

# Learn to Speak “STEMish”: Finishing the Reframed Story of Afterschool STEM

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Afterschool Alliance STEM Hub  
Part 2 of a two-part webinar series

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# Core Story of Education: Research Base

Out-of-School Learning

Assessment

STEM

Skills and Learning

Equity and Disparities

Digital Media and Learning

Teacher Quality

Systems & Structures

Experts' Core Story

The Public's Story

Advocate Communications

Media Content

Social Norms & Possibilities

Which Reframes Work?

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**Media Sample > 2,650**

***n* > 33,000 average Americans**

# Cultural models

*People rely on cultural models to interpret, organize, and make meaning out of new information*



- Cultural models are widely shared
- There are multiple cultural models on any one topic.
- Cultural models are durable.
- Cultural models structure thinking.
- Models are 'activated' by associated information.

## STEM=Science

- Science Studies the World
- Science Is Experimentation
- Science Is Learned Everywhere
- Math=Adding + Subtracting
- Tech=Computers
- Comps + School=Danger/  
Distraction
- Engineering=HIGHLY Specialized

## Reform

- Fatalism
- Politics as Usual
- Flavor of the Month
- Nostalgia – Back in my day...
- Zero-Sum

## Learning

- Naturalism
- Hands-On
- Back to Basics
- Caring Teacher

*What's in the swamp of...*

# STEM and Informal STEM Learning

## Differences

- Drive
- Zero-Sum
- Cultural Differences
- "Types"

