WAAW FOUNDATION
Working to Advance STEM Education for African Girls

2017 ANNUAL REPORT
EIN: 20 – 8576703
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A JOURNEY OF A THOUSAND MILES BEGINS WITH A FIRST STEP!
AND IF THAT STEP IS IN THE RIGHT DIRECTION, AND IF PURSUED WITH CONSISTENCY AND DILIGENCE, THEN ONLY SUCCESS CAN BE THE END RESULT!
INTRODUCTION
On January 5th 2007, WAAW Foundation was founded in response to a burning desire to see more women of African descent healthy, educated and inspired to participate in community building, by enabling mechanisms for sustainable self-help.

The Articles of Incorporation of WAAW Foundation was incorporated under the laws of the state of Texas, U.S.A., on the 5th of January 2007. The Articles were filed in the office of the Secretary Of State as provided by the general Not for Profit Corporation Act of Texas. Less than eleven months later, on December 1st, the Internal Revenue Service (IRS) determined WAAW Foundation to be a non-profit organization exempt from federal income tax under section 501(c)(3) of the internal revenue code. WAAW Foundation is classified as a public charity organization. The Articles of Incorporation, ByLaws and Conflict of Interest Policy can be accessed on our website at http://www.waawfoundation.org/publications.htm

Our Vision
To empower African women to become impactful leaders and innovators through STEM education.

Our Mission
Our mission is to increase the participation of African girls in Science, Technology, Engineering and Math (STEM) related disciplines, and to ensure that this talent is engaged in African innovation.

Our Core Values
• The Power of Women
• Education and Leadership
• Giving Back
• Localization and Cultural Sensitivity

Our Core focus
Empowering African Women to become impactful leaders to benefit Africa through experiential STEM Education.

Our Strength & What Makes Waaw Unique
• Core team of women founders with - expertise, experience and passion.
• Trust based on financial transparency and prudence.
• Proven programs that work – prototype you can replicate.

2025 Target
Increase the number of African women in STEM from by 10%, and build female technology innovators who create 10,000 jobs to impact their communities.
90% of participants enter and stay in STEM fields.
PRESIDENT'S REMARK

A NEW CHAPTER

Dear WAAW Foundation Family,

Never in our 10 year history has WAAW Foundation been so well position to deliver lasting impact to millions of girls across Africa. As we celebrate our 10th anniversary this 2017, I feel a deep sense of gratitude to God who inspired the vision and continues to embolden us; and because of the commitment and compassion of all our donors, supporters, team and volunteers we have been able to come this far. I want to say Thank You for your past and future investment in our life changing mission as we push to change the narrative of African girls!

I am humbled by your continued support and awed by what we have accomplished. The journey of a thousand miles does indeed start with the first step.

In 2017 we continued WAAW Foundation’s long tradition of being on the front lines of empowering girls in Africa by employing Science, Technology, Engineering and Math (STEM) to change their lives and their communities! WAAW Foundation’s impact was felt across 11 African Countries and touched over 200 teachers, 100 University fellows, countless volunteers and 10,000 young Africans directly and indirectly. Beyond charity, WAAW Foundation delivers lasting transformation through programs that provide relevant skills training in STEM and develops self-confidence to ensure girls see themselves as change makers. Starting out, this was our vision! More than aid or handouts that encourage dependency and stifle innovation, African women need world class training to solve their own challenges and contribute to the world economy. At WAAW Foundation we have proved this to be true again and again!

In 2017 in addition to our stable programs of STEM summer camps and College-to-secondary mentor programs, we launched the She Hacks Africa Coding Boot camp in Abuja Nigeria, co-founded by our Program Manager Vanessa Oguamanam. This intensive 4 week camp is aimed at giving African girls real world software development experience and entrepreneurial skills to contribute globally to technology advances and launch technology problems that address real challenges in Africa. The She Hacks Africa program is now well established, currently going to its 4th cohort, and will be a focal point of WAAW Foundation’s efforts over the next few years. Also in 2017 we expanded our Secondary STEM Teacher training aimed at equipping teachers with gender sensitive curriculum and relevant tools to make STEM and computer science education come alive in their classrooms. We believe teachers are missing link in our pipeline for impacting STEM education in a massive way because beyond parents, they have the most impact on our young population in Africa.

