



STEMCONNECTOR



STEM
ACTION CENTER
U · T · A · H

SCALING MAKER
LEARNING Innovation
Lab
Brief

June 9-10, 2026 | Salt Lake City, Utah

STEMCONNECTOR and the Utah STEM Action Center hosted a two day Innovation Lab that explored how Maker Learning, as a compelling application of Experiential Education, can develop the durable, human and technical skills required to support the workforce of the future. The event brought together a curated group of national and regional leaders in STEM education, workforce development, industry, and philanthropy to explore how these powerful learning environments can be scaled to maximize impact and align with employer demand.

The event took place in the Greater Salt Lake City region - an area with a robust high-tech economy and an innovative education and workforce development system. Participants engaged in panel presentations, table discussions and hands-on activities during the lab that explored how high-quality maker experiences can improve STEM workforce outcomes.

In particular, content showcased how durable skills, such as persistence, collaboration, creativity, and problem-solving, are honed through an intentional and accessible program. Drawing on successful national strategies, research on K-12 maker learning, and Utah's own innovation assets, the Lab surfaced practical approaches for evolving maker education from the creative and artistic to career-connected instructional and workforce readiness strategies.



Why Maker Learning

The case for maker learning is evidence-backed and compelling. Research shows hands-on, project-based making produces a three-fold improvement in critical thinking and a four-fold gain in creativity, with every assessed skill showing statistically significant gains. Students build these competencies by analyzing and problem-solving real systems, working within material constraints, prototyping rapidly, and presenting their work, developing the durable skills employers identify as most in-demand: critical thinking, creativity, collaboration, entrepreneurship, and career connectivity. With AI and digital tools increasingly woven into the making process, maker learning has emerged as a compelling model for developing the whole learner, at a time our workforce needs them most.

About the Event

STEM**CONNECTOR** Innovation Labs are action-oriented convenings that surface on-the-ground insights and help amplify and expand scalable models, incorporating site visits to local employers and educational institutions that showcase the regional ecosystem. The Maker Learning and Experiential Education Innovation Lab took place over two days — June 9–10, 2026 — in the Salt Lake City metro area.

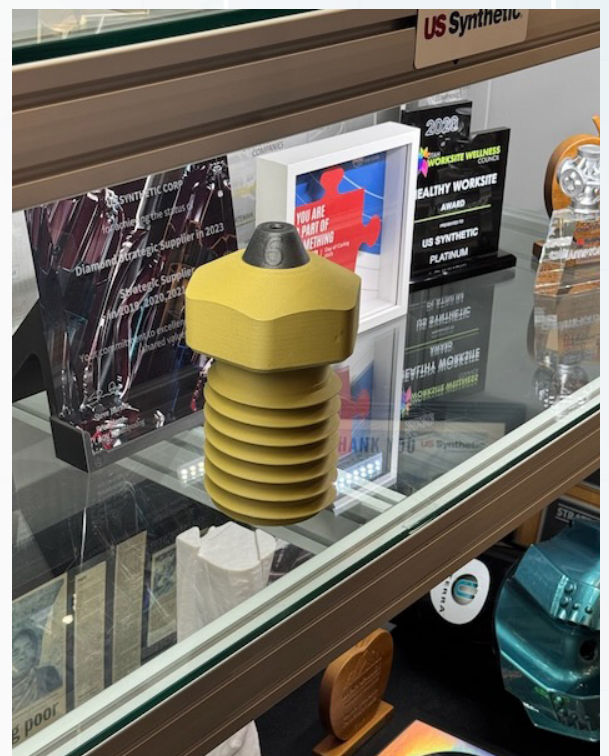
Day 1: Site Visits & Welcome Reception

At the start of the event, participants had the opportunity to participate in curated site visits showcasing innovative maker learning environments, industry partnerships, and hands-on STEM programs in action.

The site visits were designed to ground participants in Utah's maker learning and innovation ecosystem, with participants splitting into two regional tracks. In Utah County, participants visited Utah Valley University in Orem, where Interim Dean Krista Ruggles showcased how the School of Education is building educator capacity, comfort, and competence in integrating maker learning into classrooms, demonstrating how teacher preparation programs can serve as a critical lever for scaling maker-centered instruction. The group then traveled to US Synthetic, a leading producer of industrial synthetic diamonds used across a range of commercial applications, where President Rob Galloway described the company's intentional evolution of its workplace culture from “problem-seeing” to “problem-solving.” Landen Garner, Director of Engineering Good, led participants on a facility tour illustrating how that cultural transformation has driven remarkable productivity gains and sustained profitability.

