

9th PAN AFRICAN TVET COLLEGES CONFERENCE

Summary

The IAC is a UNESCO affiliate organisation
and this is the
Premier Pan African TVET Annual Conference
18 & 19 October 2018

Conference theme
“Educating for the Fourth Industrial Revolution”



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Session 1: Day 1 – 09h00 to 09h45

Summary

OPENING KEYNOTE ADDRESS:

Honourable Minister of Higher Education and Training

Ms Naledi Pandor

Pan Africanism/representation appeal/support. Beware of narrowing the scope of education “Educating for..”. 4thIR - New demands in the next five years at the hand of Artificial Intelligence, Internet of things; robotics; machine learning algorithms in the form of General purpose technologies. These can help Africa respond to challenges. New technologies offer opportunities for new products. The role of TVET Colleges in teaching new technologies is central. Nano-technology has not yet featured in conversations. No comprehensive strategy as yet on the continent. We cannot afford to be left behind or rest on our laurels. We must gain a critical leading edge. Agriculture, Mining and Manufacturing identified as key for economic growth. So, engineering programmes must respond to the specific needs, eg. new ways of drip irrigation for agriculture.

Greater integration among PSET institutions. Skills and development needs must be pursued along with entrepreneurship at all levels. Respond to the needs of the labour market. Infusion of entrepreneurship and skills. In this conference, share practices, objectives that lead to action. Come to the Minister with specific proposals. TVET colleges identified as priority institutions and can make an important contribution. Faculty need to be the most clued-up technologically. These are not quasi schools. Minister’s expectations are huge. A current budget increase of 45% in TVET Funding with dedicated infrastructure spend is a clear indication of the emphasis. Thousands of bursary students supported with transport, meals and accommodation. QCTO developing new qualifications with far greater integration. Dual system partnership - lessons learnt. CoS pilot 2019-2022. Perhaps the Korean model preferred. Coastal TVET College with Samsung for artisan development example. Partnerships with industry for apprenticeships a must. Responsive education drive. Success in SA is key for the continent.



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Session 2: Day 1 – 10h25 to 11h10

Name of Speaker

**Dr Ramneek Ahluwalia – CEO: Higher Education and Training
Health Wellness & Development Centre**

Paper Title

***Gender Diversity Matters in the Fourth Industrial Revolution –
Higher Education Gender Based Violence Policy.***

IN SUMMARY:

The return on investment in TVET Colleges has relevance for the 4th IR. What does the next 30 years hold for youth. Alumni must live healthily in the workplace and slowly help to transform society through the “black tax” system. Is Africa ready for the 4th IR given the stats dictated by poverty. Low graduation rates. Only in 2133 will gender equality be reached according to WEF - World Bank. Are women ready for 4IR? 1200 girls become HIV+ per week. 150 girls get raped daily in SA. Believe the realities in order to change society.

Suicide is the highest cause of death in HE after AIDS. Support required to mitigate these negatives on the development of human resources that are required to support 4IR. Increase throughput for 4IR. Students are growing their trust of mobile clinics. Army of 600 000 peer Educators and LO educators, 192 radio journalists, fighting for behavioral change.

What you are producing is going to decide the success or failure of the 4th Industrial Revolution.



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Session 2: Day 1 – 11h15 to 12h00

Summary

Name of Speaker

Ken Duncan – Chief Executive Officer: Swiss-South Africa Co-operative Initiative (SSACI)

Paper Title

Implementing the Centres of Specialisation Project: A Case Study in Radical Innovation in the National TVET System.

IN SUMMARY: 4th IR implies rapid change. CoS are taking some radical steps. End of year one. What has been accomplished, experienced and learnt? Programme description: economic growth; skills availability; priority trades; train for skills in demand. How it works: dual system includes simulated and lots of authentic work experience. Integrated programme – re-iterative process. A shift in the power mandate between employer and college required. The college gets to prove its value to employer.

New approach: Colleges focus on specialised training to local needs. Nineteen colleges selected with industry experts for 26 centres. Training centre has a cluster of employers. R100m seed funding from NSF to improve infrastructure and equipment. From Jan 2019, two artisans per trade at each centre to facilitate the college employer linkage. New curricula (NOCC's) for 11 trades. Analysis of costs = funding model development.

