

# Technology enabled learning for sustainable development



COMMONWEALTH *of* LEARNING

**Dr Alison Mead Richardson**

Education Specialist TVSD

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# COMMONWEALTH *of* LEARNING



To help Commonwealth governments and institutions  
use technology to improve and expand access to  
education and training





ECONOMIC  
GROWTH



SOCIAL  
INCLUSION



ENVIRONMENTAL  
CONSERVATION

*Technology enabled learning for  
sustainable development*

# GOAL 4

ENSURE INCLUSIVE AND EQUITABLE QUALITY  
EDUCATION AND PROMOTE LIFELONG LEARNING  
OPPORTUNITIES FOR ALL

**SUSTAINABLE DEVELOPMENT GOALS**

More at [sustainabledevelopment.un.org/sdgsproposal](https://sustainabledevelopment.un.org/sdgsproposal)



# COL's programme strategies



Models



Materials



Capacity



Policies



Partnerships



## Students go on hunger strike to pressure Cambridge University to divest

Three undergraduates are embarking on the direct action as part of an ongoing campaign to stop the university investing in fossil fuels



▲ Cambridge students protesting this week against the university's fossil fuel investments Photograph: Courtesy of Cambridge Zero Carbon Society

## Why ICT for sustainable development in TVET?

- Millennials & Gen Z
  - Digital natives
  - Different values & expectations
- Concerned about ...
  - The environment
  - The future
- Looking for change



Yesterdays' classroom ... yesterday's workplace

*Instructors must teach their student's future ... not their own past*





# Workplace has evolved – has the classroom?

*Teaching approaches must also change for the new reality*



Are we still teaching with our backs to students?