The visit left a lasting impression on participants. As David Coronado of The Lemelson Foundation put it,

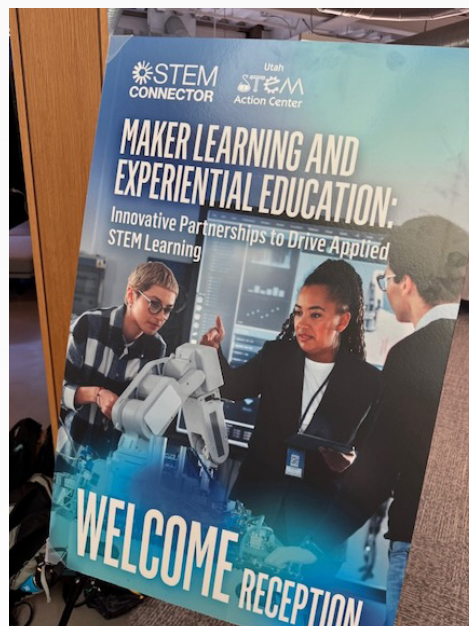
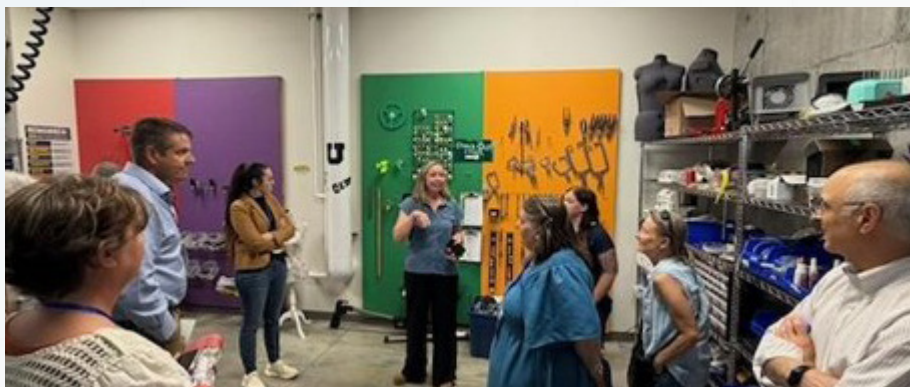
“Visits with company leaders like those at US Synthetic made clear that the world needs problem finders as much as problem solvers — and that invention education is exactly how we develop both.”



Scaling Maker Learning Innovation Lab

Meanwhile, the Salt Lake County track visited Jacobsen Innovations and Lassonde Studios at the University of Utah, offering a complementary view of innovation in action across industry and a compelling entrepreneurship program within higher education. At Jacobsen Innovations, Wayco Scroggins shared the importance of the maker prototyping process to support the many commercial products they developed and scaled over their thirty year history, from an artificial kidney to Disney animatronics and one of the first hydraulic humanoid robots. He also gave a tour and overview of their robotics lab and program, which supports several FIRST teams and is working to develop a competition robot that costs teams less than \$500 to expand access and participation in the program. At the Lassonde Center, participants learned about the use and value of their maker lab to support prototyping for their entrepreneurship program, which focuses primarily on launching and scaling start-ups for approximately 1,000 students per year. Together, the visits established a powerful throughline for the Lab: the same mindsets cultivated through maker learning—curiosity, agency, and hands-on problem-solving—are precisely the capabilities that drive success in the modern workplace.

The day concluded with a welcome reception and maker project session with members from Make Salt Lake, hosted by MHTN Architects in downtown Salt Lake City.