Problems: Concept drift (shared vision deficit)- shortest route; college improvement; Inconsistent selection of colleges- Uneven industry participation- difficult to accommodate all 30 students in employment; development of new curricula (NOCC's) uneven; Complex management structure – too many committees; QA function undefined; Funding model not yet agreed; Recidivism – do as we always have. Weak system knowledge in administration of tasks.

What needs to be done? Reconfigure colleges to capacity; demonstrated track record; Project management rationalisation; Monitoring Evaluation and QA; Mainstream funding; Industry buy-in; Vision crafting role clarification between stakeholders.

Adapt or die in the existential threat of the 4th IR.



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Session 3: Day 1 – 13h05 to 13h40

Name of Speaker

Dr Anthony Gewer – Harambee Youth Employment Accelerator

Paper Title

Pathways to Employability for Technical Occupations – The Harambee IRM Initiative.

IN SUMMARY: Problem Statement– Low transitions from Learning to Earning Only 6% of young people end up in formal employment. Reasons: There are jobs – about 1,2 million available and only 500 000 filled. Perception that qualifications are indicative of ability to work.

Harambee works on the demand side to unlock employment opportunities by finding the best candidates for the positions. Matching workplace requirements with available skills. Little of the public investment in TVET addresses the problem. Harambee: Targets Quintiles 1-3 candidates (most disadvantaged). Placed 55 000 over last five years. Target 100 000 per year. 500 000 over five years. Pathway management platform. Must scale up. Last eight years: employability map covering six elements that form the basis of personal profiles for job seekers. IRM Zone of Opportunity- creates new jobs, new opportunities. Testing new concepts and changing mind-sets around technical pathways. Pathways that are not via apprenticeships and existing pathways. Many jobs are not reliant on qualifications. Key elements- activate demand. Eg.: 110 000 current Engineering graduate pool. Need a bridging programme incorporating basic practical skills; generic competencies; work-readiness; reading interpreting drawings; measuring and making; hand/power tools. Initial initiatives: Green Skills; Automotive; Construction maintenance (hotels). Three or four years trade experience and then trade test for artisanship. Partnerships with TVET Colleges sought to massify the delivery. Delivery methodology: Innovative and agile technologically rich, dual system approach.



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Session 3: Day 1 – 13h45 to 14h20

Name of Speaker

Dr Andrew Paterson – Research Associate: JET
Education Services

Paper Title

Developing a Work-Based Values Curriculum Component to Enhance Employability of Current TVET Students in the Context of the Fourth Industrial Revolution.

IN SUMMARY:

Raising the potential of young people to obtain and retain (or regain) employment. Designed a values curriculum component. Dealing with values develops soft-skills applied across work contexts. Key elements- a basis for managing relationships in the workplace. Values expressed in behaviour. Formal and informal context informs. Values also shaped by occupational demands. Open pedagogical approach. Workshop on values to test out as a reflecting board. How to effect change in values. Six workshops of 2 hours each and 9 days of work exposure. Reflection on and consideration of values. To question values and what they meant.

Closing observations-

Differences in the work experience influencing factors are: gender; authority, knowledge etc

Respect ranked highly. New entrants to the labour market need time in employment to clarify personal work-based values. Theory of change developed and reviewed. Developing an instrument to measure change in work-based values with a view to exploring impact.



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Session 3: Day 1 – 14h25 to 15h00

Summary

Name of Speaker

Jaye Richards Hill – Business Development Lead - Africa, Microsoft EMEA Regional Education

Paper Title

Future Ready Skills and the Class of 2030: Rehearsing skills for the Fourth Industrial Revolution.

IN SUMMARY:

Digital disruption and the 4th IR: mechanised production; AI; machine learning. Digital transformation is a collective responsibility. Video:

The bigger future lies in transcending technology. More about people than technology. Our technology. “Empower every person and organisation to achieve more”. MicroSoft credo.

