INFT 3800

Professional Practice in IT

Sem 1, 2021

LECTURE NOTE – WEEK 3

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Professional Ethics II

- Accessibility Considerations in ICT
- Gender Equality in ICT Profession
- Unconscious gender bias and stereotyping
- Addressing gender inequality

Accessibility Considerations in ICT:

- IEEE Code of Ethics #7:
  - to treat all persons fairly and with respect, and to not engage in discrimination based on characteristics such as race, religion, gender, disability, age, national origin, sexual orientation, gender identity, or gender expression;
- ACM Code of Ethics #1.4:
  - Be fair and take action not to discriminate.
- ACS Code of Ethics #1&2:
  - The primacy of the public interest
  - The enhancement of quality of life

Accessibility Considerations in ICT:

- Computing professionals should foster fair participation of all people, including those of underrepresented groups.
- Discrimination on the basis of age, colour, disability, ethnicity, nationality, race, religion or belief, sex, or any other factor is a violation of the Code.
- Harassment like sexual harassment, bullying, etc, is a form of discrimination that, it limits fair access to the virtual and physical spaces where such harassment takes place.

Accessibility Considerations in ICT:

- Why ICT accessibility matters?
  - ICTs have become a key enabling infrastructure
  - The use of ICT is transforming the way we work, live, learn and interact.
  - ICTs are fundamental to enable the independent living of persons with disabilities. Eg:
    - Access to key public services; health, education, government services.
    - Increase productivity, job access and entrepreneurships
  - ICTs are a powerful equalizer of abilities, empowering persons with disabilities to fulfil their potential, dreams and ambitions.

Accessibility Considerations in ICT:

- To achieve the previously mentioned benefits, ICTs have to be "accessible".
- Or else, ICTs will be introducing new barriers for persons with disabilities to access:
  - Content
  - Media
  - Public services
  - Job market

Accessibility Considerations in ICT:

- The role that ICT can enhance the quality of life of people, particularly the disadvantaged or those with disabilities.
- Protect and promote the health and safety of those affected by your work.
- We should understand and care about the perceptions of those affected by our work.
- Attempt to increase the feelings of personal satisfaction, competence, and control of those affected by our work.

Accessibility Considerations in ICT:

- The use of information and technology may cause new, or enhance existing inequities.
- Technologies and practices should be inclusive and as accessible as possible
- Computing professionals should take action to avoid creating systems or technologies that discriminate or oppress people.
- Failure to design for inclusiveness and accessibility may constitute unfair discrimination.

Accessibility Considerations in ICT:

- Based on ITU report, there are ways to promote an accessible ICT sector:
  - Promote universal design
  - Create regulatory/policy framework
  - Create accessible content, services & applications
  - Create a dynamic market
  - Build capacity of users
- To create an accessible web application, a developer has to make it accessible to as many users as possible, especially disabled users.

Accessibility Considerations in ICT:

- Visually-impaired users may not be able to read text that`s in images (need to provide other alternatives like text-to-voice).
- Users with motor disabilities may not be able to use the mouse (need to make sure that all of the content can be accessed using keyboard).
- Among types of disabilities to consider:
  - Visual
  - Hearing
  - Motor
  - Cognitive

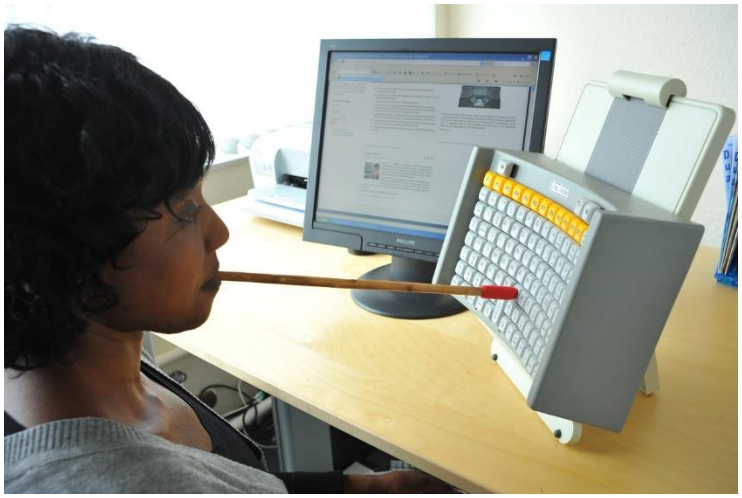
Accessibility Considerations in ICT:

- What are the key issues for deaf and hearing impaired users?
  - Slow reader
  - Writing can be formidable task
- How can ICT support deaf users?
  - Pictures
  - Signs
  - Texts

Accessibility Considerations in ICT:

Example of Assistive Technologies for user with motor disabilities:

- **Head wands** and **mouth sticks**; devices that fit over the head or into the mouth and extend toward a [illegible]e.



Source: theweco.com

Accessibility Considerations in ICT:

Example of Assistive Technologies

- A **single switch** is a device - often a large button or touch-sensitive pad - that is placed near a body part to be clicked. Special software is often necessary to translate single-switch activity into computer commands.

Source: enablingdevices.com

Accessibility Considerations in ICT:

Example of Assistive Technologies

- A **sip-and-puff switch** has the same functionality as a single switch but is operated by blowing and sucking air into a mouthpiece.

Source: enablingdevices.com

Accessibility Considerations in ICT:

Example of Assistive Technologies

- An **oversized trackball mouse** is a trackball whose larger dimensions make it easier to operate with assistive devices such as a head wand.

Source: maketecheasier.com

Accessibility Considerations in ICT:

Other Example of Assistive Technologies

- An **adaptive keyboard** may feature word-completion technology as well as raised gaps between keys that allow users to rest their hands in place when not typing and during muscle spasms.
- People with limited or no hand control sometimes prefer **eye-tracking devices**, which register the user's eye movements and use them to navigate the web.
- While it can be costly, **voice recognition software** offers some users the option to navigate the web via direct voice commands smoothly.

Accessibility Considerations in ICT:

Three ways to make a website more accessible to users with motor disabilities:

1. Support Effective Keyboard Navigation
2. Reduce Actions that Require Too Many Keypresses
3. Add a Search Field to Your Website

Accessibility Considerations in ICT:

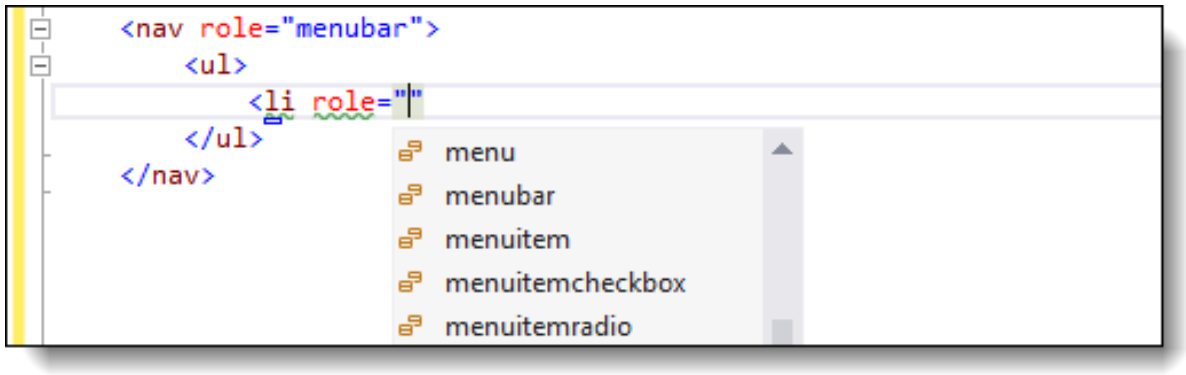
A **cognitive impairment** (also known as an intellectual **disability**) is a term used when a person has certain limitations in mental functioning and in skills such as communication, self-help, and social skills.

