Bridging the Gap:
Leveraging Out-of-School Time Programs to Shape Future STEM Careers

Presented by:
Kim Turnbull
Emma Giamberdino

ACTNOW
Afterschool for Children & Teens

Awareness to Action: *Promoting Equity in Education and Careers*

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Who is ACT Now?

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The **Afterschool for Children and Teens Now (ACT Now) Coalition** is…

A diverse statewide coalition of over 2,300 members that advocates for quality and affordable afterschool, youth development, and community school programs for youth across Illinois.

We further our mission through policy and advocacy initiatives and providing research and evidence-based professional development on:

- STEM and problem-based learning

- Social and Emotional Learning (SEL)

- Community Schools

- Grant management

- Systems approach to family engagement and cultural competency

- Administration, attrition, and development of providers

- LGBTQIA+ understanding and safe space making for OST

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Introductions! Who are your Facilitators?

Kim Turnbull (she/her)

Afterschool STEM Specialist

Emma Giamberdino (she/her)

Policy and Communications Manager

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Why is Afterschool STEM Important?

Quick Facts

- STEM occupations are projected to grow 10.5% between 2020 and 2030, faster than the average for all occupations at 7.7%
- STEM occupations are higher paying with a median salary of $89,780, compared to $41,950 for all other fields.
- Out-of-school time (OST) programming provides youth with unique opportunities to learn new skills
- Across 11 state afterschool networks, between 65% and 85% of students made significant gains in STEM attitudes, identity, career interest, SEL and 21st Century skills.
- Afterschool STEM programs are a strategy for addressing educational inequities
- Family and parent engagement increases

The Landscape of Afterschool STEM in Illinois

Number of STEM programs
0 | 1 | 2-6 | 7-573
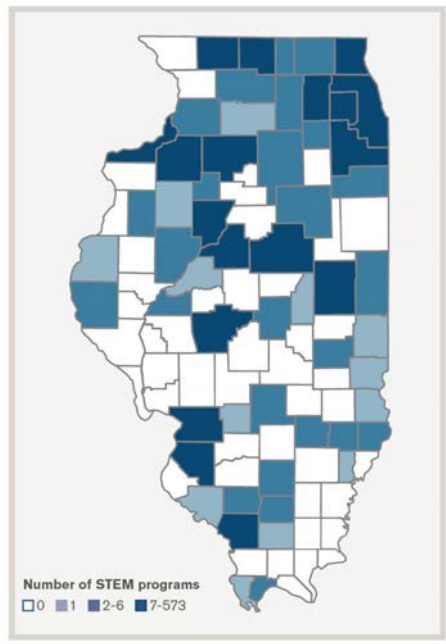
- Our Map and Database show that 1,209 programs offer STEM
- There are two state-funded grant programs that prioritize STEM learning experiences for youth
  - Teen REACH
  - Reimagine Public Safety Act
- The state and state board of education also are prioritizing STEM and Career and Technical Education for students
- Many OST providers braid state and federal funding to support STEM programming for young people across Illinois

The Creation and Evolution of STEM Clubs

Purpose and Selection of Locations

- **Issue:** There remain areas of the state that do not offer any afterschool STEM programming
  - Coalition members highlighted the barriers to facilitating OST STEM
    - Workforce shortage
    - Cost of materials
- **Goal:** Expand access to high-quality STEM programs in Illinois for youth
- **Goal:** Provide professional development, curriculum and materials for STEM programs
- **Selection:** 10 sites across the state with a focus on rural regions

Training and Curriculum

- Human-centered trainings in which the facilitator is identified as important
- 2 in-person trainings for one year
- ACT Now support to STEM Clubs throughout the experience

- Curriculum is developed "in-house" by ACT Now
  - Activities build upon each other
  - Hands-on learning
  - Connected to a STEM theme or area of interest
  - Career exposure!