Day 2: Innovation Lab Schedule

Wednesday, June 10th, 2026

9:00 AM	Welcome - Ted Wells, Co-CEO, STEMCONNECTOR - Tami Goetz, Director, Utah STEM Action Center
9:15 AM	Overview of Event Drew Glassford, Co-CEO, STEMCONNECTOR
9:25 AM	Introductions Ted Wells, Co-CEO, STEMCONNECTOR
9:40 AM	Panel: Maker Learning 3.0 - A Collaborative Approach - Patti Larkin, CTE Specialist, Canyons School District - Jessica Davis, Director, STEM Outreach Center, Utah Tech University - Dr. Krista Ruggles, Associate Professor of Elementary STEM, Utah Valley University - Wayco Scroggin, Chief Operating Officer, Jacobsen Innovations - Becca Robison, Innovation Hub Manager, Utah STEM Action Center (<i>moderator</i>)
10:50 AM	Making & Innovation Project Activity <i>A hands-on collaborative activity — experience maker learning as a participant.</i> - AC Black, Senior Creative Technologist, Technovation - Liza Manfred, Managing Director, Strategic Initiatives & Partnerships, KID Museum - Savannah Fetterolf, Senior Director of Teaching & Learning, KID Museum
11:40 AM	Project Feedback Discussion
12:00 PM	Networking Lunch Davis Catalyst Center Tour
12:50 PM	Panel: Scaling Maker Learning - Opportunities for Growth - Jason Rausch, SVP of Instructional Development, Project Lead The Way - David Coronado, Director, Invention Education, The Lemelson Foundation - Matt Winters, AI Educational Specialist, Utah State Board of Education - Cara Lesser, Founder and Executive Director, KID Museum (<i>moderator</i>)
1:30 PM	Table Discussion: What is Needed for Growth
2:00 PM	Report Out – Opportunities and Strategies for Scale
2:15 PM	Next Steps and Closing

Welcome

The Lab opened with remarks from **STEMCONNECTOR** and Utah STEM Action Center leadership that framed the day ahead: why maker learning matters, what's already working, and where it's headed next. Ted Wells, Co-Founder and Co-CEO of **STEMCONNECTOR**, anchored the Lab in the organization's mission to connect education, industry, and community, pointing to **STEMCONNECTOR**'s growing portfolio of resources and the recent launch of **STEMCATALYST**, a new nonprofit partner focused on building sustainable pathways for learners. Tami Goetz, Director of the Utah STEM Action Center, grounded that mission in practice, describing how the Center brings K–12 education, higher education, industry, government, and community organizations together, and how Utah's maker ecosystem has grown into U-MAKE (Utah Maker Access and Knowledge Ecosystem), a statewide model for expanding access to experiential learning.

Drew Glassford, Co-CEO of **STEMCONNECTOR**, then turned to what's next, outlining plans to scale maker learning nationally through **STEMCATALYST** — supporting pilot programs, expanding partnerships, and integrating AI into future learning experiences. He announced **STEMCATALYST**'s first grant, funded by a private philanthropist, which will bring KID Museum and Vzable's AI-assisted engagement tools into five markets this fall. Together, the opening remarks moved from mission to proof point to national ambition — mission, local ecosystem, and execution reinforcing one another — a throughline that carried through the rest of the day, alongside an early nod to AI's growing role in maker education.



Key takeaways

Maker learning provides meaningful, hands-on experiences that build critical thinking, creativity, problem-solving, and technical skills applicable across a wide range of careers.

Growing workforce demands—including manufacturing reshoring, infrastructure investments, housing shortages, and AI-driven economic growth—are increasing the need for skilled technical talent.

Utah's statewide maker ecosystem demonstrates how coordinated partnerships can successfully expand access to experiential learning and career-connected education. It is a compelling model for replication.

Artificial intelligence presents significant opportunities to enhance maker learning and personalize educational experiences while preparing students for an increasingly technology-driven workforce.

Encouraging learners to anticipate technological change helps foster adaptability, innovation, and future-ready thinking that will be essential in the coming decade.

STEM education requires strong cross-sector collaboration among education, industry, government, and community organizations to effectively prepare learners for future workforce needs.

Panel: Maker Learning 3.0 - A Collaborative Approach



This panel explored development and implementation of “Maker Learning 3.0”, the compelling evolution of maker education and the growing emphasis on developing collaborative, career-connected learning ecosystems. Moderated by Becca Robison, Innovation Hub Manager at the Utah STEM Action Center, panelists reflected on how maker learning has shifted away from siloed approaches toward more integrated systems that connect educators, students, and industry partners. Patti Larkin, CTE Specialist in the Canyons School District, emphasized the importance of understanding community needs and designing meaningful opportunities for engagement that extend beyond traditional school-based events.