To assist people with cognitive disabilities:

- Text-to-speech reading aids
- Clear, simple language
- Simple and clear navigation
- Tailored presentation options

Accessibility Considerations in ICT:

- WAI-ARIA specification for the W3C.
- IntelliSense feature of Visual Studio supports developers to determine what role attribute an HTML element plays on the form.

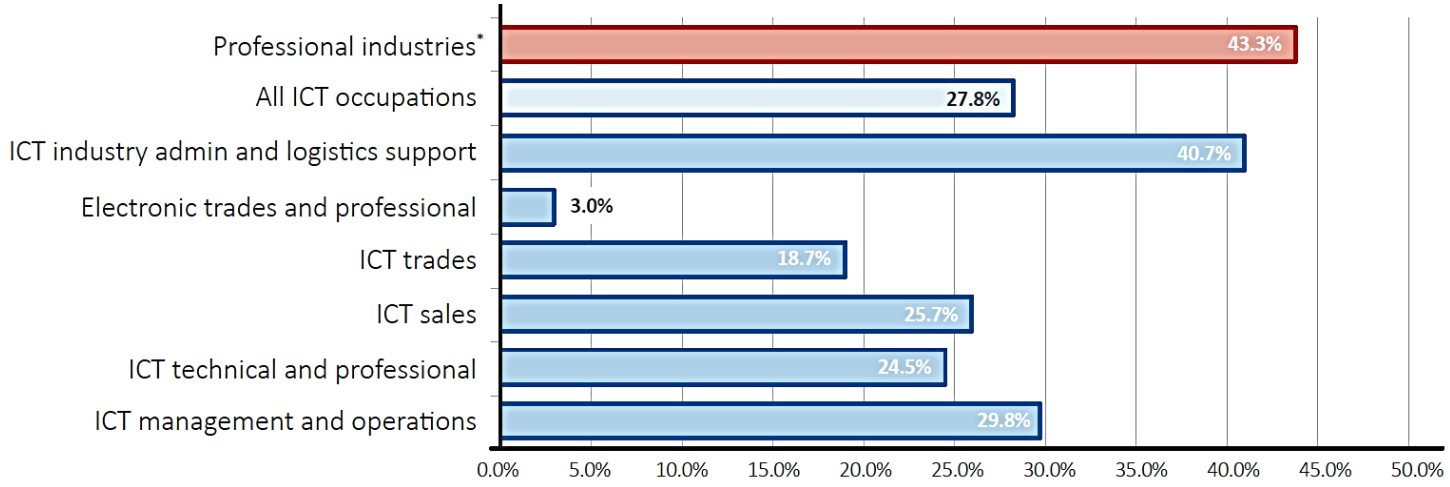


Accessibility Considerations in ICT:

- Information sources on accessibility:
- The WebAIM website provides a good starting point for learning about accessibility at http://www.webaim.org
- The World Wide Web Consortium (W3C) provides a full set of accessibility guidelines at http://www.w3.org/TR/WCAG
- W3C also provides a specification called WAI-ARIA (Web Accessibility Initiative-Accessible Rich Internet Applications) that shows how to make rich Internet applications more accessible to the disabled at http://www.w3.org/TR/wai-aria