Great transformation in education. PHIGITAL no distinction between physical and digital in this generation. Personalised learning supported by teachers and technology. 42% of employers felt that graduates are fit for purpose for workplace. Soft skills, emotive skills are absent in workforce. Role of teachers amplified. 34% of learners felt adequate connection with teachers. Technology creates opportunity. Opposite is true. Re-imagine traditional lessons using applications like minecraft apps. Collaboration. Future of work centred around people not the job. Work and learning are social. Tech integrates with everything else. Skills gap getting worse. Change Higher Education to focus on the individual and computational thinking and games based learning. TEAMS MS as a collaborative space. Enabling ingenuity to prosper. Data forms the critical basis for insights. Change based on real evidence. Lifelong learning- dipping in and out of education. Microsoft Imagine Academy. Challenge for education leaders is how to deliver this. Crossroads 4thIR. Microsoft approach- education transformation network.



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Session 4: Day 1 – 15h40 to 16h15

Name of Speaker

Elsie Potgieter – Principal, South Cape TVET College

Paper Title

Artisan Training a partnership with Industry.

IN SUMMARY:

Lessons from nature. Overview of South Cape College and its programme delivery. The methodology for the Centre of Specialisation was outlined.

Artisan Development Project with Petro SA: First group 54 students, then 53 and in 2019 54. R2500 stipend for 18 month practical period ensures student survival in the programme.

Project Learnings:

Partnerships key

Artisanship promoted

Tuition covered by bursary

Stipend of R2500pm during workplace experience

Trade Test paid for

Employer ensures full work exposure.

Success story of Stephanie Geland. International exchange with Houston Community College in USA



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Session 4: Day 1 – 16h20 to 16h50

Summary

Name of Speaker

Riaan Oosthuizen – Chief Executive Officer: MRTT

Paper Title

Mpumalanga Skills Hub as a response to increase the Skills Base of Out-Of-School youth and bridging short-comings in preparation of the Fourth Industrial Revolution

IN SUMMARY:

Report directly to the MEC of Education in Mpumalanga. PQM is adapted annually in consultation with Provincial Government according to the need. Target audience, disadvantaged. Study for free and receive a stipend. Receive 15% grant from province. Aim to be financially independent.

Various provincial strategies and skills development initiatives. Skills hub to link all strategies. Need for credible skills need information to support planning. A service of the Skills and Innovation Hub. Consists of Service Centre; Skills Development Centre; Business support and incubator; Economic Development Project.

Hub acts as a social enterprise. Needs an NPO and PTY status.

Skills and workplace integrated model- Examples in the model of making desks (pipe bending, welding etc), school feeding (agriculture).

Promotes entrepreneurship through incubation model, manufacturing, skills development. Market Access in the form of Industrial Parks in special economic zones: two per region, in three regions. 6 000-7 000 students agriculture, artisan development 2 173 artisans in training. Target 3000 over five years. 300 completed artisanships. Hospitality, Engineering. Real work experience. On the job. (No business/computer training.)



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Session 4: Day 1 – 16h55 to 17h50

Name of Speaker

Leon Beech – Principal, Northlink TVET College

Keynote Address

IN SUMMARY:

International experiences: Mind the gap!

Automotive Mechatronics Technician white coated diagnostics technician in Germany. Resulting in a E2m project to assist Northlink to make the conversion. Northern Ireland. Workshops had flat screen TV for instructor to demonstrate to students. Advances in carpentry equipment. Visit to China revealed that the equipment used by the college was in museums in China. BRICS competition – most robotics equipment donated to Nlink. Each student worked on laptops in small groups.

Ideal campus/college of the future:

An interpretation of the ethos of the provider. Focus on the core business of the institution, namely teaching and learning. Offer programmes that are relevant to industry and employment. Relationships must be nurtured. Theory of three PPP's People; (staff students providers) Processes (administration teaching and learning support function and facilities) and Products (accreditation QA research and teaching and learning). Safety is paramount for clients. Technology- In BRICS competition: traffic controls at intersection. Students had to work out all traffic event permutations. Forward planning for technology. Technology advancement comes at a cost. TVET Colleges suffering from old technology. Also antiquated syllabi, outdated staff skills poses challenges. Pedagogical misfits. Gert Sibande will be looking at clothing production and Nlink 240 students in mechatronics in partnership with China but the programmes are not DHET. Programme accreditation underway. QCTO – embrace or commit suicide. CoS will assist the role-out and adaptation to QCTO qualifications. The IAC has a role to play in co-ordinating the shift towards new technologies. Strategies: Planning; Vision; Steps to take; Research; Establish benchmarks; Develop relationships;



