NAST Conference Breakaway Session Feedback Template

**Theme: Innovating Technical Education for a Changing World**

**civil technology: SERVIcES**

Facilitator Name: NEIL SIMONS

Rapporteur Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Group Number: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: 01 July 2025

Session Topic (Extension):

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## 1. Aligning Curriculum with Industry Needs

How can technical education align the curriculum with industry's needs?
Please provide practical strategies and planning for improved relevance and responsiveness.

Group Insights & Recommendations:
To align the above question, a comprehensive and collaborative approach must be adopted. The following practical strategies are critical:

1. **Establish Strong Industry Partnerships**

* Form advisory boards with local and national industry leaders. (DEDAT)
* Conduct regular consultations and feedback sessions with employers, industry bodies, and sector councils.
* Schedule - industry review meetings to assess curriculum relevance. (Inform the curriculum)
* Assign institutional human resource responsible for maintaining these relationships.

**2. Implement a Dynamic Curriculum Review System (DBE- In place)**

* Adopt a modular and flexible curriculum structure that allows for timely updates.
* Review and revise curriculum every 2-3 years in consultation with industry.
* Develop a curriculum review calendar. (3/5 Years)
* Create a mechanism for incorporating new technologies, tools, and skills based on labor market trends. (PIRB Vs IOPSA)

**3. Integrate Work-Based Learning and Internships**

* Mandate internships, apprenticeships, and co-op programs within the curriculum.
* Partner with companies to provide real-world project work and job shadowing opportunities.
* Create a centralized placement office to coordinate with industries.
* Develop performance metrics to assess student learning in the workplace.
* QCTO – Short programmes for young people. (SHORT SKILLS)

**4. Embed Soft Skills and Emerging Technologies**

* Include communication, teamwork, problem-solving, and adaptability in course outcomes. (New request to make it in the world of work/We already doing this in CAPS.. Reading/writing NB)
* Regularly introduce content on emerging technologies such as AI, IoT, green tech, CAD, etc. (5th IR/Future skills/Exploring the universe/etc)
* Collaborate with ed-tech providers and industry trainers. (Expand as far as international roleplayers
* Host faculty development workshops(Industry related) to upskill educators on current and future trends.

**5. Multicertification / Use Labor Market Data and Forecasting Tools (Mismatch) ? Human resource?**

* Align courses with local, national, and global job demand forecasts. (Set goals on numbers- learners to achieve goals. How does this link to industry and the subject.)
* Integrate tools like job market analytics and employer surveys. (Better way to get a job. Accredited - PIRB
* Establish a data analysis unit within curriculum planning teams.
* Publish annual reports on curriculum-employment alignment. (DEDAT/Local Government ---G4J
* Survey (DBE for the country?)

**6. Foster Continuous Faculty-Industry Interaction**

* Encourage faculty sabbaticals or internships in industry settings.
* Involve industry experts as adjunct instructors or guest lecturers.
* Allocate funding and time in academic schedules for industry exposure. (MST)
* Formalize MoUs with companies for faculty-industry exchanges. (Management)

**7. Introduce Competency-Based Education (CBE)**

* Shift focus from content delivery to demonstrable skills and outcomes. (Time in workshop/Double period/lack of skills of novice teachers, etc)
* Tailor learning paths based on learner's pace and industry-defined competencies. (Latch on num 6 above)
* Work with accrediting bodies to redefine assessment standards.

Conclusion:

Aligning technical education with industry needs requires structured planning, institutional commitment, and continuous engagement with the economic ecosystem. A curriculum that evolves with industry changes ensures that graduate learners are not just employable but are also future-ready contributors to innovation and productivity.

## 2. Addressing Teacher Shortages in Specialized Technical Subjects

Specific ideas and suggestions to address teacher shortages in specialized technical subjects.
Consider recruitment, training, and retention strategies based on current realities.

Group Insights & Recommendations:
we need a multi-pronged strategy that focuses on recruitment, re-skilling, and retention, while also empowering novice and transitioning educators.

**1. Recruitment Strategies**

**A. Attract Industry Professionals into Teaching**

Create fast-track certification or part-time teaching opportunities for experienced industry professionals.

Collaborate with industry to encourage knowledge transfer through sabbaticals or rotational teaching programs.

Get a Teachers qualification/ All industry jobs needs minimum requirements. (SACE)

**B. Build Talent Pipelines through Universities of Technology**

Partner with higher education institutions to recruit final-year students or graduates with technical skills. (WHERE? Shortage of Tertiary institutions)

Offer scholarships. (To attract teachers to technical education)

Increase salary notch (Specialised education/ Attract)

**2. Training and Upskill or Re-skilling Strategies**

**A. Develop a National/Provincial Technical Teacher Training Program (CTLI)**

Create a structured training program focused on pedagogical skills for content experts with limited teaching experience.

HOW? - Use blended learning (online + in-person workshops) for scalable delivery.

Include training on instructional design, competency-based learning, and digital tools.

Practical skills (Simple stuff like an inventory/ changing a chuck, blade, nut, screw, etc)

Build mentor-mentee programs linking experienced teachers with newcomers.

