

"Why STEM?" The African women series

SEPTEMBER 2021



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ABOUT THE THINKING WATERMILL SOCIETY



A LITTLE BIT ABOUT US The Thinking Watermill Society is a non-profit organization.

In particular, it promotes the debate and exchange of ideas among its members regarding the changes underway in the economic, cultural and social landscape, together with the analysis of the consequences that said changes entail, so as to identify the possible opportunities of economic, cultural and social growth related to said changes.

Our headquarters are in Rome, Italy.



MARIO DI GIULIO
VICE PRESIDENT,
THE THINKING WATERMILL SOCIETY

Notwithstanding the fact that I chose to become a lawyer, I have always been very talented in mathematics and science during all the course of my studies. My mother was and still is skilled too as well as my sister.

My life and family experience taught me that mathematics as well as the knowledge of technologies and sciences might help in understanding complex situations and find solutions even when the situation is unrelated to numbers or physical matters.

Mathematics and technologies provide a method that may become a universal tool for solving problems of different natures. Experience unfortunately taught me also that, in the general perception of society, skills in scientific fields are normally attributed to men more than women even when women show their excellent skills during their studies.

I refer, of course, to my experience of a seasoned professional and man. I am sure that things are changing; however, during my studies when a boy showed skills in math, he was considered as a genius, where a girl – instead – was only a perseverant student (to be honest, I also had very good professors who were not affected by this kind of prejudices).

The above having been said, since I believe that women are skilled in scientific matters at least as well as men, Lizza and I thought about this project: showing how many women are successful in STEM and STEM sectors, in order to give inspiration to those girls who are in doubt to start this kind of studies.

We focused on Africa, because Africa has a very high percentage of young population and its example is worth for the rest of the world. In addition, I believe that Africa will find its way to a successful and sustainable future only when African women will be in all decision-making positions, because if it is true that many men think of the future, it is sure that a woman thinks about tomorrow every day. This is because women have the great (divine, for those who believe) gift and privilege to create life, so they always have to take care of the day after.

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SUMMARY

Globally, women especially African women are underrepresented in the field of Science, Technology, Engineering and Mathematics with only 30% of sub-saharan women as researchers. With limited representation of African women in STEM, young African girls lack relatable role models that motivate them to have a sense of belonging in the fields perceived for the longest time to be male-dominated.

"Why STEM?" The African women series shares 22 African women's experiences from 10 African countries with taking on STEM careers, their advice to young African girls interested in STEM and the future they envision to see for women in STEM. With this, we were able to find out that all the respondents chose STEM career paths because of the love, curiosity and passion they have for it. This showed that regardless of the stereotypes and gender bias present in the STEM sphere, these women still pursued their dream careers and are changing the world.

Our research also shows that 72.7% of the respondents have ever experienced discrimination and micro-aggression in their careers and 54.5% of them as well felt the urge of proving themselves as competent among male counterparts as they pursued their careers.

Only 45.5% of the respondents had female African role models in STEM while growing up leaving 54.5% of the respondents without none. The respondents that had role models as they grew up that noted that regardless of having role models around them, the female African STEM role models were every few.

In effort to close the gender imbalance in the STEM fields, more female african role models and voices are needed so as to put african female faces on STEM faces for young african girls to identify and relate with. This will create a constant reminder to young African girls that STEM is for all and not only for males.

BACKGROUND

INTRODUCTION

African women's involvement in the field of Science, Technology, Engineering, and Mathematics (STEM) plays a very crucial role in the attainment of the Sustainable Development Goals and the overall socio-economic development of Africa and the world at large.

However, only 30% of sub-saharan researchers are women, clearly depicting that women are underrepresented in this arena.

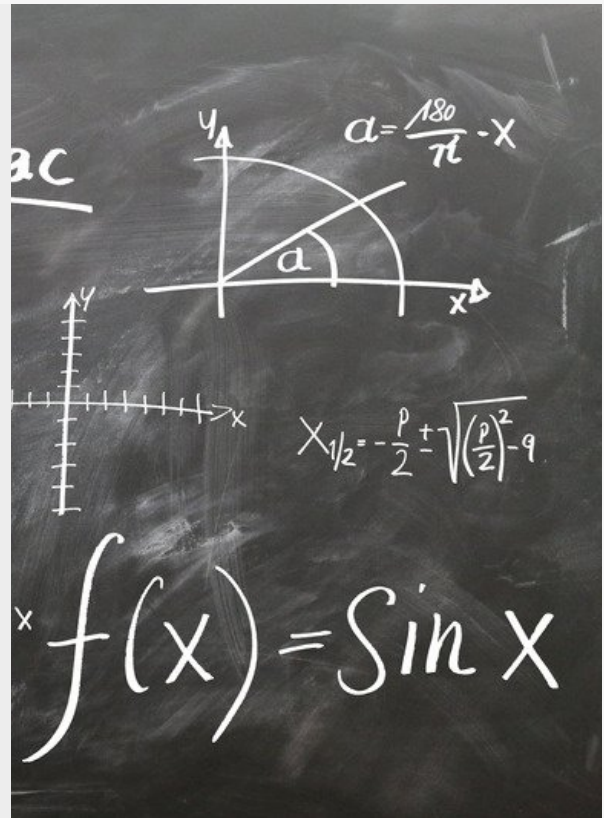
According to UNICEF'S report, [Mapping gender equity in STEM from school to work](#), the underrepresentation of women in STEM fields is mainly shaped by gender stereotypes, bias and norms. In the African Science Focus's research publication, [Where's Africa's women in STEM](#), young teenage girls were interviewed and asked about a woman's role in society.

Majority pointed out roles that entailed cleaning the house, taking care of children and the husband as well as selling tomatoes and none of them talked about women's role in science.

They were further asked why young girls miss out on science and majority of them mentioned that it was difficult. The presence of gender bias infused with the lack of women role models in STEM continues to play a role in discouraging young African girls from participating in these fields. This has continued to limit African women's voices in areas of innovation and digital revolution, which are clearly the driving forces of the world's advancement.

"WHY STEM?" PROJECT OBJECTIVE

To uplift the voices and experiences of African women who have taken on STEM careers in the effort to inspire young African girls interested in STEM.



"Be determined and intentional about pursuing your goals. It won't be an easy journey, but it is definitely worth it. You are in good company."

- **LARISSA AKROFIE**
CEO, LEVERS IN HEELS
GHANA



METHODOLOGY

This research publication used 3 main approaches including; desk review, mapping out of African women in STEM and key stakeholder interviews (KIIs).

Desk review

Prior research publications and efforts on African women in STEM, their small numbers and the gender gap were analysed.

Mapping out of African women in STEM

Using the LinkedIn platform and the researcher's network, the researcher was able to select and reach out to African women in taking on STEM careers.

Key Stakeholder Interviews (KIIs)

The researcher was able to gather 22 written interviews from women across the Africa in effort to better understand their experiences in the STEM fields.

SPOTLIGHT ON AFRICAN WOMEN IN STEM

SCIENCE



Name: Dr. Oritseweyinmi Erikowa-Orighoye

Birth Country: Sokoto, Nigeria

Current work: Research Assistant,
Public Health Nutrition

***Passionate about Community development,
young people and learning new things.***

In regards to taking on a STEM career, what motivated you into taking on one despite its small number of African women in STEM?

I grew up with the desire to either be a medical doctor, a midwife or a software engineer. As I became a teenager, I took out software engineering and focused on either medicine or midwifery. I was motivated by family members and I just felt the strong desire to help either women and children in the health space and beyond. I ran away from the engineering part because my maths game was not tight.

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man's career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

STEM may be classed as a man's career but it has not stopped me at all.

Sometimes, I feel I have not had enough of STEM, so I press on to learn as much as possible. Yes, I have had comments like, “when will you marry?”, “you will intimidate your husband o”. I used to just smile because when I get home, there’s a father and a mother talking to you to do more in your career. So I never allowed those things to get to me, I had a mantra that “I can do all things through Christ who strengthens me.” Also, being among the few in a big African family taking big strides in STEM, the support from family has helped me overcome the challenges.

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

Yes, I had one or two aunts in STEM, the others are in social sciences and arts. Reading a current affairs book for my Common Entrance Examination to get into secondary school made me know who Professor Grace Alele Williams is. She’s from the same tribe as I am in Nigeria, but I never met her until about 5 years ago.

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

As an African woman, we have to learn to be vulnerable and put ourselves out there for the young girls and women who are interested in STEM. I had aunts in STEM but they never really talked about their careers with me. I did not know their wins and struggles, or if the path I am taking could be done differently. So we need more women who are in STEM to openly share about their careers. We need more local based, blended (digital and face to face) mentorship programs for young girls. Let us also talk and show the next generation the alternative STEM careers and not be so focused on the traditional routes.

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

Dear African girl, be rooted in your identity! Be ready to take STEM in squiggly form because you can.

And lastly, what future do you envision for African women in STEM?

African women fully maximising their potentials and being great leaders that write amazing narratives for Africa.



Dear African girl, be rooted in your identity!

Be ready to take STEM in squiggly form because you can.



Name: Theresa Ansaa Anafi

Birth Country: Ghana

**Current work: Environmental Scientist,
Community Development Practitioner, and
Co – founder of SheDreams Africa**

***Passionate about Water, Sanitation and
Hygiene (WASH) related issues***

In regards to taking on a STEM career, what motivated you into taking on one despite its small number of African women in STEM?

My aim is to apply my knowledge gained from studying science to contribute to the development of my community and country. I have always desired to stand out and make a difference in the lives of other people through my work. As a young person, I was encouraged by my parents to study Science. My dad was once a Biology teacher and will tell us about all his experiences. I studied science from Secondary school right up to the post graduate level although I have taken other courses to complement my work in the development sector. While undertaking a Master of Science in Environmental Science programme, I found out about all the practical ways I could apply knowledge gained to make a difference. I have always loved to explore ways I can make impact with knowledge acquired. This is why I am currently in the development sector applying my knowledge gained from studying science. Science is indeed broad and there are many things one can do by studying science in addition to the traditional practices of Science.

