



**Smithsonian**  
*Science Education Center*

**National Science Foundation  
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# **Building Networks and Enhancing Diversity in the K-12 STEM Teaching Workforce**



**Smithsonian  
Institution**



1867  
**HOWARD  
UNIVERSITY**

# Lack of Diversity in STEM Teaching Workforce

- ❑ Minority students experience difficulties accessing higher education and the ability to persist to graduation in a STEM field.<sup>1</sup>
- ❑ Minority pre-service teachers encounter barriers to entering the teaching field.<sup>2</sup>
- ❑ In-service teachers of color have higher attrition rates than White teachers.<sup>3</sup>

1. Moore, 2006; Museus et al., 2011

2. Brown, 2014

3. Achinstein et al., 2010; Kohli, 2019

# Benefits of Diverse Teaching Workforce

- ❑ Build cultural bridges between home and school for students and promotes culturally responsive teaching<sup>1</sup>
- ❑ Positive associations between same-race teachers and diverse students' academic achievements<sup>2</sup>
- ❑ Minority students found teachers of color to be more accessible, caring, and more engaging,<sup>3</sup> and saw the same-race teachers as their role models<sup>4</sup>
- ❑ Diverse teaching workforce does not only benefit students of color but all students<sup>5</sup>

1. Brown, 2009; Villegas & Irvine, 2009; Weisman & Hansen, 2008

2. Egalite et. al., 2015; Klopfenstein, 2005

3. Sanders, 1998; Wilder 2000

4. Eddy & Easton-Brooks, 2011; Pitts, 2007

5. Cherng & Halpin, 2016

# How to enhance the K-12 STEM teaching diversity?

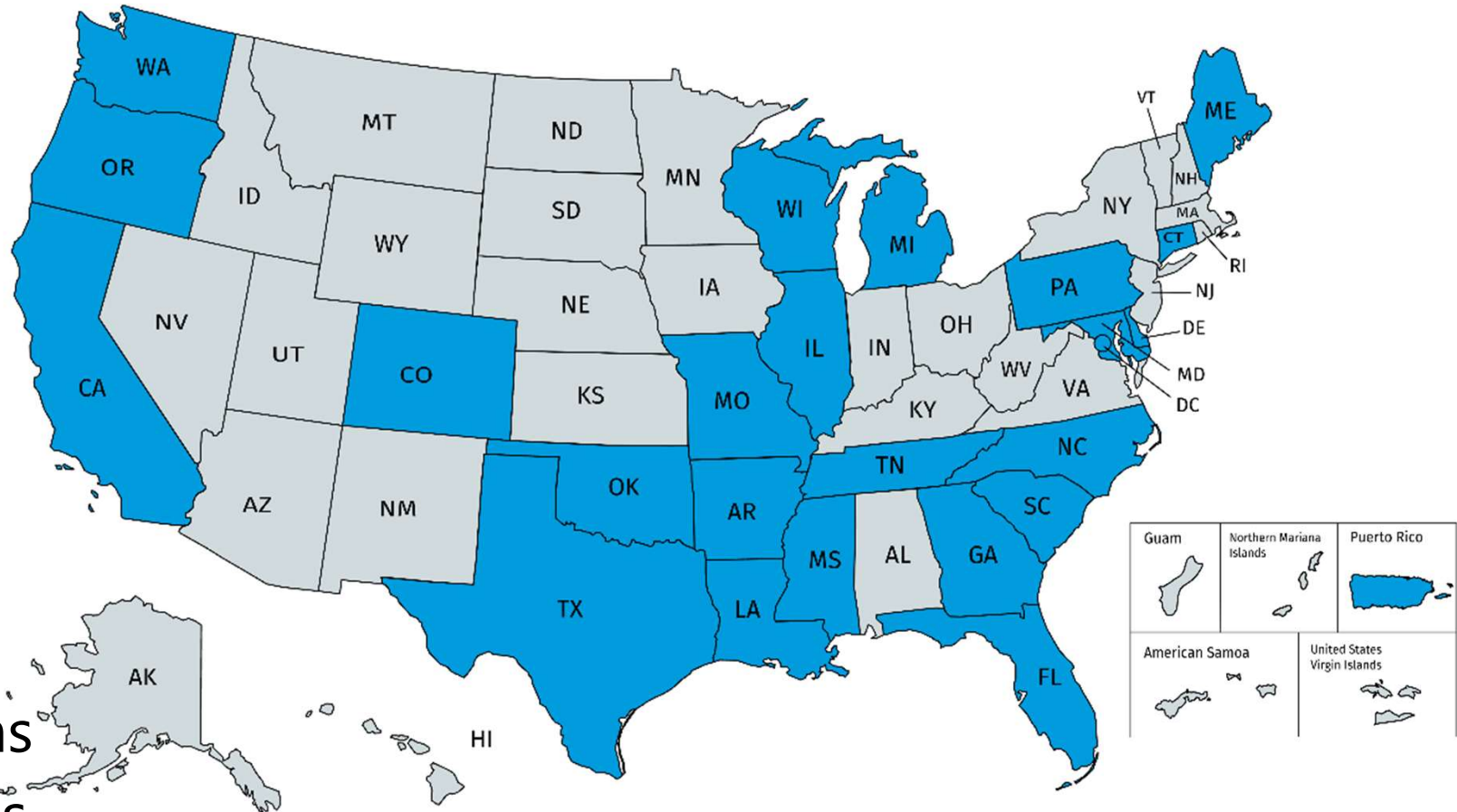
- ❑ Where does the work need to start, and how can it lead to systems change?
- ❑ How can leadership development be shaped to better support diversifying the K-12 STEM teaching workforce?
- ❑ How does leadership development affect teachers and school leaders in their perceptions about diversity and in taking actions to diversify the teaching workforce?
- ❑ What are the challenges that schools/districts may confront while working toward systems change?

