



UNIVERSITY  
OF  
JOHANNESBURG



## **Review of COVID19 - Impact on Education, Skills Development and Training as it relates to the 4IR and digitisation.**

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NATIONAL SKILLS AUTHORITY

WORKSHOP ON “FOURTH INDUSTRIAL REVOLUTION (4IR): THE FUTURE OF SKILLS DEVELOPMENT



Rethinking  
Curricula for  
4IR

Teaching &  
learning during  
COVID-19 and  
beyond

The future  
focused  
university

# WEF TOP TEN SKILLS OF 2025

Analytical thinking and innovation

Active learning and learning strategies

Complex problem-solving

Critical thinking and analysis

Leadership and social influence

Technology use, monitoring and control

Technology design and programming

Resilience, stress tolerance and flexibility

Reasoning, problem-solving and ideation.

## Types of skills:

- Problem solving
- Self-Management
- Working with people
- Technology use and development



Peters (2020) notes, it challenges 'the binary between the old normal and the new normal, with thoughts about how Covid 19 has created an opportunity to critically interrogate the epistemological and ethical foundations about the presumed normal'





# CURRICULA SHOULD DELIVER:



a range of transferable  
problem-solving skills



a critical approach to  
knowledge



flexibility in thinking and  
approaching problems



comfort with diversity in  
backgrounds, disciplines  
and approaches



an appreciation of a  
team approach to  
developing different  
solutions



# One solution is inter/trans/multi-disciplinarity

Not a betrayal of disciplines but a move beyond them

Provides for a flexible knowledge base

Develop the ability to work with people from a wide range of disciplines

Approach problems in different ways

Good grasp of how and what research is / can be



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Interdisciplinary thinking is how curricula give effect to the 4IR skills – whether HE, skills development, or work-based training

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Augment disciplinary / professional expertise

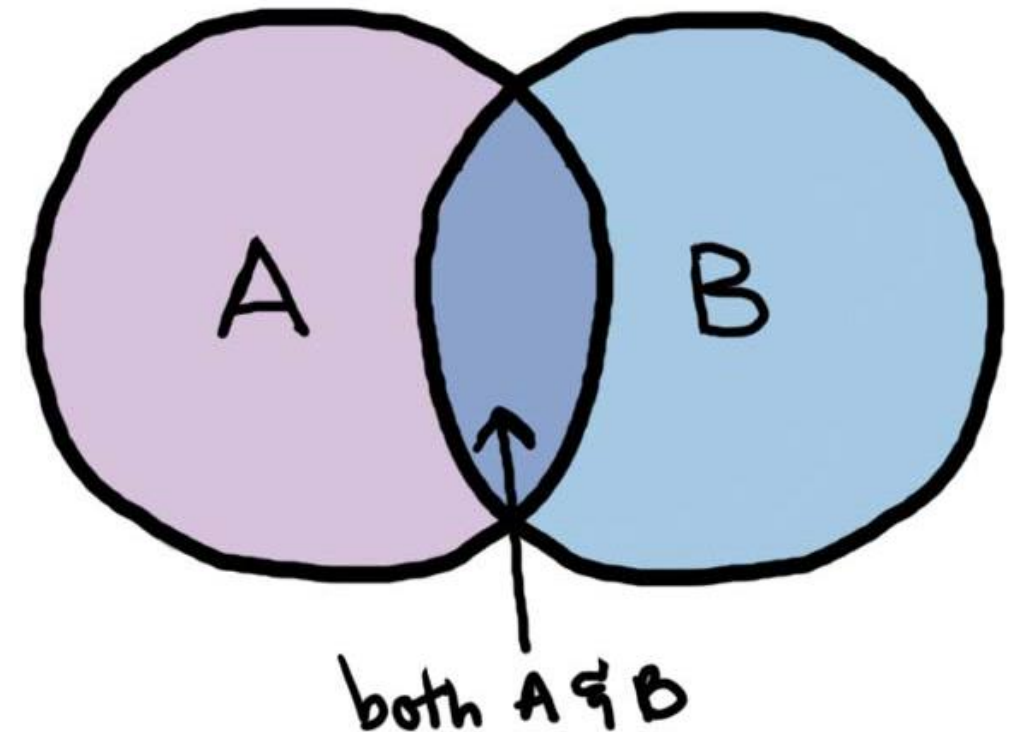
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Retain intellectual coherence in pathways and themes

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Avoid pick-and-mix, free-for-all

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# FOR EXAMPLE, POST-SCHOOL EDUCATION / TRAINING:



## CURRENT INFLEXIBLE APPROACH

- Choose one programme
- Content prescribed
- Institution controlled
- Choices ranked and limited
- NSC 'determinism'