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man's career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

1. As a young woman in leadership, it was challenging at the beginning of my career. I had to lead at a relatively young age. There were a few people who questioned why I was put in my role instead of putting a much older person in the position. Sometimes, people tried to downplay my knowledge or submissions. I set personal standards and values I lived by. I stood up by taking professional courses in leadership to build my capacity. I brought onboard innovation and applied servant leadership principles. I kept my focus on being an example and serving diligently. I have successfully made impact in my community and organization.

I received the following recognitions for my work:

- 2017 Mandela Washington Fellow by US Department of State for demonstrating leadership and Innovation in my country.
- 2021 Finalist and Highly Commended in the Empowerment Category Nations of Women, UK (NOW21) Awards to award unsung heroes.

2. As a young girl, I admired Prof Marian Ewurama Addy who was a quiz mistress for National Science and Maths Quiz, Ghana. Although I was young and did not understand much, I watched how she excellently delivered and said to myself that one day I will become a scientist too. I enjoyed watching every single contest.

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

We can inspire the next generation of African women in STEM by encouraging them to take up STEM careers irrespective of the challenges. Girls should be taught the various STEM career paths they can take up at an early stage. STEM clubs can be formed and there can be increased STEM mentorship programmes. Girls should be encouraged to take up careers in male – dominated fields.

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

The best way that I have been inspired is watching and seeing women do their amazing work in STEM and I believe the best way we can inspire the next generation is by being consistent in the hard work and fight to reach even greater heights for all to see that women can do it all and more. Visible role models are the best way to go, so much easier to be something when you can see it. Also allowing public and private spaces to engage in conversation younger African women interested in STEM careers, just providing mentorship and networking opportunities.

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

Dear girl, don't be afraid to follow your dreams. Shine bright and give your best. You're playing small does not serve the world – SHINE brightly. There are many opportunities for you out there.

And lastly, what future do you envision for African women in STEM?

I envision a future where there are more African Women in STEM whose experiences and works are impacting the world positively.



Dear girl, don't be afraid to follow your dreams. Shine bright and give your best. You're playing small does not serve the world – SHINE brightly. There are many opportunities for you out there.



Name: Sinikiwe Dlamini

Birth Country: Eswatini

Currently pursuing a Bachelors of Science
in Biological Sciences and Chemistry

***Passionate about health sciences research and
committed to serving my community***

In regards to taking on a STEM career, what motivated you into taking on one despite its small number of African women in STEM?

I grew up a very sickly child and I guess that's where my passion for health sciences really emanated from, for as long as I can remember I knew I wanted to be in the health sector as a health research scientist. After high school I couldn't get financial assistance to study what I wanted medicine (at the time), but fortunately Eswatini government offered scholarships to study at the University of Eswatini and I enrolled under Bachelor of Science in a Biological Sciences and Chemistry curriculum.

So I would say the passion for health sciences is what really kept me motivated even when I could clearly see that this science world was male dominated. That along with the amazing women doing great work in male dominated fields and outside professional spheres like creative and sports, just watching them consistently do their thing and deliver amazing work has been and is very empowering and inspiring having us all want to tap into that magic (haha). Women like Phumzile Thomo (Master of the High Court), Gcinile Buthelezi (public health specialist), Bongekile Matsenjwa (PhD candidate and WomEng Eswatini director) and Phelele Fakudze (Head of Advocacy and Partnerships at SADC Malaria Elimination 8) to reference a few from my country.

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man's career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

I read this and instantly remembered the one time I was in a queue to see a doctor for a signature and stamp after 2 hours of procedures for a medical check-up that I was required to submit with my acceptance letter for university. This was at a public health care center and there was list of doctors available in the center pasted on a notice board there and I saw only one female name out of the six that were there.

I remember hoping I am attended by her just to absorb her energy and strength making it in such a field, I did not win but I did see her on my way out with the name tag Doctor N. Magwaza.

Being in class and having 4/5 of your lecturers be men and more than half the class be men was something that I had to live with through-out my entire college life. I had to learn to fight the self-doubt and really that created a more assertive person in me. That one out of five lectures I attended with female instructors were good enough to keep the spark in me alive. In 2019 I came across WomEng Eswatini on facebook, a fellowship for women in STEM and I applied and that was a life changing opportunity. Living with fully qualified and aspiring women STEM professionals for three days breaking bread, networking, sharing our different experiences in the field and how to thrive through all that was empowerment like no other, my dreams and goals were not only validated but I got guidance and mentorship towards those goals.

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

There was only one woman in my church and she was about 10 - 15 years older than me, the same Doctor Nosipho Magwaza I mentioned earlier.

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

The best way that I have been inspired is watching and seeing women do their amazing work in STEM and I believe the best way we can inspire the next generation is by being consistent in the hard work and fight to reach even greater heights for all to see that women can do it all and more. Visible role models are the best way to go, so much easier to be something when you can see it. Also allowing public and private spaces to engage in conversation younger African women interested in STEM careers, just providing mentorship and networking opportunities.

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

“Put your hand up” this is the best advice I have received from a woman STEM professional in Eswatini and on top of that I would add that if you want it, it’s worth having and fighting for, go get it.

See you at the top.

And lastly, what future do you envision for African women in STEM?

When women engage in STEM they are more creative thinkers, better problem solvers and become more resilient and confident in their own abilities and this is the future for African women as more join STEM professions.

 ***Put your hand up!***



Name: Angel Mirembe

Birth Country: Uganda

Currently pursuing a Bachelors degree in
medicine and surgery

***Passionate about health care and service to
people in need***

In regards to taking on a STEM career, what motivated you into taking on one despite its small number of African women in STEM?

I am the first born of six children with three girls and three boys . I've always loved to show my sisters that they could be anything they admire to be and they always look up to me.

As a young girl, my father always told me that I could do whatever and be whatever I want to be if I put my mind to it and devote my time and energy towards it .He always told me that despite my gender , race and the stereotypes that come along with them , i have all that it takes to do great things that anybody can , so all these words that my father told me have always kept me open to anything and when I found interest in medicine i never looked back .

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man's career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

Working in a STEM career is definitely not easy in the start given all the stereotypes that have been made popular especially in my country. At some point you feel like you're underestimated and not given as much opportunity to show your strength especially by our seniors. Even our fellow colleagues sometimes misjudge our knowledge and wisdom for "girl power" as they say. For example if a female leads the class or gets recognised in a research that was done perfectly, their first thought is "it's because she's a woman" as if to say she got where she is because of sympathy that comes with being a woman. So, I personally sometimes found myself doing certain things to prove a point like working late hours in the hospital just to show that I can also work long yet all that effort isn't really necessary since my shift is already done. i definitely struggled with proving myself for a while until i became more confident and true to myself and from then i believed in myself more and the urge to prove myself totally went away.

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

Growing up I always admired our current minister of health Hon. Ruth Aceng, because of her bravery to take on STEM, she beat the odds and heads a whole ministry and is a great influence in our health sector here in Uganda.

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

Creating more awareness about STEM among women and building their confidence through recognising more African women and girls that show big achievements in STEM and discouraging stereotypes especially in areas of recruitment where women are underlooked just because they are women especially in STEM careers .This will encourage women to take up and not be afraid to be open to anything that is put before them.

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

“GO FOR IT GIRL! only you can limit yourself but you've got all that it takes to do everything you put your mind to . Defeat that stereotype and go for it.

And lastly, what future do you envision for African women in STEM?

There's no limit to what African women in STEM can achieve. A bright future awaits us for as long as we continue to empower each other with the strength of unity and unspeakable wisdom God has given us.



GO FOR IT GIRL! Only you can limit yourself but you've got all that it takes to do everything you put your mind to. Defeat that stereotype and go for it.



Name: DR. Emma Naluyima

Birth Country: Uganda

Current work: A veterinary doctor and CEO of MST Junior School

Passionate about Animals

In regards to taking on a STEM career, what motivated you into taking on one despite its small number of African women in STEM?

I was good at sciences in secondary school so during my High School I took on Physics, Chemistry and Biology. I ended up doing Veterinary medicine because I love animals.

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man's career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

I have never felt discriminated. Funny enough in my year of enrollment in Vet School, we were only 8 girls. I was good at what I did, never imagined there many boys or men around me. I also believe that what men can do, women do it three times better.

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

I did not have any African STEM woman role model while growing up. I got one after I started farming.

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

Let the young girls have equal opportunity to go to school like the boys. This can only be done by their parents. If my parents hadn't taken me to school, I wouldn't be who I am today. Once girls go to school they find their footing and will always follow their paths. In school, they will also get mentored or get mentors as they study.

I studied from single sexed schools both primary and secondary. My schools always brought women who had excelled in their careers to talk to us and also give us some career guidance.

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

To believe in her Self. Even when everyone around her does not. There is no competition in this space.

And lastly, what future do you envision for African women in STEM?

Africans have started taking the girl child to school. So I believe there will be more women in STEM. Science, Maths and Technology are the things that make the world move. I have a Primary school (MST JUNIOR SCHOOL) doing just that. So the children who go through my school will most definitely be in STEM.



To believe in her Self. Even when everyone around her does not. There is no competition in this space.

TECHNOLOGY



Name: Neema Iyer

Birth Country: Nigeria

Current work: An artist and a technologist. Founder and director of [Pollicy](#), a civic technology organization based in Kampala, Uganda and is a co-host on the Terms and Conditions podcast.

Passionate about working at the intersection of gender, feminism and technology. Making digital platforms more accessible, harnessing data to improve people's lives and using art as a medium to interrogate technology.

Social media handles: @pollicyorg @neemaiyer

In regards to taking on a STEM career, what motivated you into taking on one despite its small number of African women in STEM?

I've loved tech since I can remember. I always wanted to build things but there was very little support back then. No YouTube or guides. Accessing materials was difficult and quite pointless, without appropriate guidance. We always had a computer at home and my brother was into programming, even back then. We had video games and other handheld devices. We both found them very fascinating. My brother went on to work on video games but I was encouraged to take up health and medicine. I realized very late on my academic journey that this wasn't the career for me. I then spent the next few years pivoting to tech, teaching myself everything that I know from the internet. Having a background in epidemiology and statistics has always come in handy though. After all, data science is just a sexy name for statistics.