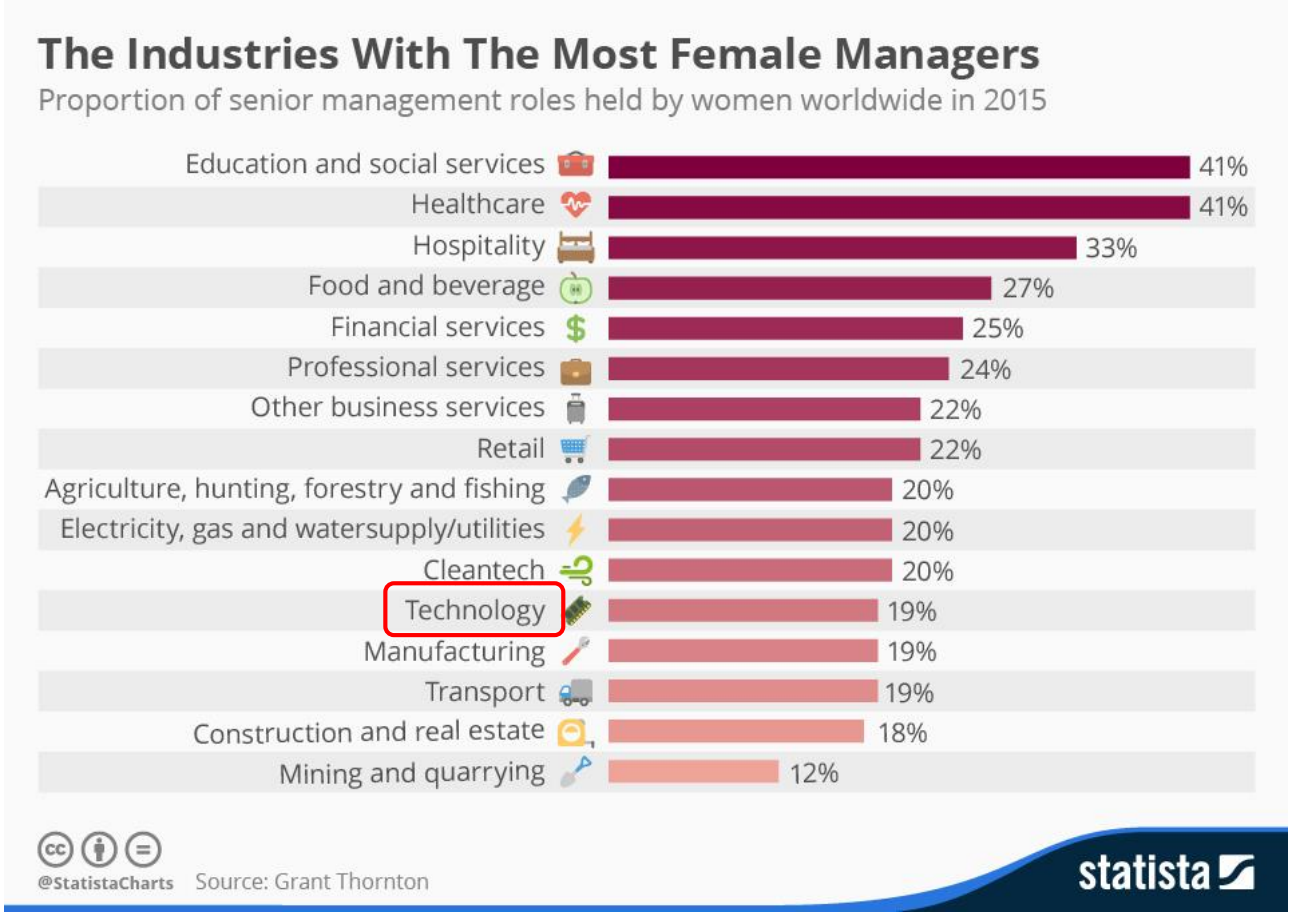
Gender Equality in ICT Profession

- The report from Deloitte Access Economics, "Australia's Digital Pulse" shows that women are significantly underrepresented in Australian ICT occupations (2015).



Source: ABS cat. 6291.0 (2015) and customised report (2015)

Gender Equality in ICT Profession



Gender Equality in ICT Profession

What is gender equality?

- It is the equal treatment of all genders.
- It means all genders will enjoy the same rights, opportunities, responsibilities and protections.
- Gender equality in Australia affects everybody's experiences and makes a safer and healthier community.

