US Phoenix, Arizona: Education for Exponential Change

🎙️ Framing by Dr. Connie Kamm (Kamm Solutions)

Connie frames education in a world of **agentic AI, cyber-physical systems, self-driving taxis, 3D-printed cells**, etc.[1]. She uses John Seely Brown's metaphor, contrasting old education (a **schooner** going from port A–B–C) with today's need (a **white-water raft** in turbulent, unpredictable waters)[2].

Transversal Competencies (4 Clusters)

The competencies guiding the showcased programs are clustered in four areas[3]:

- **Thinking dynamically** – curiosity, creativity, innovation, critical thinking, agility, problem solving[4].
- **Knowing oneself (agency)** – self-efficacy, self-regulation, motivation, growth mindset, resilience[5].
- **Caring about others** – intercultural awareness, empathy, compassion, openness[6].
- **Engaging with others** – collaboration, social skills, conflict resolution, emotional intelligence[7].

Leadership Continuum

Kamm also presents a **leadership & systems "continuum"** (from their upcoming book *Leaders of a Thriving Future*) showing how schools move from **maintaining** to **innovating and envisioning** across seven areas: leadership, teaching & learning, student engagement/agency, curriculum design, professional learning, educator collaboration, and community connections[8].

🏫 1. Tempe Union Innovation Center (High School, Arizona)

Dr. Christine Bella discusses this half-day program within the Tempe Union High School District, designed to be **a different way of learning** inside a public district[9].

Design Journey

- **Listening & Research (Year 1):** Involved a large internal committee (~ 60 people) [10], and surveys with students, parents, staff, and business partners[11].

    - **Student Feedback:** Students wanted **stronger relationships** with teachers [12], more **hands-on learning** [13], more **real impact in the community** [14], and more **choice**[15].

- **Building the Model (Year 2):** They hired **non-traditional, risk-tolerant educators** [16], and co-designed a mission focused on activating student ingenuity, developing agency, and building empathy/perseverance[17].
- **Partnerships:** Built a network of **$80+$ business partners** for projects and mentoring[18].
- **Space:** Secured an innovative physical space, renovated to feel more like a **Google/Apple workspace** than a traditional classroom[19].

Program Structure & Impact

- **Structure:** Students attend **half-day** (3 hours) at the Innovation Center and the rest of the day at their home high school[20].
- **Learning:** They earn **3 credits** while working primarily through **real-world, project-based learning** with business partners[21].
- **Inclusion:** Students were intentionally **mixed**: IEP/504 students, credit-deficient students, and high-performing honors/AP students all work together[22].
- **Process:** Business partners **pitch real problems**[23]. Teams of 4–5 students work with a **business mentor** and a **learning facilitator** who coach process and reflection[24]. Work is tracked using **Headrush**, a project-management system[25].
- **Example Project:** Students redesigned the system for managing and distributing **free clothing, shampoo, and essentials** for students in need with the Tempe Community Council[26].
- **Results:** Innovation Center students **outperformed district averages** in Sophomore English (+5.4%), Science (+4.2%), and Economics (+4.4%), and did better on state tests[27].
- **Conclusion:** Innovation happens when **vision meets courage**; the Center shifted learning to a model where students think, create, and lead with clarity, purpose, and confidence[28].

👶 2. HighScope Educational Research Foundation

HighScope is a **non-profit organization** that designs early childhood curriculum, conducts research, and provides professional learning[29].

Perry Preschool Study

- **Origin:** Founded by Dr. David Weikart (1962, Ypsilanti) [30], concerned that predominantly Black children were over-represented in special education[31].
- **Long-term Outcomes (Individuals now nearly 60):** The study showed:
    - Higher **high school graduation** and **college attendance** rates[32].
    - Better **income** and **employment** outcomes[33].
    - Lower **teen pregnancy rates** [34]and lower involvement in crime (non-violent when it occurred)[35].
- **Heckman Equation:** Economist **James Heckman** (Nobel Prize winner) used these data to estimate a **$13 return** to society for every $1 invested in high-quality early childhood education (the "Heckman equation")[36].

