

## Building the Next Generation of Inventors: A Conversation with The Lemelson Foundation's David Coronado



**David Coronado** is a Senior Program Officer with the Lemelson Foundation. His work focuses on helping transform higher education and K-12 learning by developing new innovative teaching and learning approaches that help empower students with cutting-edge skills and confidence to design their own futures and to create solutions for our society's pressing problems. Coronado achieves this through the development and stewardship of a strong network of local and national cross-sector partnerships, advocacy, testing new models, and generating research. Coronado founded InventEd, a national community of practice focused on invention education. InventEd is a coalition of K-12 educators, nonprofit leaders,

researchers, government agencies, funders, and others building the field of invention education. Before joining the Foundation, Coronado helped transform education and developed various efforts to provide young people with equal and inclusive access to invention education and STEM coursework through his involvement with Harvey Mudd College, Portland State University, and MESA (Math, Engineering, Science Achievement). Coronado is the chair emeritus of the National STEM Funder's Network.

He participated in a panel during GUIRR's February Workshop titled "Early Entrepreneurship Education and the Future STEM Workforce." Following the presentation, David engaged in a Q&A session with GUIRR Director, Michael Nestor, further delving into his work and offered valuable insights from his distinctive perspective about invention education to the GUIRR community. Responses have been edited for length. For more information about the Lemelson Foundation visit: [Our Work | The Lemelson Foundation](#).

### How do you define "entrepreneurial thinking"?

Entrepreneurial thinking is a mindset that emphasizes *creativity, innovation, and opportunity recognition* to take action and create social or economic value. It is about seeing problems as potential opportunities and developing solutions that can be realized.

Entrepreneurial thinking is not just about starting your own business. It is a valuable skill set that can be applied in any situation, from the classroom to the corporate world. It empowers individuals to be proactive, resourceful, and solution-oriented, regardless of their specific career path.

### The idea of building a national network for invention education is compelling. How can the G-U-I community help support and scale this initiative?

There is a growing K-12 national movement through InventEd to further develop invention education across the United States as a pedagogy and practice. Each sector of G-U-I can play a role in advancing this work.

#### Government:

- Allocate dedicated funding for invention education programs and teacher training.
- Help develop national standards and frameworks for invention education to ensure consistency and quality across the country.
- Launch public campaigns highlighting the importance of invention education and its benefits for students, the economy, and society.
- Invest in creating online and physical hubs for invention education resources, accessible to schools nationwide.
- Invest in research on invention education.

#### Universities:

- Research effective practices in invention education and share best practices with the broader education community.
- Develop pre-service and in-service specialized programs and workshops to train teachers to implement invention education in their classrooms effectively.
- Offer university credit or continuing education opportunities for teachers to enhance their skills in invention education.

- Develop and pilot invention education programs in partnership with schools and industry.
- Shift admissions policies to include demonstrations of problem-solving and inventive thinking through portfolios.
- Organize K-12 and higher education invention competitions and summer camps to encourage student participation and spark their interest in invention.
- Integrate transdisciplinary learning and invention education into course designs and student experiences.

#### Industry:

- Advocate for invention education at the state and federal level.
- Donate funding for invention education programs, scholarships, and awards for student inventors.
- Sponsor invention competitions and hackathons to encourage student participation and innovation.
- Provide mentors from industry who can offer guidance and support to young inventors and students in invention education programs.
- Donate access to technology, materials, or facilities that schools might not have access to, facilitating hands-on learning.



Photo Credit: Rebecca Grella

*Which noteworthy innovations have you observed during your career that you believe our national education system could implement to benefit student outcomes in the coming decade?*

The curriculum we teach our children within K-12 through higher education is akin to a snapshot frozen in time. We must realize that the world they will graduate into is a dynamic, ever-evolving landscape. Thus, it is not merely about memorizing content; it is about instilling in them the skills and adaptability to thrive in a future constantly rewriting its own story. Social and

technological innovations play a key role in advancing student learning.

Convergence is an innovative approach to student learning. It integrates multiple disciplines, perspectives, and modes to create a holistic and interconnected learning experience. In convergence learning, students are encouraged to make connections across different subjects, fields of study, and real-world contexts. This approach recognizes that many real-world problems and challenges are complex and multifaceted, requiring interdisciplinary thinking and collaboration to address them effectively. Invention education is cited as a promising model for convergence education in the 2023 White House report, "[Convergence Education: A Guide to Transdisciplinary STEM Learning and Teaching.](#)"

One example is High Tech High School, which focuses on project-based learning, collaboration, technology integration, and real-world experiences. They prepare students to become lifelong learners, critical thinkers, and active community and society participants. Olin College is also an inspiring example of how institutions can cultivate creativity and entrepreneurship by teaching problem-based learning, design thinking and innovation, collaborative culture, and entrepreneurship and leadership development.

We must prepare our students not just for the world as it is but for the world as it evolves and unfolds before them, with curiosity, resilience, and a commitment to lifelong learning.

*When you survey innovation education outcomes around the world, which models are you looking to as exemplary?*

Finland is an exemplary model to examine. Their approach to teaching innovation in primary and secondary schools revolves around creating a supportive and engaging learning environment that nurtures students' creativity, critical thinking, and problem-solving skills.

Finland strongly emphasizes fostering creativity and imagination in education. Teachers are encouraged to incorporate creative activities, such as art, music, drama, and hands-on experiments, into their lessons to stimulate students' creativity and innovative thinking. Their curriculum is designed to be broad and holistic, allowing students to explore various subjects and develop a well-rounded skill set. This approach encourages creativity and innovation by allowing students to pursue their interests and passions. Project-based learning is incorporated into their curriculum, where students work

on interdisciplinary projects that require critical thinking, problem-solving, and collaboration.

Finnish teachers have a high degree of autonomy in designing their lessons and curriculum. This allows them to incorporate innovative teaching methods and strategies that best suit their students' needs. Additionally, teachers receive extensive professional development and support to stay up-to-date with the latest educational research and practices. Finland is a country we can learn from.

*What message you would like to share with students and life-long learners, curious about pursuing invention and problem-solving careers?*

Embrace your curiosity and passion for solving problems, for it is the fuel that will propel you on your lifelong journey of positively impacting this world and securing a future of your choosing. Being inventive is a way of being; invention can also be a thriving career. Invention and problem-solving careers are not just about finding answers; they are about asking the right questions, challenging the status quo, and pushing the boundaries of what is possible.

The world needs your spark and creativity. Our challenges—climate change, resource scarcity, growing inequalities—demand social and technologically innovative solutions. You hold the potential to be the architects of a better tomorrow. Everyone's diverse perspective is needed to solve these audacious problems.

Embrace the journey, not just the destination. Life and invention is a messy, iterative process filled with false starts, dead ends, and moments of frustration. Learn to celebrate these bumps in the road; they're the stepping stones to your "aha!" moment.

Surround yourself with other problem-solvers, tinkerers, and innovators. Collaboration is key, and the support and inspiration of a like-minded community can be invaluable. The smartest person in the room is not the one with all the degrees but who recognizes their strengths and surrounds themselves with those who complement what is needed to solve the problem.

Most importantly, never stop learning, never stop questioning, and never stop dreaming. Even when others do not believe in you, know the world needs your unique perspective, boundless enthusiasm, and unwavering belief in the power of invention to change it.