In a gender equal world, we would see:

- Equal access to education for girls and boys
- Equal representation of women in leadership positions in workplaces and politics
- Recognition of the value of unpaid and domestic work
- Equal access to the economic resources such as financial services, inheritance and natural resources
- No discrimination against women and girls
- No gendered violence

Gender Equality in ICT Profession

- Women and men are likely to experience the future of work differently due to entrenched occupational segregation.
- Women, on average, perform more routine tasks than men, putting their jobs at high risk of automation.
- At the same time, feminised fields such as healthcare, education and social assistance have low risk for automation and are predicted to grow in the future, but many of the jobs are defined by low pay and poor working conditions.
- Women continue to be largely excluded from high-quality jobs in STEM that are poised to shape the future of work.

Gender Equality in ICT Profession

- Women are less likely to receive on-the-job training or educational incentives, compared to men, due to their overrepresentation in low-skill, low-pay jobs.
- Work flexibility is increasing, but this flexibility does not always benefit women.
- Women are more likely than men to be exposed to destabilizing, employer-driven flexibility as opposed to more family-friendly, employee-driven flexibility.
- Additionally, while ICTs expand where and when work can be done, they can also facilitate continuous work cycles that undermine work-family balance and worker well-being.

Unconscious gender bias and stereotyping

- The key factors contributing to the gender inequality outcomes are unconscious gender bias and stereotyping:
  - From birth and into school years
  - The career phase
  - In the workforces
  - Balancing career and parenthood
  - Retirement phase

Unconscious gender bias and stereotyping

- From birth and into school years
  - ‘appropriate’ behaviour for boys and girls is defined early.
  - “Boys are encouraged to be tough and play competitive games whilst girls should be more caring, gentle and look after others.”
  - Research identified by WGEA suggests these ‘gendered behaviours’ are not so much built into our DNA but develop over time.
  - So they are more a function of environmental and social factors than being innate.

Unconscious gender bias and stereotyping

The career phase

- Upon entering the workforce, the gender pay gap emerges for graduates.
- According to the Graduate Careers Australia GradStats 2014, the median full-time employment starting salary for graduate men in Australia was $55,000, compared to $52,000 for women.
- For computing science graduates in 2014, the median full time starting salary for men was $55,000 and for women $53,500.
- Even after completing an MBA, women were likely to start jobs at a lower level and lower salary than men.

Unconscious gender bias and stereotyping

- In the workforces
  - Women are less likely to be assertive in the workplace than men.
  - This impacts on their negotiation skills and therefore their ability to advance their careers and improve their remuneration.
  - Three factors why are women less successful negotiators (WGEA, 2013):
    1. Women are generally perceived as communal (caring, communicative and encouraging) and men as agentic (ambitious, assertive, decisive and self-reliant)."
       - Negotiation is usually associated with agentic behaviour. Therefore, when employers negotiate with women, they tend to offer less and are more likely to resist attempts to influence.
    2. Women's reluctance to enter negotiations is partly because they are often penalised more than men for doing so.
       - Women who are seen as assertive or aggressive can experience resistance and even backlash for doing so.
       - So unsurprisingly, some women will avoid negotiation.

Unconscious gender bias and stereotyping

- In the workforces (CONT..)
  - Three factors why are women less successful negotiators (Cont..):
    3. When there is little or no contact between the men and women, outcomes are comparable.
       - It is mostly in face-to-face negotiations that outcomes suffer.

Unconscious gender bias and stereotyping

- Balancing career and parenthood
  - ‘human capital’ is a person’s accrued knowledge, skill, experience and ability.
  - A person’s human capital accumulates over time and impacts on remuneration and career paths.
  - The growth of human capital stops or slows without continuous employment.
  - So when women drop out of employment or take reduced employment while raising children, their human capital “value” is reduced.

Unconscious gender bias and stereotyping

- Retirement phase
  - Career gender biases can limit the ability of women to secure a financially healthy retirement.
  - The Australian Human Rights Commission presents estimates from 2009/2010 indicating that the average (mean) superannuation payouts for women are just over half (57 per cent) of those of men: $198,000 for men compared to $112,600 for women (based on superannuation balances for the age group 60-64 years).
  - It is estimated that 50 per cent of women approaching retirement (aged 55-59 years) have superannuation balances of $25,000 or less.

