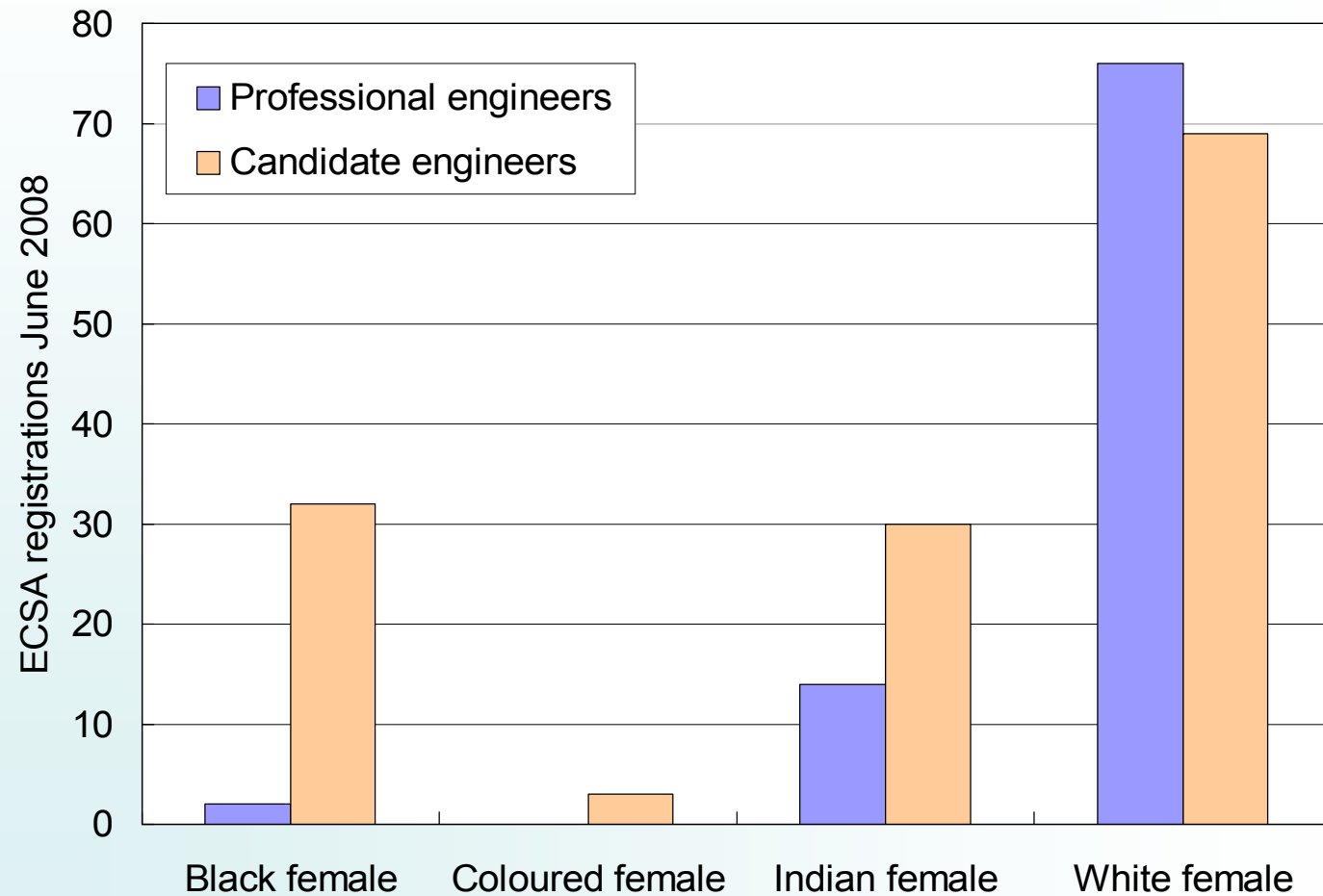
Women vs Male Engineers in SA



(ECSCA, 2008)



Women Engineers by Race



(ECSA, 2008)

