

Forum: UN4MUN: Commission on the Status of Women (CSW)

Issue: Developing strategies to address the gender gap in STEM education

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Introduction (Haluka)

With the aspiration to achieve gender parity, the United Nations acknowledges the gender gap in STEM education worldwide and proposes to further develop strategies that solve this issue. According to the United Nations Sustainable Development Goals (SDGs) Goal number 5, it states to “achieve gender equality and empower all women and girls.” The gender gap in STEM education is motivated by complex gender roles and lack of representation of women in STEM fields. Globally, girls and young women aged 15 to 29 years are half as likely as young men to be employed in industries or enrolled in programs that are STEM-related. The underrepresentation of females in the workforce is apparent as the female makeup for STEM fields only range from 26 to 30 percent of their respective fields including Data and Artificial Intelligence roles, tech industry professionals, and Engineering fields.

Especially in Less Economically Developed Countries (LEDCs), many places lack infrastructure and the economic funds to meet the standards of STEM education have higher rates of gender disparity compared to economically developed nations. In Mali and Iran, the societal precept of patriarchy and conservative views remains an obstacle for many girls to let alone attend school. In a modern economy where gender pay gaps in STEM fields are higher than other industries and high-skilled jobs are dominated by men, women stand to be hindered by opportunities to develop a passion for STEM. 31 out of 70 countries are reported to have 10 percent of boys equipped with coding skills while only 8 out of 70 countries have the same proportion for girls. Gender inequality in STEM education remains an unsolved issue amidst the world's progress towards a greater representation of genders.

Definition of Key Terms (Ethan)

Data Science- a field of STEM that involves data and running algorithms.

Digital Divide- the unequal access to technological skills and basic necessities to learn STEM skills such as the internet.

Digital Literacy- the ability to perform basic ICT tasks such as typing on a computer, understanding software functions, and the ability to communicate using technology.

Gender Bias- unfair prejudice or inclination toward one gender, actively working to eliminate gender bias in educational and professional settings.

Gender Discrimination- inequality or disadvantages towards an individual or groups of individuals based on gender.

ICT Tasks- the gathering and processing of information.

STEM education- the study of science, mathematics, and technology that allows students to solve and design problems through the mechanical process.

Background Information(Haluka and Ethan)

Less Women in STEM occupation

The female population working in STEM and in STEM education is significantly disproportionate to its male counterparts. For grown women, the unequal distribution of domestic workloads such as taking on the heavy burdens that accompany motherhood creates a societal consciousness that simply discourages women from trying STEM work. Approximately 34 percent of the STEM workforce is women. The gender gap in high-skilled STEM jobs such as computer jobs, engineers, and Chemists is extremely high; without female role models and examples in the present, younger generations tend to stray away from STEM subjects.

Gender Stereotypes

Gender norms and stereotypes are deeply rooted in the STEM industry. From the predominantly male population in STEM education to the workplace, these stereotypes impact one's perception on science and technology-related jobs. Implicitly, math-related subjects are associated with males at an early age which establishes specific gender roles while labeling STEM subjects to a particular gender. Less representation of women in STEM jobs contributes to the gender stereotypes in STEM education. It

is reported that only one-third of the STEM workforce is made up of women while two-third of employers are men currently.

Lack of educational facilities

In many developing nations, young children are deprived of standardized equipment and facilities to allow STEM education to take place. According to UNICEF, 112 million girls in Less Economically Developed Countries (LEDCs), are legitimately out of school. In many of these schools, they lack access to technology, the internet, and the infrastructure to offer STEM courses. For example, in South Sudan and Chad, 7 to 8 percent of the population has access to electricity, leaving the people with a severe electricity crisis. Many of these children eventually work low-skilled jobs with low income due to their inadequate digital skills and education.

Major Countries and Organizations Involved (Haluka)

Iceland

Iceland is one of the leading nations in terms of STEM education, with an extremely high number of women working in STEM education. It is reported that 45 percent of the STEM industry is women with a gender pay gap of 10 percent. Girls in STEM subjects such as mathematics and science has showed high results in mathematical literacy. By encouraging more female teachers to teach in STEM subjects and using the pedagogical method, female students have shown high rates of enthusiasm towards working with the computer. Icelandic women studying in university have also outnumbered men ever since the 1980s, showing how the system empowers women to pursue education and STEM.

The Netherlands

STEM education in the Netherlands has shown positive results in the last few decades as it is one of the countries with the lowest rates of gender disparity. Most of the population including girls have shown to have equal mathematics and science levels. Many Dutch companies strive to create opportunities for women and make STEM fields more inclusive for women such as the Wolter Kluwer, a top investing company, who's CEO signed the UN Women's Empowerment Principles.

The United States

As the nation that creates the highest number of jobs for women in STEM, women are represented fairly in the STEM industry. There are numerous scientists and notable engineers such as Dr. Barbra McClintock. The government also has numerous policies such as the Education Amendments of 1972 prevents educational programs from segregating someone based on their gender. To further advance this

initiative, the United States Department of Education, by creating the YOU belong in the STEM National Coordinating Conference in which participants were introduced to new engineering skills. Private organizations such as DiscoverE and STEM Next Opportunity Fund have created over 10 million engineering experiences for those from K-12 and invest 1.5 million a year for other youth-serving organizations.

