

NICE Webinar Series

NATIONAL INITIATIVE FOR **CYBERSECURITY** EDUCATION



Getting Girls into STEM and Cybersecurity - Pathways to Progress

April 21, 2021



PORTRAY HER:

Representations of Women STEM Characters In Media



Geena Davis Institute  on Gender in Media
If she can see it, she can be it.™

IF/THEN
AN INITIATIVE OF THE LYDA HILL FOUNDATION

WHO WE ARE

THE GEENA DAVIS INSTITUTE ON
GENDER IN MEDIA AT MOUNT
SAINT MARY'S UNIVERSITY

works collaboratively with the entertainment and media industries to reduce negative stereotyping and to achieve cultural equity and inclusion on screen. We are the only research based organization examining representation of six identities: gender, race, LGBTQ+, disability, age, and body size. For more information on our research, training, and impact, please visit www.seejane.org.



Methodology

1. Content Analysis

- Analyzed 1,007 STEM characters in the top-rated television/cable shows, films, and streaming content.

2. Survey

- Analyzed a nationally representative sample of 915 girls/women:
 - girls in middle school
 - girls in high school
 - young women ages 18-24 year old who are currently full-time college students.
- 52% survey response rate



LF

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Occupational Stereotypes Reinforced



**MOST
(65.8%)
OF WOMEN STEM
CHARACTERS
WERE SHOWN
WORKING IN THE
LIFE
SCIENCES**

**MEN WERE MORE LIKELY TO BE
SHOWN IN THESE PROFESSIONS:**

**COMPUTER
OCCUPATIONS**



**(11.5% COMPARED
TO 8.6%)**

ENGINEERING



**(13.7% COMPARED
TO 2.4%)**

**PHYSICAL
SCIENCE**



**(11.8% COMPARED
TO 6.4%)**



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Women Face Adversity in STEM

MEN AND WOMEN WERE
EQUALLY LIKELY
TO BE SHOWN FACING ADVERSITY

but

MEN WERE MORE
LIKELY TO BE
SHOWN
OVERCOMING IT

WOMEN WERE SHOWN FACING MORE:

**Harassment
& Discrimination**

(4.0% COMPARED 1.3%)



STEM Shown as Family-Inflexible



42.9%
OF STEM
CHARACTERS
WERE SHOWN
SACRIFICING
THEIR PERSONAL
LIFE



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Both Men & Women Shown as STEMLeaders

WOMEN CHARACTERS ARE *JUST AS LIKELY* AS MEN TO BE PORTRAYED AS *LEADERS* IN A STEM PROFESSION



50.5%
COMPARED TO
50.0%



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STEM Work Shown as Collaborative



Popular Women STEM Characters

1. 79.0% - April Sexton, Chicago Med
2. 78.5% - Addison Montgomery, Private Practice
3. 77.7% - Temperance Brennan, Bones
4. 76.7% - Meredith Grey, Grey's Anatomy
5. 75.9% - Abby Sciuto, NCIS



“THE SCULLY EFFECT”



Geena Davis Institute
on Gender in Media

If she can see it, she can be it.™

PROVES If She Can See It, She Can Be It™



- Nearly 2/3 of women in the study who work in STEM say Dana Scully served as a role model.
- Women who regularly watched The X-Files are 50% more likely to work in STEM than women who watched it less frequently, or not at all.
- More than 90% of women in the study who are familiar with The X-Files agreed that Dana Scully is a strong female character and a role model for women and girls.
- Women who watched The X-Files are 42% more likely to agree with the statement ***“I would encourage my daughter/granddaughter to enter a STEM field”*** than non-watchers.

CLOSING THE STEM GENDER GAP



A STUDY OF GENDER & STEM REPRESENTATIONS IN UK FAMILY TELEVISION



Geena Davis Institute *of* on Gender in Media
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USC Viterbi
School of Engineering



METHODOLOGY

SAMPLE

- Dataset of **996** STEM Characters in the **100** most-streamed children's shows in the UK.

EXPERT HUMAN CODING

- **11** trained researchers evaluated character portrayals.