Emerging Demographic Trends

Professional engineer:	8% women
Candidate engineer:	30% women

→ Significant increase in women entering engineering

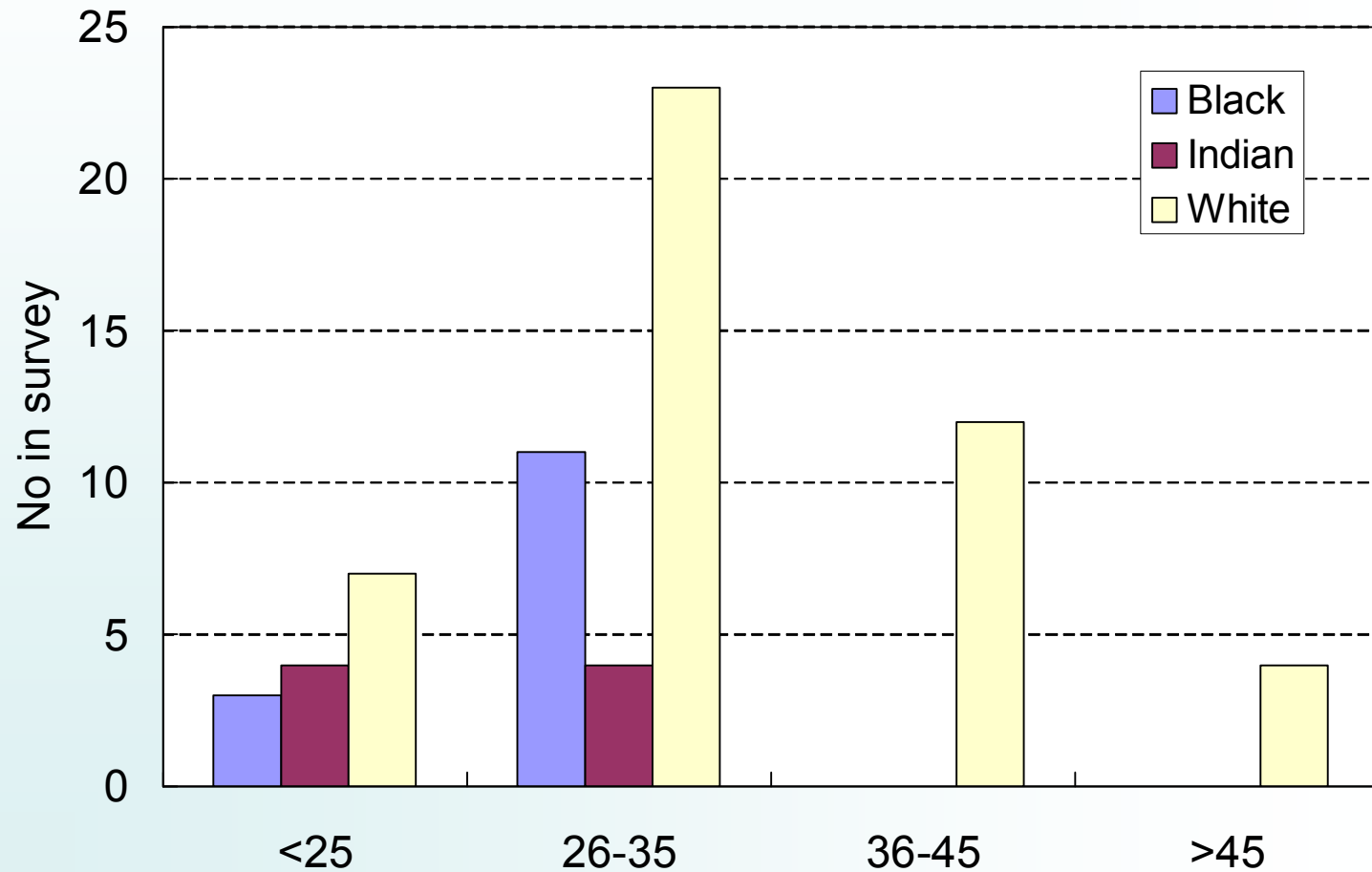
Professional engineer:	>80% white
Candidate engineer:	48% non-white