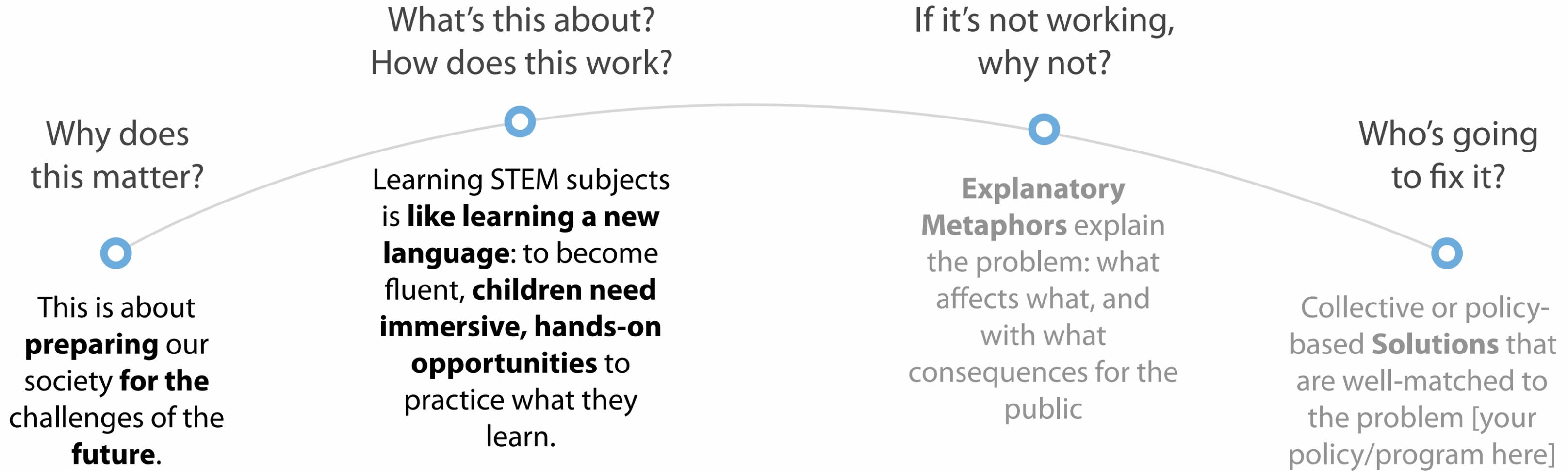
## Context Matters

- Future Jobs
- Global Competition
- Societal Progress

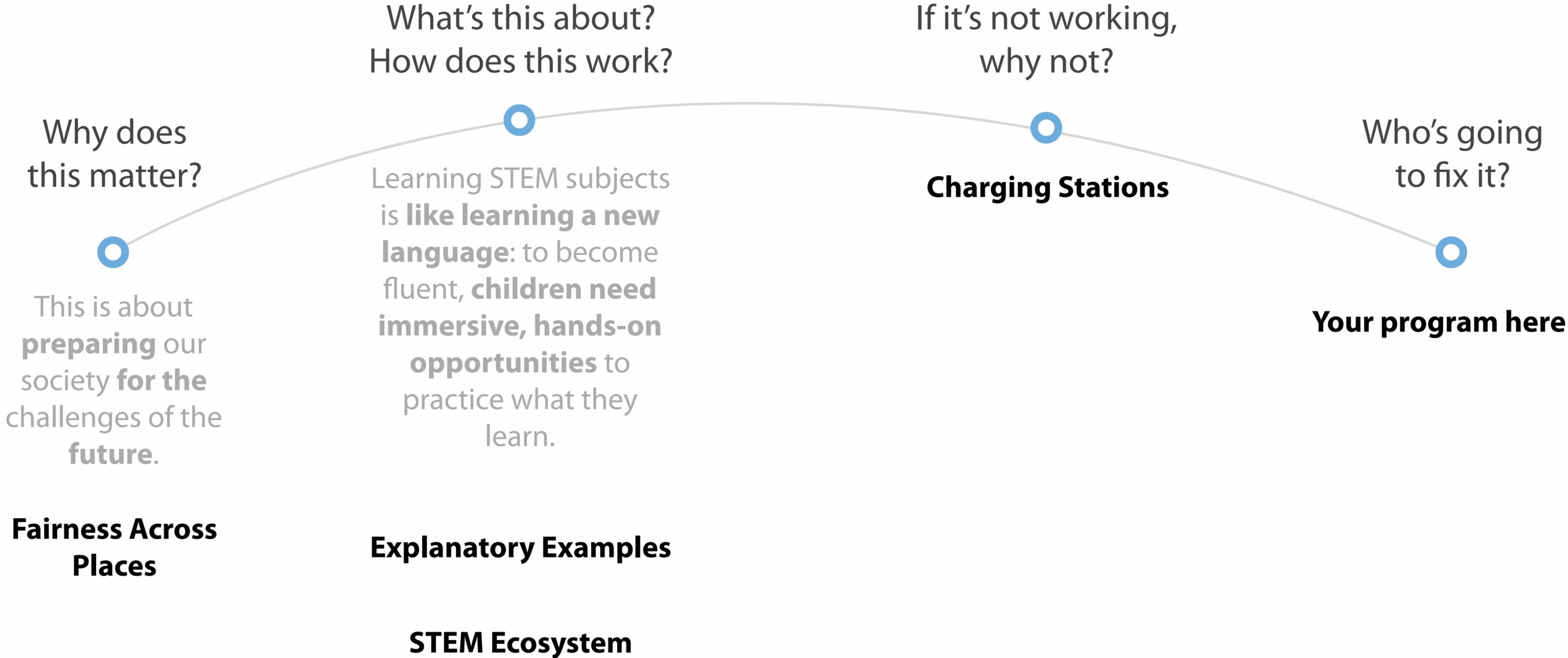
## Learning Locations

- Learning Hierarchy  
(informal=supplement)
- Rechargeable Attention
- Informal=Freedom/Low Stakes

# The story we have filled in so far about STEM learning:



# Filling in the rest of the reframed STEM story



Avoid cuing up:



*Individualism,  
Personal Gain*

Advance instead:



*Collective Prosperity*

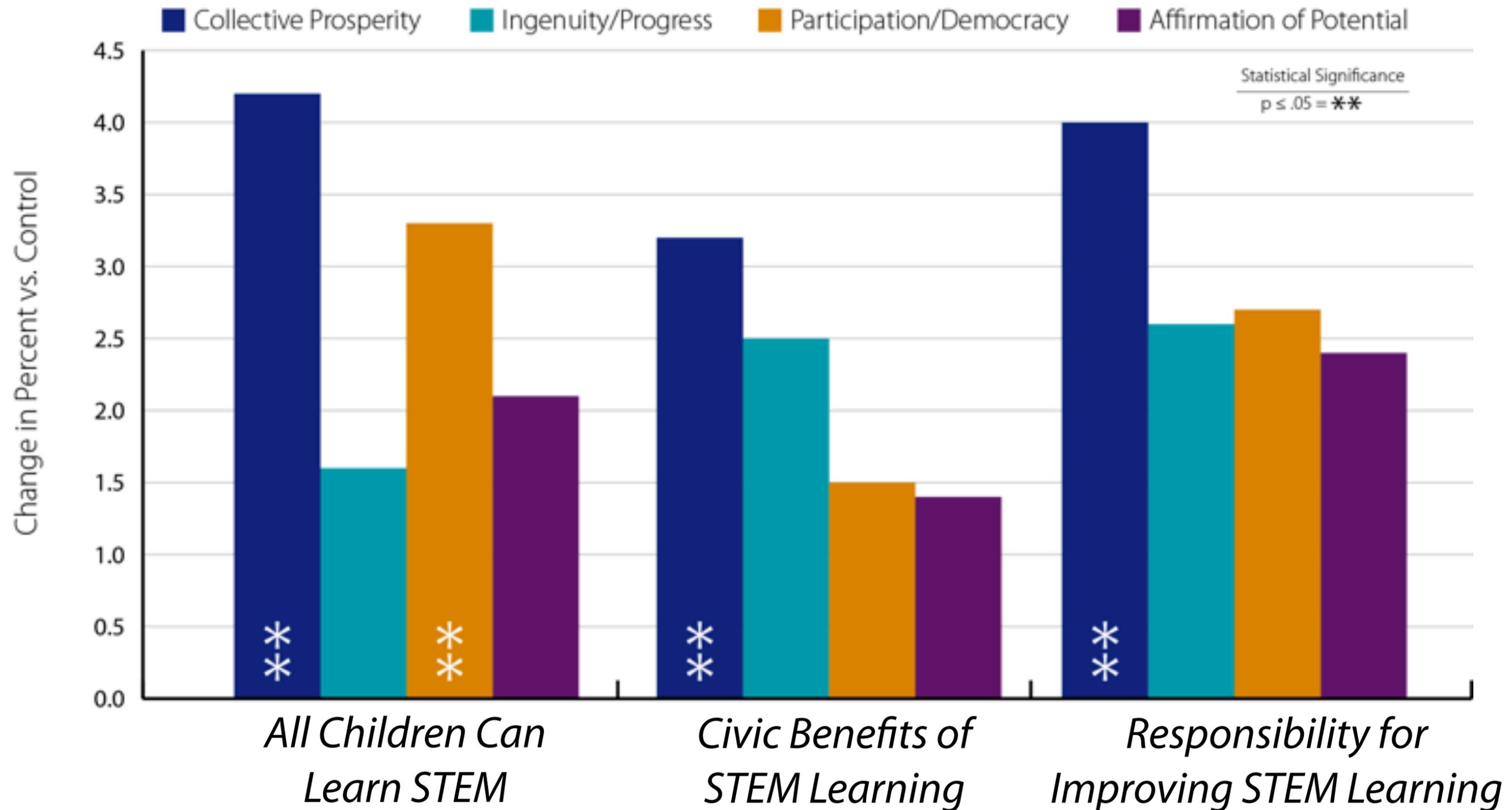
## Prosperity



The story you're telling: *For our future leaders to have the skills needed for a prosperous, information-age economy, we must commit our resources to help all children develop STEM knowledge and skills.*

- Shifts thinking away from individual gain and toward collective benefits
- Taps into people's existing understanding of STEM in a productive way
- Increases the perceived impact of STEM learning and helps people prioritize it

# *Collective Prosperity* is a reliable frame for STEM learning



## Framed with Individual Benefits

From a purely economic standpoint, students would benefit from better STEM education because the fields are expanding more quickly than any other besides the health care industry. By 2018, 1 in 20 global jobs will be STEM-related—an estimated 2.8 million jobs in total. Over 90% of those opportunities will require secondary degrees, and over two-thirds will require a bachelor's degree.