AUTOMATED CODING (GD-IQ)

- Geena Davis Inclusion Quotient (GD-IQ)
- Automated analysis of screen time and speaking time

MAJOR FINDINGS: UK VERSUS US

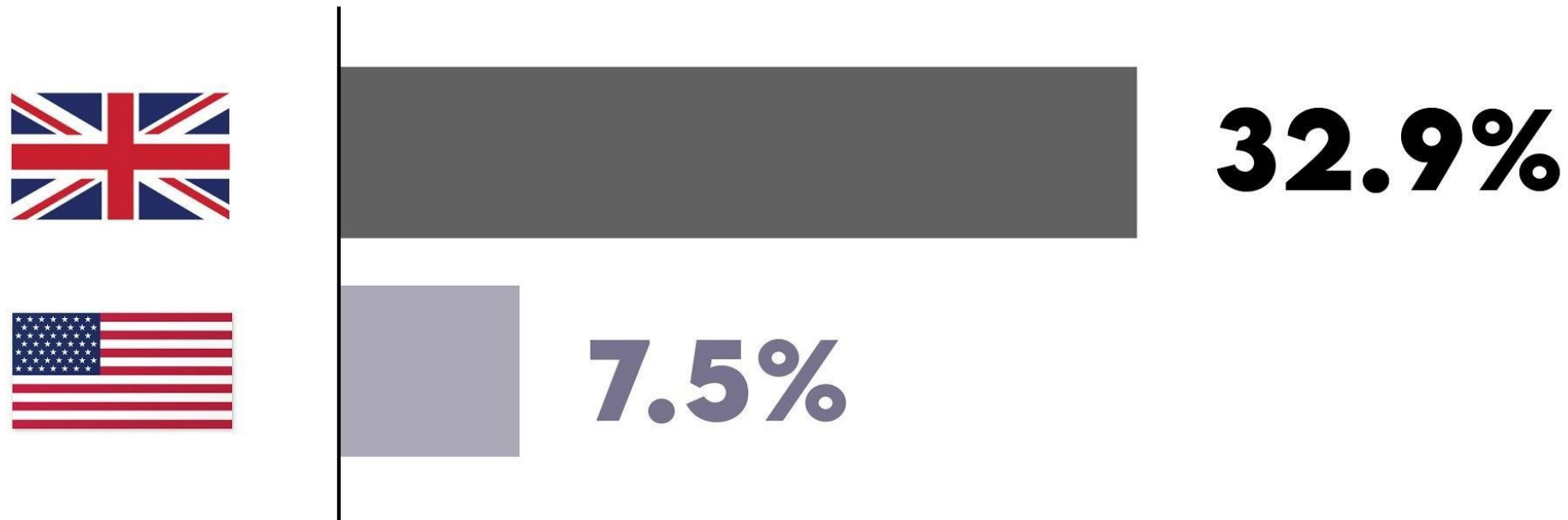
STEM CHARACTERS BY GENDER

THE PERCENTAGE OF **FEMALE STEM CHARACTERS** IS ROUGHLY EQUAL IN THE US AND THE UK



STEM LEADS BY GENDER

THERE ARE FAR MORE **FEMALE STEM LEADS**
IN THE UK THAN THE US



SACRIFICING PERSONAL LIFE FOR STEM

FEMALE STEM
CHARACTERS IN THE UK
ARE **LESS LIKELY**
THAN IN THE US TO
**SACRIFICE THEIR
PERSONAL LIFE**
(5.5% compared to 42.9%)