→ Increasing racial diversification





Survey Demographics: Age and Race





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Results and Analysis

Results and Analysis

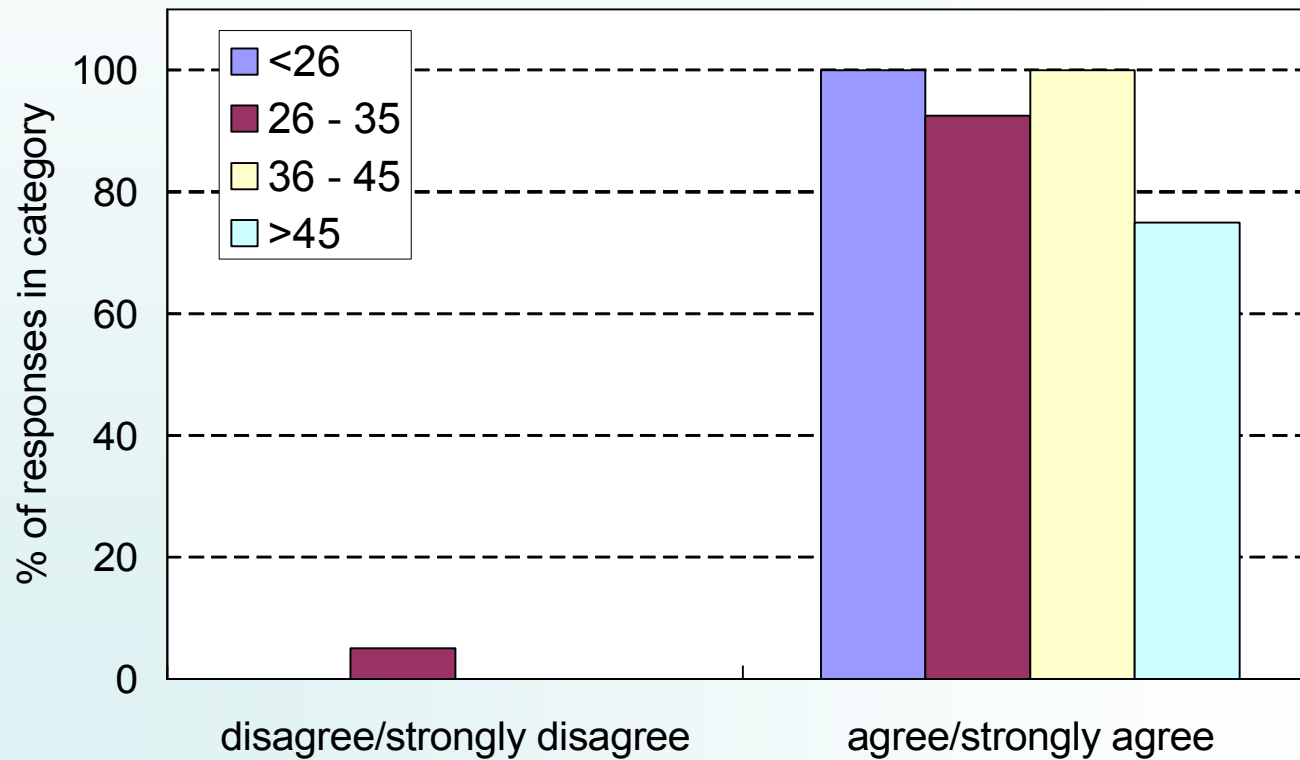
- Role of support structures at home





Family Support

I have a strong support structure (family, friends, spouse) who support me in my career





Support of Spouse / Partner

"Choose your partner carefully! The job is challenging and consumes a great deal of your time and focus. You definitely need the support of your family if you are to be successful."