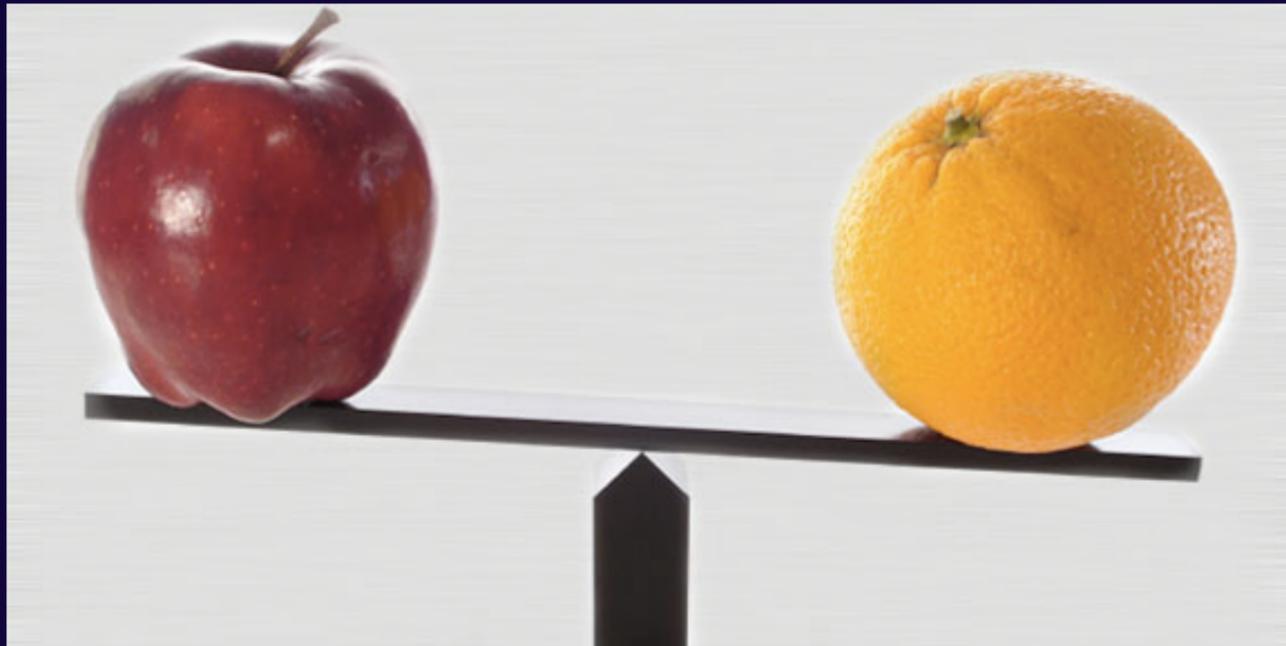
## Framed with Individualism

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## Reframed with Collective Prosperity

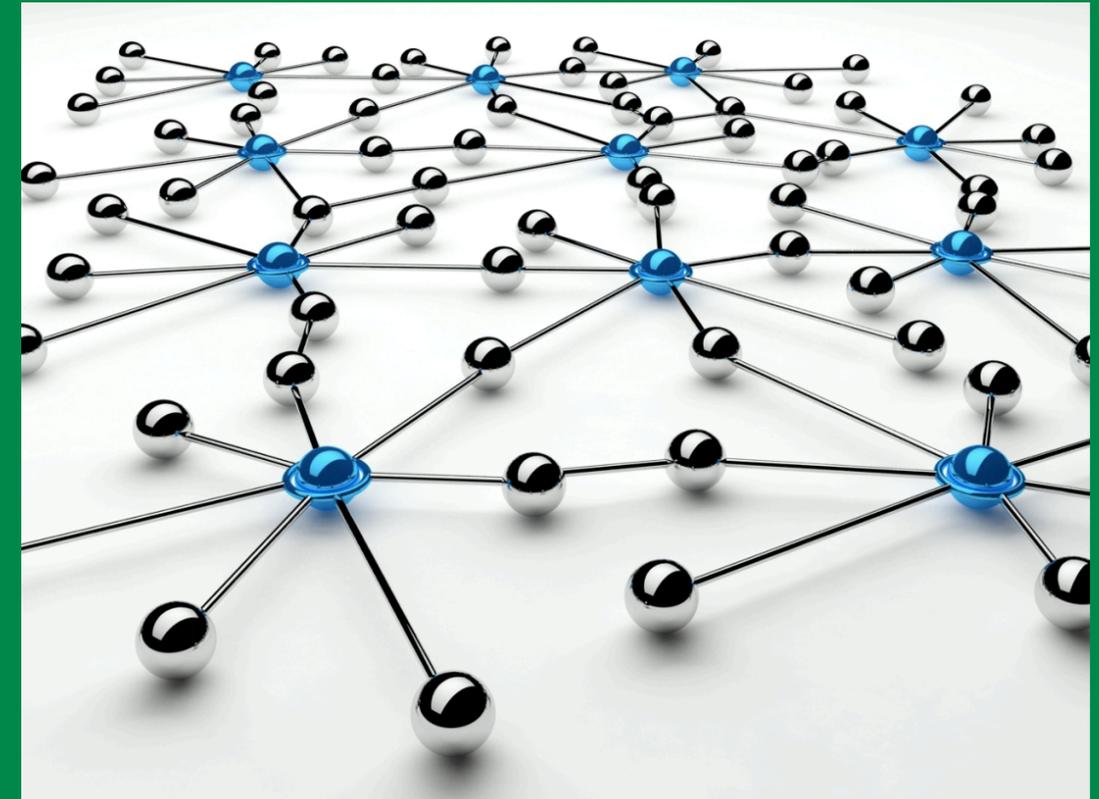
More and better STEM education for our students today can help us build a prosperous future we can all enjoy tomorrow. Engaging more students in STEM means equipping our future workforce for the jobs that will greet them when they leave school, and we depend on a thriving workforce to keep our economy going. The STEM fields are expanding more quickly than any other besides the health care industry -- 1 in 20 jobs by 2018 will be STEM-related. Supporting students' access to quality STEM learning now is a smart investment in our nation's future economic wellbeing.