# Smithsonian's STEM Education Summit since 2017

To **diversify the STEM teaching workforce** through district systems change by:

- ❑ **Attracting** candidates to diversify STEM teaching
- ❑ Increasing **retention** of STEM teachers from underrepresented populations
- ❑ Expanding **leadership** opportunities for STEM teachers from diverse populations

# STEM Education Summit 2017-2020



83 teams  
24 states  
55 districts  
10.5+ million students

# STEM Education Summit

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***Time to get together!***

# NSF INCLUDES Planning



- ❑ Collaboration of Smithsonian and Howard
- ❑ Goals of this Planning Year:
  - **Convene an Alumni Workshop** by inviting the former Diversity STEM Education Summit participants and their colleagues and networks who attended the Summit in 2017-2020
  - Survey with the faculty members of Institutions of Higher Education (especially HBCUs and MSIs)
  - Develop a source book from the collected information to be used in future Diversity Summit



# STEM Education Summit

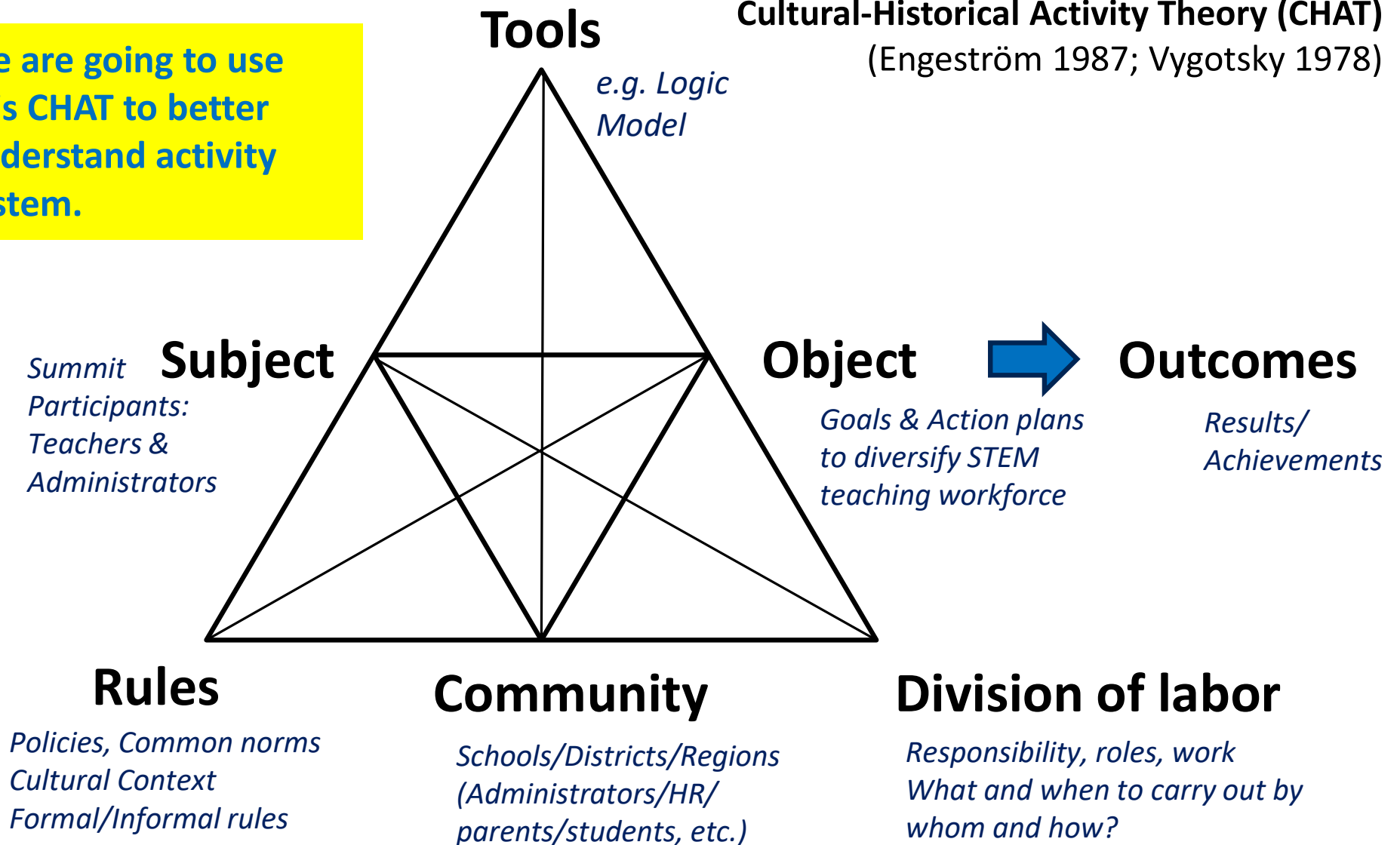
## Alumni Workshop Objectives

- ❑ Build the networks and a stronger coalition between the participants from the previous teams and years.
- ❑ Share reflections of implementation of action plans.
- ❑ Discuss strategies and develop shared vision to attract and retain the K-12 STEM teaching workforce.

# Cultural-Historical Activity Theory (CHAT)

Cultural-Historical Activity Theory (CHAT)  
(Engeström 1987; Vygotsky 1978)

We are going to use this CHAT to better understand activity system.



# STEM Education Summit Alumni Workshop

- ❑ For more information, please visit:  