## NEW FLEXIBLE APPROACH

- Open programme choices
- Choose from a basket of course types, modes of delivery and content based on thematic interests and aims
- Flexibility in rules
- Limits are practical
- Can address 'just in time', and 'on demand'
- Can be applied also to professional training and development



# FLEXIBLE EDUCATION AND TRAINING ALTERNATIVES

- An initial year of study can lead to many possibilities: at university to a BA, BSc, BCom
- Make qualification and training boundaries more permeable
- Select progression to diploma, degree type at set points in a course of study
- Extend existing flexibility at M and D level into other areas levels of learning
- Reconsider unnecessarily inflexible pre- and co-requisites
- Reconsider pedagogies for HE and training
- Reconsider how assessment is done to meet the 4IR skills set





**HOW TO ENSURE  
PANDEMIC PEDAGOGIES  
WHICH ADDRESS EQUITY,  
DIGNITY AND JUSTICE?**



**ARE HEIS AND OTHER  
INSTITUTIONS OF  
LEARNING  
PEDAGOGICALLY ENABLED  
FOR ONLINE TEACHING, IF  
THIS IS TO BECOME OUR  
'NORMAL'?**



**CAN OUR THINKING  
ABOUT EDUCATION AND  
TRAINING TAKE INTO  
ACCOUNT THE 4IR?**

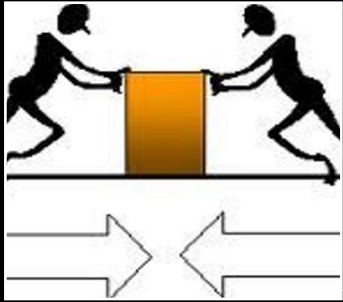


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# TEACHING AND LEARNING AND PEDAGOGY DURING COVID-19



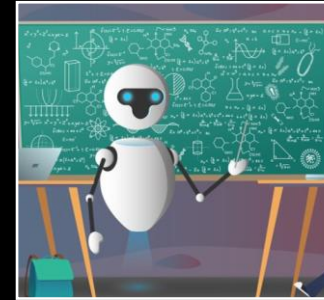
Flexible pathways –  
consideration of micro-  
credentials



Aggressive review of all  
curricula and qualifications  
for future-fitness



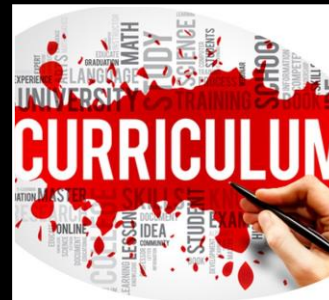
Qualifications – the  
uberisation of the university  
or a bold new future?



4IR and T&L – opportunity  
COVID-19 a threat?



Access and equity can be  
enhanced



Role of technology and  
curriculum change



# THE BIG ISSUES

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- Shift to hybrid forms of learning is paradoxical - both widens and limits access
- Major conversations required on curricula
- If it creates social exclusion it dents severely the social justice agenda
- What enabling infrastructure and resources are required? Need to advocate for this.
- Cannot just be a higher education institution's role – country-wide resourcing needed



Pedagogies need to be located within these massive shifts as both academics and students experience discomfort and unease

What are the boundaries between education, training, and skills and professional development in the context of the 4IR? Are they the same?

Teaching, learning, curriculum, assessment cannot be separated – change needs to be



System-wide changes needed to resource allocation and funding formula

Strengthening the backbone of infrastructure core

Infrastructure of the country needs development if we want to participate in a 4IR world

Relationship between societal change and the readiness and ability of institutions to deliver quality innovative 21st century HE to be interrogated

Higher education institutions are required to be agile, nimble and responsive

Be prepared for both COVID-19 and the 4IR without relinquishing the big debates on decolonisation and the inclusion of multiple epistemologies in curricula

Resourcing and funding, curriculum structure and reform, system and societal shifts for preparedness: existing divides in SA

Recommendations of the 4IR, policy and plans fatigue, lassitude, and medium-term implementation ,

The role of private providers may become more prominent & 'uberisation' a new reality?

Review of PSET as a whole is needed and the role of shorter more professionally directed qualifications explored

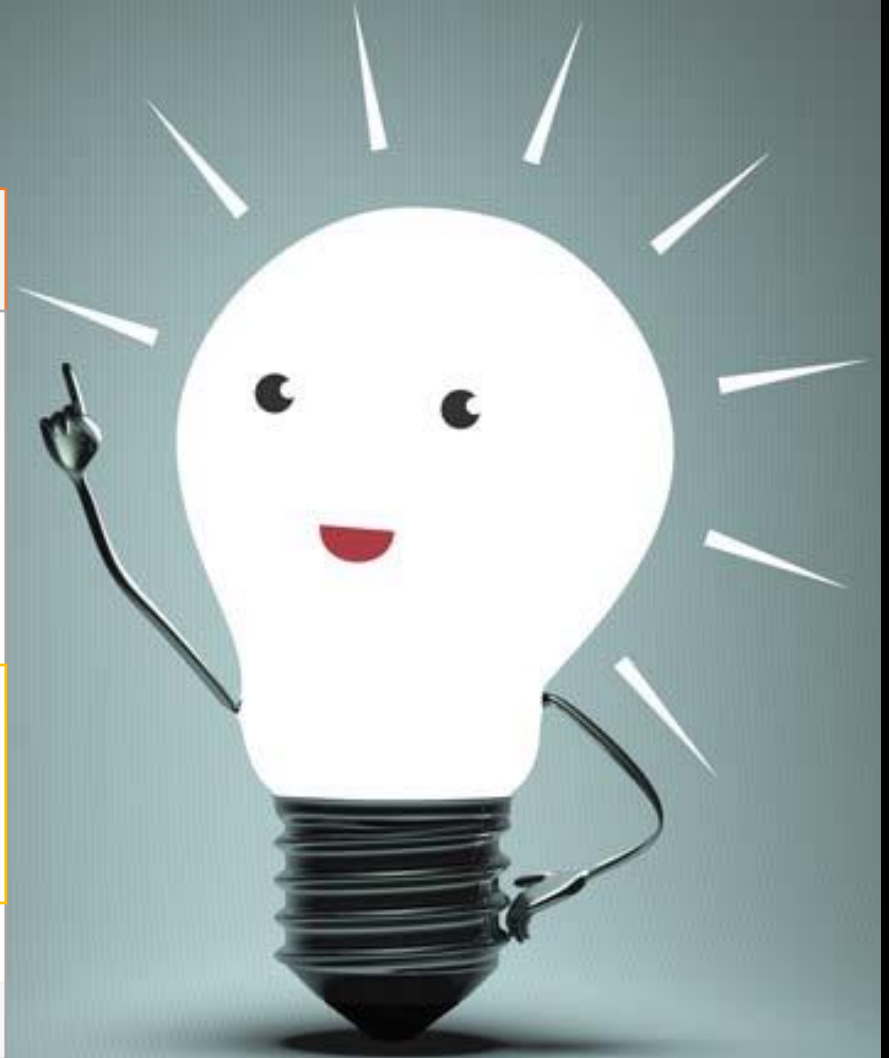




**Insufficient to think through the major pedagogical issues,  
we were in an unnatural moment.**



**Change management strategies as we continue hybrid  
learning - because the pandemic and its course might have  
long term implications for the bricks and mortar university**



Curriculum carved into smaller chunks of knowledge to avoid a gridlock: impact on coherence

Segmentation of knowledge, Choices about the T&L approach  
- Contextual factors

Disciplinary integrity

Restrictions on bandwidth/devices/data - precluded the level at which curriculum was delivered and the extent of delivery

T & L about knowledge and skills, competencies and graduate attributes

Reorganisation of curriculum to deal with practical components

Leaner curriculum – trade offs made





# RESHAPING SPACES FOR LEARNING

- How do we reshape the 'spaces for learning' to make them more effective?
  - ✓ How to teach for an "unknown future"
  - ✓ "Skills" and "generic skills" have become an academic cul-de-sac
  - ✓ "The way forward lies in construing and enacting a pedagogy for human being" (sic) and focus on "human qualities and dispositions" and not knowledge and skills"

Ronald Barnett



# What is the new role of the academic in COVID-19 and beyond ?



- The reductionist view of the view the academic, review, academic preparedness, learn new technologies, review the curriculum of their modules, make choices content bearing in outcomes of the module, and consider assessment, especially in terms of the integrity of the assessment.
- Modules overlap, assumptions made, strengthened community of peers, and built collegiality Academics left energized and overloaded. Greater cooperation amongst academics about what was being done on the online system to ensure student gained maximum benefit and were not overloaded .
- Beyond curriculum content to a stronger focus on the purpose of the module, the skills and competencies required, and how could these be developed on an LMS given the limitations that we have discussed?



→ **ARE ACADEMICS UNDER THREAT**

- The focus of the last 14 months has been on the practicalities of managing teaching and learning during a pandemic
- Has thrown into relief a rapidly changing 4IR world which requires new skills and competencies
- Concept of ‘waves’ has entered our lexicon through the pandemic – how do we translate these lessons into education, training and skills development?
- Have we been propelled by the pandemic in concert with the 4IR into an era which holds both peril and promise?