Avoid cuing up:



*Separate Fates,  
Willpower*

Advance instead:



*Resource Distribution*

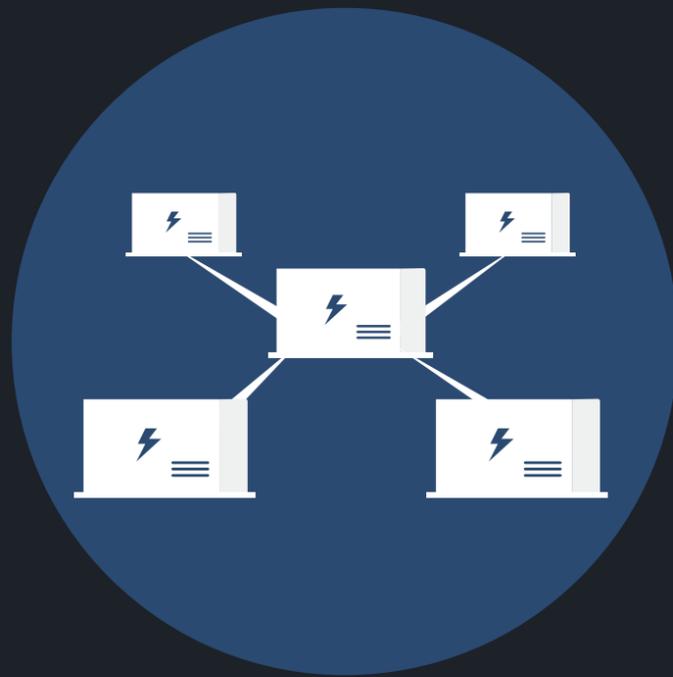
## Fairness Across Places



The story you're telling: *No matter where children live, they should have opportunities to access quality STEM learning environments.*

- Structures a systems perspective
- Suppresses “cultural deficits” explanations of STEM disparities
- Increases support for policies benefiting disadvantaged groups, decreases pushback

# Charging Stations



The story you're telling: *Learning opportunities are like charging stations, but access to these stations varies greatly from place to place. We need to make powerful charging stations ubiquitous so every child can charge up and take an active role in their learning.*

- Illuminates the relationship between inequitable outcomes and resource distribution
- Expands thinking about the range of contexts in which children learn
- Creates a space to talk about program quality (reliability of a given station)
- Makes this a collective, infrastructural problem in which we all have a stake

# Americans thinking and talking with Charging Stations



## Framed w/ Crisis & Fairness Between Groups

Our state is among the lowest five performing states in math and science proficiency. Further, there are dramatic achievement gaps between African-American and Latino students compared to their White and Asian-American counterparts, while girls and women remain underrepresented in most STEM academic fields and careers. Simply put, our students are not graduating from public schools equipped and prepared to continue on to higher education STEM programs or to enter the STEM workforce.

