

Future of Work Initiative

Coding Change: Empowering Cambodia's Future Female Innovators

Global STEAM & Leadership Challenges – Case Study



“When teachers collaborate across schools and experience the transformation that project-based learning brings, we create a ripple effect that can reshape education for an entire generation.”

—Than Iv, STEAM educator and [Teach For Cambodia](#) alumnus

A Vision Born in the Highlands

I carry a profound belief in education's power to transform not just individual lives, but entire communities. In Cambodia, where traditional education often remains disconnected from the rapidly evolving demands of the digital economy, I've witnessed how our students—particularly girls—face systemic barriers to developing crucial 21st-century competencies.

This challenge became my calling. Today, I serve as a co-mentor for the Technovation Girls Challenge, working alongside Lyly Song, a dedicated teacher at Neeson Cripps Academy operated by the Cambodian Children's Fund. While I don't work directly with students, our mentor-teacher partnership has created a powerful ripple effect, supporting young female visionaries as they identify community challenges, design mobile app solutions, and develop business plans that address real needs in their communities.

The brilliance of this approach lies in its multilayered impact: we're simultaneously addressing gender gaps in STEAM education, building crucial digital literacy, and fostering an entrepreneurial mindset that transforms students from passive learners into active problem-solvers and changemakers.

Confronting Educational Disconnection

Cambodia has made remarkable strides in educational access over recent decades, but significant challenges persist in preparing students for a rapidly evolving digital world. The disconnection between classroom learning and real-world application creates a troubling gap—one that widens for female students in STEAM fields.

According to the Asian Development Bank's assessment, ICT and STEAM subjects in Cambodia are typically taught in isolation, with limited integration into broader learning frameworks. This siloed approach means students often learn theoretical concepts without understanding their practical applications or potential for solving community challenges. The situation is further complicated by limited teacher preparation, with few educators having the resources, training, or confidence to implement project-based learning effectively.

The consequences of this disconnection are profound. Students graduate without developing the digital competencies and problem-solving abilities essential for future success. For female students, this gap is compounded by societal expectations and limited exposure to female role models in technology fields—creating invisible barriers to their participation in Cambodia's growing digital economy.

This reality presented a clear challenge: How might we create engaging, real-world learning experiences that build 21st-century skills while simultaneously empowering girls to see themselves as capable technology innovators and solution creators? And equally important—how could we design an approach that builds teacher capacity to sustain this transformation beyond our direct involvement?

A Mentor's Journey

My own journey with the Technovation Girls Challenge began as a direct mentor to students, where I witnessed firsthand the transformative power of project-based learning. I saw quiet, hesitant students blossom into confident presenters as they tackled community challenges through technology. I watched their excitement grow as abstract coding concepts became tools for creating tangible solutions. Most importantly, I observed how the experience reshaped their perceptions of their own capabilities and future possibilities.

This powerful impact inspired a vision beyond the immediate program. I realized that to create sustainable change, we needed to focus not just on students but on building teacher capacity to implement similar approaches independently. The mentor-teacher model emerged from this insight—a structure where I would support Teacher Lyly as she guided her students through the challenge, creating a transferable model of implementation that could spread throughout Cambodia's educational system.

This approach represents more than just a program—it's a shift towards equipping educators with the tools, confidence, and community support to implement STEAM-based learning in their classrooms. By focusing on teacher development alongside student outcomes, we're creating the foundation for systemic change that can reach far beyond our direct involvement.

Implementation and Vision

Our implementation unfolds through five strategic phases—recruitment based on interest rather than achievement, community-centered planning, layered mentorship where I guide Teacher Lyly who supports students, multifaceted deliverable creation integrating technical and business skills, and community presentations that validate student innovations. Throughout this journey, we transform challenges—language barriers and time constraints—into opportunities that build resilience and capacity.

While still in progress, our vision extends across interconnected dimensions: students reimagining themselves as change agents, communities developing collaborative innovation ecosystems, and Cambodia's education system gaining Khmer-language resources for contextually-relevant STEAM integration. Beyond immediate outcomes, we're nurturing a community of educators transforming classrooms into innovation hubs—developing the problem-solvers Cambodia needs for its digital future.

This project sparked innovative ideas from two student teams aiming to support their communities through technology. Team One is developing a mobile app to connect mental health experts with users, allowing them to share best practices and hold discussions. Motivated by seeing their friends struggle, they partnered with a local NGO to provide accessible mental health support. At the same time, Team Two is creating an app to map out places where leftover rice waste can be collected. Inspired by a local tradition of drying and selling rice waste as animal feed, they aim to streamline the collection process and reduce waste through community sharing.

Key Insights for Educational Transformation

Our experience with the Technovation Girls Challenge illuminates several powerful insights about educational transformation in contexts like Cambodia:

- **Teacher empowerment precedes student empowerment.** By focusing on building Teacher Lyly's capacity through mentorship, we create a sustainable impact that will benefit not just current participants but future students as well.
- **Language and context matter deeply.** Global educational programs must be adapted thoughtfully to local contexts, with attention to language barriers and cultural relevance.
- **The mentor-teacher model creates a multiplicative impact.** By supporting one teacher effectively, we indirectly impact dozens of students—creating an efficient pathway to scale.
- **Integration of technology must be purposeful.** Technology education is most powerful when connected to real community needs and student-identified problems.
- **Gender equity requires intentional design.** By creating spaces specifically for girls to develop technology solutions, we're addressing invisible barriers to participation and leadership.

Together, these insights form a blueprint for educational innovation that recognizes both the challenges and immense possibilities within Cambodia's educational landscape. Through structured guidance, adaptable frameworks, and a deep commitment to capacity building, we're not just implementing a program—we're nurturing the seeds of an innovative approach that can transform how Cambodian students experience STEAM education.

As we look toward the future, our vision is clear: a Cambodia where all students—regardless of gender, background, or location—have opportunities to develop the skills, mindsets, and confidence to create technology solutions to the challenges they see around them. One Technovation Challenge at a time, we're coding a new future for Cambodia's education system and the empowered innovators it produces.

For more information about the **Future of Work initiative** visit the official [website](#).
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