Scaling Maker Learning Innovation Lab

Jessica Davis, Director of the STEM Outreach Center at Utah Tech University, highlighted the connected ecosystem approach and shared exciting progress and strategies for integrating mathematics into maker learning experiences. She noted that maker-based instruction not only strengthens academic understanding but also improves student engagement, reduces disruptive behaviors, and increases content retention through applied learning. Wayco Scroggin, Chief Operating Officer at Jacobsen Innovations, emphasized the value industry partners gain from observing and supporting the problem-solving and troubleshooting skills students develop through maker programs. Dr. Krista Ruggles, Dean - Interim of School of Education at Utah Valley University, added insights on cross-curricular implementation strategies and the ongoing challenges of securing administrative buy-in to support sustained program adoption.

The panel concluded by reinforcing that the continued growth and impact of Maker Learning 3.0 depends on sustained collaboration across educators, industry partners, and community organizations. Speakers emphasized that while challenges remain around funding, alignment, and implementation, momentum is building through shared commitment, adaptive strategies, and expanding support systems, including AmeriCorps, as well as cross-sector partnerships.



Key takeaways

Sustained industry engagement—such as embedding professionals directly into classrooms—strengthens instruction, supports educators, and scales real-world learning experiences.

Expanding work-based learning opportunities, including internships and innovation centers, is critical to helping students connect classroom learning to career pathways.

Early exposure to maker learning in elementary grades builds foundational skills, strengthens mathematical identity, and increases long-term student confidence in STEM.

Integrating math into hands-on, applied maker activities significantly improves engagement, retention, and conceptual understanding of core skills.

Cross-disciplinary collaboration between math, science, and CTE educators enhances both instructional coherence and student understanding of real-world applications.

Administrative buy-in and early stakeholder engagement are essential to successfully implementing and sustaining maker education programs in schools.

Effective scaling of maker learning requires intentional communication, strong community partnerships, and visible demonstrations of student impact.

Maker Learning 3.0 depends on building connected ecosystems that align K–12 education, higher education, industry, and community partners around shared workforce goals.

Call to Action

Building connected maker learning ecosystems starts with intentional partnerships. Districts and schools should:

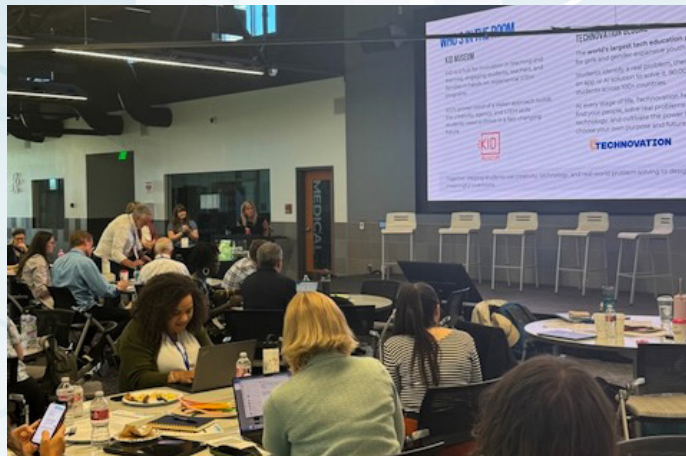
Invite industry professionals into classrooms to strengthen instruction and expose students to real-world problem-solving.

Introduce maker learning at the elementary level to build early mathematical identity, competency and STEM confidence.

Engage administrators early to secure the buy-in needed for sustained program adoption.

Making & Innovation Project Activity, Featuring KID Museum & Technovation

The Making & Innovation Project Activity explored the growing role of artificial intelligence (AI) as both a tool and a learning objective within maker education. The session was presented by AC Black, Senior Creative Technologist at Technovation, and Liza Manfred, Managing Director of Strategic Initiatives & Partnerships, and Savannah Fetterolf, Senior Director of Teaching & Learning, both of KID Museum — two organizations that engage youth in project-based making, STEM, and AI literacy through real-world design challenges.



Presenters emphasized that AI should be introduced in ways that strengthen critical thinking, ethical decision-making, and responsible technology use, not simply as a set of tools for students to consume. They highlighted how AI can be meaningfully woven throughout the design and invention process, from research and brainstorming to prototyping and product development. Examples included maker technologies such as Arduino, micro:bit, and Google’s Teachable Machine, demonstrating how AI can function as a component of student inventions, a research assistant, or a creative collaborator — freeing students to spend more time designing and building. Presenters also introduced “vibe coding,” an emerging approach where generative AI enables learners to rapidly build functional applications without extensive programming experience.