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## Reframed with Fairness Across Places & Charging Stations

Opportunities to engage in structured play and informal learning opportunities act like “charging stations” for children’s brains: museums, science centers, summer camps, afterschool programs, and similar sites power up kids’ STEM skills development outside school. But not all children in our state have access to reliable charging stations that can build their proficiency in science, technology, engineering, and math -- the skills they need to meet the challenges of our state’s future. We must ensure that all children, statewide, regardless of where they live, have access to high-quality learning opportunities in STEM, so they can fuel their learning and be ready to contribute to our state’s communities and workforce.

CHECK IN

# Which statement best models *Charging Stations*?

A

“Not all kids are getting enough STEM juice. We need them to power up and super-charge their learning -- they need to find more charging stations and be motivated enough to plug into them.”

B

“In order to give kids the chance to live better lives than their parents, we need to step up our STEM game and make sure they have access to the STEM charging stations that can pack a powerful punch for their financial futures.”

C

“Access to STEM charging stations -- the chance to plug into afterschool programs, museums, or libraries -- is missing from some of our communities. Let's change that, so all kids can have powerful STEM learning opportunities.”

CHECK IN

# Which statement best models the *Future Preparation Value*?

A

“Not all kids are getting enough STEM juice. We need them to power up and super-charge their learning -- they need to find more charging stations and be motivated enough to plug into them.”

B

“In order to give kids the chance to live better lives than their parents, we need to step up our STEM game and make sure they have access to the STEM charging stations that can pack a powerful punch for their financial futures.”

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“Access to STEM charging stations -- the chance to plug into afterschool programs, museums, or libraries -- is missing from some of our communities. Let's change that, so all kids can have powerful STEM learning opportunities.”

Avoid cuing up:



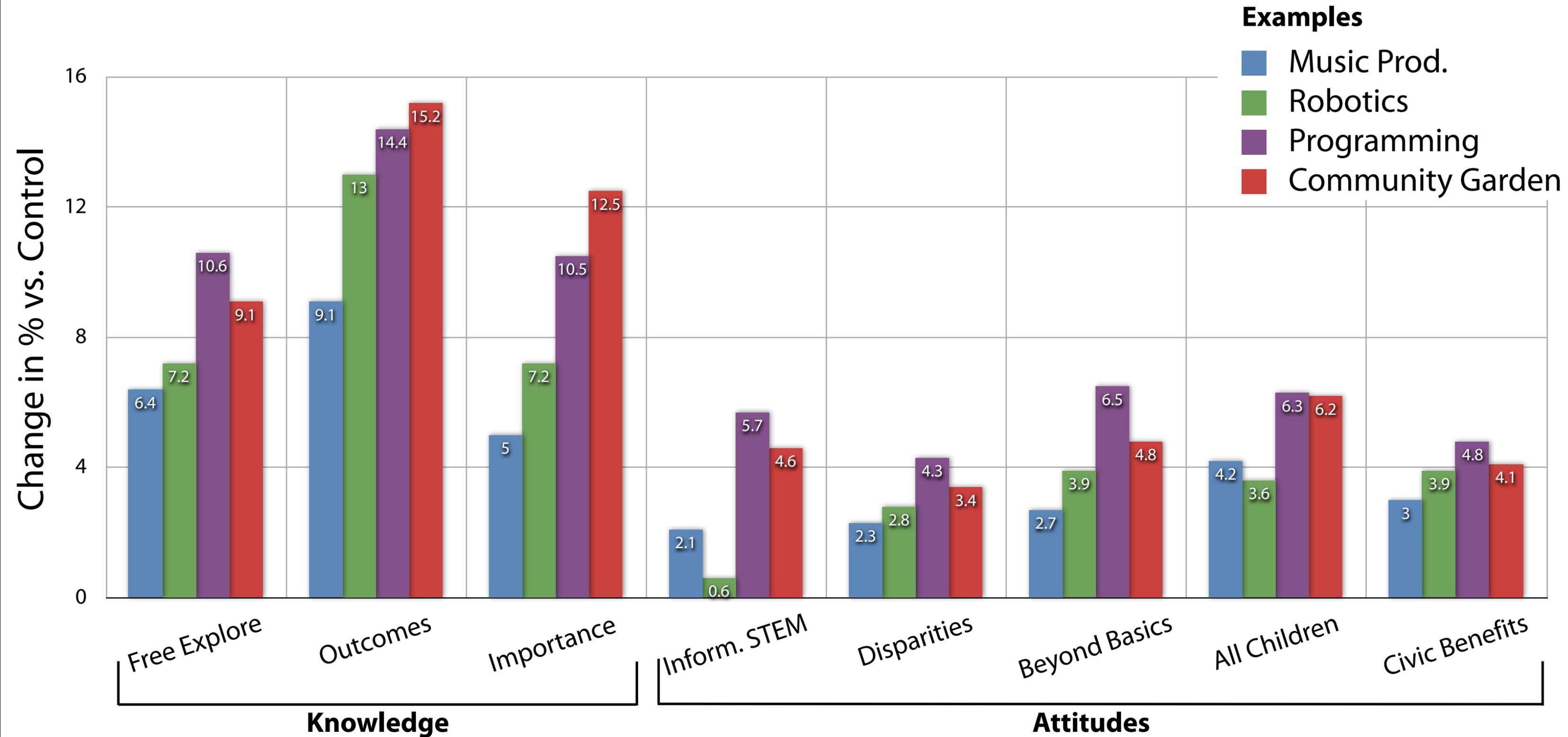
*Abstract Concepts,  
"Black Box" Thinking*

