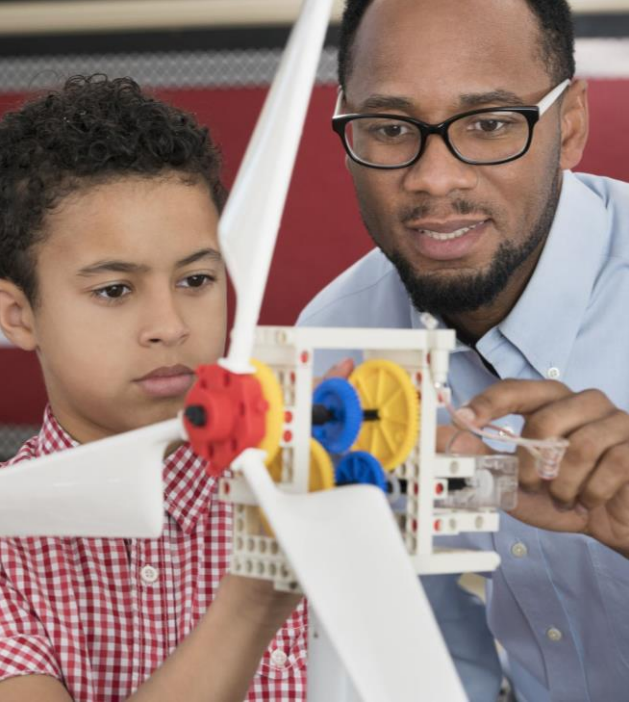




# Creating the Next Generation of Problem Solvers

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# What's the Issue?

- The grand challenges of today and tomorrow need a diversity of inventive problem solvers with the creative ideas, and robust experiences needed to address complex problems.
- Young people need the skills and mindsets to thrive in a future yet to be determined, in industries yet to be imagined, and in jobs yet to be created.



# Invention and Innovation Pathway





# Mindsets of Inventors

Empathy

Passion

Creativity

Resourcefulness

Curiosity

Tolerance for  
Ambiguity and  
Complexity


Resilience

Calculated Risk-  
Taking

*Smithsonian. Report of the Committee for Study of Invention, 2004*

Our Current  
Education  
Practices Focus  
on Passive  
Learning



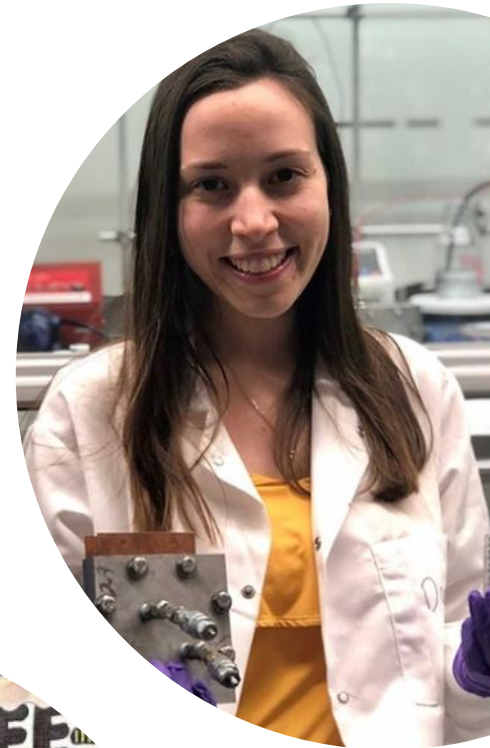
A photograph of two young girls in a science classroom. They are both wearing safety goggles and are focused on a science experiment. The girl on the left is wearing a white shirt and is holding a beaker with blue liquid. The girl on the right is wearing a dark blue polo shirt and is looking at a flask with blue liquid that is bubbling. In the background, other students are visible, some also wearing safety goggles. The text "But We Need Real-World Learning Across the K-16 Continuum" is overlaid in white on the image.

But We Need Real-World Learning  
Across the K-16 Continuum

# Invention Education

*Facilitation of educational engagement in which people find and define problems and design and build new, novel, useful, and unique solutions that contribute to the betterment of society*

*InventEd. (2020a, October 20). Researching Invention Education | InventEd. InventEd | Invention Education Research, Resources & Curricula.*



# Common Elements of Invention Education Efforts

- A problem-finding or defining stage
- Open-ended inquiry to solve real-world problems
- Teamwork and collaboration within and beyond the team
- Mentors and others from the larger community
- Iterative and recursive learning and design cycles
- Embracing learning from failure and uncertainty
- Educators as guides, mentors, or coaches who learn alongside students



# Teachers' Reasons for Engaging in Invention Education

- Connecting students to real world experiences
- Opportunities to help students integrate and apply knowledge
- Excitement
- Connecting with community
- Interest in problem solving of real-world challenges
- Equity and social justice
- Process of learning

# Transdisciplinary Learning

White House. (2022, November). *Convergence Education: A Guide to Transdisciplinary Learning and Teaching*. The White House.  
[https://www.whitehouse.gov/wp-content/uploads/2022/11/Convergence\\_Public-Report\\_Final.pdf](https://www.whitehouse.gov/wp-content/uploads/2022/11/Convergence_Public-Report_Final.pdf)

