

TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET) PITSO 2021

- **THEME: Transforming TVET for the Fourth Industrial Revolution (4IR)**

Dr. O.B Molwane
molwaneob@ub.ac.bw

FACULTY OF ENGINEERING AND TECHNOLOGY
UNIVERSITY OF BOTSWANA

Gaborone

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THEME: Transforming TVET for the Fourth Industrial Revolution (4IR)

RESPONSIVENESS OF THE EDUCATION AND TRAINING PROVIDERS TO THE FOURTH INDUSTRIAL REVOLUTION (4IR): MYTH OR REALITY

Dr. O.B Molwane

Deputy Dean

molwaneob@ub.ac.bw

**FACULTY OF ENGINEERING AND TECHNOLOGY
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Presentation Outline

- Introduction
- Tease: Responsiveness of TVET to 4IR
- Barriers to TVET ETPs Responsiveness to the 4Th IR
- Resistance to adoption of 4IR by TVET Institutions
- Skills required for the 4th Industrial Revolution
- Lessons from COVID-19 Pandemic
- Conclusion
- Closure

2021 TVET PITSO



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Introduction

- Technical and Vocational Education and Training (TVET) is an **experiential** learning field (Putting **theory** into **practice**)
- It's proxy to learner centred approaches
- Employ the constructivist approaches – hence activity based
- Observation of predominance of traditional learning and teaching approaches
- TVET resource intensive

N.B: Plays a pivotal role in 2036 agenda and realisation of most SDG's

Introduction

We are now living in a knowledge economy, where knowledge is created, hence Fourth Industrial Technology (4IR).

Fourth Industrial Technology explained:

- The Fourth Industrial Revolution represents a fundamental change in the way we live, work and relate to one another,
- The Fourth Industrial Revolution is technology-driven change,
- Provides opportunity to harness converging technologies in order to create an inclusive, human-centred future.

Fourth Industrial Revolution is about digitisation of our practices, initiatives and activities. Where do we place TVET in all this?

Tease: Responsiveness of TVET to 4IR

Impact of digitisation on Education and TVET System:

- Access to electricity and ICT facilities (minimal disparities)
- Reliably internet connectivity to enhance digital penetration – digital divide avoidance
- Need for priority setting in skills policies (**Skills profiling a requisite**)
- Focus on foundational cognitive and socioemotional skills and basic digital literacy
- Nurturing of critical thinking and problem solving skills
- Define skills, knowledge and attitudes required for 4IR (Brown-Martin, 2017)
- Transformational agenda and strategy need to be clearly spelled out by TVET Education Training Providers and accountable ministry(ies)

Barriers to TVET ETPs Responsiveness to the 4th IR

The are many factors that contributes to Education and Training providers in TVET lack of responsiveness to the fourth Industrial Revolution.

- Lack of clear contextualised vision and coordination of 4IR initiatives and mandates
- Fourth Industrial Revolution rubrics and digitalisation of TVET not explicitly pronounced in TVET policies and governance
- **“Tail wagging the dog”** approach and mentality – Who is driving the 4IR in TVET?
- Lack of clear skills development relating to 4IR in TVET Curriculum Innovation.

Barriers to TVET ETPs Responsiveness to the 4th IR

- **Dichotomy in curriculum philosophies and Content areas**
 - **Explicit** vs **Tacit** curriculum philosophies
 - A clash of philosophies derived from influences of the various donor agencies involved in the development of the subject and the clash of philosophies appearing at initial teacher training (tertiary) or higher education level.
- **Pedagogic changes: Demands in the pedagogy due to significant change brought by curriculum innovation in TVET**
- **Societal expectation vs reluctance to change**
- **Refer to Cooper, T. (20217) Journal paper on “Curriculum Renewal: Barriers to Successful Curriculum Change and Suggestions for Improvement”.**

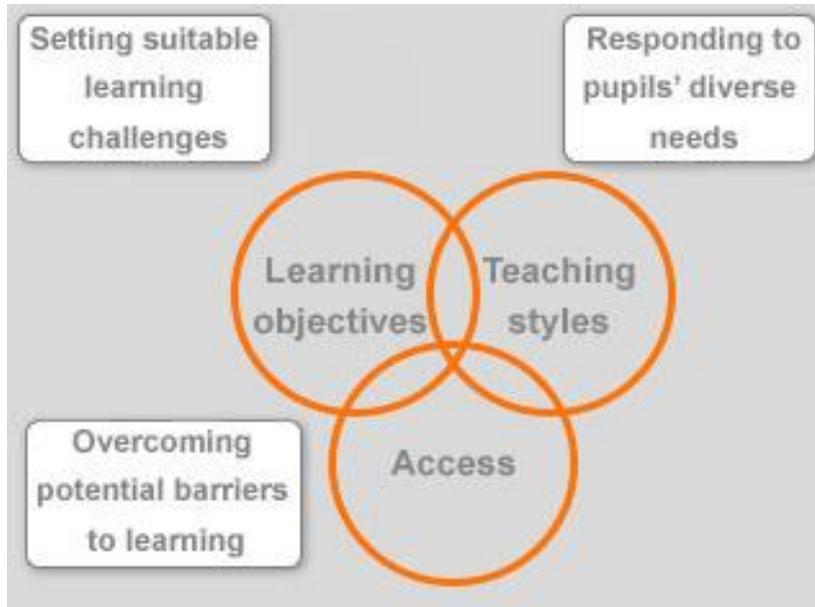
Barriers to TVET ETPs Responsiveness to the 4th IR