Hano Academy

The Hano Academy is focused on the social reconstruction in Somalia. Through the support from the WorldBank, the Hano Academy was the first innovation Hub formed in Somalia. By collaborating with the European Union(EU) to form the Eurasia program to help girls apply scholarships. By 2023, the Hano Academy has already helped 1500 girls who benefitted from the STEM projects organized by the Hano Academy. Dr. Siad, the founder of the Academy, has also initiated the “STEm Sisters” initiative that trains coaches, teachers, and mentors to raise awareness in STEM gender disparity to encourage girls to join STEM education.

The Republic of India

As one of the countries with the highest percentage of women in STEM fields, the REpublic of India is heavily investing in their early education in STEM. Organizations such as Girls Who Code in India is also working on spreading more awareness in STEM education for girls. The organization also offers mentor programs, training, and scholarships to encourage girls to be more interested in STEM. According to a UN case study, 43 percent of STEM graduates are women

The United Kingdom

In the United Kingdom, 29 percent of science degree graduates are women. Numerous international programs such as the International Programme for Cheltenham Science Festival’s FameLab that encourages girls to join in science competitions and offer scholarships for women in Southeast Asia and in other countries.

The Russian Federation

The Russian Federation has policies that restrict women from particular fields, especially the no.162 Regulation which was heavily reprimanded by the UN Women body. ACcording to UNESCO in 2019, the proportion of women graduating in STEM fields was 33.9 percent., having one of the highest numbers of women in STEM fields within Europe. However, many women do not end up progressing into engineering fields and move on to technical schools due to parental pressure and domestic obligations. From a poll conducted on women in Russia, many stated that gender stereotypes heavily influenced the progression of engineering careers for women.

Iran

Iranian education is a sexist system where girls are segregated into a different educational curriculum from boys. Girls' education legally only contains a focus on arts and humanities; however, boys are taught math, science, and technology. Boys are also given legal tools such as civil laws to reinforce their hierarchy even within the school. This is further supported by the nation's religious state law known as the Sharia. The deep institutionalization of gender disparity comes from the state's belief that men are superior to women and that girls should receive minimum education. Iran has the shortest years of compulsory education where children are only obliged to school for 5 years.

Mali

Ranked 155th out of 170 countries on the Gender Inequality Index worldwide significantly impacting the future of girls education-wise. Only 8 percent of women in their 20s have finished secondary school with a primary education enrollment rate of 74.9 percent. According to a UNDP report, girls are largely involved with domestic work such as taking care of children and farm work that inhibits them from attending school. There is currently a lack of infrastructure to support women scientists and engineers and further the progress of STEM within the country.

Chile

Chile, in recent years, has been a major country involved in developing gender policies focused on advancing STEM education for girls. According to UNESCO, 25 percent of STEM careers are enrolled by women. Their gender policy "50/50 by 2050" plans to create an inclusive community in early education for girls by creating innovative science systems. The State also devotes itself to commit to modernizing tools and data.

Chad

Plagued by terrorism, the country lacks the fundamental materials and infrastructure to support girl's education. As one of the poorest countries in Central Africa, many schools, such as the ones in the city of Bol, would benefit from simple science materials such as a compass or protractor. Among the countries in the Sahel Belt, Chad has the lowest rates of girls education. In middle school, girl's attendances are at 11.3 percent compared to 28.2 percent for the boys. The status of women in Chad society largely affects these devastating results, as girls are wed and encouraged to attend to domestic duties from a young age. Education is highly discouraged as many traditional parents fear the power of knowledge and power that comes from education. Sanitation issues remain as drop-out rates become higher when girls hit the age of puberty where they get their first menstruation periods. With the lack of sanitary supplies, girls become ashamed of their growth and therefore drop out of school.

International Telecommunications Union(ITU)

The International Telecommunications Union(ITU) is a branch of the United Nations that aims to set international standards for telecommunications. In recent years, the ITU has worked with the AGCC, UNESCO, and other specialized organizations to create forums to promote STEM education for young girls and women. Regional offices of the ITU in the past decade have created hybrid and virtual events to connect women around the world and inspire them to join the tech industry. The ITU particularly endorses the Girls in ICT day celebration to spread awareness on the gender disparities in STEM education; furthermore, this encourages nations and state bodies to advance policies and safety access for girls in the ICT.