STEM LEADERSHIP

FEMALE STEM CHARACTERS IN THE US ARE **TWICE AS LIKELY** TO BE SHOWN AS **LEADERS**



25.0%



50.0%

WORKING IN COLLABORATION

FEMALE STEM CHARACTERS IN THE UK
ARE **MORE LIKELY** TO BE SHOWN
WORKING COLLABORATIVELY



USING STEM TO HELP OTHERS

FEMALE STEM CHARACTERS IN THE UK
ARE **MORE LIKELY** TO BE SHOWN
USING STEM TO **HELP OTHERS**



STEM CHARACTERS BY GENDER

MALE STEM CHARACTERS OUTNUMBER
FEMALE STEM CHARACTERS **2-TO-1**



STEM LEADS BY GENDER

67.1% OF STEM LEADS ARE MALE



SCREEN & SPEAKING TIME



FEMALE CHARACTERS
ACCOUNT FOR
43.8%
OF SCREEN TIME



FEMALE CHARACTERS
ACCOUNT FOR
63.5%
OF SPEAKING TIME

FEMALE STEM CHARACTERS OF COLOR

1-IN-3 FEMALE STEM CHARACTERS
ARE WOMEN OF COLOR



STEM CHARACTERS OF COLOR

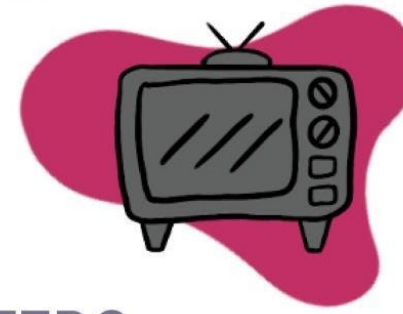
STEM CHARACTERS OF COLOR
ARE **WELL REPRESENTED** COMPARED TO
THE UK POPULATION

PEOPLE OF COLOR MAKE UP



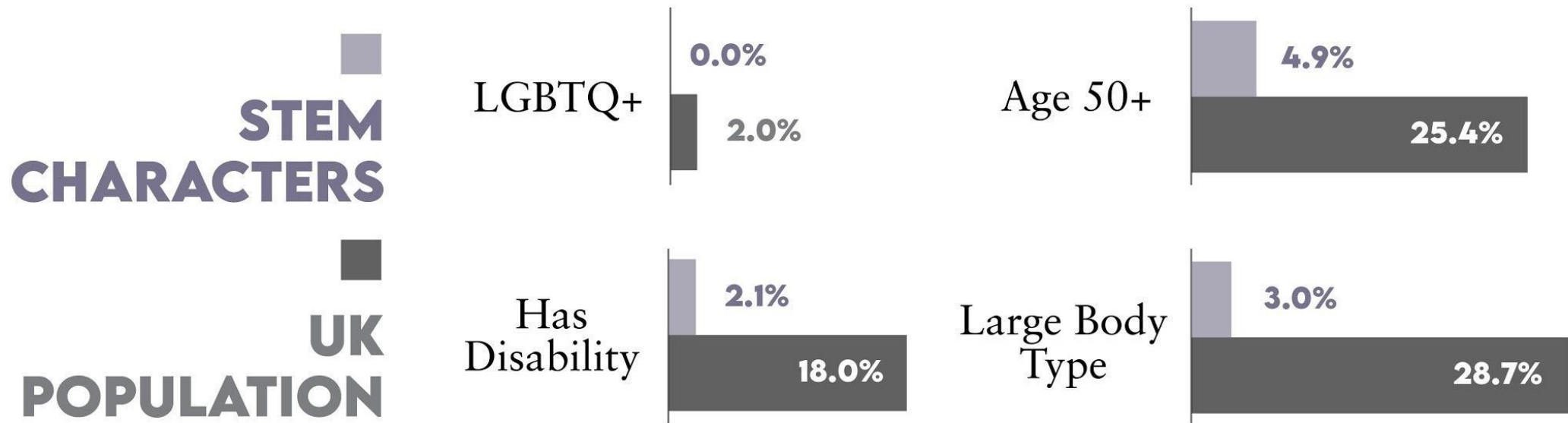
12.9%
OF
THE UK
POPULATION

28.6%
OF
STEM
CHARACTERS



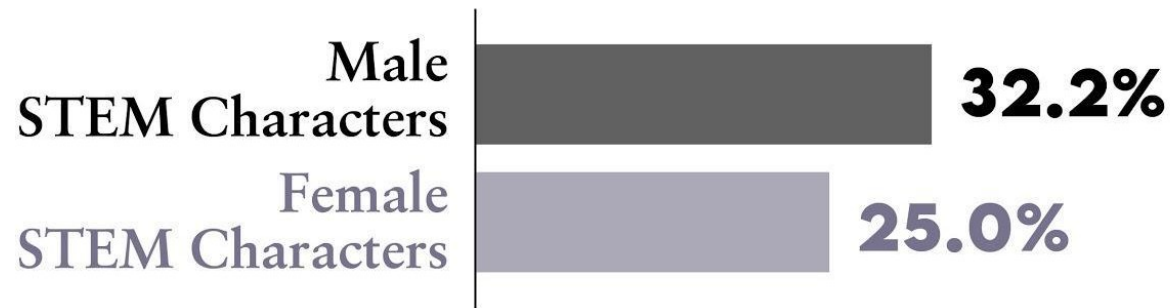
UNDERREPRESENTED IDENTITIES

SOME IDENTITIES
ARE **VASTLY UNDERREPRESENTED** IN
MEDIA DEPICTIONS OF STEM



STEM LEADERSHIP

MALE STEM CHARACTERS ARE MORE LIKELY TO BE SHOWN AS **STEM LEADERS**



EQUITABLE REPRESENTATIONS

MALE & FEMALE STEM CHARACTERS ARE
EQUALLY AS LIKELY TO BE SHOWN AS:

COMPETENT

(12.8% compared to 10.5%)

EXPERTS

(32.2% compared to 25.0%)

EMPOWERED

(17.2% compared to 17.3%)

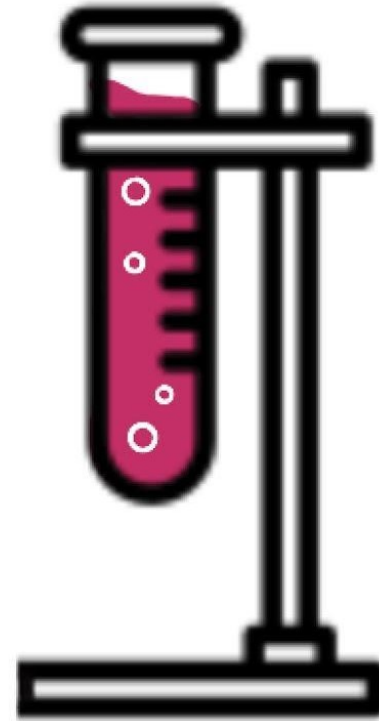
HIGHLY INTELLIGENT

(34.4% compared to 34.3%)



WORKING IN COLLABORATION

85.7%
OF STEM
CHARACTERS
ARE SHOWN
**WORKING IN
COLLABORATION**



SEXUALIZATION

FEMALE STEM
CHARACTERS ARE
MORE LIKELY
TO BE IN
**REVEALING
CLOTHING**

(1.8% compared to 0.0%)



Media Industry Interventions

Improve media representations of STEM characters when it comes to gender and race. Special attention should be paid to increase the representation of women and people of color as STEM characters, and to improve the ways women STEM characters are portrayed.



STEM Industry Interventions

Retain women in STEM through equitable hiring, pay, and promotion practices, and by addressing workplace bias (gender discrimination and sexual harassment) as well as implementing flexible work-family policies.



Institutional Interventions

Cultivate girls' interest in math and science from an early age through media role models, parents, educators, and mentors.



Cultural Interventions

Implement early childhood interventions to combat stereotypes about science as a pursuit for men, and cultural misperceptions that girls and women have a lower aptitude for STEM.



Q & A

Girls in STEM and Cybersecurity

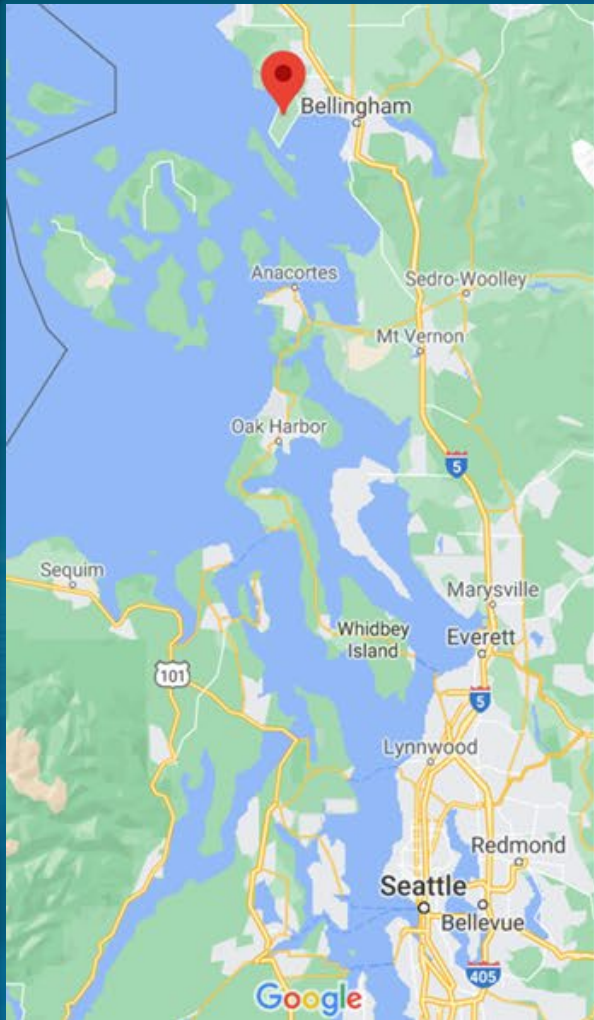
DR. GABRIELA A. GONZALEZ

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National Initiative for Cybersecurity Education

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MY STEM JOURNEY

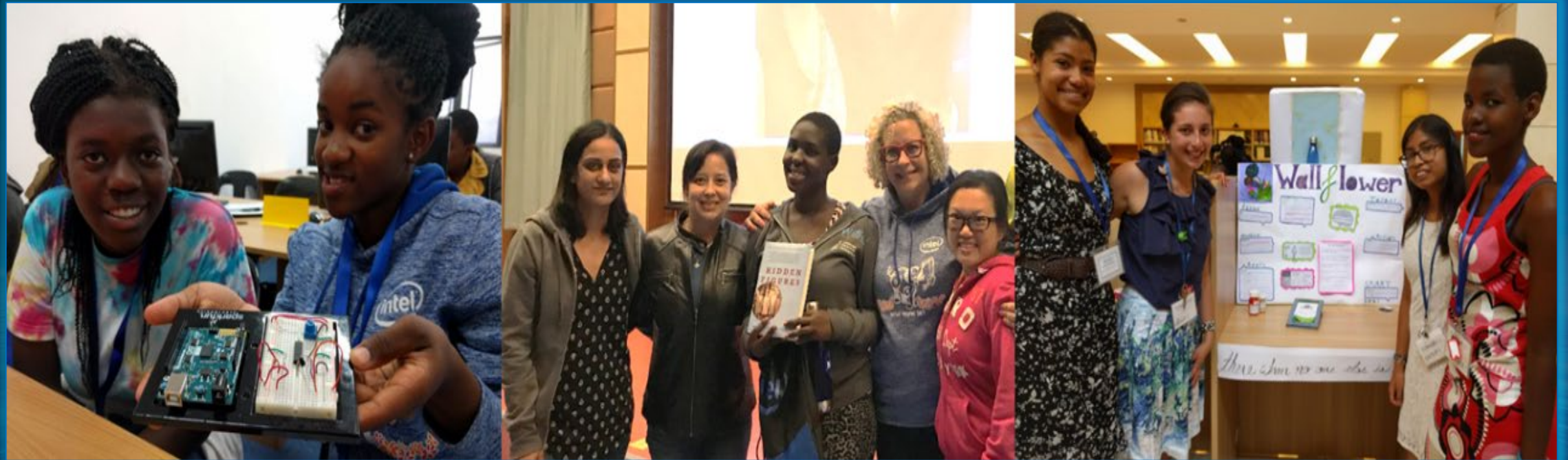


SHE WILL CONNECT



intel.com/foundation

WOMEN IN SCIENCE (WISCI)



girlup.org/programs/wisci

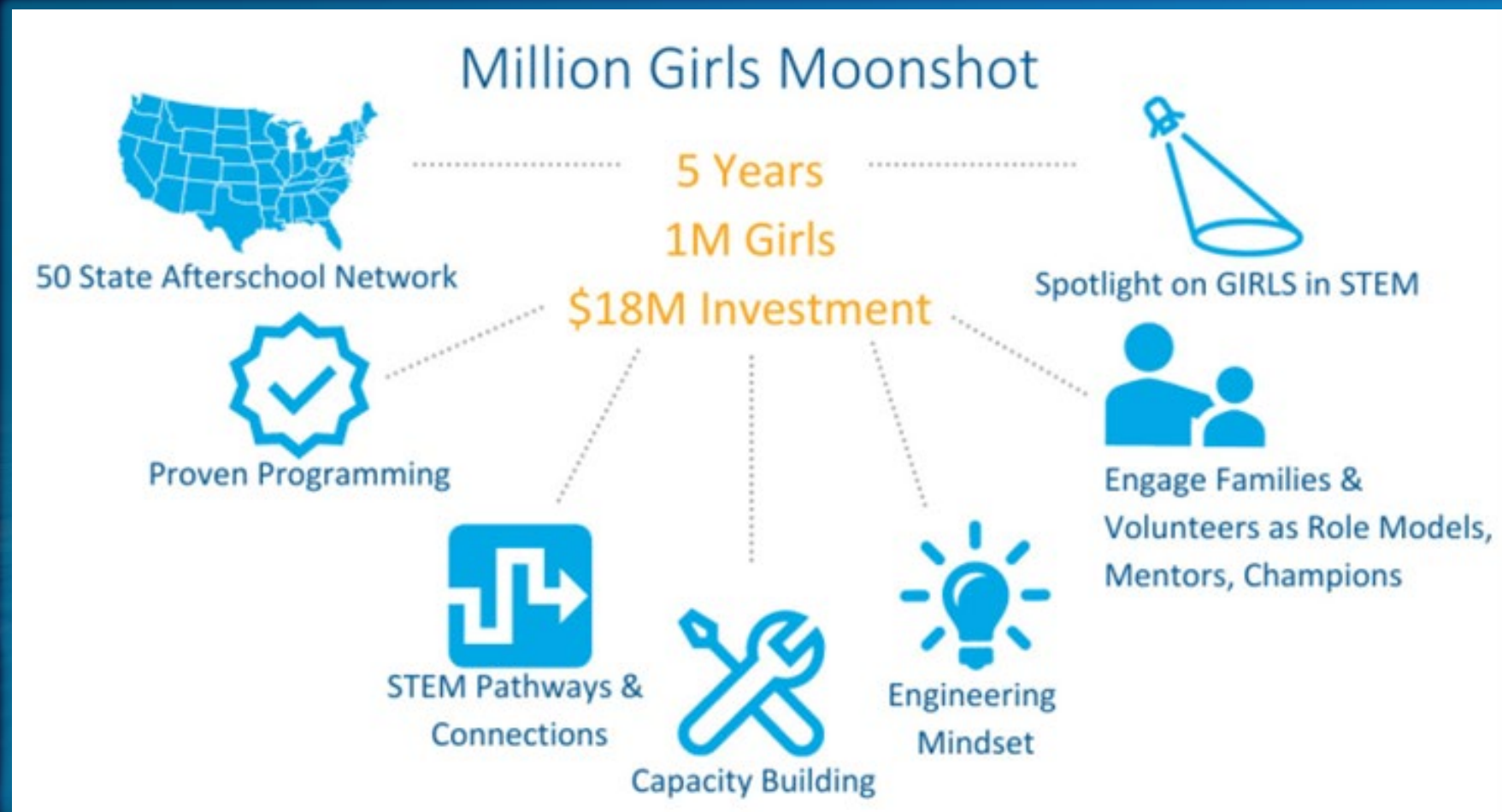
MILLION GIRLS MOONSHOT

In 2020, Intel's She Will Connect Initiative joined the Million Girls Movement as a scaling mechanism to reach more girls across the U.S.


- **The Million Girls Moonshot (MGM) Movement** seeks to re-imagine who can engineer, who can build, who can make. It will inspire and prepare the next generation of innovators **by engaging one million more girls in STEM learning opportunities** through afterschool and summer programs over the next 5 years.
- MGM will not only allow girls to envision themselves as future innovators, but it will **increase the quality of out-of-school STEM learning opportunities for all young people, particularly underserved and underrepresented youth.**

milliongirlsmoonshot.org

MILLION GIRLS MOONSHOT



GIRLS, STEM, CYBERSECURITY



69% of women who have not pursued careers in information technology attribute their choice to **not knowing what opportunities are available to them.**

- Computing Technology Industry Association



Increasing women's participation in cybersecurity

is good for women,
good for business,
and good for society.*

- TheConversation.com

[Women in Cybersecurity \(cybersecurityguide.org\)](http://www.cybersecurityguide.org)



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Q & A

Thank You for Joining Us!

Upcoming Webinar:

“Accredited Credential Programs: Building Trust Between Employers and Credential Providers Through Rigorous Assessments”

When: Wednesday, May 19, 2021, 2-3PM EDT

Register: <https://nist-nice.adobeconnect.com/webinarmay2021/event/registration.html>

nist.gov/nice/webinars