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man's career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

It's been totally fine. I don't want to discount negative experiences that others might have, because it is definitely a male dominated space. I haven't ever felt discriminated or the need to prove myself.

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

I did not have African female role models and I think this was a big reason for not picking up tech straight away. I feel like I wasted a while studying something that I will likely never make use of.

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

So much. Improving how we teach STEM, how we talk about careers, how we encourage girls to be playful and curious, how we fund innovations, etc.

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

Always be tinkering. Always be learning. Try to build things, to experiment with different tools, to build a portfolio of what you're working on or what you're thinking about. It's important to put in the work and show what you're capable of, when you're faced with stereotypes about what women can and can't do in STEM. Also, it's important to keep in mind that technology and science change so rapidly. It's important to keep up, to learn what's going on, to be curious, but of course, without overwhelming yourself.

And lastly, what future do you envision for African women in STEM?

I hope to see more women stepping into STEM fields. Women bring a unique perspective to the world through their lived experiences. We need more technologies that work to improve the lives of women. You see it all the time with products developed for example, in healthcare, where oftentimes, they might not test how a drug impacts girls or women, or in how products are designed for the height and weight of an average man etc. Also, data shows that women make better leaders in general. We're more collaborative, we make decisions for the greater good. We need more women leading STEM fields to create technologies for the greater good of humanity.



It's important to put in the work and show what you're capable of, when you're faced with stereotypes about what women can and can't do in STEM.



Name: Peace Kuteesa

Birth Country: Uganda

Current work: A Computer Engineer, the Gender and Digital Transformation Specialist at UNDP. Co-founder Zimba women, a board member at Impact Artificial Intelligence(Geneva) and Blue Number Foundation (USA).

Passionate about harnessing the potential that technology could offer women as far as their economic, social and health status.

In regards to taking on a STEM career, what motivated you into taking on one despite its small number of African women in STEM?

I have always loved a challenge and always loved Maths and the sciences. I love fixing things. What better way to fix things than to Tech. The opportunity we have right now to exist at the time of the 4IR isn't one I take lightly. I joined STEM just as the tech revolution was at its peak, I was excited joining as I had just got a scholarship to study my dream course.

I felt fortunate that I had been given the chance to be a digital champion. I do understand that we are few women, but I also feel that the few of us will be the flag bearers for our daughters and others that are coming right behind us. To show then that with resilience, they do can have equal opportunities to participate in this

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man's career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

Oh yes, is that what we call the imposter syndrome? Feeling that you don't belong? Many times, and unfortunately it wasn't just me telling myself this inside my head, I had male colleagues telling me I am too delicate or that it was hard work for a woman. I was always trying to prove that I knew what I was doing.

One day I realized the fact that I am one of the few is a sign. A sign that the place I have is one that I have earned and therefore deserve, that I should be confident because of my qualifications and experience. I don't feel a sense of being lost any more, I am proud to be here. To be part of the few is a privilege and also a responsibility. Constantly reminding myself of this has helped me overcome that

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

Unfortunately, none, growing up there were very few women role models in STEM, and the women we admired and wanted to be like, were unfortunately unreachable and unrelatable, we read about them in the papers or watched them on tv but never got a chance to learn from them how they did it and what challenges they overcame. When Sherifah, my co-founder and I started Zimbawomen, we wanted to change that narrative, by creating a network of women constantly encouraging and building each other, sharing their ideas and mentoring the younger generation.

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

Mentorship: African women need encouragement. Having young women right from primary to early career mentored and encouraged by women who have been successful, creating sisterhoods where we have safe spaces to share our knowledge gems to make sure that girls do not give up, and that women who have graduated in STEM have the support they need to continue in STEM careers. Men need to be a part of this too. We cannot push for inclusivity without positive male role models. While I have recently had female mentors, a lot of the people who mentored me earlier in my career were male; these were my father and my first few male bosses.

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

Believe that if you want something enough, you can do it. Do not let anyone tell you can't go into STEM just because you are a girl. Find out what your dream career is and work hard towards it, be consistent, resilient and constantly open to learning. STEM is for us all, we need more women on this side so be that woman.

And lastly, what future do you envision for African women in STEM?

I see equal opportunities and representation in STEM happening soon. The more women we have at the table, the more issues that mean a lot to us like education, health and development will be discussed. STEM is a major enabler of all of this. I see African women in STEM as leaders encouraging the young African girls in Africa and the diaspora to participate.



STEM is for us all, we need more women on this side so be that woman.



Name: Grace Ouendo

Birth Country: Benin

Current work: A human resource manager in a Tech company, founder of www.ladygracious.com.

Co-founder and executive director of Access to computer for every girl.

Passionate about everything tech and I love sharing my experiences as a digital marketer with people (especially students)

In regards to taking on a STEM career, what motivated you into taking on one despite its small number of African women in STEM?

My career path was the work of destiny. I wanted to be a journalist, I have a BA in journalism from the African University College of Communications (Accra, Ghana). After finishing my course I came to Benin looking for a job, but along the line I had a blog just for fun, because my vision was to have an online news outlet. I realized that I could do more with my blog and decided to make it professional. Then I got a chance to work as a community manager in a tech company, that is where I gained my experience and became very engaged in the tech world, then I used my knowledge to serve the community through trainings offered by my NGO. In one word it was passion and curiosity for the digital world.

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man's career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

Fortunately, I stayed in an environment where STEM careers were understood, so the few women in the profession were very admired. Because we showed that even as women it is possible to make it. In my workplace there are mostly three to four women web developers, and that made us look like serious-minded and courageous women to have taken that path. But most times I have seen women go to school for STEM related subjects and after graduating they drop out because most times, they think it is stressful and full of challenges.

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

No, I didn't have a STEM role model, I was my own model, I was just motivated by my colleagues and I knew that if you want something you have to be willing to do what it takes to get there.

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

We need to inform and educate these girls from primary level, train them and show the opportunities they can have in STEM fields; therefore, they can start making up their minds from an early on the career they want to embrace. Showing them that there is much more to STEM than just social media, and how they can use these technologies to change lives and to make living. That is what we strive to do every day with the NGO Access to Computer to Every Girl.

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

The world today is competitive and to survive in it, you need to be creative and innovative, and this is possible with STEM careers. To make it, the ingredients you need are courage, curiosity, determination and resilience. Never give up on your dreams and your talents, always crave to learn every day and you will make it.

And lastly, what future do you envision for African women in STEM?

I think we have a lot of opportunities, especially for us in Africa. We can use stem to create solution that can impact our communities and lives of people positively and that can lead to the development of our continent.



To make it, the ingredients you need are courage, curiosity, determination and resilience.



Name: Charlette N'Guessan

Birth Country: Ivory Coast

Current work: AI industry. Co-founder and CEO of [BACE Group](#)

Passionate about the use of technology to solve local challenges.

In regards to taking on a STEM career, what motivated you into taking on one despite its small number of African women in STEM?

I noticed about the gender gap in STEM when I was in University, but I didn't focus on it that much. I have always been good in Mathematics and any courses related to science, so I just naturally ended up in that industry. I have decided to pursue my career in technology because I was fascinated about the use of technology to build robust solutions for various problems related to different industries. My passion for tech grew over the years. I am happy that I didn't consider the gender gap as a barrier to work in the tech industry.

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man's career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

Working in the tech industry has been both great and challenging. It's a long journey that requires a lot of investment as a woman. You will feel "lucky" to work with people who will respect and value your work, but that's what it was supposed to be. You will feel discriminated against by other men because you are a woman and these men feel insecure or intimidated by you. When you are a woman, the world expects you to prove that you deserve to be where you are, so your skills will always be questioned. Unfortunately, that's a fact, and I am sure it is not only in the tech industry. Experiences have taught me how to better react to these situations. I have always kept in mind that technology is not about gender but about skills, so my first piece of advice is to always keep learning and being good at what we do. When the journey gets tough, I remember my why, how far I have come and I find strategies to refocus on my goals.

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

Not really

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

I believe that it is important to show the possibilities in STEM to young girls who want to pursue a career in STEM. As African women in STEM we need to keep breaking barriers, to open new doors, to create more opportunities and to be part of the decision makers of our industry.

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

My advice to young African girls is to invest in their education and trust the journey. Don't focus on stereotypes, be curious, be passionate, be patient, and be ready to leave your comfort zone for your growth.

And lastly, what future do you envision for African women in STEM?

There are so many opportunities in STEM. Technology is the present and the future. I believe in the next 20 years we will no longer feel this gender gap in the tech industry. The efforts and work we do today will pay off later. I can't wait to see the full potential of women used in the tech industry.



***Don't focus on stereotypes, be curious,
be passionate, be patient, and be
ready to leave your comfort zone for
your growth.***



Name: Charity Gaya

Birth Country: Kenya

Current work: A Software Engineer currently focusing on DevOps/Site reliability Engineering.

Passionate about tech and education, especially when it comes to women and girls. I really think that education is the equalizer and the only way to bridge the gap between the “Haves” and the “Have-nots”.

In regards to taking on a STEM career, what motivated you into taking on one despite its small number of African women in STEM?

Personally, I have this love for computers and mathematics, growing up I was privileged to own a small PC desktop that I mostly used to play computer games such as Super Mario, so when the 4th Industrial revolution came along (being Technology), I was prepared to embrace it and see where it goes.

Generally, from the patterns mentioned, that tech was (still is) predominantly a “male career”, I really didn’t have anyone to look up to then, except from the YouTube videos of “unboxing, or tech reviews of phones and machines.

I came to the realization that most of this thing I watched on YouTube were “invented or innovated” by men, and this was the first sign I got that, we all, including women were consuming tech that was purely created by men, what about our perspective? what about our attention to detail? What about our abilities of problem solving and what about us having the same talents and capabilities and not exploring the possibilities? So, this became a motivator in the sense that a “woman’s touch” was missing, hence the “leap of faith” to do what I felt strongly I’d excel in.

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man’s career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

I’ll start with the school I went to for tech, I went to AkiraChix, which is an institution that specializes in providing women(only) with tech skills that are “hot” in the market, their main goal being to bridge the gap and bring a balance of women to men ratio in tech generally. So, during my school year, I had a community around me of women in tech with similar backgrounds and interests etc.