Girls Who Code(GWC)

The non-profit organization, Girls Who Code, provides a platform for women and girls to have access to technological skills important in computer science. The GWC brings together aspiring young high school students and professionals from the industry to teach and spread the

Timeline of Events (Haluka)

Date	Description of event
December 18th, 1979	The UN General Assembly adopts Convention of All Forms of Discrimination against Women(CEDAW)
1991	The State of Japan implements a Childcare Leave Act to allow mothers with careers to be able to rejoin the workforce after childbirth. This strategy proved to be effective as fertility rates increased dramatically.
1995	Established by UN Women, the Beijing Platform of Action promotes women's rights to education as one of their 12 key issues. They have created several projects and organized intergovernmental meetings such as the Economic Commission for Africa(ECA), Economic Commission for Europe (ECE), and Economic And Social Commission for Asia Pacific (ESCAP).
1996	International Covenant on Economic, Social and Cultural Rights (ICESCR states that education is accessible and adaptable for all

June 5-7,2000	The 23rd special session of the General Assembly was held in the New York headquarters where the UN made a political declaration to further implement the Beijing Declaration and Platform of Action to empower women around the world.
February 25th, 2000	Regulation No. 162 was mandated by the Russian Federation that lists 456 occupations that ostracizes women from 38 different industries. This decree forbade women to work “harmful” jobs as a means to protect their reproductive health.
2011	Argentina makes a gender policy known as National Plan for Equality in Diversity that helps close the gap in the gender and digital divide in STEM
2013	President Khatami of Iran opened up education for women. During his presidency, 98 percent of females in Iran were in school
2017	President Donald Trump signed an Inspire Act to encourage more young girls and women to choose engineering jobs under NASA.
2018	Costa Rica develops a national policy for Equality of Women and Men in Training focusing on the underrepresentation of women.
2020	The Kingdom of Bhutan revises its 2016 Income Tax act to increase the maximum amount of educational expenses that can be deducted by income tax to incentivise women to join the workforce, especially those with children.
2021	The Taliban takeover in Afghanistan, girls are denied and banned from second and tertiary education.
March 6th, 2023	The 67th Session of the Commission on Status of Women(CSW) launches the Women 4 Ethical AI Platform which will contribute to the first global standard on AI approved by 193 nations of the UN.
2023	UNESCO announces that there are 118.5 million girls worldwide who are out of school.

Relevant UN Resolutions and Treaties (Sean)

- Follow-up to the Fourth World Conference on Women and full implementation of the Beijing Declaration and Platform for Action and the outcome of the twenty-third special session of the General Assembly, 22 December 2023 (**A/RES/78/182**)

- Achieving gender equality and empowering all women and girls for realizing all Sustainable Development Goals, 21 December 2023 (**A/RES/78/150**)
- Convention on the Elimination of All Forms of Discrimination Against Women(CEDAW), 12 February 2008 (**A/RES/62/128**)
- Adopted by the Security Council at its 8649th meeting, 29 October 2019 (**S/RES/2493**)
- In addition to UN Resolutions and Treaties, The Beijing Declaration and Platform for Action and UN Women's Strategic Plan for 2022–2025 are also pretty important and relevant documents relating to gender equality.

Possible Solutions (Sean)

Creating Opportunities and Early Exposure to STEM

NGOs and organizations such as Girls Who Code and Women in Engineering ProActive Network are equipped with knowledge and strategies to discourage gender stereotypes. They can spark the interest of the younger generation to pursue STEM education, especially girls. Early exposure to STEM education for youngsters with hands-on learning can be very fun, interesting, and enjoyable. Countries and schools can partner up with these organizations and other industries to create educational STEM programs as extracurricular activities after school. Overall, creating these programs such as collaboration projects and incentivizing cooperation with other organizations, companies, and educational associations to create gender-responsive STEM programs would foster an inclusive environment that promotes a diverse community and further spread awareness about this issue.

Inspiring Through Female Role Models

Presenting female role models in STEM education can break gender stereotypes. It creates inspiration for young girls and helps them realize that STEM education is possible for them too, not just boys. This can be accomplished through inviting speakers to the school, internship programs, and equipping teachers with knowledge of unrecognized successes of female role models in STEM.

Challenging Gender Stereotypes

Gender stereotypes coming from society, parents, and teachers are major factors causing young girls to get discouraged from pursuing STEM education and instead pursue traditional pathways such as

healthcare jobs. Spreading awareness through social media platforms, community programs, and training programs for teachers aiming to challenge gender stereotypes fosters an environment where young girls do not feel pressured or obligated to pursue traditional pathways.

Establishing Laws and Policies

While efforts have been made to address gender gaps such as Title XI created by the U.S., there is currently still a lack of policies and laws regarding gender disparities. Countries should start implementing these new policies and laws that strategically prevent cultural stereotypes about women's ability to perform in male-dominated fields. This can be done through implementing laws such as ones addressing gender pay gaps, better working terms for women, and funding for STEM programs.

Moreover, girls in countries such as Afghanistan with serious gender equality issues can be helped with funding for education and job offers. Member nations can also contribute by exerting leverage on the Taliban for its violation of human rights.

Questions for Further Research (Haluka)

By implementing the following policies, how would it be perceived by the general audience, especially young girls?

To what extent is this solution plausible?

What kind of organizations and non-governmental bodies have been involved in spreading STEM education for girls?

Why are women severely underrepresented compared to men in the STEM industry?

How do gender stereotypes and societal standards affect girls in STEM education and women in the industry?

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