NICE Webinar Series

Getting Girls into STEM and Cybersecurity - Pathways to Progress

April 21, 2021
PORTRAY HER:

Representations of Women STEM Characters In Media
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
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%)

"If she can see it, she can be it."
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, while women were shown facing more harassment & discrimination (4.0% compared to 1.3%).

If she can see it, she can be it.
42.9% of STEM characters were shown sacrificing their personal life.
Both Men & Women Shown as STEM Leaders

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

50.5% compared to 50.0%
64.5% of STEM characters were shown working in collaboration.
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" 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

UK Government
Geena Davis Institute on Gender in Media
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.

- UK: 39.3%
- US: 37.1%
STEM LEADS BY GENDER

There are far more female STEM leads in the UK than in the US.

- UK: 32.9%
- US: 7.5%
FEMALE STEM CHARACTERS IN THE UK ARE LESS LIKELY THAN IN THE US TO SACRIFICE THEIR PERSONAL LIFE (5.5% compared to 42.9%)

SACRIFICING PERSONAL LIFE FOR STEM
STEM LEADERSHIP

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

- **UK**: 25.0%
- **US**: 50.0%
WORKING IN COLLABORATION

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

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<thead>
<tr>
<th>Country</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>UK</td>
<td>87.3%</td>
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<tr>
<td>USA</td>
<td>69.8%</td>
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USING STEM TO HELP OTHERS

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

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Geena Davis Institute on Gender in Media
If she can see it, she can be it.
USC Viterbi School of Engineering
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

Male STEM Leads - 67.1%

Female STEM Leads - 32.9%
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 CHARACTERS

UK POPULATION

LGBTQ+

0.0%

Age 50+

4.9%

2.0%

25.4%

Has Disability

2.1%

18.0%

Large Body Type

3.0%

28.7%
STEM LEADERSHIP

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

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<tr>
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<th>Male STEM Characters</th>
<th>Female STEM Characters</th>
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<td>Percentage</td>
<td>32.2%</td>
<td>25.0%</td>
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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%)
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.
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 in STEM.
Girls in STEM and Cybersecurity

DR. GABRIELA A. GONZALEZ

Getting Girls into STEM and Cybersecurity - Pathways to Progress

National Initiative for Cybersecurity Education

April 2021
SHE WILL CONNECT

intel.com/foundation
WOMEN IN SCIENCE (WISCI)
girlup.org/programs/wisci
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

5 Years
1M Girls
$18M Investment

50 State Afterschool Network
Proven Programming
STEM Pathways & Connections
Capacity Building

Spotlight on GIRLS in STEM
Engage Families & Volunteers as Role Models, Mentors, Champions
Engineering Mindset
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)
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