- Lack of Professional Development
- Lack of Support by Management
- Exotic and difficulties brought by education system change (E.g. OBE/OBA, JCE to BGCSE level change)
- Quality of teaching staff and their profiles
- Academia and other practitioners and stakeholders not keeping up with scholarly development thus not abreast with **current knowledge** on the subject matter.
- Some TVET teachers, facilitators and change agents viewing **change as signalling more work** or adding to overloaded schedule – with no or little time given

Barriers to TVET ETPs Responsiveness to the 4th IR

- **Absence of motivation**
- **Vulnerability**
- **Inadequate resources**
- **Lack of clarity**
- **Scepticism**

Resistance to adoption of 4IR by TVET Institutions



- **Fear of change**
- **Lack of Professional Development**
- **Politics**
- **One size fits all**
- **Stagnant thinking**
- **Lack of professional support**
- **Students social construct and background**
- **Weak Leadership and management**
- **Lack of investment in change management**
- **Culture and work ethics**
- **Quality of Remote Learning**
- **New Demand of Outcome-Based Curriculum and Assessment**

Skills required for the 4th Industrial Revolution

Langthaler and Bazafkan (2020) asserts that education and skills development rank among the most important tools to develop the workforce required for the 4IR.

What skills therefore are required for the 4IR and digitalised economy?

This question TVET providers should interrogate thoroughly if they want to be responsive to 4IR and compliance to 4IR.

- Note dissenting perceptions of impact of digitalisation and automation on labour markets in the country (World Bank 2016:131)
- Impact on informal sector since they comprise the largest economic sector.

Skills required for the 4th Industrial Revolution

Skills required in a digital economy:

COGNITIVE

Literacy, numeracy, and higher-order cognitive skills (for example, reasoning and creative thinking)

Raw problem-solving ability versus knowledge to solve problem

Verbal ability, numeracy, problem solving, memory, and mental speed

SOCIAL AND BEHAVIORAL

Socioemotional skills and personality traits

Openness to experience, conscientiousness, extraversion, agreeability, and emotional stability

Self-regulation, grit, mind-set, decision making, and interpersonal skills

TECHNICAL

Manual dexterity and the use of methods, materials, tools, and instruments

Technical skills developed through postsecondary schooling or training or acquired on the job

Skills related to specific occupations (for example, engineer, economist, IT specialist)

Source: World Bank 2016: 259

Summary of skills: Creativity, reasoning, problem solving, Capability to apply knowledge

Skills required for the 4th Industrial Revolution

TVET Goal: To produce Competent, creative, innovative and Knowledgeable graduates who are capable of producing quality work and good performance in the work place.

Other key attributes relates to teamwork, productivity, emotional intelligence.

Lessons from COVID-19 Pandemic

Lessons and experiences from the Covid-19 pandemic and its impact on education and TVET sector:

- **Time to retire traditional pedagogies (regurgitation, teacher-based classrooms) which have been used to measure how much content can be remembered (rewarding of memorisation more than curiosity in learning),**
- **Systemic shift in learning and teaching: use of social media to access, control the creation and sharing of knowledge**
- **Adding integrity and inclusivity e.g. online education vs benefits of digital tools**

Conclusion

The topic of presentation is on the **“Responsiveness of TVET ETP’s to the fourth Industrial Revolution: Myth or Reality”**.

- I argue that it is a **myth** that is **realisable** in future.
- However, we are living in a global world where digitilisation is an in-thing, and we cannot look back otherwise the train shall live us.
- For TVET providers to respond to 4IR there is need to focus of curriculum development, teacher training and development and training high skilled workers.
- Consideration of students social construct and background and inclusivity of students with diverse background.
- Revolutionalise TVET.

Conclusion

- **Plan properly with clearly contextualised vision**
- **Profile skills and facilities in TVET in light of 4IR**
- **Intensify debates and need for digital revolution**
- **Need to expedite the TVET 4IR transformation agenda**
- **Incorporation of Green Economy for sustainable development.**
- **Cascade the TVET strategy in 4IR and its implementation in a more holistic, considerate and contextualised meaningful manner**

Thank You!!!

I thank you!