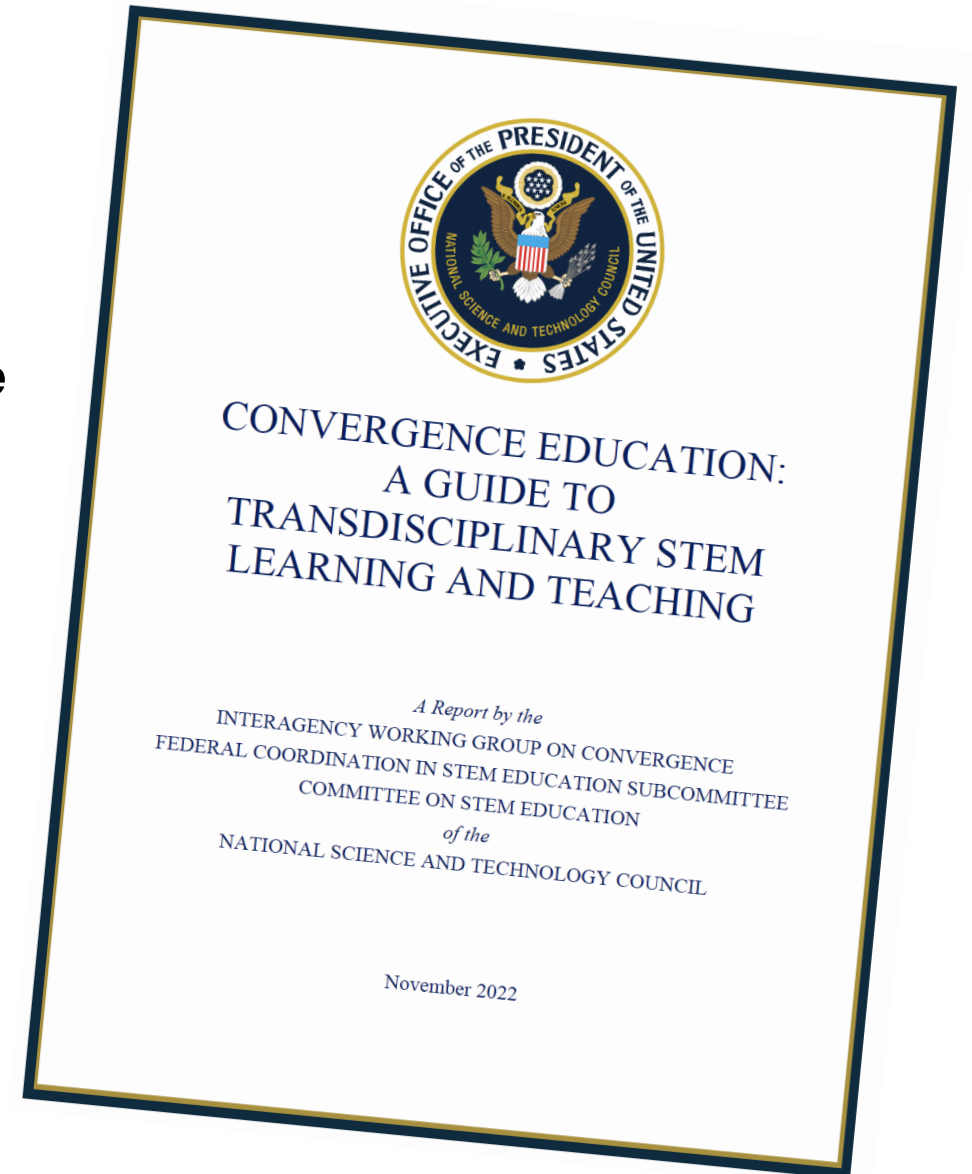


**Figure 1. Increasing Levels of Integration.** Upper panel (source: IWG-C): Analogy for conceptualizing levels of integration. Lower panel: Vasquez, J.A., Sneider, C., & Comer, M. (2013). *STEM lesson essentials*, Heinemann Educational Books.

# Invention Education cited as an Established Method

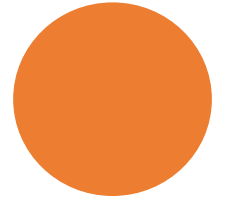
“Invention Education has demonstrated increased student engagement in STEM while contributing to the development of characteristics, skills and mindsets needed for student pathways to innovation and entrepreneurship.”

White House. (2022, November). *Convergence Education: A Guide to Transdisciplinary Learning and Teaching*. The White House. [https://www.whitehouse.gov/wp-content/uploads/2022/11/Convergence\\_Public-Report\\_Final.pdf](https://www.whitehouse.gov/wp-content/uploads/2022/11/Convergence_Public-Report_Final.pdf)



# Conceptualizing the Pathway to Invention

- Students need a pathway of rich and multiple transdisciplinary experiences, such as invention education to prepare them for the future K-20
- The development of the pathway must intentionally address the need for diversity, equity and inclusion in the education and invention ecosystem.
- Educators will more deeply engage diverse sets of student's interest in learning and skills development through transdisciplinary learning, demonstrating a commitment to belonging and social justice.



# Join Us to Help Build this Field of Teaching & Learning

The InventEd Network is a coalition of K-12 educators, nonprofit leaders, researchers, government agencies, funders, and others who are building and supporting the field of Invention Education. We commit to the power of **collective action** to bring Invention Education to all students.



The screenshot shows the top of the InventEd website. The header is dark with the 'inventEd' logo on the left and a navigation menu on the right containing links for 'Why Invention Education?', 'In Action', 'The Network', 'Events', 'Resources', and 'About', followed by a search icon. Below the header is a large hero image of a woman and a young girl looking at a small electronic device. Overlaid on the image is the text 'Preparing Students for a Future Yet To Be Invented'. At the bottom of the hero image is a horizontal bar with four orange buttons: 'Networking & Learning Opportunities', 'Success Stories', 'Instructional Resources', and 'Newsletter Sign-up'. Below the hero image is a paragraph of text: 'Our children face a future of new, more demanding, and increasingly complex problems'.