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Session 1: Day 2 – 9h00 to 9h50

Summary

Name of Speaker

Dr Ronel Blom – Independent Consultant

Paper Title

TVET – The ‘Bridge’ between Learning and Work in The Fourth Industrial Revolution

IN SUMMARY:

Contextual issues- Unfair expectations of being a panacea for the problems of SA. Investment in resources is a direct determinant of TVET performance. Video: The new world of work. (GrowthTribe). 45% of tasks can already be automated. Skillsets replace job opportunities. Digital skills gap growing. Have a growth mindset to embrace technology. No security in jobs any more. Lifetime jobs no longer exist. Jobs change exponentially.

Skillsets: 9% in survival band; 65% Tribal order (safety); 15% Exploitive empire (power driven); 10% Authority (order driven); 1% Strategic (success driven). 0% in Africa and 31% in USA. Readiness for 4th IR worlds apart. Five trends shaping future of work- globalisation; millennials; new behaviours; technologies; mobility. What employers need: leadership; teamwork; communication skills; problem solving; oral communication; work ethic; initiative; analytical; flexible; TECHNICAL SKILLS; then 9 others. Vocational pedagogy: teach for uncertainty critical thinking etc. “The art and science of teaching” (not of learning). Not the mastery of content that matters. Thinking and reasoning in a logic gymnasium. Learning is socially constructed. Need Skillsets that are not focussed on content. Content is not enough. Must be augmented with higher order cognitive skills. The ‘sweet spot’, must be found by lecturers. A new pedagogy, conceptual frame for 4IR. Theory and content/knowledge not sacrosanct. Help students to produce knowledge - not reproduce it. What is TVET pedagogy. Transcend content. Positive Results change mindset through problem solving.

The style of question formulation is the focus on regurgitation or innovative response? How does teaching content assist in problem solving – the shift in pedagogy, a Workplace pedagogy. Conclusion: SA Students lagging behind and unable to leverage 4IR. Watch Hole in the Wall video. See above for relevant teaching and learning qualities. Content = intellectual tools in problem solving. DO YOU DARE?



9th PAN AFRICAN TVET COLLEGES CONFERENCE

Session 1: Day 2 – 9h55 to 10h30

Summary

Name of Speaker

Stephen Theron – CEO: Gogro Consultants

Paper Title

MENTORSHIP, its Role in Preparing Students for The Fourth Industrial Revolution.

IN SUMMARY:

Mentorship: What, How, Role

Starts in the classroom. Facilitator a teacher not a mentor. Should change. Narrow the gap between classroom and workplace. Generic skills required in four competency sets (social, methodological, self competence). Examples of what to develop.

Workplace mentors. They also physically work. Includes an entrepreneurship – enterprise development exposure.(RBED, Denell experiences).

4IR: Mentoring; Passing on the legacy important.

Trends in mentoring in the corporate environment: 71% of fortune 500; 75% millennials deem mentoring critical; 75% executives accredit mentors; 72% retention for mentees.

Udemy platform: self-driving cars , 30 000 students, costs R2400, months to two years, no academics.

Mentorship: values; core abilities, trust, skills, diverse talent pool.

Future of mentorship: tradition old – young; now evermore diverse mentors. 33% entrepreneurs mentored by successful entrepreneurs became top performers.

Access to different types of mentors make for powerful experience. Social media as a learning medium, consumer more say, shorter training, flexible venues.

Address mentorship in your organisations.



9th PAN AFRICAN TVET COLLEGES CONFERENCE

Session 1: Day 2 – 10h35 to 11h10

Summary

Name of Speaker

Sujata Pillay – Managing Director: Back to Basics

Paper Title

Implications for the TVET Sector when Educating for The Fourth Industrial Revolution.

IN SUMMARY:

Ranking of five problems: Reflection absolute answers vs technical competence. Classrooms must reflect technical mastery .The illiterate of the 21st century are not those who cannot read or write but those who are not flexible: 4IR Flexibility is paramount: Learning, unlearning, relearning.

Implications for the TVET sector: economic democracy not just certification; modelling SA developmental outcomes, and a responsive curriculum.