**3. Retention and Empowerment Strategies**

**A. Improve Career Development Pathways**

Create clear promotion tracks, specialization options, and leadership roles for technical educators.

Recognize technical teachers through awards, research grants, or industry-sponsored fellowships. (NOTCH above)

Offer continuous teacher professional development (TPD) incentives tied to career advancement.

Stick to Learner Teacher RATIO – PAM is the guideline and misused by Principals to staff establishment.

**B. Enhance Compensation and Incentives**

Introduce targeted bonuses and benefits for teaching high-demand technical subjects.

**4. GOVERNANCE - Improve Workplace Culture and Support**

Foster a supportive teaching environment with reduced burnout and isolation.

Create peer learning communities for technical educators. (PLCs)

Provide regular coaching, classroom support, and wellness resources. (Dept Heads/Advisors/Principals/Industry)

Addressing the shortage of specialized technical teachers requires both systemic innovation and localized solutions.

## 3. Enhancing School-Industry Partnerships

How can technical schools participate in and benefit from school-industry partnerships?
Include workplace exposure opportunities for learners.

* Industry exposure / Internships/ Field visits
* Apprenticeships for learners
* Advisory boards/committees/roleplayers – (advise and assist)
* Invite Leaders in industry to give guest talks/ engage with SMTs/mentoring sessions/student awareness of career paths/etc
* Joint skills develop projects – Skills competition/solar car challenge/

## 4. Gaining Recognition as Special-Focus Schools (Schools of Specialisation)

How can technical schools gain greater recognition as special-focus schools?
Explore branding, policy, and community engagement approaches.

* Policy from DBE and Not guidelines. (Enforce as a definitive from DBE)
* Engaged with stakeholders to inform the document.
* Characteristics of this type of school must be in place. (How should it look like and how must such a school be managed.)
* REDRESS (For all learners)
* FUNDING (Financial input/industry/MST/etc)
* HUMAN RESOURCE (Teachers/advisors/support staff/specialist in certain fields/etc)
* INFRASTRUCTURE (Expanding/new tech/expansion/etc)
* Performance of learners- (Should it or not? Why? Meet industry needs)
* Testing aptitudes – Maths and Sciences/ Drawings/ Communicate/ 3D developments/ POLICY??
* Extra time (After school activities - … Aviation/specialised training/maintenance/feeding/ cleaning (cages, kraals or broilers) /
* Partnership agreements
* GOVERNANCE OF THE SCHOOL – (NB!)

## 5. Integrating eLearning in Practical Subjects

Will the integration of eLearning platforms in practical subjects be effective?
How can we prepare for this future-oriented shift? Identify tools, training needs, and implementation steps.

**1. Blended Learning Enhances Hands-On Training**

* complement practical instruction by delivering theory, simulations, and preparatory content online.
* Eg: Learning Management Systems (LMS) like PIRB/ Moodle/ Google Classroom, or Canvas paired with virtual lab simulators (e.g., Welding, Electrical circuits, building, etc).
* Hybrid models: Develop a hybrid model where theory and safety training are online, and practical sessions are conducted in-person on site.

**2. Virtual Simulations Improve Safety and Skill Readiness**

* Before using real equipment, students can practice using simulations and augmented reality (AR), reducing errors and safety risks.
* Tools: AR/VR tools (e.g. welding/machining/electronics, building/Tinkercad, AutoCAD,etc) interactive simulators.
* HOW CAN WE TRAIN: Train instructors (AutoCAD-in basics, simulation software, and instructional design of a programme.

**3. Equitable Access to Technical Education**

* ICT allows access to quality content for learners in rural or under-resourced areas, reducing geographic and financial barriers.
* Mobile learning platforms, offline-compatible apps (e.g., Kolibri), and low-bandwidth video platforms.
* How to Implement: Partner with telecom providers or government programs to ensure device access and internet subsidies.

**4. Real-Time Assessment and Personalized Learning**

* eLearning platforms offer data-driven insights into learner progress and allow for adaptive learning paths.
* How? Integrate formative assessment tools and dashboards into the LMS; train teachers to interpret and respond to learner data.

**5. Upskilling Educators and Building Digital Pedagogy**

* Teachers gain new digital competencies, enabling them to deliver more engaging, future-oriented lessons.
* Needs: Professional development in eLearning design, flipped classroom methods, and use of interactive tools like Kahoot,atic.
* How can we do it: Conduct phased training workshops, peer-teaching models, and provide ongoing IT support at institutions.

Integrating ICT and eLearning in technical education—when implemented strategically—can enhance learning outcomes, improve safety, increase access, and better prepare learners for digital-first workplaces. The key is a balanced approach combining technology with hands-on experiences, supported by trained educators and thoughtful planning.

## Summary of Group Feedback

Top 3 Recommendations:
All 5 are important.

Challenges Identified:
All challenges to be addressed by …..

Revisit of current Curriculum/Strengthening.

Proposals Worth Scaling or Piloting:
??????