we are not breaking through with  
blended classroom

# New Generation of Learners ... ... they want more

**More interaction, less lecture**  
Keep us active and engaged!

**Blended approach to instruction**  
I learn best hands on.

**Globally connected**  
I want to easily communicate with  
someone in a different country.

**Recorded videos and audio**  
I want personal control over content access.

MASIE Center Survey





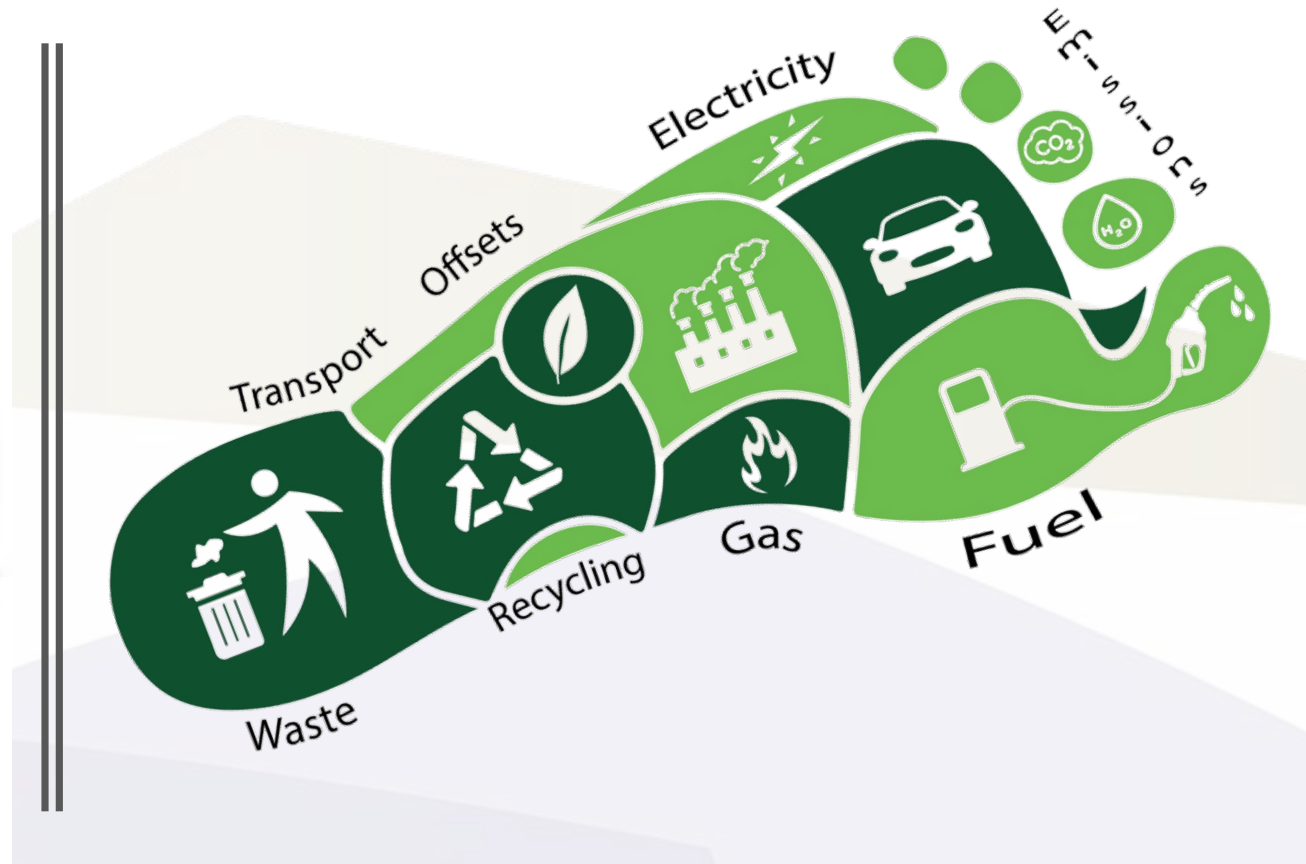
# Future Employability

**77%** More than 50% of today's jobs require some technology skills ... could rise to 77% in the next decade.

**60%** Within 10 years, 60% of the jobs that will be available are ones that don't even exist today

IDC





Employers want people who are trained in principles of SD

BA in Procurement Management



## *Measuring the Carbon Footprint of Higher Education*

4  
distance  
courses

•

4  
online  
courses

•

14 F-F  
courses

**Findings** – online and blended ICT-enhanced distance teaching models had significantly lower environmental impacts than face-to-face teaching modes

**Methodology** – considered multiple contributors to emissions for both students and the institutions.

(Caird et al., 2013)

<http://www.open.ac.uk/blogs/susteach/>

# Delivery mode and learner emissions: *a comparative study from Botswana*

*COL working paper; Carr et.al, 2018*



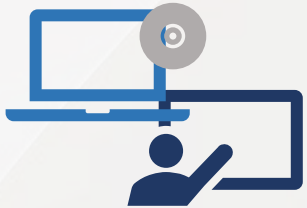
# Findings



Learning related carbon emissions of the ODL students were one-third that of the campus-based students



Within the overall learner carbon footprint, emissions from travel were by far the greatest contributor to this disparity



*Institution*, as a proxy for mode of delivery was the most significant determinant of learner carbon footprint, even when controlling for possible demographic factors.

The background features a stylized illustration of a sustainable community. On the left, a tall green building has a solar panel on its roof. In the center, a white wind turbine stands prominently. To the right of the turbine are several green trees of varying heights. In the foreground, a green car is shown from a side profile, moving towards the right. The overall color palette is dominated by greens and whites, suggesting a clean, eco-friendly environment.

## What are the implications?

- Institutional carbon reduction efforts should focus on **pedagogy design** not only infrastructure and campus greening
- how can ODL modes of delivery be upscaled, not only to increase access, but also to **reduce the environmental impact of education**

# Social inclusion

Flexible learning opportunities:

- tend to benefit women more than men
- Enable women to fulfil family responsibilities as well as learn – often while working full time!
- Enable institutions to offer part-time programmes for working people
- Enable flexible programme offering that is more affordable – often benefiting marginalised groups
- Also developing blended learning programmes for PWDs



# Cost & OER

- Open Educational Resources or OER are linked to use of digital content
- born out of the ODL and TEL movements
- millions of OER freely available
- In Canada, 40 institutions in British Columbia have saved over \$9 million through the use of OER
- Interested in how we can use OER to reduce the costs of skilling and reskilling workers



*How can we benefit from this free quality content?*



EDUCATION & INNOVATION

## Meet Jill Watson: Georgia Tech's first AI teaching assistant

Nov 10, 2016 | By Hillary Lipko



### A teaching assistant named Jill Watson | Ashok Goel | TEDxSanFrancisco

TEDx Talks • 23K views • 1 year ago

Ashok is sharing how he believes he can use artificial intelligence to scale p  
used AI to build Jill Watson, ...