Evaluation of STEM Clubs

ACT Now leverages two quality evaluation frameworks to provide ongoing feedback and support to STEM Clubs

- The first is the **Dimensions of Success (DoS)**, which has 4 domains that cover 12 different dimensions. Each domain is rated out of 4!

- Each STEM Club receives two site visits, or DoS observations while participating in the initiative

ITEM	MEAN		CHANGE
	Fall 2022	Spring 2023	
Organization	3.50	3.33	-0.17
Materials	3.90	4.00	+0.10
Space Utilization	3.80	3.89	+0.09

Domain 1—Features of the Learning Environment had the highest average score at 3.74 out of 4. Within this domain, the dimension with the highest rating was materials, and closely followed by space utilization. These ratings indicate that programs, in general, are investing time to plan and prepare meaningful and age-appropriate STEM activities for youth.

ITEM	MEAN		CHANGE
	Fall 2022	Spring 2023	
Participation	3.40	3.11	-0.29
Purposeful Activities	2.50	2.89	+0.39
Engagement with STEM	2.80	3.33	+0.53

Domain 2—Activity Engagement scored an average of 3.11 out of 4. Generally, youth were willing to participate in all the activities and took advantage of opportunities to engage in hands-on and minds-on programming. The increase in rating for purposeful activities highlights that facilitators worked to ensure that activities were linked to scientific concepts and students made connections between the activity and the larger STEM purpose. Further, the increases across the dimensions in the spring semester show that with youth were using more Science and Engineering practices in their engagement in STEM.

ITEM	MEAN		CHANGE
	Fall 2022	Spring 2023	
STEM Learning Content	2.30	2.78	+0.48
Inquiry	2.70	2.89	+0.19
Reflection	2.22	2.89	+0.67

Domain 3— STEM Knowledge & Practices scored the lowest of the four domains with an average of 2.85 out of 4, but there were increases in all dimensions when observed in the spring. The data suggests that programs provided greater opportunity for student reflection. There was also higher use of purposeful questions to guide students' comprehension of STEM concepts. Finally, it should be noted that this is an area in which greater professional development may help to increase facilitators' comfort in presenting STEM topics.

ITEM	MEAN		CHANGE
	Fall 2022	Spring 2023	
Relationships	3.80	3.78	-0.02
Relevance	2.20	2.56	+0.36
Youth Voice	2.30	2.30	—

Domain 4—Youth Development in STEM has the largest variance inf average score, with youth voice being the lowest score. Data suggests that while there are positive relationships between facilitators and their students, there remains few student leadership experiences. Also, many programs experienced staff turnover which affected strong connections between youth and staff. Ultimately, while relevance to the lives of youth increased, there still needs to be greater links to why activities were done.
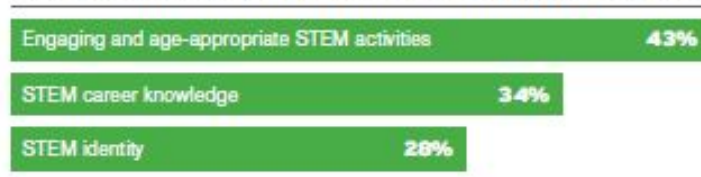
Evaluation of STEM Clubs

The second framework is the **Common Instrument Survey (CIS)**, from Partnerships in Education and Resilience (PEAR).

- This tool is used to measure student and instructor outcomes.
- Positive change indicates areas of confidence and engagement; negative changes indicates areas that programs may need to focus on/strengthen.

| Percent of youth reporting significant positive change	
Critical thinking	80%
Relationships with peers	76%
Career interest	73%

Percent of providers reporting negative change in programmatic areas	
Engaging and age-appropriate STEM activities	43%
STEM career knowledge	34%
STEM identity	28%