Several real-world case studies illustrated the impact of combining AI with experiential learning:

Shady Grove Middle School

Students used the Invent the Future curriculum to develop a prototype addressing aging water infrastructure, applying 3D modeling, sensors, coding, and engineering design principles.

KID Museum’s Teen Innovators Program

Students created AI-powered learning tools designed for use by younger learners.

Technovation’s “Bionic Girls” Team (Brazil)

An assistive technology project that evolved into an award-winning solution supporting cochlear implant users.

Together, these examples demonstrated how authentic, community-centered challenges inspire students to see themselves as innovators and future STEM leaders.

Key takeaways

AI is most impactful when used to enhance creativity, critical thinking, and problem-solving rather than replace human thinking.

Experiential, project-based learning empowers students to apply STEM skills to authentic community challenges while building confidence and career awareness.

AI literacy should include ethical decision-making, responsible technology use, and an understanding of how AI systems are trained and influenced by data.

AI can function as a component of student inventions, a research assistant, or a creative collaborator — freeing students to spend more time designing and building.

Project Activity

The activity session concluded by inviting participants to experience maker learning firsthand through an interactive design challenge. Working in teams, participants applied the same design thinking process used by students, guided by the open-ended Problem Statement: : “ _____(who), needs a _____(what) because _____ (why).”

Teams worked through a structured set of questions to ground their designs in real human need:

1. *Who are we designing for?*
2. *What challenge do they face?*
3. *What would make their life easier, safer, healthier, or better?*
4. *What tools and materials are we using and why?*
5. *How might this problem specifically benefit from AI? What can AI do here that a different tool cannot?*
6. *What are the criteria and constraints of this problem?*





By participating in the design process, participants explored how AI could serve as a functional component, a prototyping tool, or a collaborative partner within their designs, reinforcing key takeaways from earlier presentations: the greatest value of AI in maker education lies not in replacing human creativity, but in expanding what learners can imagine, design, and create.

Participants shared their projects by table, describing their problem statement, why it is important to them to solve, their solution, and how they used AI to develop it. Projects designed included a Data Center Community Impact Assessment App, Solar Powered De-icing System, Clean Air Geo-tracking App to Identify Air Inversion Zones, Water Conservation Resource App for Landscape Alternatives, Water Conservation App to Dispel Data Center Myths/concerns, Talking Point App for Economic Opportunity Value Proposition, Landslide Detection App and a Water Conservation Gaming App.

Call to Action

As AI becomes further embedded in maker education, organizations and educators should:

Prioritize AI literacy alongside technical skills, ensuring students understand ethical decision-making and responsible technology use.

Explore partnerships with organizations like KID Museum and Technovation to bring AI-integrated, project-based learning experiences to more classrooms.

Position AI as a creative collaborator, not a replacement for student thinking, when designing curriculum.

Davis Catalyst Center

During a lunchtime presentation, Tim Allen, Director of the Davis Catalyst Center, which hosted the Innovation Lab, introduced the Center's profession-based learning model, which blends classroom instruction with authentic industry experiences to prepare students for college and careers. As part of the Center for Advanced Professional Studies or CAPS Network, the Davis Catalyst Center partners with local employers to engage students in real-world projects for actual clients in fields such as cybersecurity, artificial intelligence, engineering, and medical assisting. He emphasized that solving authentic industry challenges allows students to build both technical expertise and the professional skills needed for future success.



Allen highlighted the Center's commitment to expanding access to career-connected learning through its focus on profession-based learning, entrepreneurial thinking, professional skill development, and industry responsiveness. Serving students from across the Davis School District, the Center removes barriers by providing transportation and creating opportunities for learners from diverse backgrounds to participate in immersive experiences. Students develop transferable skills—including communication, project management, interviewing, and networking—while earning college credit and industry certifications through partnerships with industry organizations such as Lagoon, Boeing, Northrop Grumman, and Tanner Clinic.