<https://ssec.si.edu/event/stem-education-summit-alumni-workshop-virtual>
- ❑ This Alumni Workshop is open to the past STEM Education Summit participants and their extended collaborators.



The screenshot shows the website for the Smithsonian Science Education Center. At the top, there is a navigation menu with links for ABOUT US, NEWS, EVENTS, GAMES, BLOG, DISTANCE LEARNING, and SUPPORT US. Below the menu, there are links for Goals, Curriculum, Professional Development, Leadership Development, and Out. The main content area features a teal header with the text "STEM Education Summit - Alumni Workshop | Virtual" and a yellow button that says "REGISTER HERE!". Below the header, there is a photograph of a group of people sitting around a table, engaged in a discussion. To the left of the photograph, there is a paragraph of text: "The Smithsonian Science Education Center and Howard University are inviting the former participants and their extended collaborators of the annual STEM Education Summit that has held since 2017 with the goal of building a coalition for attracting and retaining diversity in the K-12 STEM teaching workforce." Below this paragraph, there is another paragraph: "In a desire to re-engage with educators we have worked with since this summit's inception, we would like to cordially invite you to the virtual STEM Education Summit - Alumni Workshop this summer, July 8, 2021 from 10am to 5pm Eastern and July 9, 2021 from 10am to 4:30pm Eastern." At the bottom of the screenshot, there is a partial paragraph: "At this Alumni Workshop, former participants and their collaborators will".