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Evaluation of STEM Clubs

CIS - Educator data

- This tool is used to measure the facilitators

  perceptions of self and youth.
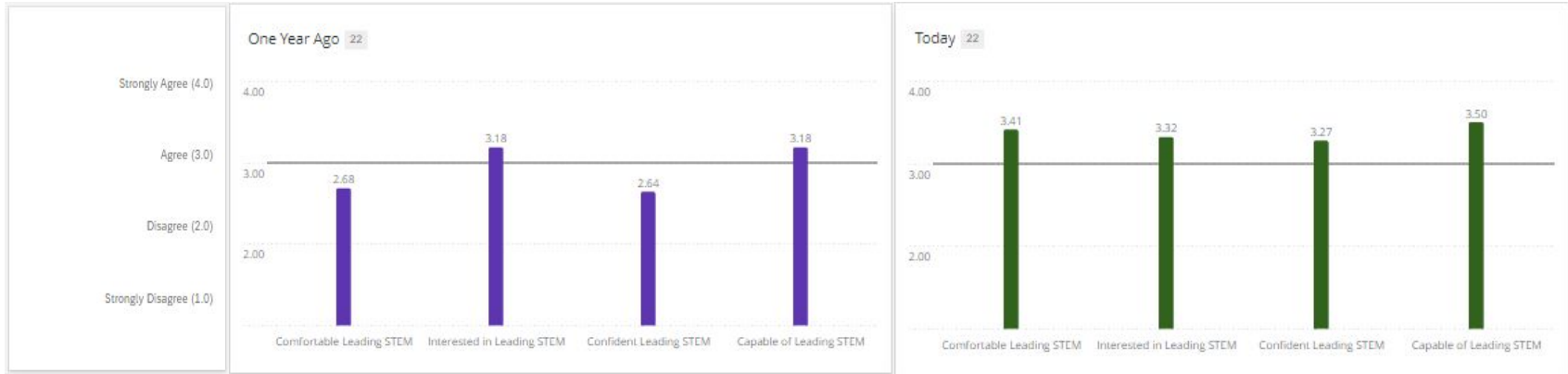
OST aligned with PaCE Framework

By end of 6th grade

- Youth have been exposed to careers; Developed growth mindset and perseverance; and received positive support to recognize strengths

By the end of 7th grade

- Youth will have had time for self-reflection (part of DoS Framework); Explored through PBL and Service Learning; and built leadership skills

By the end of 8th grade

- Youth have cemented their learning styles; Developed a support network; Connected with community; and Developed an educational plan
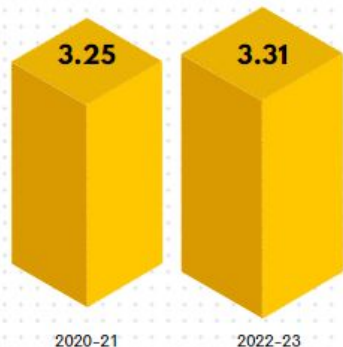
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STEM Club Results: Evidence of Expanded Educational Opportunities

Growth Over the Years

Youth Involvement

- 428 (22-23)
- 69 (20-21)

Career Interest

- 3.25 (2020-21)
- 3.31 (2022-23)