When I started working, I realized that the community (tech) was less accepting of women being as good as they are(were) or this myth that “you were hired to meet the gender threshold”, It was such a struggle getting to really “prove myself” to be as good as my male counterparts and even when I was extremely excellent, there was this perception that it was just a gesture to “encourage women” since really it was shocking to see a woman thrive.

I started having imposter syndrome, I used to participate on Hackathons and beat my male counterparts and still the assumption was the agenda “women empowerment” was being pushed that’s why they “let us win”.

How I dealt with this is starting to “unlearn” the “status quo” and learning a new way of life. Growing up in an African family with a low-income background as a woman, people often wondered where I got the audacity to be as good as I wanted to be, even my own father questioned what I do with computers, I got a couple of names, the one that stuck most is “fundu wa Simu” “to mean my job was to repair broken mobile phones”, while at the time I was a mobile developer, I created apps.

Like I had mentioned, we had (still have) a community, we had formed a “women in tech” community where we shared our experiences and encouraged each other and came up with strategies on how to deal with these assumptions and myths that our male counterparts had.

The most effective thing I did to overcome the need to prove myself and my imposter syndrome was, writing down all my achievements and reading through them out loud, that way it stuck in my brain that I actually had achieved and I was an achiever.

Lastly, was to educate my male counterparts and sometimes even female about the revolution of tech and the importance of inclusion in tech, because at the end of the day, tech isn’t about computers, it is about people and these people include both men and women and a little compassion and empathy would go a long way.

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

Yes, I actually have two, both co-founders of tech school designed for women only; Marie Githinji and Linda Kamau, they both run AkiraChix, but before that I didn’t know of any African women who did tech.

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

Educate, educate and educate, to the grassroots level.

Share relatable stories of success in tech and the importance of tech in our day to day lives.

Come up with ways tech can be used to solve our day-to-day problems in Africa, e.g., drought, diseases, hunger etc. so that the myth that its rocket science can disappear.

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

Everybody starts out as a scientist. Every child has the scientist's sense of wonder and awe. The problem is how to remain a scientist once we grow up!

- Carl Edward Sagan, US Astronomer

Just do it. They can do anything they put their minds to. And, it's very rewarding to see more women explore STEM careers since we have been sidelined for long.

And lastly, what future do you envision for African women in STEM?

By increasing the number of female problem solvers and changemakers, we can alter the allocation of scarce resources to solve community problems. In a world infused with technology at every level, the right allocation of resources to solve the right problems becomes paramount. It is time to unlock women's and girl's potential in STEM!



***Everybody starts out as a scientist.
Every child has the scientist's sense of
wonder and awe. The problem is how
to remain a scientist once we grow up!***

***- Carl Edward Sagan
US Astronomer***



Name: Elizabeth Obisesan

Birth Country: Nigeria

Current work: A Software Engineer in the Financial industry.

Passionate about using technology to transform how we think about informal education in Africa and inspiring more females to excel in the tech industry.

In regards to taking on a STEM career, what motivated you into taking on one despite its small number of African women in STEM?

My high school counsellor motivated me to study Computer Science since I spoke of my interest in Mathematics and this was what began my journey into STEM. Before this, I had no idea about the opportunities in STEM as a high school student choosing a course to study.

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man's career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

Yes, there are gender and racial stereotypes and this leads to experiences of discrimination. There were times this had caused me to doubt my skills and feel the need to prove myself multiple times. However, the way I overcame this was by doing this "Being so good they can't ignore you". I got this from a book written by Cal Newport and a very important concept I started to learn as I began my career was the need to focus on honing your skills and confidently being your authentic self and how by doing this, you would eventually begin to see the doubt you receive internally and externally slowly fade away.

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

Growing up, I did not know of many role models in STEM but I remember reading about Lucy Quist being the first Ghanaian Female CEO in the telecommunications industry whilst I was in university and I became very inspired by her story.

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

A lot can be done for the next generation of African Women in STEM by creating the right exposure for them to the different career paths and opportunities that exist in STEM. I did not know much about the possibilities of becoming a Software Engineer until I started studying Computer Science at university. I believe young women across Africa need to be exposed to the many opportunities that exist in STEM.

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

Believe in yourself no matter what you think you don't know. You are capable and you have so much more potential than you realize. Stay curious and don't give up on living out your dreams.

And lastly, what future do you envision for African women in STEM?

I envision a future where African women will transform the continent with disruptive and constant innovation with STEM across all industries in Africa. I see a future where Africa will be built with locally relevant innovation across the technology, health, education industries. The people who are rooted in the culture and tradition and have lived experiences of the problems we face across the continent will be at the forefront of this. I believe this is the revolution Yielding Accomplished African Women is driving for African Women across the globe by equipping them with skills to fully realize their potential.



Believe in yourself no matter what you think you don't know. You are capable and you have so much more potential than you realize. Stay curious and don't give up on living out your dreams.



Name: Mary Helda Akongo

Birth Country: Uganda

Current work: Fund Girls Lead

Passionate about technology, education, gender equality, human-centred design and music among other things

In regards to taking on a STEM career, what motivated you into taking on one despite its small number of African women in STEM?

I did a Bachelors in Information Technology from Makerere University but it wasn't what I wanted to do. I added IT as the last choice and I was quite surprised when I got accepted especially because I had an Arts background. I tried to change my major to Law but eventually decided to stay because I had old girls from my high school in the IT class, probably not the best motivation. I had a really negative attitude towards technology for most of my three years at the university. It was in my last year that I started warming up to the idea of having a career in tech. We were taught a programming language by a female lecturer who inspired me and showed me that it was possible for a woman to thrive in the STEM field.

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man's career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

I have been pretty privileged in a sense that I have worked in healthy environments. In all of my work places, equality has been and is an upheld value. That is not to say I haven't experienced sexism, for example hearing questions like "You mean women can do the work that you are doing?"

I have also often found myself in spaces where I have felt the need to either shrink or prove that I deserved to be in that space. I am going through a mindful awareness journey that is helping me to believe more in myself, enabling me to stop comparing myself to other people and generally, change the way I relate with myself and other people.



Never stop learning and seeking knowledge.

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

Yes, I grew up surrounded by ambitious and incredible women. Both of my mothers are scientists so I knew that I could excel in the medical or engineering field if I wanted to. Tech was different though. When I joined university, I didn't have any idea about IT. It was all very new to me. When I thought about technology, I thought about internet cafes. I also didn't know any women in tech. At the university, I was really inspired by Ms Hawa, one of the lecturers. While I waited to graduate, I started volunteering with Zimba Women, an organization that works with women in STEM and women in business, and the rest is history. From then on, I have been surrounded by phenomenal women in STEM and other fields.

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

I think we need to start at a very young age by igniting scientific curiosity in all kids. There are a lot of myths and misconceptions around STEM that children, specifically girls learn from a very young age. By doing fun activities like games, competitions, etc, children get to immerse themselves into the magical world that is STEM. I am emphasizing "doing" because that practical element of science education is missing from our curriculum. At this age, they also learn that science is really about experimenting, practice, patience and anyone can do it. It is also important to create spaces where women and girls can interact with role models that they relate to. Representation truly matters.

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

Never stop learning and seeking knowledge. STEM is an ever-evolving field, there is always something new to learn, a new or better way of doing things. Also, network, network, network. Build relationships with different people and don't lose yourself while you are at it, always be authentic. You will build stronger and more intimate relationships when you are not trying to be someone else.

And lastly, what future do you envision for African women in STEM?

I want to see women thriving in different professions in the STEM field. STEM is extremely wide and it offers so many life-altering opportunities that I want more women to tap into. But that can only happen if we continue to provide access to learning and professional resources and opportunities for women in STEM. I have also seen women quit STEM because of sexism, discrimination, sexual harassment and other vices that we are forced to put up with. We, therefore, need to create healthy, supportive and equitable environments both in schools and workplaces (pay women what they deserve) so that women can truly excel and benefit from STEM.

ENGINEERING



Name: Diana Njeri Waithanji

Birth Country: Kenya

Current work: Cybersecurity professional, AFRIKA KOMMT! Fellow at SAP SE and Founder, STEM Wahandisi La Femme

Passionate about data security and gender equality

In regards to taking on a STEM career, what motivated you into taking on one despite its small number of African women in STEM?

My passion for technology and data security, and of course the support from my family.

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man's career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

I have always felt the need to prove because of the bias that exists.

I believe in myself and my competencies, and keep upskilling and learn every day.

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

No

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

Access to education for girls. With education, girls get information and can choose tech courses.

Encouraging girls and women to choose what they want. The biases against STEM and lack of support discourages more girls.

Mentorship programs

Technology access even in rural areas

Encourage girls into leadership

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

Keep learning and be vibrant, always believe in yourself.

And lastly, what future do you envision for African women in STEM?

50 50 representations in STEM roles and leadership roles.



Keep learning and be vibrant, always believe in yourself.



Name: Larisa Akrofi

Birth Country: Ghana

Current work: CEO, Levers in Heels and currently works to develop and co-create education and skills programs for Ghana in alignment with its Young Africa Works strategy at the British Council, and the Mastercard Foundation

Passionate about giving a voice to African women in Science, Technology, Engineering and Mathematics (STEM)

My father always encouraged my sister and I to pursue the sciences, and eventually engineering.

At a time when I most likely didn't believe in my own abilities, my father did. I loved mathematics so much, and so pursuing engineering made sense. But I had other ideas for myself. Sometimes, I struggled as he challenged my thinking and made me push myself. He never placed stereotypes on my sister and I. His girls were more than capable to become engineers.

Even though my career path has changed, I'm thankful to my father for being one of my biggest inspirations on this journey. Studying Biomedical Engineering back in university opened up my mind and taught me certain principles and skills that have made me a valuable asset to the organizations that I've worked for. From learning to programme, to designing and implementing projects.

My father's influence continues to shape the way I think about my career, and I can only attribute how far I've come to this man's presence. I'm most appreciative of the fact that he believed in his girls and made sure we had the best of education his money could afford.

Today, thanks to him, my sister is pursuing her PhD with a focus on photo-induced phenomena at oxide surfaces using time- and angle-resolved photoelectron spectroscopy, and my work with Levers in Heels is giving a voice to African women in STEM and encouraging the next generation of African women to pursue STEM fields, because just like my father believed in his girls, I believe in them.