Advance instead:



*Explanatory Examples*

# The right examples work wonders



# Example: Community Garden

Out-of-school learning is vital to help children and youth become fluent in STEM. Just as people need to be immersed in real-world situations to learn a language, children need to explore STEM outside of the classroom to become fluent in these subjects. Take afterschool programs in community gardens, for example. In these programs, children from all backgrounds grow their own fruits and vegetables—an immersive, hands-on way to learn environmental science and plant biology and to develop critical thinking skills. Working in teams supervised by STEM experts from local universities and botanic gardens, children create growing strategies and learn to adjust their approach when problems crop up. These programs help all kids excel at STEM, including children whose prior exposure to science and math has been limited. To help all children become fluent in STEM, we need to support hands-on, immersive learning through community garden afterschool programs and similar out-of-school experiences that give them real-world practice in those subjects.

# The most effective examples are:

**Explanatory.** Spell out how the program works and link activities to better outcomes.

**Unexpectedly inclusive.** Overcome the default that afterschool STEM is only for “nerdy” kids. Offer examples with broad appeal and stress their relevance for “all kids.”

**Linked to STEM careers.** Show the real-world relevance of afterschool STEM.

*Your repertoire of examples should highlight:*

**Non-economic benefits.** Fill the public’s “cognitive hole” here.

**Younger children.** Shift thinking that all STEM is “advanced.”

**Hands-on math.** Change the public’s perception that math is dry and rote.

# The reframed afterschool STEM story answers the public's big questions

Why does this matter?

This is about **preparing** our society **for the** challenges of the **future**.

We need to ensure **all children, no matter where they live**, can access afterschool STEM.

Helping children learn STEM is key to building a **prosperous economy for us all**.

What's this about?  
How does this work?

Learning STEM subjects is **like learning a new language**: to become fluent, **children need immersive, hands-on opportunities** to practice what they learn.

**Explanatory examples illustrate** how afterschool STEM programs teach children skills they will use their whole lives.

Out-of-school learning opportunities function as an important part of the **STEM learning ecosystem**.

If it's not working, why not?

STEM learning opportunities are like **charging stations**, and some communities lack these resources. All children need access to STEM charging stations, so they can **plug in and power up their STEM skills**.

Who's going to fix it?

Out-of-school programs like [**your program here**] **spark** learning and **ignite** interest by letting children and youth experiment with STEM ideas in real-world situations.

[Your policy solutions or program initiatives here]

Visit [www.afterschoolstemhub.org](http://www.afterschoolstemhub.org) for resources on reframing afterschool STEM



Give us your feedback! [www.surveymonkey.com/r/STEMWebinar2](http://www.surveymonkey.com/r/STEMWebinar2)



Please complete the evaluation survey.  
We value your insights!

P.S. We will make a recording of this presentation available online.

For more resources on framing afterschool STEM,  
check out [www.afterschoolstemhub.org](http://www.afterschoolstemhub.org)

Thank you!



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