Unconscious gender bias and stereotyping

- Retirement phase
  - In addition, in 2010-11, just under half of retired women in Australia had made no contributions to a superannuation scheme compared to 25 per cent of men.
  - The challenge women face to secure a healthy retirement income is further highlighted in a 2012 Income and Wealth report prepared by the National Centre for Social and Economic Modelling (NATSEM) for AMP Financial Services.
    - The report found that “a postgraduate woman aged 25 years can expect to earn $2.49 million, just two-thirds of her male counterpart’s lifetime earnings ($3.78 million).
    - More striking is the fact that women with post-graduate qualifications would earn only as much on average over their lifetime as men with a certificate or Year 12.”

Addressing gender inequality

- Leadership, Culture and Accountability
  - Cultural change through the governance and accountability systems being set up internally.
  - Clear acknowledgement at the leadership level that gender equality is a critical strategic business issue.
  - It is not a Human Resources issue, but must be seen as a critical factor in achieving the organisation's strategic goals.
  - Good outcomes on equality translate into good outcomes for the business and the bottom line.
  - Gender equality must be "built in" to organisational thinking, not "bolted on."

Addressing gender inequality

- Leadership, Culture and Accountability
  - All layers of management must be given clear accountabilities to deliver against the gender equality KPIs.
  - This will require:
    - Identifying the key barriers,
    - Implementing action plans to address the barriers,
    - Being clear on targets and consequences for non-achievement,
    - Have systems in place which allow transparent reporting of progress against targets.

Addressing gender inequality

- Flexible Work Practices
  - The greater emphasis by parents on shared caring for their children;
  - Two income families becoming the norm;
  - The increasing importance placed on achieving better work/life balance;
  - The economic imperative that requires higher participation by women in the workforce; and
  - Technology platforms which allow us to work from virtually anywhere at any time.

Addressing gender inequality

- Mentoring and Sponsorship
  - Mentoring and sponsorship both seek to improve a person's career and are often recommended as tools for addressing gender inequality issues.
  - **Mentoring** essentially involves providing psychological support through friendship, guidance and counselling.
  - **Sponsorship** is direct, career-related support provided by a person in a more senior position who can provide direct access to opportunities and who can be a strong advocate within the organisation.

Addressing gender inequality

- Targets and Quotas
  - Targets and quotas both aim to improve gender equality in an organisation.
  - However, targets are voluntary while quotas are mandated by an external organisation.
  - The principal advantages of targets over quotas are:
    - Targets can be tailored and monitored on an individual company basis while Quotas take no account of the individual organisation's circumstances.
    - Companies setting their own targets will likely take greater ownership of the target. Quotas, because they are imposed from outside, can create resentment and are seen as a cost imposition.
    - Targets can be applied at various management levels within an organisation while Quotas are easiest to set for Board or CEO level positions only.

Addressing gender inequality

- Role Models
  - A key reason girls and women do not pursue careers in ICT is that the profession has an image problem.
  - The stereotypical ICT person is seen as "…a 25-year-old, hoodie-clad dude who wears glasses, is antisocial, and loves to hack strings of code in the basement of his parents' home, eating stale pizza and drinking Red Bull until 3 or 4am."
  - This stereotype image must be changed.
  - One way to do that is to identify successful females in ICT and use them as role models.

Summaries

- What is the relationship between ethics and accessibility?
- What are the accessibility consideration in ICT?
- What is gender equality in ICT profession?
- What is unconscious bias and stereotyping?
- How to address gender inequality?

Next Week

- AI Technology landscape
- Application of AI
- Ethical Concerns with AI
- Impact of AI on employment
- Legal implication of AI
- Social implication of AI
- National framework for conduct of research

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