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man's career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

Back in university, I was one of four young women pursuing an engineering degree in a class of 40 students. It was a quite challenging, considering the fact that at the time we had very few female role models to look up to. I felt the need to continuously work twice as hard as my male counterparts just to prove myself even though discrimination was not as direct. What really helped me overcome this challenge was when I set out to start Levers in Heels. It all started out as a blog I used to personally document what other women in engineering were up to in their careers. Their efforts and achievements really inspired me to not give up.

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

While I was in university, there weren't many female role models in STEM to look up to. But fortunately for me, the Head of our Biomedical Engineering department happened to be female, and the only female engineering lecturer at the time that I had started university. Her name is Prof. Elsie Effah Kaufmann - a Ghanaian academic, biomedical engineer and quiz mistress for Ghana's National Science and Maths Quiz. She's been such an inspiration to me throughout my journey.

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

Africa is at a stage where it requires the expertise of STEM in solving its challenges. And women have an equal role to play in this as some of these challenges, more than often, affect them and their children. I believe in visibility - which has been a core part of Levers in Heels' mission.

The failure to give African women a voice and visibility in STEM, will only continue to make them more invisible, and many young African women out there may be missing out on potential role models.

The importance of female role models in STEM is highly unparalleled. Female role models in STEM who have achieved so much while overcoming adversity in their lives have shown me that it is possible.

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

Be determined and intentional about pursuing your goals. It won't be an easy journey, but it is definitely worth it. You are in good company.

And lastly, what future do you envision for African women in STEM?

I envision a future where Africa makes solid advances and progress because African women will engage, achieve, and excel in STEM. African women in STEM are the future.



Be determined and intentional about pursuing your goals. It won't be an easy journey, but it is definitely worth it. You are in good company.



Name: Temilade Adeoye

Birth Country: Nigeria

Current work: A Proposal Engineer at an offshore construction company.

Passionate about engineering

In regards to taking on a STEM career, what motivated you into taking on one despite its small number of African women in STEM?

As a kid, I enjoyed messing around with devices. I would always tinker with them, try to figure out what was wrong and fix it. It also helped that my dad, who studied engineering, never missed an opportunity to teach me engineering concepts or call me to assist when he brought out his toolbox to work on something. There really was no doubt that I would end up in a STEM career as I could not imagine myself doing anything else. At the time, I was never even aware that not many African women ventured into that field. My parents raised me to believe I could pursue any of my dreams, irrespective of what society thought.

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man's career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

My experience working in a STEM career has been mostly pleasant, though there have been hurdles. There were times that I had to prove myself and correct the notion that I do not need to be "taken care of" or treated like an egg because of my gender & size. I did this by listening to their views and challenging them where necessary. I also carried out physical tasks that my fellow engineers were asked to do despite getting a pass due to my gender. There was also a time when I subjected myself to an unsafe condition by not using the proper PPE because I felt the need to prove that I was as tough as the men. A conversation with a friend, helped me realize I was being silly and jeopardizing my health/safety was a terrible way to make a point.

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

No, I have always looked up to my dad, he has always been my role model.

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

To inspire the next generation, we should drive to change the narrative about careers in STEM being a “men’s world”. Do not allow them to entertain the idea that their gender will be a hindrance to their growth. We should continue to celebrate women who are making a difference, so the next generation knows that it is not an impossible feat.

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

Do not bother yourself about the perception of others or society. Block out all that noise. Rather, focus on what you want to do and who you want to be. Do not let anyone that is not you, determine your limit.

And lastly, what future do you envision for African women in STEM?

I am extremely optimistic about the future for African women in STEM. I envision that one day, an African woman in STEM would be as normal as a woman giving birth.



Do not bother yourself about the perception of others or society. Block out all that noise. Rather, focus on what you want to do and who you want to be. Do not let anyone that is not you, determine your limit.



Name: Nana Amina Abubakar

Birth Country: Ghana

**Current work: Gas Dispatcher at West Coast Gas
Ghana Limited**

***Passionate about exploring and try out new
things. I love to come up with new and
innovative ideas***

In regards to taking on a STEM career, what motivated you into taking on one despite its small number of African women in STEM?

Looking back, my career in STEM is an extension of my passion. In STEM related careers especially engineering, you are meant to be curious like a child and try to solve difficult problems and bring out new innovations. My motivation is the fact that I find myself in a field I love, and I most often view it as a hobby instead of a career. It is of no doubt that women especially African women are under-represented in the STEM field both home and abroad which makes it challenging. However, with perseverance, enough drive and constant improvement of oneself, it is very possible to enter the industry and perform marvelously well.

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man's career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

This is the time we as African women are changing perceptions and bridging gaps between the females and males in the STEM field. I wouldn't necessary say I have been discriminated however I have been viewed as a weaker teammate in terms of my physical abilities when it comes down to physical tasks. I however changed the perceptions surrounding that by proving everyone wrong and be a doer.

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

Growing up I did not necessarily have a role model as most STEMIST were males. During my national service, I found a mentor who till this day helps me navigate in all aspects of my life. I also have mentors for different aspects of my life

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

As African women, we should continue to encourage women to take up STEM careers. This should be tackled from the root. More campaigns should be held to throw light on this topic. Girls in elementary and junior high should be targeted and introduce to STEM activities which build up their courage, passion, and curiosity around the field. This will help them when they are making decisions in the future. Most of the times, the ladies are scared to venture because they have not been exposed to the field and it is viewed as an extremely difficult field.

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

Take the opportunity to research the STEM field with an open mind. Remove all preconceptions and you might find yourself. Do not limit yourself and explore all your options. Take that leap of faith today so that you don't regret in future.

And lastly, what future do you envision for African women in STEM?

The future I envision for African women in STEM is that we will spread so much so that in every space and every corner of the world our presence will be felt. We will dominate and leave positive footprints in all these corners.



Take the opportunity to research the STEM field with an open mind. Remove all preconceptions and you might find yourself. Do not limit yourself and explore all your options. Take that leap of faith today so that you don't regret in future.



Name: Tasnika Goorhoo

**Birth Country: KwaZulu Natal province,
South Africa**

**Current work: A data analyst working at IHS
Markit whilst undertaking a Masters degree in
Industrial Engineering**

***Passionate about using her voice for female
empowerment and fairness***

In regards to taking on a STEM career, what motivated you into taking on one despite its small number of African women in STEM?

Coming from an Indian household and being the eldest child, there was a level of unspoken expectation to pursue a career in one of the stereotypical fields (doctor, lawyer, engineer etc.) As much as a medical or law career was appealing there was a level doubt in whether it would be right for me. In my final year of secondary school, I was still uncertain of what the next step would be. A career in STEM seemed logical. It included the academic content I enjoyed, it challenged me mentally, it allowed me to push my agenda of social impact and I could make my family proud. STEM provided a level of flexibility to explore which I found appealing. The number of women in the STEM field at that time was not a factor I had considered. I grew up being taught a variety of skills that broke the gender 'norms' in a household. Therefore, I knew that being a woman is not and should not be a limiting factor. I do acknowledge that my view on the industry was very naïve and for years to come women will still need to break barriers and fight the gender equality battle. In hindsight, I would not do things differently. Having more exposure to the industry and accessibility to role models (especially female role models) would have made the journey considerably smoother however I now have the opportunity to be the woman I needed when I was growing up.

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man's career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

The limited professional experience I have obtained thus far has clearly indicated there is still a substantial way to go before gender equality within STEM is attained. I have had the opportunity to work on a plant which was an eye-opening experience.

From the safety boots that were provided to the language used by many along with the number of men heavily outweighing the women on site, the general environment was not easy for a woman to navigate. Other women had shared their experiences of gender inequality and discrimination within the engineering field in particular, however I had naïvely believed that that surely cannot be the case in the age we live in. I was astounded to have attained such an experience at an early stage in my career however, I allowed this to drive me knowing that women do belong in this industry as much as men do.

Working in the corporate sector within the oil and gas industry also had interesting lessons. It was especially daunting for a young woman of colour starting her career in that industry. The ratio of women to men was higher compared to a plant site, and as much as there was some comfort in that, other challenges presented itself. There were instances where I needed to actively ensure I was heard. Luckily, I had female colleagues who had gone through similar experiences and were able to help alleviate such occurrences. During a number of networking events, it was common for the focus to shift to appearances which created a rather uncomfortable atmosphere. This required me to either leave such events early or not draw attention to myself. It was interesting to notice many women within the oil and gas industry be called out for being 'too sensitive' or feeling forced to tough it out because it is still very much seen as a masculine environment. How are these environments conducive for every person to be their authentic self?

I have felt the need to constantly prove myself throughout my journey. This was due to either being a woman or someone just starting their career and it has resulted in burnouts and an unsustainable lifestyle. Truthfully, this is still something I struggle with. What has helped is being able to better understand myself, my skill level, what I bring to the table along with improving self-confidence, continuous introspection and guidance from mentors and coaches.

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

Growing up, there were very few, if any, African women in STEM that I valued as role models. It was a small community and such exposure was very much non-existent. Having my STEM teachers to look up to and provide that guidance was appreciated. I was fortunate enough, along with a handful of classmates, to attend a science and technology program at the University of the Witwatersrand which aimed at providing learners with the best possible chance of success (academically, socially and psychologically) in pursuing higher education. This enabled me to connect with female students and educators, providing the opportunity to obtain guidance and perspective. It also fueled my interest in STEM and further encouraged me to follow this path.

In hindsight, having a role model within STEM at an early stage in my life would have allowed me to develop a higher confidence level, provided the necessary guidance and overall encouragement. Well into my tertiary education, I realized there were so many girls that still walk the same rocky path. We live in a time where lack of knowledge and information should not be a limiting factor. WomEng is an organization whose mission is to develop a diverse, equitable and inclusive engineering and technology workforce. This organization helped me build my confidence as a woman in STEM and provided a platform to establish African role models. With their #1MillionGirlsInSTEM campaign, they aim to reach 1 million girls with the intention to create awareness and provide information about STEM related careers. I am proud to be an ambassador for this campaign as I personally would have benefitted a great deal from such a program whilst growing up.

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

As an African woman, it is imperative for the focus to be on what is required to help the next generation. It is our responsibility as women in the STEM industry to do everything we can to ensure the next generation do not have to walk the same rocky path we did. We have to work to break the cycle and make it easier for those after us to enter and succeed. Education is a vital part in achieving this. By educating the current generation on how they can make a difference and why their voices matter, this can create a snowball effect for future generations. The girl child is one of the most vulnerable groups that suffer when the world faces a crisis. Our continent is notorious for its endless hardships and the girl child continues suffering. We have to change this. We simply cannot tolerate our girls not being educated. I truly believe that the solutions we need as a human race can be found only if education is provided to everyone with equal opportunity. The next generation is the hope the world needs in order to survive and it lies on our shoulders to pave an easier path for them. As African women, we should not feel burdened into solving the continents' issues. Tackling the challenges that the girls in our immediate community or at home face is something we are all capable of doing and will generally have the biggest impact.

There are a number of organizations as well as numerous women who have dedicated their lives towards achieving this goal. These women and organizations need advocacy, support structures and resources. Each person has the potential to make a difference either in their own circle or within these organizations.


As African women we can inspire the next generation by leading and making our voices heard. We need to be active advocates, role models, mentors and most importantly our true selves. There is power in being authentic, vulnerable and honest. By sharing our hardships and failures it allows the next generation to learn from our mistakes and use those lessons to avoid having to walk the same path. It provides guidance for fellow women in STEM who could be facing similar situations. Each woman's story is unique and with that brings its own life lessons.

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

The piece of advice I would give a young African girl interested in STEM would be: Hard work, determination and self-confidence is key in building a STEM career. There is going to be challenges along the way and however big these challenges may seem with strong willpower you can overcome it. It is also important to have a support circle of people who will have your back. And always take up space and make noise.

And lastly, what future do you envision for African women in STEM?

For the African women currently in a STEM career, I envision a future free of doubt if they belong in this industry or wonder if they are good enough. Furthermore, for each woman to be respected for who they are and for them to have the confidence to break the barriers still being faced. For the next generation, I envision an easier road to walk, allowing for greater success and positive change. We can take stock of how far we have come as African women in STEM and easily feel discouraged, however it is imperative we continue taking up space and making a conscience effort in order to create a brighter future.

 ***...always take up space
and make noise.***



Name: Ivana Alvares-Marshall

Birth Country: Malawi

Current work: A freelance Commercial Pilot.
Founder & Governor of the [African Section Ninety Nines.](#)

Passionate about aviation

Social media: [LinkedIn](#), [Facebook](#).

In regards to taking on a STEM career, what motivated you into taking on one despite its small number of African women in STEM?

My aviation interest was sparked from the tender age of 10 years old. I dreamed of becoming a pilot. The dream started when I did a round the world trip and was immigrating to New Zealand with my parents. The round a world trip was not meant to be so, however circumstances made it happen that way. A few years ago, people were allowed to visit the cockpit, on the long haul flights I asked if I could sit with the Captain and they let me to my surprise. A 10 year old girl sitting on the jump seat looking at all the switches the beautiful night sky. I was hooked immediately and decided at ten years of age I was going to be a pilot. When I completed my high school education I still held onto my dream of flying and so it came to be. There were many challenges and obstacles I had faced throughout my career, one of the hardest was losing my best friend and roommate in a plane crash when I was learning to fly at the age of 17 years old.

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man's career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

My aviation journey has taken me to so many wonderful countries. The last 25 years of my aviation career has given me valuable life's lessons molding me into the person I am today. More highs than lows! I have met some wonderful people along my travels in the aviation industry. The key is to be passionate in what you do. Surround yourself with people who are like-minded, joining the Ninety Nines did just that. .

I have experienced discrimination numerous occasions in my life. Misogynistic behavior, sexism, harassment, gender discrimination, pay difference all in the workplace as well as racism in just ordinary day to day living. These are things that I and other women in aviation experience all the time. Women need to be more confident and stand up for what they believe is right.

The narrative is changing. Whilst my career maybe a male dominated one, more organisations are striving towards Gender Equality. The International Air Transport Association (IATA) launched a campaign 25by2025 - a global initiative to change the gender balance within the aviation industry. 25by2025 is a voluntary initiative for aviation to improve female representation in the industry. The campaign is an initial step to making the aviation industry more gender balanced. The initiative is open to all airlines and non IATA members.

The African Section 99s is an overseas supporter to the Women in Aviation and Aerospace Charter. The Women in Aviation and Aerospace Charter was launched at the Farnborough Airshow 2018, with companies and organisations within the UK's aviation and aerospace sectors making a commitment to work together to build a more balanced and fair industry for women. With over 100 signatories, the charter reflects the aspiration to see gender balance at all levels across the industry for both women and men in the sector. It has also been included within the Aerospace Sector Deal between industry and the government announced on 6th December 2018 and featured within the Aviation 2050 – the future of UK aviation green paper published by the government on 17th December 2018.

If any organisations would like to consider joining as signatory or a supporting organisation to the Charter please do go to their [website](#). To clarify, a signatory to the Charter signs up to the 4 commitments set out in the Charter and a supporting organisation does not have the commitment obligations but would be giving its name in support of the principles embedded in the Charter. There is no payment required for being either a signatory or a supporting organisation.

Links;

<https://www.gov.uk/government/publications/women-in-aviation-and-aerospace-charter>

<https://www.wiaacharter.com/>

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

I did not have any role models when I was growing up. At the time I was training to be a pilot there was a lack of female pilots. I considered myself as being my own role model. The first person you have to conquer is you! I am the Captain of my own destiny. I have a strong positive attitude, I always challenge myself to do things I think maybe impossible. Taking the step to inspire, mentor and encourage others has been very fulfilling. Passion is fire and energy, finding something that ignites the flame within us and following it defines our success.

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

I have conducted a survey on the representation of female pilots in Africa as many of the surveys online never include the percentages for Africa, most probably because no study has been carried out. Looking at the information I have so far, on a whole considering how massive the African continent is, it is quite alarming to see how female pilots are still extremely under represented. Some countries are doing all they can to change that gender disparity such as Kenya, Nigeria, Ethiopia, Tunisia and South Africa. I would have expected many countries in Africa to try and change this disparity especially if we are to achieve the United Nations Sustainable Development Goals 2030 (SDG Goal 5). However, before covid the few female pilots that do exist were employed in the airlines. Post covid majority of females that were employed are now furloughed, affecting the statistics. Sadly some countries in Africa do not even have an airline, some have no female pilots at all.

Female pilots remain a rarity especially in Africa; worldwide just 6% of pilots are women. The African Section 99s works with schools through grassroot programs, careers and offices to help enthuse girls to look into gaining a career in aviation. The African Section teaches educational sessions to the youth concentrating on girls however boys also will benefit. This is to bolster Science, Technology, Engineering, and Mathematics (STEM) in Africa through the “Girls Wings For Africa” (GWFA) project. Working with under privileged children visiting local schools in villages and starting STEM camps will inspire youth and a new generation of youth to reach great heights.

Many African countries face significant challenges in educating their youth at all, due to lack of equipment, access to basic amenities like electricity, as well as non-attendance in school, poverty, AIDS/HIV, girl child marriages, teen pregnancies, sexual harassment and violence. As a result, many children may be unable to read even after several years of education. Many girls in Africa do not participate significantly or perform well in STEM subjects.

This situation becomes more pronounced as the level of education increases and a combination of factors, including cultural practices and attitudes, and biased teaching and learning materials, perpetuate the imbalance.

Education is so much more than an opportunity to go to school, its is an opportunity to determine the outcome of one's future, to establish a voice within and outside of one's community, and to dream beyond the limits of one's circumstances. Too many, especially girls are still not getting the quality education they deserve. Girls in rural Africa still have the mindset that this is not something they should do. Educating girls in marginalized communities and rural areas also leads to a reduction in child marriages early pregnancy, at risk behaviors and violence against women and girls. It increases economic self-sufficiency and prosperity. When girls are educated cycles of gender bias against girls and women are effectively disrupted. Keeping girls in education reduces the risk of HIV infection by 36 percent.

We are looking for organisations and airlines who would be willing to assist us by way of sponsorship for our STEM projects you can read about them on our [website](#). If you would be interested, please do contact us at africansection99s@gmail.com

Women in Africa need to build networks inside and outside of their organisations, work with gender diversity programs, promote and support other women, be a mentor and role model. Invest in training and mentorship programs that are necessary to pursue leadership positions in science careers. Governments and Organisations in Africa need to implement gender balance policies, we are slowly making strides however, much more can be done.

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

Be bold and go for it! Ignite the passion in you and you will achieve anything your heart desires!

And lastly, what future do you envision for African women in STEM?

The future is very bright for African women in STEM it is only the beginning, we are just getting started! Watch the space!



Be bold and go for it! Ignite the passion in you and you will achieve anything your heart desires!



Name: Neddy Tanga

Birth Country: Zimbabwe

Current work: Business Development Officer at Seamless Systems and the founder of Connect with Mentors,

Passionate about helping the less privileged

In regards to taking on a STEM career, what motivated you into taking on one despite its small number of African women in STEM?

If I say I have always known that I wanted to pursue studies in science, that wouldn't be entirely true. Actually, my passion for the field grew with time. When I was in high school, I was good at both commercial subjects and science subjects. When we were given the opportunity to choose either of the two, I had to make a sound decision that would affect me for life. I sat down. I was honest with myself, and my capabilities and I ended up choosing sciences. The main reason I gravitated towards sciences was my love for problem solving. I didn't like obvious concepts and I was exceptional at mathematics. In addition, I felt I had to move away from my sisters' path who had pursued commercials because I didn't want to be compared to anyone. I wanted to run my own race without anyone constantly measuring and comparing my progress with my sister's.

At some point I decided to settle for engineering because it gave me the opportunity to appreciate the fundamentals of science and apply them to everyday problems. I knew it would enable me to impact other people's lives positively through much-needed solutions to many societal problems. I believe that naturally, life is complicated and it is our duty to 'uncomplicate' it. Engineers are the movers of economy and I loved the idea that engineering is literally everywhere. Engineering provided me with so many options to specialize in at the end. I love to sit at the table where decisions are made, and as an engineer, I have a place in the decision-making procedure. I was determined to pursue engineering because I wanted to give a young African girl somewhere out there their hope that it can be done.

