

FUSE: An Alternative Infrastructure for Promoting Equity in STEAM Learning & Engagement

Kemi Jona

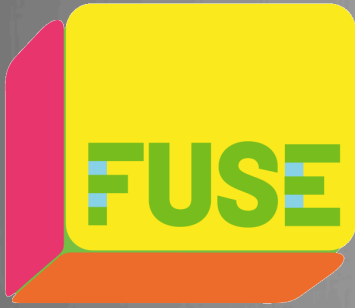
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www.fusestudio.net



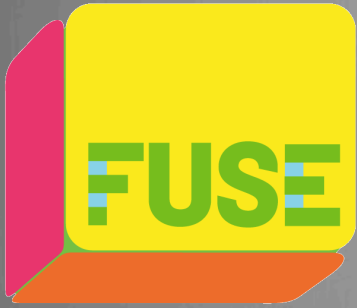
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Why FUSE?

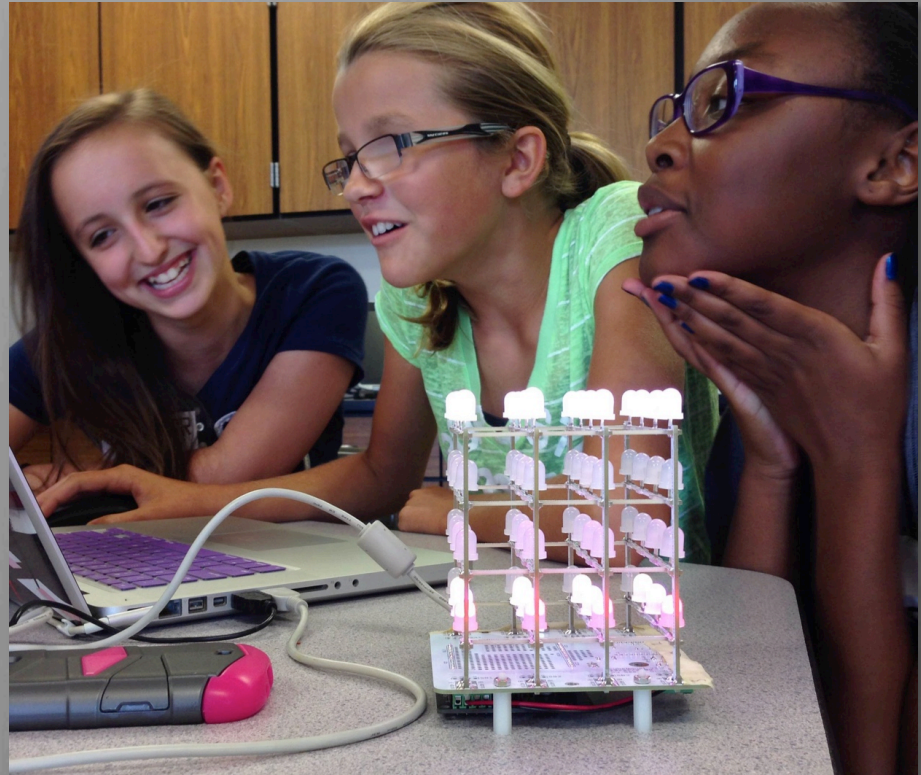
- Traditional STEM education...
 - serves only a small fraction of high achieving students as a path to future activity
 - does a poor job cultivating interest
 - has proven hard to change
- Could we adapt understandings from research on effective learning environments outside of school to create an alternative for STEM/STEAM learning in schools?

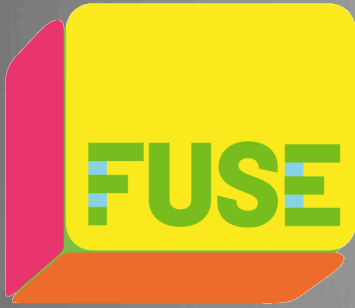




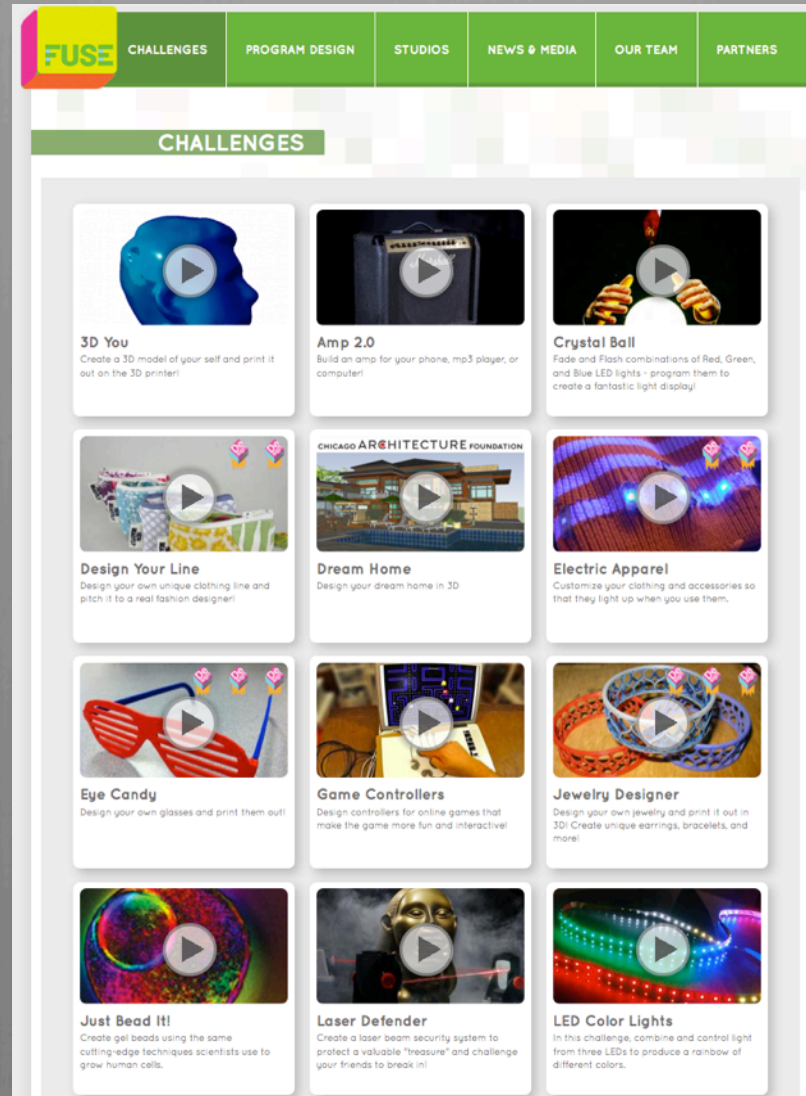
FUSE is...