SAQA definition of competence: Foundational; practical; reflexive; applied competencies. Policy; Curriculum; Quality, STEM (include Arts) to become STEAM. Learn to earn, in groups etc. Right technical environment connectivity etc, resources, and cost implications.

How do our programmes promote economic democracy. Secured and confident self-image among students must be fostered. Thought leaders and strategic thinkers. Curricula updated, constant revision of skills (digital skills). Credible review mechanisms. Bring the world to the classroom through teachers that have embraced lifelong learning. Proper monitoring and evaluation with a view to continuous quality improvement.

Habits of mind must be embraced. We cannot be spectators in the 4IR. Talent more important than capital.

Conclusion: Teaching and Learning is core. Uplift the status of TVET Colleges. Game changers; progressive thinkers; collaboration and Ubuntu.



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Session 2: Day 2 – 11h50 to 12h25

Summary

Name of Speaker

Fatima Fernandes – TVET Co-ordinator – Leadership And Management: UNISA

Paper Title

The Fourth Industrial Revolution: Friend or Foe?

IN SUMMARY:

WIL for PSET research area. Lecturers and employers don't understand the technology that is the world of the Millennial. Does not accommodate the Millennial. History of technological change over the past 250 years. Cyber physical systems revolution coming up. 4IR Manifest in all aspects of society: Technology; Production; Consumption and business; Human life. Curriculum being re-written include Ubuntu; Decolonisation; Africanisation; but what about 4IR? Not being pushed to the same extent. Fear of jobs obsolescence. But this will not happen if the approach to education changes. Shift to programming, computer literacy, process system, robotics etc. Just normal fear of change. Lecturers, leaders, government must embrace the change. Example of Jack Ma. Google. TVET Colleges must be creative and incorporate components into courses. Success must involve collaboration between Government; Education institutions and workplaces (employers). Call for partnerships across Africa. Characteristics of generation Y. Attracted to companies that use technology. Tech savvy, instant communicators (not telephoning). Prefer flexible working schedules, more rounded on work and leisure. Ambitious. 2022 Skills Outlook: analytical; active learning; creative; technology driven; critical thinking etc. Africa will most likely make a plan.

An inspiration:

Elon Musk: Guru of AI :master of innovation and futuristic inventor.



9th PAN AFRICAN TVET COLLEGES CONFERENCE

Session 2: Day 2 – 12h30 to 13h05

Summary

Name of Speaker

Dr Andre van der Bijl – Senior Lecturer: Faculty of Education - Cape Peninsula University of Technology

Paper Title

TVET Lecturer Development and The Fourth Industrial Revolution

IN SUMMARY: 4IR the narrative

TVET College programmes; Lecturer development; Are colleges ready?

Klaus Schwab: builds on technological breakthroughs of the previous revolutions (robotics; AI; nanotechnology; quantum computing; biotechnology; IoT, 3D printing and autonomous vehicles. Megatrends: physical; digital; biological. Impact: economy; business; national and global government; society; individual. Is this really a revolution? Cautionary.

Schwab: Education; reshaping systems; models working with machines; increasing inequality segregation of educational outcomes for children and young adults. Education priced as a luxury. Access to education as a positive. How many universities have effective e-learning platforms?

TVET Colleges:

Views- Step child of higher education; intelligence hierarchy thinking; shortage of research; unqualified or inappropriately qualified lecturers; no 3D printers.; programmes outdated; unresponsive. What is current and not current? Who says so and what is the motive? However, increasing enrolments; high levels of student satisfaction; students have a clear idea of where they are going; retention and clear indicators of success and failure is a positive indicator. Policy framework on lecturer qualifications – ground-breaking. Lecturer placement in industry in policy. Evidence that some colleges working closely with industry. Are colleges ready? (No) logistics; students; lecturers. (Yes) lecturer qualifications; responsiveness; students mining example.



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Session 2: Day 2 – 13h10 to 13h40

Name of Speaker

Keith Loynes – Project Manager and Editor for TVET
College Times Department of Higher Education and
Training

Keynote Address

Summary of Conference

IN SUMMARY:



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Summary

Session 2: Day 2 – 13h45 to 13h55

Name of Speakers

Vote of Thanks:

Claude Cogill – Independent Skills & Training Consultant

Official Closing of Conference:

Christopher Brink – Vice President, International Association