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man's career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

I think discrimination doesn't start at the workplace but it starts at school. I vividly the first time i got a maths prize, everyone was shocked and they said that it was by chance. So, when i got it again they started side lining me. I felt the need to prove myself that yes girls can. So i always made sure i got the maths prize. When i switched schools at advanced level, boys from my class didn't want to share information because they said i was their competition. They always asked what i was doing in a boy dominated class. It was the norm that to prove that you are the best you had to study further mathematics. Fortunately, i managed to handle that pressure because i had to be honest with myself i wasn't in a position to study four subjects.

In short i was frequently asked what was i doing in a boy's class and i had to constantly prove that i belonged

Fast forward university, i remember one gentleman refused to do group assignments with us because we were ladies. So, we had to work extra hard to prove again that we deserved to be in the class. But later as i got to be exposed to mentorship and fellow engineers i started learning a lot of things and one of the greatest lessons was to be myself and to learn to coexist with guys.

When I went on internship, I had the best experience I could have imagined. I learnt to be eager to learn. I learnt to ask for help when I needed it and to extend respect to everyone in the workplace from the janitor to the CEO. I grew to understand that we should work concurrently and everyone has a role to play.

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

Growing up I never really knew any African female trendsetters in STEM. This is why I am very passionate about career guidance because I never really had that exposure. I got to have female role models when I was in my first year of university. My lecturers introduced me to the world of conferences. That's when I got to know a few ladies who later became my role models.

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

The first port of call is to share our experiences, whether good or bad. I believe the next generation needs the true picture of how sciences are like. Although, it is not easy to bare it all, it is doable if certain attitudes and principles are applied. Importantly, I believe we should normalize organising career guidance seminars at regular intervals with young girls so that they get early exposure to the intricacies of the field. Experienced engineers should frequent such programs so that young girls have an idea of what sciences are all about from professionals working in the field. Above all, we should not shy away from mentorship. We should be committed to mentoring young girls so they become even better than us by providing a listening ear and a shoulder to lean on when needed. We should clearly explain what women empowerment is all about and give these young girls skills to coexist with men. Let us create legacies that live on forever.

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

Pursue STEM because you are passionate about the change you want to bring. Money follows passion.

And lastly, what future do you envision for African women in STEM?

A future where both women and men can coexist and understand that we have the same enemy - the problems we want to solve. I envision a future where women do not have to work extra hard to prove that they are able and a future where women receive due recognition and compensation without needing to demand for it. I see a future where women are given all the help and credit that they deserve.



Pursue STEM because you are passionate about the change you want to bring. Money follows passion.

Mathematics



Name: Sinenhlanhla Precious Sikhosana

Birth Country: South Africa

Current work: A Postdoctoral fellow based at the University of KwaZulu-Natal

Passionate about many things but the top two passions are Astronomy and Educational outreach.

In regards to taking on a STEM career, what motivated you into taking on one despite its small number of African women in STEM?

I was driven by my passion for mathematics and physics and the belief that science impacts everyone, hence, it should be for everyone.

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man's career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

I have never felt the discriminated, however, I have had the feeling of needing to prove myself. I wouldn't say I have completely overcome it, however, I am now aware when the feeling arises. I overcome it by reflecting on how far I have come and reminding myself that I am capable.

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

Unfortunately, no. Hence why I am so passionate about educational outreach initiatives.

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

I think at a fundamental level, hosting outreach initiatives which expose students to careers in science and scientists that look like them and to also mentor students that show interest. However, at a higher-level, systematic changes need to take place, such as introducing policies that ensure that STEM fields are welcoming to African females.

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

First of all, always know that you belong in the field and are intelligent enough to not just be part of STEM but to also carryout groundbreaking research. Finally, this journey might be tough as you will go through both internal and external battles but never let anything dim your light.

And lastly, what future do you envision for African women in STEM?

A future where African women can fully be themselves without getting raised eyebrows or being told they're too expressive or loud. A future where we are at the forefront of creating policies that will ensure that the STEM fields are fully inclusive and diverse.



First of all, always know that you belong in the field and are intelligent enough to not just be part of STEM but to also carryout groundbreaking research. Finally, this journey might be tough as you will go through both internal and external battles but never let anything dim your light.



Name: Winnie Nakiyingi

Birth Country: Uganda

Current work: A Statistician by profession, Founder of [Words That Count](#) and a chief coordinator of a Canadian based company that deals in business development.

Passionate about her work in STEM

In regards to taking on a STEM career, what motivated you into taking on one despite its small number of African women in STEM?

For me it was about the passion. I had no statistics about the percentage of African women in STEM. I was lucky to have a moment of self-discovery while in primary school. Numbers meant a lot to me than words. The irony, because I actually enjoy using words when it comes to topics, I am passionate about. I can't say I was motivated by examples of women in STEM or mentors because I didn't know of anything/anyone like that while growing up. I just followed my passion.

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man's career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

I have been lucky to have my employment roots in a company that understands and promotes the importance of having African women in STEM. My very first job was with the [African Institute for Mathematical Sciences](#) (AIMS). As a student at AIMS, I was introduced to the many career paths in STEM and possibilities of taking on one of those paths. When I started my work there, it felt very normal for me because I believed I deserved to be there and was seeing many women as well. It was a comfortable place for an African woman in STEM. Yes I have felt discriminated before because of my gender! There are times I have been asked to take a seat because the inquiry is about a programming code, or software installation, or hardware problem.

As an African woman, I constantly have to prove myself! This is still a huge problem! Maybe future generations will see something different but, in my lifetime, I haven't met one African woman in STEM who says she has never had to prove herself! We are doubted until we speak and they realize the knowledge we have about a given topic. The only way to overcome this discrimination is to get yourself so equipped with knowledge about your area of specialization so that when you are called upon, the words that come out of you are unbelievable.

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

No, I didn't

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

I believe the visibility of other African women in STEM is a good strategy. I have personally met many people who keep telling me that their passion for a given field was inspired by characters they watched on TV! How about we bring that home; make those characters visible physically or virtually! But now we are talking about characters of the same skin colour, hair texture, family background, origin, language, like us!

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

Don't give up! You have a dream and that dream is valid. However, only you can take that dream as far as it can go. Engage with mentors and other like-minded people but at the end of the day, it is your dream. You alone can put in the work, you alone can see that dream come to life.

And lastly, what future do you envision for African women in STEM?

Oh, it is very beautiful! Many initiatives like this and mine are determined to see stereotypes about African women in STEM change! And we are not giving up! There are new people joining us each and every day. I believe one day we shall have a continent that has normalized having women in STEM.



***Don't give up! You have a dream
and that dream is valid.***

In the STEM Field



Name: Adaku Ufere-Awoonor

Birth Country: Nigeria

Current work: currently the Acting Chief of Party of the USAID & Power Africa West Africa Energy Program, a Power Africa initiative overseeing 23 countries across West and Central Africa.

Passionate about finding solutions that address and lead to the eradication of energy poverty and gender-based violence, experienced by women in developing countries.

In regards to taking on a STEM career, what motivated you into taking on one despite its small number of African women in STEM?

Growing up in Nigeria, I was surrounded by the oil and gas industry and have always been fascinated by it. As a lawyer in Lagos, I primarily worked on intellectual property and maritime cases, but in 2010, Diezani Allison Madueke, a former Nigerian Minister for Mines and Steel, was appointed as the first female Minister for Petroleum Resources. It was very exciting to see a woman at the helm of the most powerful Ministry in the country and that inspired me to want to get into the oil and gas sector. I applied for an LLM in Oil & Gas at the University of Aberdeen, and I've been working in the energy sector ever since.

As an African woman, what has been your experience working in a STEM career given the fact that it has been perceived for the longest time as a man's career? Have you ever felt discriminated or had the feeling of wanting to prove yourself multiple times? If yes, please share how you overcame it?

My career in energy has been as Legal Counsel for GE Oil & Gas, Energy Practice Leader for Centurion Law Group, CEO of DAX Consult and energy and infrastructure consulting firm and now with USAID and Power Africa as the Deputy Chief of Party and now Acting Chief of Party of the West Africa Energy Program.

In every single role I've had, the men have outnumbered the women many times over. In every meeting, negotiation, conference...whatever it is I'm at, I'm frequently the only woman in the room or one of the few women in the room. I've honestly never experienced any overt discrimination, but I have encountered countless micro-aggressions. From people not realizing I'm the team leader or the standard of excellence being much higher for me than it is for some of my male counterparts, also being very aware of a gender pay gap.

Being a woman growing up in Africa, my gender has always been at the forefront of every interaction and from an early age, I've always been very outspoken about my rights and what I deserved. So, I've navigated all these male-dominated spaces by demanding more, ensuring I'm not overlooked, advocating for myself, creating a community with fellow women in the sector, looking out for junior women in my company.

To be honest, my wanting to prove myself has usually been as a consequence of age not gender. I reached c-suite status at a very young age, so it's been more about getting people to see I deserve to be where I am even though I'm usually younger than everyone else.

Did you have any African female role models in STEM as you were growing up, maybe at home, in school or in your community?

Honestly, not many, and this isn't because there weren't any inspirational women in STEM, but because they weren't visible. I didn't know this community existed. BHonestly, not many, and this isn't because there weren't any inspirational women in STEM, but because they weren't visible. I didn't know this community existed. But I'd say Diezani Allison Madueke, former Nigerian Minister for Petroleum Resources was definitely one. Nigerian, Damilola Ogunbiyi, CEO of Sustainable Energy For all and Co-Chair of UN Energy, Kizmekia Corbett, an African American virologist who was one of the inventors of the Moderna Corona virus vaccine.

I'm ensuring the next generation don't have to deal with the issue of invisibility when it comes to women in male-dominated fields. Especially for my daughter, I've bought her so many books highlighting inspirational women throughout history, in all sectors, something I never got to see as a child. So hopefully one day when she's asked this question, she'd be able to reel off a whole host of names.