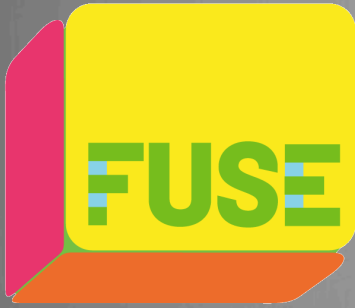
- Fun, low-barrier entry to STEAM
- An on-ramp to deeper STEAM engagement
- Individualized learning through student choice
- Supports diverse learning styles and skill levels
- Promotes development of persistence, creative problem-solving
- Adults as facilitators, coaches





Designed to interest all young people in STEAM through free-choice, leveled challenge sequences



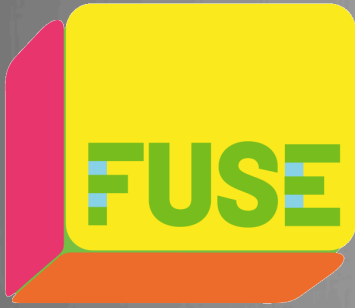


A growing network of
challenge design partners

CHRISTOPHER
DUQUET



CHICAGO ARCHITECTURE FOUNDATION



FUSE Learning Goals

- STEM content goals
- Key future-oriented capacities like creativity, adaptive problem solving, persistence, willingness to fail, learning new tools (e.g. 3D printing)
- Supports knowledge sharing, autonomy, helping, the development of relative expertise, and resource finding

FUSE Studio Network



>4,000
students

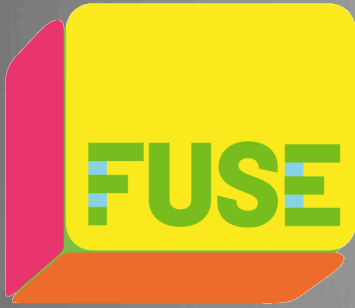


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Studios



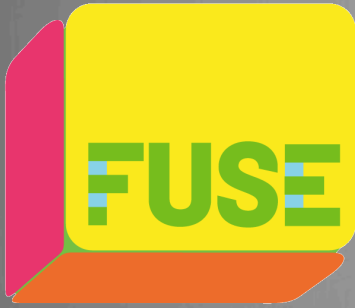
In-school and
out-of school

51% of our schools are majority non-White and
43% of our schools serve a substantial population
of low-income students



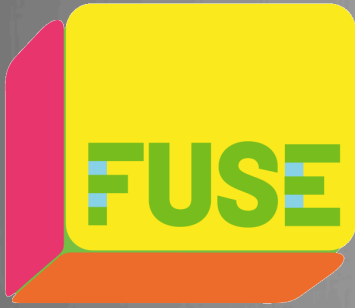
FUSE Evaluation Results

- **FUSE Studios enabled youth to discover new interests.**
 - Nearly all youth (95% at follow up) reported that FUSE Studio participation resulted in their discovering a new interest.
- **FUSE supports the development of important attributes**
 - Including flexible, adaptable problem solving and growing confidence in trying something new, indicators of a well-developed interest and predictive of academic success.
- **FUSE is an environment with abundant peer support.**
 - Nearly all FUSE Studios participants experience the learning environment as high in peer support from their very earliest experiences. At baseline, 88% percent of youth reported strong peer support and at follow up 92% did.



FUSE Evaluation Results

- **Impact of FUSE transfers into other classes.**
 - Over half (56%) of youth responding to the survey indicated that they can transfer some skills from FUSE challenges into schoolwork or that they are recognized by teachers or others in doing so.
- **Youth connect FUSE to future plans.**
 - There were significant increases in responses to the prompts: “The FUSE challenges I’ve tried are like things I might want to study in school in the future” ($p=0.063$) and “The FUSE challenges I’ve tried are like things I might want to do for work in the future” ($p=0.039$).
- **FUSE Studios are adaptable.**
 - Evaluators reported that FUSE Studios was successfully adapted to a wide range of school and community settings while preserving the integrity and coherence of the program design



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