Looking ahead, Allen shared plans to expand the Davis Catalyst Center in response to growing demand, supported by Utah's Catalyst Grant investment. A second facility focused on advanced manufacturing, welding, composites, and aviation maintenance will increase capacity while continuing the Center's mission of aligning education with workforce needs. He concluded by emphasizing that profession-based learning succeeds through sustained collaboration between education and industry, creating authentic pathways that prepare students for an evolving workforce. The center's success has resulted in the state government providing funding for several additional Catalyst Centers throughout Utah.

The impact of the Center resonated with participants. Andy Dunaway of Pearson reflected, *"The Davis Catalyst Center stood out as a powerful example of how the greater Salt Lake area has embraced Career Connected Learning and the impact it can have for learners across the region."*

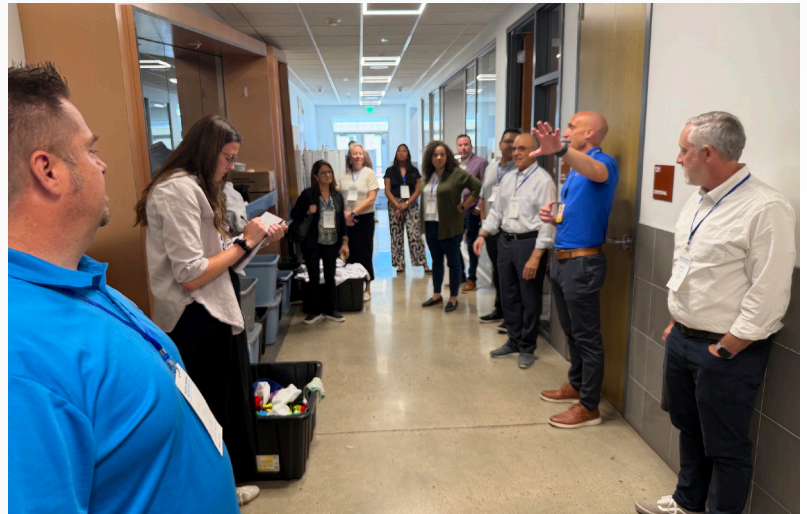
Key takeaways

Profession-based learning bridges education and industry by engaging students in authentic projects that develop both technical and professional skills.

Strong employer partnerships create meaningful career-connected learning experiences while helping address regional workforce needs.

Expanding access through transportation, inclusive enrollment practices, and equitable program design enables more students to participate in high-quality STEM and Career and Technical Education (CTE) opportunities.

Workforce-responsive learning models that combine industry certifications, college credit, and real-world experience better prepare students for multiple postsecondary and career pathways.



Panel: Scaling Maker Learning - Opportunities for Growth

The second panel of the day explored strategies for scaling maker learning by moving beyond individual programs and makerspaces to build sustainable, industry-engaged and learner-centered ecosystems. The discussion emphasized that successful scaling is driven by cultivating curiosity, creativity, and problem-solving—not simply replicating physical spaces or instructional models. Panelists also explored how artificial intelligence can complement hands-on learning by expanding opportunities for innovation and student agency.

Drawing on their respective experiences, speakers shared the essential conditions for growing maker learning at scale. David Coronado, Director, Invention Education, The Lemelson Foundation emphasized the importance of clearly defining the purpose and outcomes of maker education while identifying local “champions” who can inspire change within schools and communities. Jason Rausch, SVP of Instructional Development, reflected on Project Lead The Way’s successful growth through comprehensive teacher training, strong educator networks, and practical implementation support that empower more teachers to bring maker-centered learning into their classrooms. Matt Winters, AI Educational Specialist, Utah State Board of Education, highlighted Utah’s collaborative education ecosystem as a model for fostering innovation through statewide partnerships, while moderator Cara Lesser, Founder and Executive Director, KID Museum, underscored the need for intentional connections between school-based and community-based maker programs to create seamless learning pathways for students.



Looking ahead, the panel envisioned a future in which maker learning becomes a transdisciplinary approach that prepares students to solve authentic, real-world problems across traditional subject boundaries. Speakers reinforced that achieving this vision will require stronger partnerships among education, industry, philanthropy, and community organizations, along with messaging that clearly communicates the value of maker learning to diverse stakeholders.

The panel concluded that cultivating curiosity, empowering educators, and building connected ecosystems will be critical to expanding maker education and preparing learners for an AI-enabled future.



Reflecting on the discussion, Jason Rausch of Project Lead The Way summarized the shift succinctly:

“The collective focus on scaling the maker mindset and problem-solving mindset, not just expanding spaces, [comes from] embedding hands-on, career-connected learning into relevant instruction and building more intentional partnerships.”