As an African woman, what can be done and how can we inspire the next generation of African women in STEM?

It starts at that early stage in development where it's assumed that girls like home making toys and boys like construction toys, that's when we have to start combating the stereotypes.

Encourage girls to be curious and play in the dirt and be loud and boisterous and inquisitive and question everything. Buy your daughters dolls and play cookers but also buy them rockets and construction toys and monster trucks and play lab equipment. Watch shows like Doc McStuffins and science shows for children. In school, don't immediately assume girls don't like Math, but challenge them as much as you challenge boys. Expose them to famous women in STEM so they have something to aspire to, put your girls in science clubs, computers, math etc.

Ensure Guidance Counselors present girls with a full plethora of higher degree opportunities in STEM. I'll give a personal anecdote about that. When I entered Senior Secondary School in Nigeria, to choose the subjects we were going to study for the next three years, we had to determine our careers then select subjects that aligned with it. At the time I was fascinated with space and science, and at my meeting with the Guidance Counselor, I told her I wanted to be an astronaut and would like to study Further Math and Physics and the like. This woman took one look at me and said, "why would you want to study all those hard subjects?". She said to me "if you study science in university, you'll be in school for a very very long time and when you graduate, you'll be too old, and no one will marry you". Imagine telling that to a 13-year-old? Basically, my youthful desirability to an imaginary future husband was far more important than a career I loved. I ended up studying law and taking Arts subjects instead, but I never forgot that encounter.

We need to learn to surround girls with all possibilities, so even though they don't end up picking a career in STEM, it's not because they didn't know it existed or they were not suited for it.

What is that one piece of advice you would give to a young African girl interested in taking on a STEM career?

Women have been at the forefront of STEM for centuries, so you're in very good company. Don't ever think this is too difficult or you're not in the right place. Whatever you decide to do is right for you.

And lastly, what future do you envision for African women in STEM?

I think the future is bright, there's a huge push for women to get into STEM and we're starting to see the pivot. There's still a lot of work to be done because like I said the issue is systemic, we need to break stereotypes through generations but I'm glad that we have at least started the work.



Women have been at the forefront of STEM for centuries, so you're in very good company.

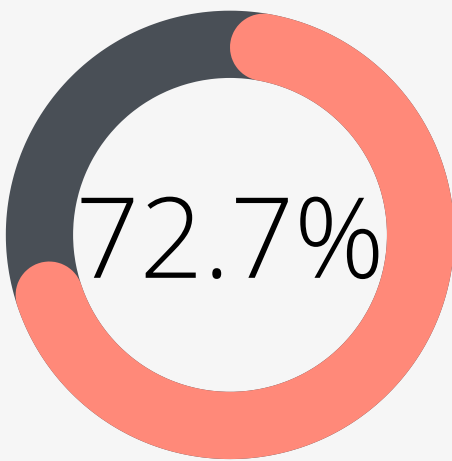
KEY FINDINGS

Choosing STEM as a career

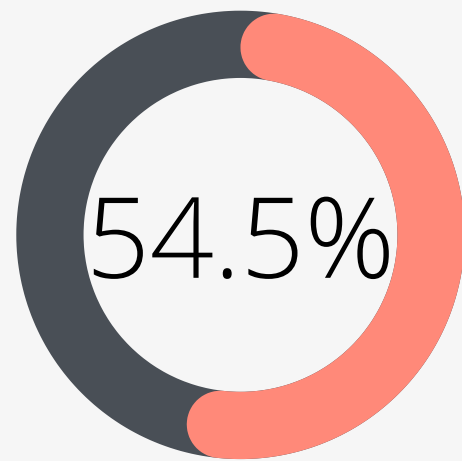
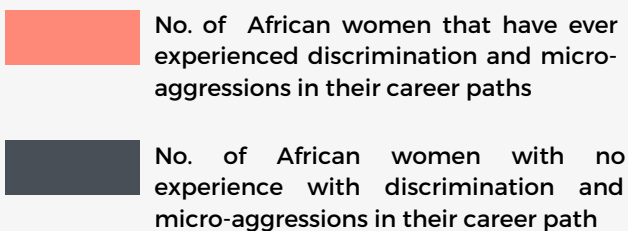
We found that passion, love and curiosity were the biggest factors that led the respondents to choose STEM career paths amidst the small number of women in STEM.

Discrimination, micro-aggregation, and the need to prove

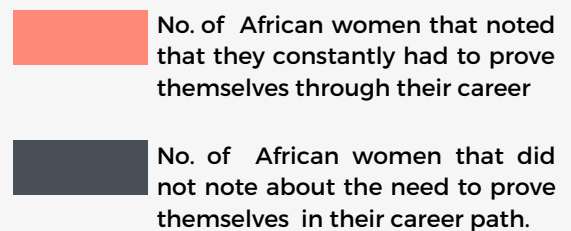
Our research showed that 14 out of 22 respondents had ever experienced discrimination in their career path because of being a woman, 2 respondents had experienced some sort of micro-aggressions and 12 respondents noted that they constantly had to prove themselves through their career.



Experience with discrimination and micro-agressions in their career path



The need to prove oneself as a woman in their career path

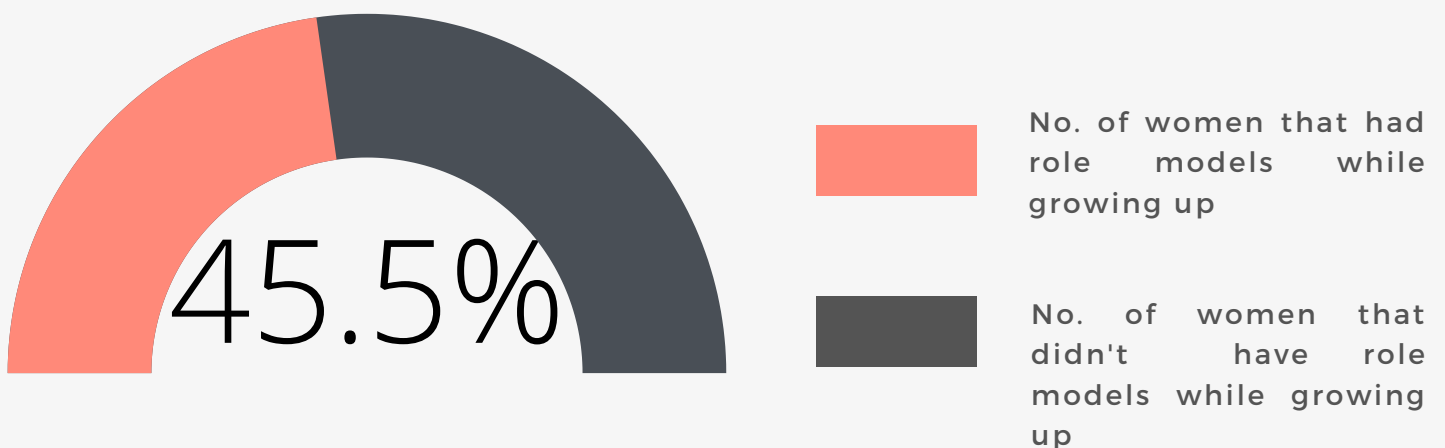


Presence of African female role models

We found out that only 10 out of 22 respondents had female African women role models as they were growing up. Majority of them also highlighted that these role models were few and not as common as the males in their fields.


"Unfortunately, none, growing up there were very few women role models in STEM, and the women we admired and wanted to be like, were unfortunately unreachable and unrelatable, we read about them in the papers or watched them on tv but never got a chance to learn from them how they did it and what challenges they overcame."

- PEACE KUTEESA
GENDER AND DIGITAL TRANSFORMATION SPECIALIST, UNDP
CO-FOUNDER ZIMBAWOMEN
UGANDA



For the next generation of African women in STEM

Majority of the respondents shared that investing in educating young African girls about the importance of taking on STEM careers would inspire and draw more girls and women to participate in the Science, Technology, Engineering and Mathematics sphere.



"Educate, educate and educate, to the grassroot level. Share relatable stories of success in tech and the importance of tech in our day to day lives. Come up with ways tech can be used to solve our day-to-day problems in Africa, e.g; drought, diseases, hunger etc. so that the myth that its rocket science can disappear."

- CHARITY GALA
SOFTWARE ENGINEER,
KENYA

CONCLUSION

The presence of African women role models in STEM fields plays a critical role in eradicating the negative perspectives painted to young African girls about STEM subjects being "male subjects." This will encourage young African girls to take up STEM subjects as they will have reachable and relatable people that can empower, mentor and guide them through their career journeys, hence reducing the gender imbalance and create a sense of belonging in the STEM arena. It is also important to invest in empowering female teachers in STEM as they are the closest to young girls in school. These teachers will help nurture interest within young girls and guide them to participate in the STEM field.

ACKNOWLEDGEMENTS

We would like to acknowledge the support and feedback from The Thinking Watermill Society. We would like to also thank all the African women that took off their time to participate in this project.

REFERENCES

1. UNESCO Institute of Statistics. (June, 2019). Women in Science, Fact sheet no. 55. FS/2019/SCI/55
Retrieved from <http://uis.unesco.org/en/topic/women-science>
2. World Bank. (April, 2021). Let's accelerate the women in STEM agenda today; tomorrow will be too late! Retrived from <https://blogs.worldbank.org/africacan/lets-accelerate-women-stem-agenda-today-tomorrow-will-be-too-late>
3. Hammond, Alicia; Rubiano Matulevich, Eliana; Beegle, Kathleen; Kumaraswamy, Sai Krishna. 2020. The Equality Equation : Advancing the Participation of Women and Girls in STEM. World Bank, Washington, DC. © World Bank. Retrived from <https://openknowledge.worldbank.org/handle/10986/34317>
4. Mastercard Foundation. (2016). Why Africa needs Female Scientists. Retrived from <https://mastercardfdn.org/why-africa-needs-female-scientists/>
5. AAUW. (2010) Why so few? Women in STEM. Retrieved from <https://www.aauw.org/app/uploads/2020/03/why-so-few-research.pdf>
6. UNICEF. (November, 2020). Mapping gender equality in STEM from school to work. Retrieved from [Mapping gender equality in STEM from school to work](#)