Going forward we have set our targets so much higher. Our 5 year strategic plans involve ways to significantly amplify our impact exponentially by 10x factors. Over the coming years, you will see our programs evolve to aggressively focus on aggregation and consolidation of
efforts through strategic partnerships, training of trainers by engaging more with teachers, fellows and volunteers, and equipping more girls to become significant change agents. Our pay it forward model is what enables WAAW Foundation to stretch our resources and scale our impact. Additionally we will expand our sustainability efforts to ensure we continue to provide relevant programs to our core constituents. A huge focus for WAAW is to continue investing in world class training for our staff, thereby equipping them with innovation thinking to move to the next level of bigger and bolder. Finally our future efforts include greater alignment with our funders and engagement with our Board of Directors.

To this end we are excited to announce that in 2017 we welcomed our new Board Chair Person Mrs Ozzy Isabu Ajibade and our Vice Board Chair Person Mrs Kishau Rogers. We are excited about the new leadership and energy they bring to WAAW Foundation as we chart our course over the next 10 years. In order to continue our expansion and develop the next generation of new leadership, I am also super excited to announce that Mrs Tolu Owajoba Adeyemo will step into her new role as Acting Executive Director, taking over the day to day running of the organization as I transition from my role as Chief Executive to President at WAAW Foundation, focusing more on aligning with the board to develop long term strategy, funding and partnerships.

I would like to express my profound gratitude to those who have stood by us to make this vision a reality. It is because of the countless contributions from so many of you that we have been able to accomplish so much. Our partners, funders, donors and board of directors have continued to believe in our vision. I am particularly grateful for the ever steady leadership and support of our Vice President and Board Secretary Mrs Ebele Agu. Together with our passionate team of smart, talented and dedicated staff, volunteers, mentors and fellows, we have the confidence and a firm foundation on which we are privileged to build on. Congratulations to WAAW Foundation. We are 10 years proud!

As we look to the future, the task before us remains daunting. Technology continues to evolve and Africa continues to grapple with its exploding youth population and major challenges. We are confident that STEM education, technology innovation and female empowerment remain front and center as the most powerful tools to deliver significant change. WAAW Foundation is building a movement committed to our ideals - a world in which every African girl knows her voice and her dreams are valid and she is empowered to contribute to economic growth. While we recognize that our path will be wrought with challenges, we are ready, excited and equal to the task. We will keep pushing until a girl from a remote village in Africa builds the next giant technology company in the world, solving problems for billions globally!

Let us never forget that our lives are inextricably connected. If one girl in Africa is disempowered we all are disempowered. Lighting another’s candle does not diminish our own light. Instead is makes the world brighter and better. We rise and fall together.... But Rise we must!!!

I truly believe that Africa is Rising for Africans and its economic growth and stability is for global benefit. African Women Will Help Solve not only Africa’s Challenges but Global issues through technology engagement and innovation.
Thank you for your support as I invite you to continue to engage, invest, volunteer and advocate for our work. You help shape the future we imagine for Africa and the World!

I wish you courage of convictions, wisdom to know and walk your unique path, the exhilaration of hope and immense love for your life’s journey this 2018 year! Onward Ever.

Yours in Service,

Unoma Okorafor, Ph.D.
President & Chief Executive Officer
WAAW Foundation - Working to Advance STEM Education for African Women.

2017 WAAW Programs & Activities
At WAAW Foundation we strive to educate more African women in various ways, to sustain and expose them to STEM (Science, Technology, Engineering and Math) and Computer science fields. The programs we focused on and completed in 2017 are:

- Teachers Training program
- She Hacks Africa Coding Bootcamp for youths
- College Scholarship Initiative
- Science, Technology, Engineering & Math Camp and Code School
- College-to-Secondary STEM outreach program
- After-school/Weekend program

STEM Teachers Training Program
Summer 2017, WAAW foundation organized two workshops for Secondary education Teachers from July 31st – August 4th, 5th-9th September and 15th December, 2017 in Abuja and Lagos, Nigeria respectively. Topics covered during the training were Introduction to use of ICT in classroom, Introduction to Web design (HTML & CSS), STEM pedagogy and integrative teaching, introducing to computer science & programming (SCRATCH, Arduino, Blockly, Raspberry Pi), Renewable energy (wind, solar, hydro), Teaching Computer Science without computers (CSUnplugged), Robotics, Introduction to tools that make teaching fun and effective, Curriculum development.