Approach: Active Learning & Plan–Do–Review

At the heart of the curriculum is **Active Learning** plus the **Plan–Do–Review** sequence[3737]:

1. **Plan:** Children choose what they will do (area, materials, intentions)[38].
2. **Do (Work Time):** Child-initiated exploration in classroom interest areas[39].
3. **Review (Recall):** Children reflect on what they did, describe their learning, often already planning for next time[40].

- **Teachers** use open questions and intentional observing/listening, not directing[41].
- A structured **6-step conflict resolution** process teaches children to solve problems together[42].
- **Core Idea:** This cycle develops **agency, reflection, language, social and problem-solving skills**—the same transversal competencies needed later in life[43].
- **Current Work:** HighScope is expanding with **STEM/STEAM kits** funded by **General Motors** [44]and a **10-year longitudinal study** in Mecklenburg County, North Carolina[45].

🎓 3. Levit Lab x ASU Prep Tempe – Reimagining High School

This is an in-person high school model on the ASU Tempe campus [46], founded by economist **Steven Levitt** (co-author of *Freakonomics*)[47].

Problem Diagnosis & Vision

- **Diagnosis:** Levitt observed students focus on **grades and tests**, not genuine understanding [48], with even top university students asking, "Will this be on the test?"[49].
- **Vision:** Move from **test-driven schooling** to **curiosity-driven learning** [50], where **curiosity is the engine**[51]. Learning is **self-paced, flexible and personalised**[52].

Five Main Components of the Model

1. **Core:** State-standards-aligned courses (e.g., biology, geometry)[53]. Delivered **online and self-paced**[54].
2. **Wonder Sessions:** Weekly **lab-style sessions** designed purely to ignite curiosity[55555555].
3. **Seminars:** Weekly, **Socratic-style discussions** on real-world issues and data[56]. They develop communication, data literacy, and ethical reasoning[57].
4. **In-Depth Explorations (IDEs):** Multi-week, **student-led projects** based on a personal passion[58]. Students create a project plan and present publicly[59]. Already **$40+$ IDE projects** in the first few months[60].
5. **Electives & College Courses:** Students can take **university-level classes** through ASU (on campus or via ASU Universal Learner online courses) and earn **real college credit**[61].

Guides (Teachers as Mentors)

- Teachers are called **"guides,"** not traditional teachers[62].
- They are the primary contact for parents and help students set **academic and personal goals**[63].
- Their focus is on mentoring and **co-learning**, not being the sole source of knowledge[64].

Culture & Community

- The culture is **deeply collaborative**, reducing competition over grades[65].

- Ideal student: **curious, wants more say in learning, values supportive community, and can grow into independence**[66].

🔗 **Main Entities & Resources Mentioned**

1. Tempe / Innovation Center Ecosystem

- **Tempe Union High School District (Innovation Center host):** https://www.tempeunion.org
- **Tempe Community Council (the organization behind the "Threadz" teen clothes closets project the students worked with):** https://www.tempecommunitycouncil.org
- **Headrush – project-based learning / project management platform (used to structure the 5 innovation phases):** https://www.headrushapp.com

2. Early Childhood / HighScope

- **HighScope Educational Research Foundation:** https://highscope.org
- **Perry Preschool Study (HighScope's landmark research) Overview via HighScope:** https://highscope.org/perry-preschool-project/
- **NAEYC – National Association for the Education of Young Children:** https://www.naeyc.org

3. Levit(t) Lab / ASU Prep Ecosystem

- **The Levitt Lab (Steven Levitt's learning lab powering the ASU Prep Tempe site):** https://www.thelevittlab.org
- **ASU Prep Tempe – powered by The Levitt Lab:** https://asuprep.asu.edu/tempe-levitt-lab/
- **ASU Preparatory Academy (overall K-12 network):** https://asuprep.asu.edu
- **ASU Prep Digital (online component that was mentioned around ASU Prep / college courses):** https://www.asuprepdigital.org
- **Arizona State University (ASU):** https://www.asu.edu
- **Khan World School at ASU Prep:** https://asuprep.asu.edu/khan-world-school

- **Khan Academy (Sal Khan's original platform referenced indirectly):** https://www.khanacademy.org

4. Funders and Context Organizations Mentioned

- **General Motors (STEM/STEAM funding for HighScope kits):** https://www.gm.com
- **Bill & Melinda Gates Foundation (curriculum/assessment funding for HighScope):** https://www.gatesfoundation.org