Results and Analysis

- Role of support structures at home
- Support structures in the workplace





Mentors

- 80% have male mentor(s)
- 20% have female mentor(s)

- Black women less likely to be mentored
- Higher likelihood of mentorship in private sector



Role of Other Women Engineers

- Support of other women in workplace
- Respect for senior women in profession
- Support of junior engineers
- Other engineers as friends

Support of Other Women Engineers

I am supported by other professional women in my workplace



% agreement

- Overall: 75%
- Academia: 85%
- Black women: 63%
- <25 age: 63%



Results and Analysis

- Role of support structures at home
- Support structures in the workplace
- Workplace environment

Perceptions of Workplace Gender Bias



	<u>% agreement</u>
Have experienced overt discrimination	34%
Regularly experience subtle discrimination	27%
Men more likely to be promoted	40%
Seldom appointed to high profile projects	49%



Perceptions of Workplace Gender Bias

- Lower incidence at younger age groups
- Black women and older women most likely to have experienced discrimination
- Reflects historical inequalities in SA society
- Possible incompatible generational and cultural expectations



"One thing that I would like to change"

Black women, aged 26-35:

"Racism and criticism"

"Respect and trust for women"

*"Less discrimination on the grounds of race and ...
gender"*

*"If men and women were treated equally especially with
respect to salaries and promotions. It's easier for
employers to promote men than females"*

*"Value systems - especially respect for women in the
production environment"*

“One thing that I would like to change”

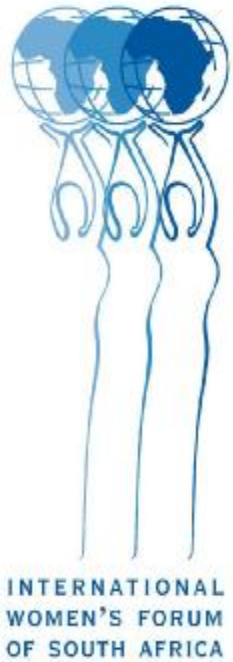
Under-25 Indian engineer:

“The environment....including gender, race and language discrimination.”

An academic:

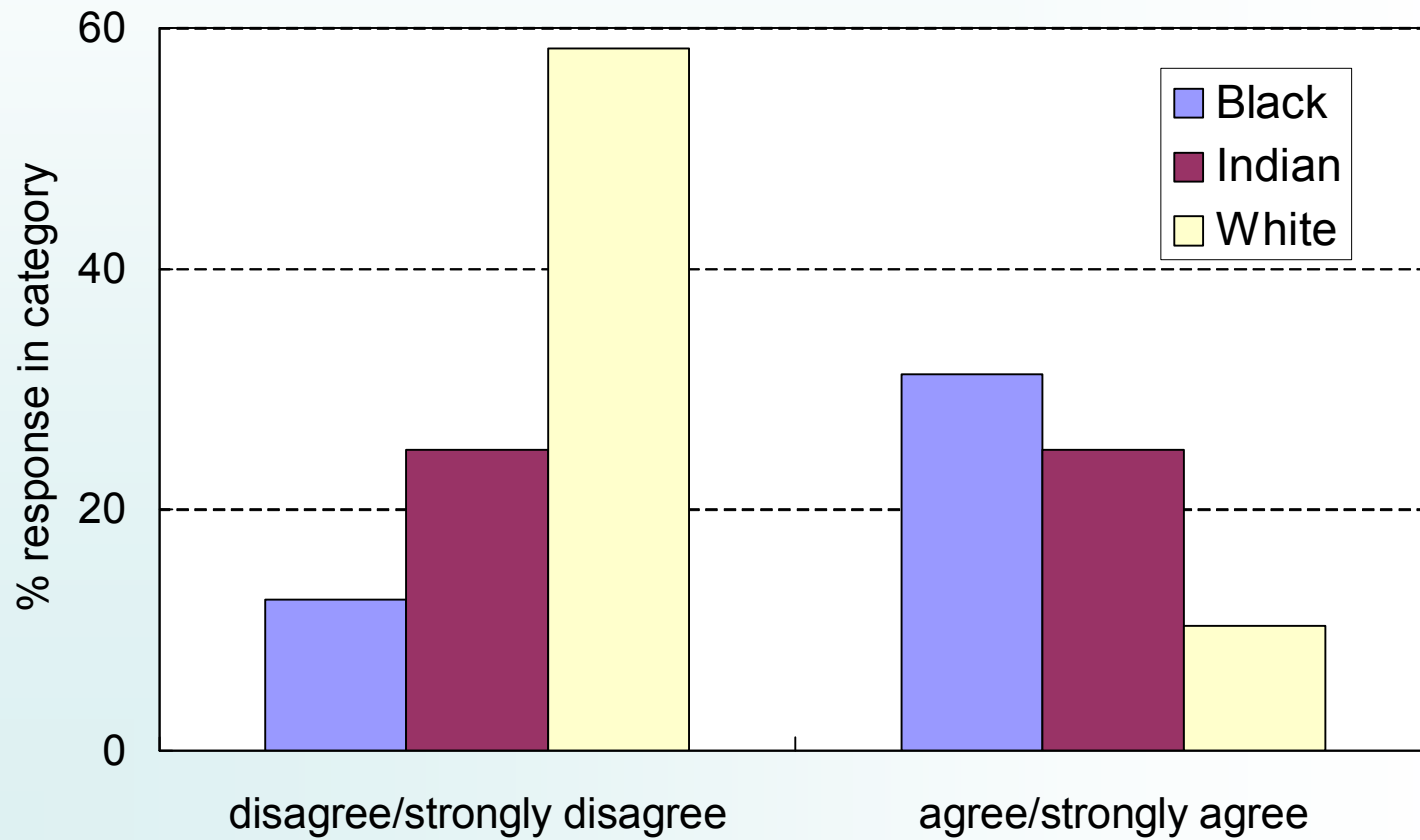
“Attitude of male students towards women lecturers!”





Affirmative Action Policies

I support gender-based appointment and promotion policies



Pregnancy and Maternity

"If you want to have kids, do not study engineering."





Pregnancy and Maternity

"At our site, you are not allowed on the plant if you are pregnant. So this results in you feeling useless for that time, and also hearing a lot of comments that you are not doing your job."

I know for a fact that when I become pregnant again it will be met with resistance - I fear the day that I have to break the news of being pregnant again to my management."

Pregnancy and Maternity

"Managers need to realise that as much as we love our careers, our children come first and shouldn't even try to make us feel guilty about that."

"I've heard of instances where top management promises career growth if one doesn't get pregnant in the next 2 yrs or so."



Pregnancy and Maternity

"It's difficult to have children and a family in this profession. I've had a lot of discrimination and people thinking I cannot do my job during my pregnancy....people went out of their way to humiliate me during this time."





Work-Life Balance

- 64% expect to interrupt their career for personal reasons
- 85% want to enter, leave and re-enter profession, depending on life circumstances
- Often difficult to manage work-life balance
- Single most significant factor in enhancing working environment is *FLEXIBILITY* of working hours and workplace



Results and Analysis

- Role of support structures at home
- Support structures in the workplace
- Workplace environment
- External factors

Retention within South African industry

Planning to emigrate

- within two years 15%
- at some time in the future 45%





Results and Analysis

- Role of support structures at home
- Support structures in the workplace
- Workplace environment
- External factors
- **Personal attitude**



Personal Attitude

"Work hard, ignore discrimination, don't let the gender issue become an issue for you, surround yourself with positive people who believe in you and ... disprove stereotypes by example. The limits you set yourself will define how far you get."



Personal Attitude

"Aim for that about which you are passionate. Believe in yourself.....gather around you people who believe in you and celebrate your ability and success. Do not expect yourself to follow the same approaches as are used in a male-dominated work environment, but equally, do not expect the men to do things differently. Define your way, follow it and show it works as well as anyone else's."



Personal Attitude

"... it can be tough and difficult to have a traditional life with spouse and children, but it can also be rewarding. Don't expect special treatment and be prepared to pull your weight, but don't feel the need to compromise your femininity - women bring different skills to the workplace and have a lot to offer."

Personal Attitude

"If you are good at what you do, you will get the recognition and respect. You shouldn't get it just because you are a woman."