The workshops were a unique blend of IT skills dispensed with a specialized WAAW curriculum; very practical and engaging with highly experienced facilitators, exceptional training method and well maintained interactive and fun workshop sessions. This immense training was open to STEM secondary school teachers from different schools across Nigeria to widen their horizon and help them become practical teachers and builders of this digital age, so to speak. In addition to the
workshop sessions, coding materials were provided for self-help purpose and continual development.

ABUJA TEACHERS TRAINING

The training-workshop was attended by 38 teachers from diverse STEM fields, 8 public school teachers and 30 private school teachers and there was adequate trainer/participants interaction. Teachers in attendance came from 10 different states across Nigeria; Abuja=22 teachers, Delta state= 2 teachers, Nasarawa state= 6 teachers, Oyo state= 1 teacher, Taraba state= 1 teacher, Lagos state= 1 teacher, Ebonyi state= 2 teachers, Kwara State= 1 teacher, Gombe state= 1 teacher, Imo state= 1 teacher. Participants worked in groups and discussed amongst themselves, issues raised by any of them concerning the workshop exercises. The members of the training team were Ms. Lucy Ikpesu, web development facilitator (HTML, CSS AND JavaScript), Ms. Chioma, mobile app development facilitator (MIT app inventor), Mrs. Bridget, effective teaching facilitator, Mr. Johnson Ozuoka, WAAW STEM teacher alumni, Mrs. Mercy Sosanya, classroom management facilitator, Mrs. Remi Willouby, hands on STEM activity in the classroom facilitator, Ms. Ubi Loveth, scratch and web design facilitator, Mercy and Miriam Aboh, Arduino programming facilitator, and Ms. Nkoyo, building resume and LinkedIn facilitator.

The training team arrived at the venue daily with considerable number of minutes before their session in order to meet up with the agreed schedule and coordination of facilitation, as follows:
A few adjustments were made to the schedule, in light of various considerations, such as the level of participation and participants desire to devote more time to particular exercises as well as facilitator’s advice.

Training info pack was sent to teachers ahead of the training. The info pack included the software and training materials (Fig.1) the teachers were expected to study before the training and the Schedule (Fig.2) for the training. Teachers also filled out pre-survey forms before the workshop and a post-survey after the workshop.

Day 1
The day began with a presentation of WAAW foundation videos and the warm-up exercise by Loveth Ubi, the first session for day one began with Why STEM, digital literacy & coding matters and how teachers are a key component by Mercy Sosanya. She commenced with the training by showing a motivational video of the girl that provided electricity in her village in Kenya, after which she talked about digital literacy and its importance in their various classrooms. Second session was facilitated by Mrs. Bridget Akintewe on Challenges Teachers in Nigeria are facing. - Data gathering. This session was an open discussion with the participants, see below some of the challenges they face in their various classrooms as highlighted by the teachers. Mrs. Remi shared a motivational video on internet safety and she informed the teachers to caution and guide their student on the use of internet, she facilitated the last session for the day which was on Teaching Strategies-Robotics / Hands on Learning. Mrs. Remi gave the teachers hands on challenge to build a car powered with balloon using cardboard, bottle caps, straw pipes, and pen case.
Day 2
The second day started with hands on activity challenge facilitated by Mrs. Remi. The teachers were expected to build a newspaper house using newspapers and tape only which will have one exit and can house a team member of their various teams. Mr. Johnson anchored the second section on Frank talk and why WAAW does this, Classroom management. Mr. Johnson was one of the teachers that participated during the first teachers training in Abuja 2016. He was able to motivate the teachers by sharing his story and the impact he got from the teachers training. The third session was facilitated by Mrs. Mercy and Ms. Chioma on MIT - Mobile App Development. The teachers were able to build a talk to me app on the android phones using MIT app inventor. The fourth session commenced after lunch break, this session was facilitated by Mrs. Bridget on Teaching Effectively, Inquiry based learning, Staying away from blackboard, Why Nigerian methodologies don't work- Lesson Cycles.