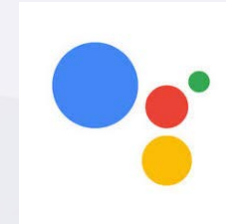
<https://www.youtube.com/watch?v=WbCguICyfTA&t=17s>

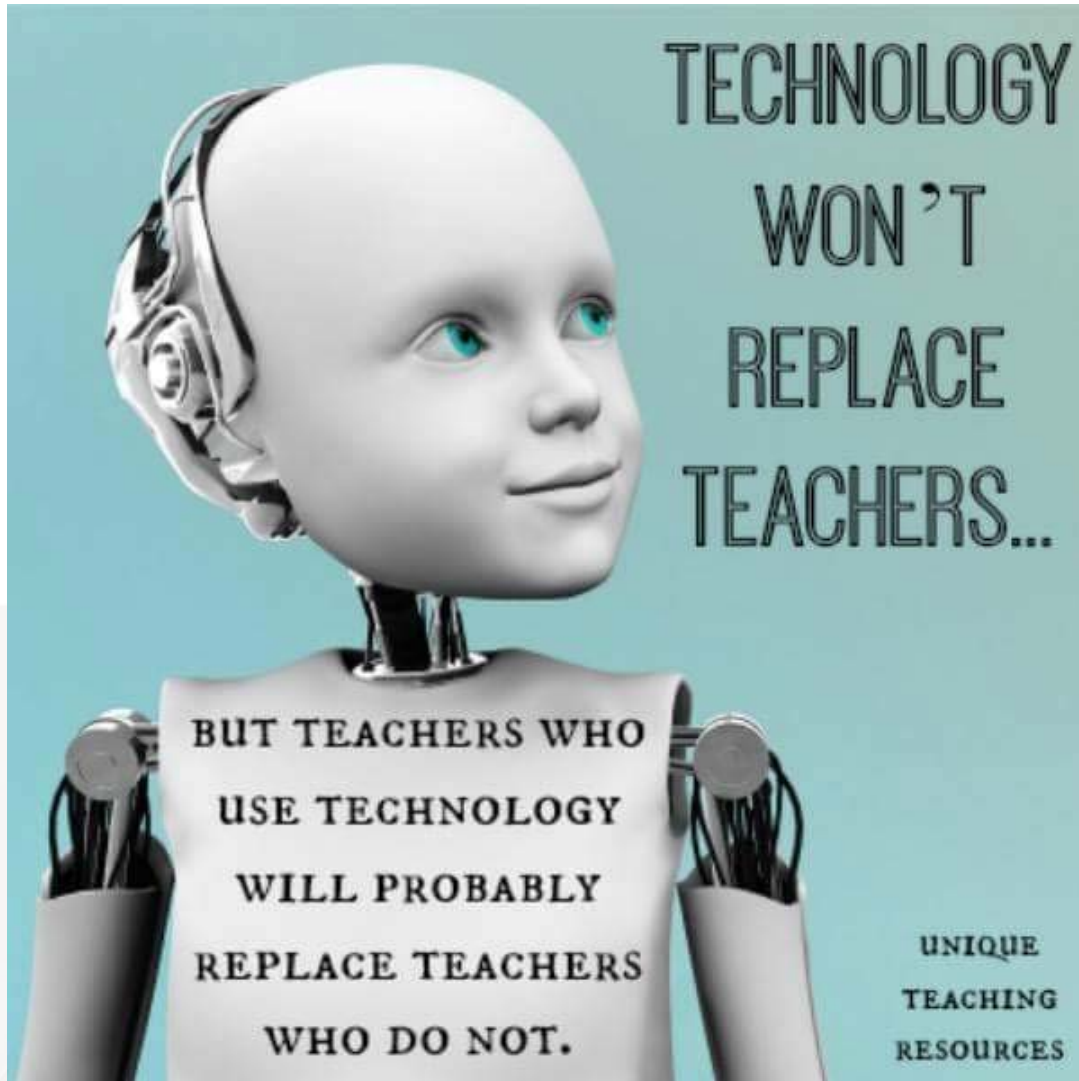
# The future is AI

~ artificial intelligence



AI in Daily Life





## Take away messages ...

Do not be afraid of the future ... but learn strategies to embrace it!

Technology enabled learning can support sustainable development

Instructor training is key but we need a new pedagogic model

TEL can help us to be more efficient, more effective teachers



inspired by technology  
...driven by pedagogy





Questions?