Key takeaways

Scaling maker learning requires building a culture of curiosity, creativity, and problem-solving rather than simply replicating programs or makerspaces.

Strong educator support, community champions, and cross-sector partnerships are essential to creating sustainable maker learning ecosystems.

Intentional connections between in-school and out-of-school learning experiences provide students with continuous opportunities to explore STEM and career pathways.

Clear, audience-specific messaging and a shared vision for maker learning are critical to increasing adoption and demonstrating its value to educators, industry, and community leaders.

STEMCATALYST aims to accelerate the adoption of maker learning through strategic investments, pilot programs, and scalable partnerships across the country — a concrete example of the kind of scaling strategy this panel called for.

Call to Action

Scaling maker learning requires more than replicating spaces. Stakeholders should:

Identify and empower local champions who can drive adoption within schools and communities.

Invest in educator training and support networks to expand maker-centered instruction sustainably.

Build intentional connections between in-school and out-of-school programs to create seamless learning pathways for students.

Conclusion

The Maker Learning and Experiential Education Innovation Lab demonstrated that preparing the next generation of STEM talent requires more than expanding access to technology, it requires reimagining how students learn, solve problems, and connect with the world around them. Across each discussion, a consistent theme emerged: meaningful STEM education is built through authentic partnerships among education, industry, government, philanthropy, and community organizations that work together to create career-connected, learner-centered experiences focused on preparing students for the workforce.

From profession-based learning and statewide maker ecosystems to artificial intelligence, experiential learning, and work-based opportunities, speakers reinforced that the future of education depends on developing learners who are curious, adaptable, and equipped with both technical and durable skills. Rather than viewing AI, maker learning, and career-connected education as separate initiatives, participants emphasized the importance of integrating these approaches into a cohesive program that prepares students to thrive in an increasingly complex, rapidly evolving and technology-driven workforce.

The Innovation Lab also highlighted Utah as a model for the required collaboration, demonstrating how intentional partnerships, shared leadership, and a commitment to innovation can develop and scale better opportunities for learners across diverse communities. While every state and region will approach this work differently, the principles discussed throughout the Lab, focusing on curiosity, collaboration, problem-solving, relevance, authenticity, and continuous learning, provide a roadmap for building stronger regional STEM ecosystems nationwide.

Final Call to Action

The conversations throughout the Innovation Lab made one message clear: no single organization or institution can prepare tomorrow's workforce alone. Lasting impact will require educators, employers, policymakers, philanthropy, and community organizations to move beyond isolated efforts and work together to build connected learning ecosystems focused more on experiential, career-connected approaches.

Now is the time to:

Strengthen partnerships between education, industry, and community organizations to create more authentic, experiential career-connected learning experiences.

Expand access to maker learning, profession-based education, and work-based learning opportunities that develop both technical and durable skills.

Equip educators with the professional learning, resources, and support needed to confidently integrate emerging technologies such as AI into meaningful student experiences.

Champion learner-centered approaches that foster curiosity, creativity, critical thinking, and problem-solving from the earliest grades through postsecondary education and into the workforce.

By working together, we can create improved learning experiences that not only prepare students for the jobs of tomorrow but empower them to become the innovators, problem-solvers, and leaders who will shape our future.

Next Steps

Building on the insights shared throughout the Innovation Lab, STEMCONNECTOR and its partners will continue advancing this work by:

- **Expanding collaboration** among education, industry, government, philanthropy, and community organizations to strengthen regional STEM ecosystems.
- **Scaling proven models** of maker learning, profession-based learning, and career-connected education that can be adapted to communities nationwide.
- **Supporting AI readiness** by identifying and sharing practical strategies for integrating artificial intelligence into teaching, learning, and workforce preparation.
- **Elevating promising practices** by capturing and sharing successful case studies, tools, and implementation strategies from educators, schools, and industry partners.
- **Convening stakeholders** through future Innovation Labs, webinars, and the STEM Innovation Forum to continue exploring emerging challenges, sharing lessons learned, and accelerating collective action.

Together, these efforts will help ensure that more learners have access to engaging future-ready STEM experiences that prepare them for lifelong success in an evolving workforce.

Acknowledgments

A special thanks to our attendees:

