

Educating for the 4th Industrial Revolution



Implications for the TVET Classrooms

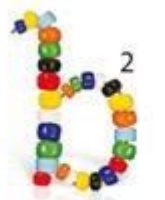
Rank these five statements in order of importance



1. Students have difficulty with reading
2. Lecturers do not give students enough opportunities to participating in class
3. Students perform poorly as result of language barriers
4. Lecturers content knowledge is lacking
5. Lecturers do not teach learners how to solve problems

on their own

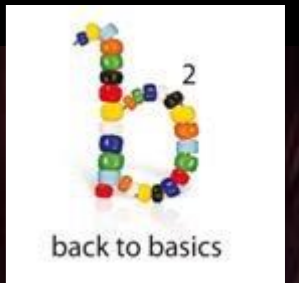
(2mins)



back to basics

1. Do your own ranking
 2. Share your ranking with your partner
 3. Was it similar or different?
 4. Which values informed your choices?
- (2 mins)

Reflection



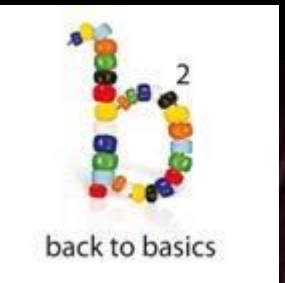
Was it necessary to have absolute answers or more important to have a reflexive and adaptive mindset?

Remember the technical competence was to know the skill of ranking, applying and exploring for tentative answers.

NB: Our classrooms need to reflect the technical mastery of a skill/s and modelling, imagination, problem posing, with solutions rather mere acquisition of knowledge.



Voices on the 4th Industrial Revolution



'... the Fourth Industrial Revolution represents entirely new ways in which technology becomes embedded within societies and even our human bodies'.

Nicholas Davis: Head of Society and Innovation, Member of the Executive Committee, World Economic Forum

What then are the implications for society, teachers, lecturers, facilitators and students ?

Voices on the Fourth Industrial Revolution



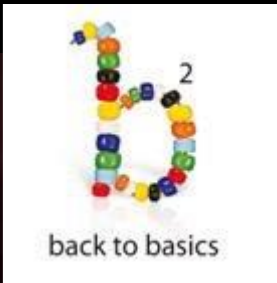
'The illiterate of the 21st Century will not be those who cannot read and write, but those who cannot learn, unlearn and relearn'.

Alvin Toffler, *Future Shock*, 1970

So what does this mean for delivery (teaching and learning), and are we prepared for it?



Implications for the TVET Sector



Industry will demand a workforce with a more formidable and diverse skills set...

The question arises to what extent does the

Revised HRD Strategy Towards 2030

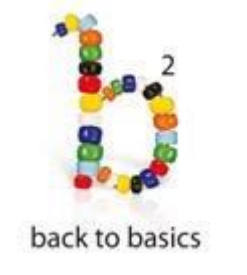
approved by the HRD Council and

Cabinet on 23 June 2017, address the

skills demanded by the Fourth Industrial Revolution?



Implications for the TVET Sector



In addition, how might the strategy be used for:

- promoting economic democracy, not just education for certification?
- modelling of our South African developmental outcomes?
- re-designing and delivering a curriculum that's responsive to the needs of the Fourth Industrial Revolution



The Fourth Industrial Revolution



back to basics

We need to look at what does it look and sound like :

- Systemically
- Structurally
- Programmatically
- In terms of the Provisioning and Organising details (resources)
- In the classroom (How might the SAQA definition of competence help?)
- In the workplace? (Mentorship and coaching. How do we assess inventiveness and creativity?)

What might be the implications in terms of up-skilling, re-skilling and resources ?



SAQA Definition of Competence



Foundational Competence

The demonstrated ability to understand WHAT is done and WHY

Practical Competence

Learner performs tasks in an authentic context

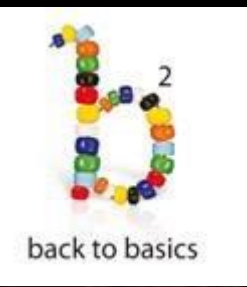
Reflexive Competence

The skill of knowing the what, why and how of doing something with insight.

Applied Competence

The learner uses the skills independently and confidently to solve new or unknown problems in a skilled, inventive and creative way.

Implications for the TVET Sector



- Policy adjustments
- Curriculum relevance and responsiveness and redesign
(flexibility for institutions to adapt to meet the needs of the 4IR) Issue of quality control, quality management and quality improvement

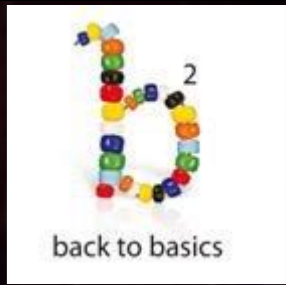
To what extent does our HRD strategy cater for such adaptatio

Implications for the TVET Sector



- Introduction of STEAM, an educational approach to learning that uses Science, Technology, Engineering, the Arts, and Mathematics as access points for guiding student inquiry, dialogue, and critical thinking

Implications for the TVET Sector



All of this underpinned by and promoting :

- Learning How to Learn
- Learning How to Earn
- Learning By Doing (technical focus and inventiveness)
- Learning in Groups

Implications for the TVET Sector



Engaging with the following:

- Adequacy of infrastructure (need for the right technical environment, mobile connectivity, spaces for shared learning, problem solving, exploration and self learning)
- Resources, up-skilling and re-skilling lecturers/facilitators
- Cost implications

Implications for the TVET Sector



We need to look at how does it:

a. promote economic democracy(entrepreneurship)

and

b. create a student personality that is not risk averse, whose self image is secured and confident

(these qualities applies both for the lecturer and student)?

Implications for the TVET Sector



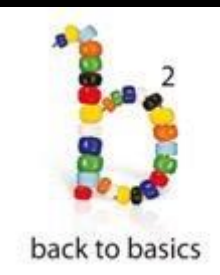
- A need for a knowledgeable and formidable workforce comprising of visionaries ,thought leaders, strategic thinkers and doers that can ensure the effective implementation of programmes
- Curricula to be kept up to date, with lecturers / facilitators having regular opportunities to refresh their own skills and knowledge (including digital skills)

Implications for the TVET Sector



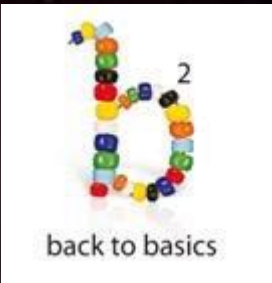
- Be proactive, innovative, open to and embrace change knowing that we can't do the same old and expect a different result
- Provide for lecturer self evaluation, encouraging a reflexive, non-defensive personality

Focussing on Implications for the TVET Sector



- Skill, up-skill and re-skill departmental officials, the workforce within companies, management, lecturers and facilitators at TVET Colleges
- The introduction of credible review mechanisms in place with a view to continuous improvement that ensures **QUALITY CONTROL, IMPROVEMENT** and performance triumphs above all

Voices on the 4th Industrial Revolution



'We cannot teach our kids to compete with machines who is smarter. We have to teach something Unique so that machines can never catch up with us'

Jack Ma -founder of Alibaba group

Implications for the TVET Sector



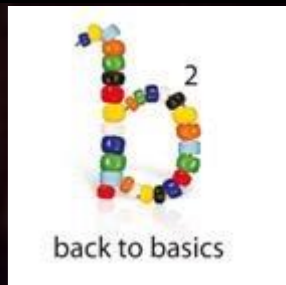
What does this translate into?

Students who are adaptable, responsive to and are able to embrace disruption have enquiring minds, who are problem solvers, thinkers, innovators

How can we engage industry to assist in the latter?

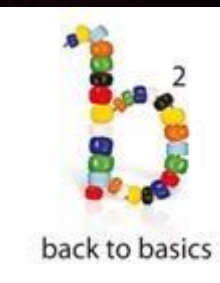


Classrooms that cater for the 4th IR



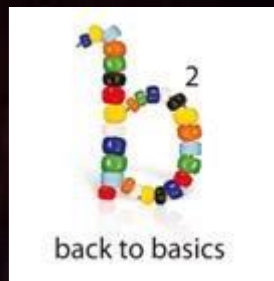
- Are open to collaboration and teamwork
- Provide students digital skills that enable them to apply and innovate so that they can play an active role in shaping the tools of the future.
- Have students with strong communication skills

Classrooms that cater for the 4th IR



- Provides students with multi-skills rather than focus on a job for life, equipping them to navigate a changing world of work.
- Fosters within their students Entrepreneurial
- qualities namely: discipline, confidence, open-mindedness, self starter competitiveness, creativity, determination, strong people skills,

Assessment for the TVET Sector



Will the TV sector be able to assess habits of m

Adaptable, Responsive, Flexible, Engaged,

Innovative, Creative, Ingenuous, Inventive...



Concluding Voices



Professor Tshidzi Marwala on the Implications of the Fourth Industrial Revolution

‘We cannot be spectators during this time. Artificial Intelligence is telling us where technology is going and provides opportunities that create alternate ways to reach out to students who will be able to survive in this era.’

Concluding Voices



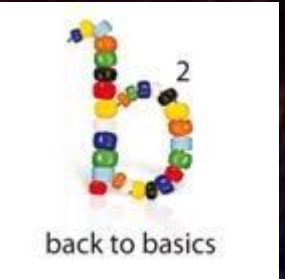
Three truths for gearing up to the fourth industrial revolution:

By Kumeshnee West

1. Talent will be more important than capital
2. Education needs to be flexible too
3. The link between education and business is a two-way street

In sum the backwash effect of educating for the Fourth Industrial Revolution is at the personal, structural and institutional level.

Conclusion



- TVET Colleges to remember your CORE function
 - Uplift the status of TVET Colleges - think about what we're teaching at our colleges
 - TVET Colleges be proactive - be GAME CHANGERS, be CONSCIOUS, be PROGRESSIVE THINKERS
- We have a wealth of experience within this room . Let's use this platform to 'disrupt' practices that are dated and futile. COLLABORATION is key.
- Let's empower students in TVET colleges, who are in the main from disadvantaged, poor homes and communities
 - Let's contribute to nation building and building our ailing economy!
 - Let's embrace the spirit of UBUNTU!