21st Century Skills

- **Critical Thinking** 69% increase
- **Relationships with Peers** 60% increase
- **Relationships with Adults** 62% increase
- **Perseverance** 69% increase
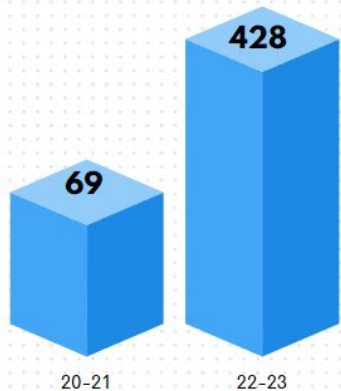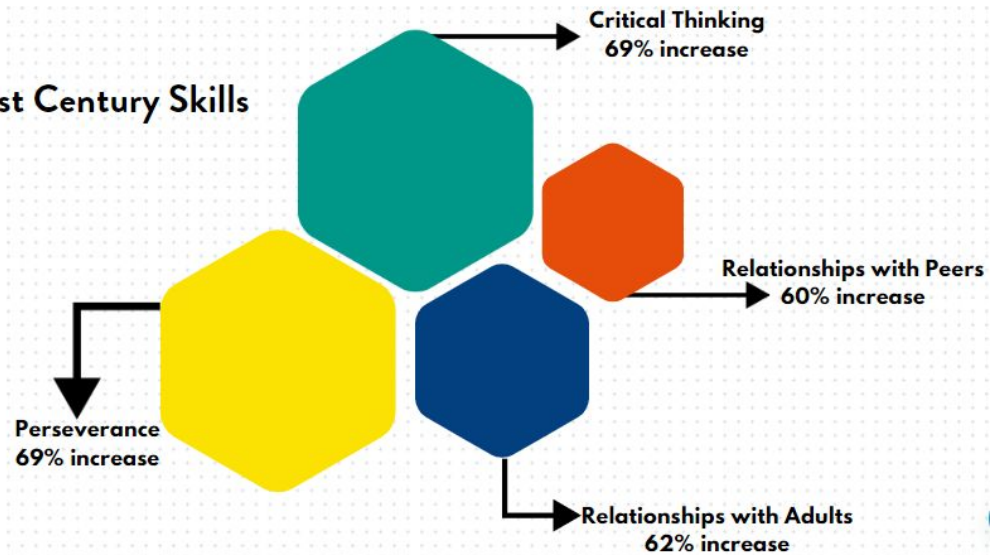
Educator Growth
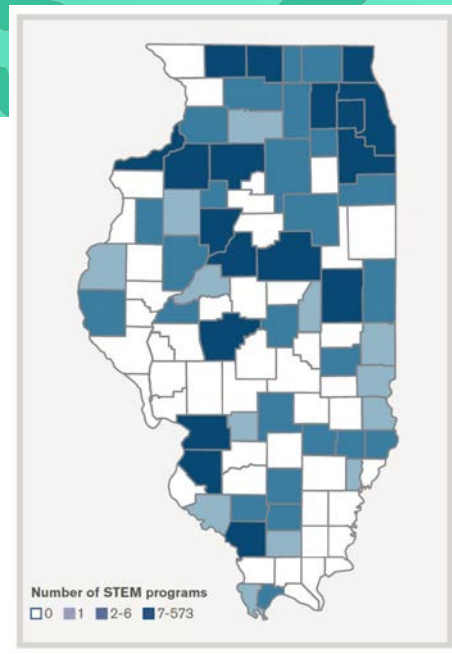
What's Next?: Future Needs

STEM Policy Report

There is clear evidence of the need to grow afterschool STEM in Illinois

- Of the 102 counties, 38 have zero programs that offer STEM programming.

- The highest concentration of gaps to accessing STEM programs are located outside of cities; more specifically in the central, southwest, and southern regions of Illinois.

- Advances in technology and everyday life spark interest in STEM for many students

ACT Now recommendations for state and federal governments

- Require a STEM priority for ISBE's After School Programs grant

- Increase OST funding for STEM within state grants AND provide funding for STEM materials

- Provide flexibility in grants for staff wages AND professional development

- Increase federal grants that support afterschool, STEM, and CTE like 21st CCLC and Title I

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Partnerships Matter

Career exploration is key and OST helps to supplement the traditional school day learning!

Easy ways to partner with local programs to support STEM identity and college and career journeys:

- Cross collaboration sessions in afterschool
- Open communication with OST programs
- Mentoring and role model relationships
- Industry partnerships

Questions?

Kim Turnbull
turnbullk@actnowillinois.org

Emma Giamberdino
spencere@actnowillinois.org

ACT Now Website: *https://actnowillinois.org/*