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In Summary



Main Findings

- Strong support structure is essential – at home and at work
- Flexibility of working conditions
- Gender- and race-based perceptions of discrimination still routinely experienced
- No preferential treatment for women wanted
- Positive outlook, hard work, dedication, tenacity



Recurring Themes

- Extent of perceived discrimination and lack of respect for women in the workplace
- Policies relating to work-life balance
- Flexible working conditions
- Health effects on women working in environments with potential chemical exposure
- Bridging the wage gap between men and women
- Changing stereotypes of women in the workplace



Personal Attitude

Many women engineers have experienced some gender-related difficulties in their workplace

BUT

- do not want any preferential treatment or favours
- just want to get on with the job
- receive recognition and acceptance for doing it well
- and yet not compromise or trade on their femininity



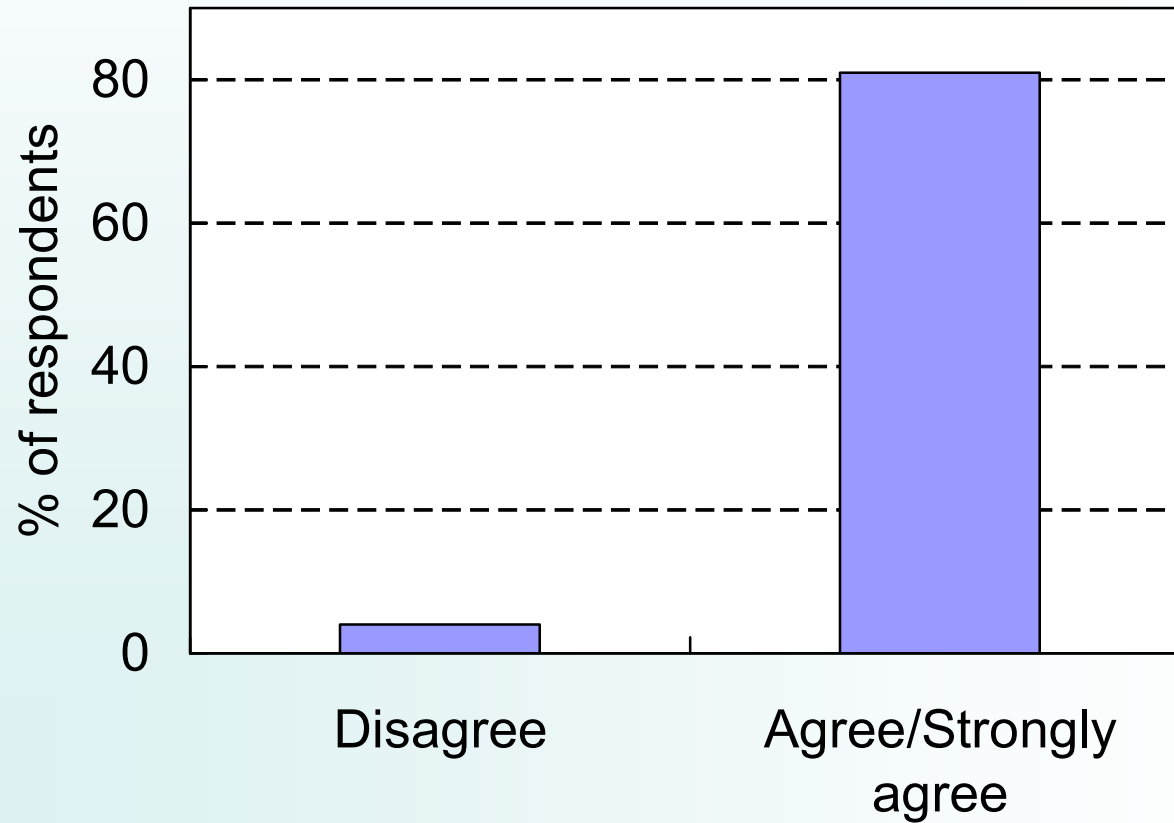
In Conclusion

- Career success and retention largely determined by personal characteristics, passion, hard work, with support of family and friends
- Cultural and practical obstacles do exist; difficulties in integrating work-life responsibilities
- Organisations can implement strategies and policies to improve working conditions for both women and men at low cost and with minimal impact on productivity
- Policies and legislation in isolation will not improve retention—more broad-based acceptance of women in professional careers and empowerment of women within our wider society is essential



In Conclusion

I love my job!





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"Wear lipstick and earrings with your overalls, but forget that you are a woman when it gets to doing the work. Just do your best and the rest will take care of itself."



Acknowledgements

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Wathint' abafazi wathint' imbokodo!