SG Singapore: Inclusion, Brain Science, and Curriculum Alignment

🎙️ Segment Focus

This hour, hosted by **Principals' Academy (Singapore)**, showcased **three complementary lenses on the future of learning**:

1. **Inclusion & special educational needs (SEN)** – building truly inclusive school cultures.
2. **Brain-based learning** – using how the brain actually learns to develop **higher-order thinking skills** in the AI era.
3. **Future-ready curriculum design** – aligning curriculum intent, pedagogy, technology and assessment around skills, not just content.

The consensus is that **future-ready systems must be inclusive, brain-informed and tightly aligned**, with technology as a **lever**, not the goal.

🛑 1. Inclusive Education & SEN (Simon Reynolds)

Core Framing and Challenges

- **Inclusion** = **all** students, regardless of ability, learning together in the same classrooms, fully supported.
- **Key Challenges:** Many students with SEN are **never formally diagnosed**; allied health professionals are scarce; and most teachers are **not trained in SEN**.

Building an Inclusive School Culture

- **Start with Values:** Explicitly embed the value that every child **can** learn and deserves **equal respect and full inclusion** in vision, policy, and strategic planning.
- **Safe Environment (PBIS):** Use **Positive Behaviour Interventions and Supports (PBIS)** with clear, positive expectations that students co-create.
- **Systematic Support (MTSS):** Adopt a **Multi-Tiered System of Support (MTSS)** where Tier 1 is high-quality core pedagogy for **all** students, followed by targeted (Tier 2) and intensive (Tier 3) support.
- **Partnership with Parents:** Build the relationship **early**, talk about **strengths and progress**, and respect parents as **experts on their child**.

- **Teacher Training:** Help teachers move from "won't do" to **"can't do (yet)"** understanding. Training must be **small-group, practical, integrated into PD**, and follow **Behaviour Skills Training (BST)**: describe model rehearse feedback.

🧠 2. Brain-Based Learning & HOTS in the AI Era (Prof. Er Meng Hwa)

Why HOTS Matters Now

- AI will automate routine tasks and surface information instantly. Humans must excel at **higher-order thinking skills (HOTS)**, which is essentially the World Economic Forum's top skills checklist.
- He uses **Bloom's taxonomy** to show that education needs to live in the higher orders: **Analyse – Evaluate – Create**.
- **HOTS Components:** Deep domain understanding, processing skills, and a **Reflective disposition** (resisting hasty conclusions and automation bias).

Pedagogy Evolution

He proposes moving toward a **Guided Experience Approach**, where the teacher is a coach and co-learner, and students are co-constructors tackling complex, real-world tasks that fully engage analyse–evaluate–create.

Brain-Based Principles

Great teaching requires three elements:

1. **Relaxed alertness** – safe but intellectually challenging environment.
2. **Immersion in complex experience** – authentic, complex tasks.
3. **Active processing of experience** – structured reflection, consolidation, retrieval practice.

- **Role of AI:** Use AI/adaptive platforms to **handle routine practice and content delivery** (to enable personalisation) and **free teachers** for coaching, questioning, feedback, and relationship-building.

⚙️ 3. Designing Future-Ready Curriculum (Mr Ang Pow Chew)

Central Diagnosis: Alignment

The hardest problem is **alignment**: making curriculum intent, pedagogy, and assessment all speak the same language—the language of **skills, dispositions, and real-world competence**.

- **Aligning Intent:** A future-ready curriculum must **prioritise the 4Cs** (Critical thinking, Communication, Collaboration, Creativity). Rewrite outcomes from "Students will know…" to "Students will be able to… **evaluate, justify, create, solve**, etc."
- **Technology as Lever:** Technology is the **lever**, not the intent. Map **Capability** (e.g., critical thinking) **Tool** (e.g., annotation platform) **Concrete student actions** (analyse, critique).
    - **Examples:** Social annotation platforms train **metacognition**. Adaptive learning platforms automatically **differentiate** pace and content.
- **The "Inclusion Dividend" of Tech:** When the goal is capability (e.g., argumentation), tech can remove access barriers (language, reading speed) so more students can actually demonstrate that capability.
- **Reimagining Assessment:** Move from **assessment of learning** (high-stakes) to **assessment for learning** (iterative, feedback-rich).
  Emphasize **authenticity** and **choice** (digital portfolios, performance tasks, video, podcast).

🔗 **Main Entities & URLs**

Segment Host & Main Organizer

- **Principals Academy Inc. (PAI), Singapore:** https://pai.sg/

1) Inclusion & SEN

- **Singapore Ministry of Education (MOE):** https://www.moe.gov.sg
- **National Institute of Education (NIE), Singapore:** https://www.nie.edu.sg
- **PBIS (Positive Behavioral Interventions & Supports):** https://www.pbis.org
- **MTSS – Multi-Tiered System of Supports:** https://www.pbis.org/topics/multi-tiered-system-supports-mtss

- **What Really Works in Special and Inclusive Education – David Mitchell (Routledge):** https://www.routledge.com/What-Really-Works-in-Special-and-Inclusive-Education-Using-Evidence-Based/Mitchell/p/book/9780415623230

2) Brain-based Learning & HOTS

- **Nanyang Technological University (NTU), Singapore:** https://www.ntu.edu.sg
- **Brain-based learning principles – Caine & Caine Overview article often cited: "Understanding a Brain-Based Approach to Learning and Teaching" (Educational Leadership / ASCD):** https://www.ascd.org/el/articles/understanding-a-brain-based-approach-to-learning-and-teaching
- **Bloom's Taxonomy:** https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/
- **World Economic Forum – Future of Jobs & Top 10 Skills 2025 (Source of the 2025 skills list he references) WEF report page (via summary):** https://www.weforum.org/reports/the-future-of-jobs-report-2020

3) Future-Ready Curriculum, Technology & Inclusion

- **Social / collaborative annotation tools (Hypothesis):** https://web.hypothes.is/
- **Social / collaborative annotation tools (Perusall):** https://perusall.com/
- **Adaptive / personalized learning platforms (DreamBox Learning):** https://www.dreambox.com/
- **Adaptive / personalized learning platforms (Khan Academy / Khanmigo (AI-enhanced tutoring)):** https://www.khanacademy.org/khan-labs