Day 3
The third day featured scratch programming, facilitated by Ms. Loveth Ubi. The teachers learnt how to build a ping pong and were able to build a catch game individually afterwards. The second session was on CS unplugged, the teachers played a game on how to write and interpret a program. During the lunch break the teachers saw another internet safety motivational video, the third session on HTML/CSS started afterwards. This session was facilitated by Ms. Lucy, She commenced by asking each participants to install a number of application which included bracket, on their personal computers, after which a class exercise that involved designing WAAW foundation website was practiced using the HTML coding. Ms. Nkoyo facilitated the fourth session which was on Resume & Communication She explained to the teachers in detail on why they don’t get jobs after application. She further taught the teachers how to build a professional resume and also ask the teachers to set up a LinkedIn profile

Day 4
The activity for day 4 started with solar energy facilitated by Miriam & Mercy Aboh. The teachers were taught the principles of solar energy and they teachers were tasked to assemble a solar panel kit that will power an LED bulb and pump water. The second session commenced immediately and was facilitated by Mercy Aboh on Arduino programming. Mercy introduced the teachers to Arduino programming and taught them how to assemble and program on an Arduino board. Miriam and Lucy facilitated the renewable energy session on how to build a wind turbine; the teachers were given local materials to build a wind turbine from which most groups did successfully. The teachers had a 30 minutes break after which Mr. Johnson facilitated the fourth session which is Maze & Blockly, this is a coding session. The teachers were able to write instructional lines of codes. Day four training was concluded with a congratulatory speech from Dr. Unoma founder/CEO of WAAW foundation to the teachers.

Day 5
Loveth Ubi introduced the teachers to WAAW foundation master trainer program and the connecting classrooms program “GLOCAL Classroom”. Having completed the teachers training Loveth charged the teachers to set up a STEM club in their various schools and adopt hands on activity during teaching. Lucy guided the teachers to fill out the post survey form after which Certificates of training were then awarded to each of the participants and the training-workshop was closed by Miss Ubi Loveth with a group photograph at 5:00PM on 4th August 2017.

We used a Pre- and Post- training survey to collect to collect quantitative data from all participants about their skills, attitudes, perception and overall experience.
Outcomes of the Training-Workshop

The expected outcomes of the workshop included knowledge advancement, teacher’s collaboration & engagement towards effective teaching, creativity and self-development. Also, the participants agreed on the following outcomes:

1. Adventurous participants have adequate resources to build them into a trailblazer.
2. In addition to coding, participants absorbed other software skills which will be relevant to their teaching and career.
3. Participants were able to absorb the WAAW foundation team spirit and dynamism.
4. The workshop is a door of fortune into unanticipated opportunities.
5. Participants will be able to set up STEM clubs in their various schools.

Expectations from Teachers

<table>
<thead>
<tr>
<th>Expectations</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishing a stem’s club, dialogue with both the pupils/students and teachers on how to have effective STEM’s club and level up program in the school</td>
<td>56%</td>
<td>96.4%</td>
</tr>
<tr>
<td>I am fully motivated if granted the desired support to have a STEM community in my locality not just students or fellow teacher</td>
<td>60%</td>
<td>80%</td>
</tr>
<tr>
<td>My plans for my students is not just setting up STEM Clubs but going the extra mile to implement all have gain from the training in my class I would also create out time to training teachers on how they can implement Stem in their class rooms and guide them on how to source for needed resources.</td>
<td>40.5%</td>
<td>95%</td>
</tr>
<tr>
<td>I am starting STEM class in the school right away and i do not think there is any other plans greater than that and if there be please kindly notify me thanks.</td>
<td>55.8%</td>
<td>88.7%</td>
</tr>
</tbody>
</table>
The training-workshop was attended by 38 teachers from diverse STEM fields, 20 public school teachers and 18 private school teachers and there was adequate trainer/participants interaction. Teachers in attendance came from 8 different states across Nigeria; Lagos state= 32 teachers, Edo state= 2 teachers, Oyo state= 2 teacher, Ekiti state= 1 teacher, Kwara State= 1 teacher, Anambra= 1 teacher. Participants worked in groups and discussed amongst themselves, issues raised by any of them concerning the workshop exercises. The members of the training team were Ms. Susan Ekeihome, Arduino facilitator, Mr. Jonah Onah mobile app development and HTML/CSS facilitator (MIT app inventor), Ms. Loveth Ubi effective teaching facilitator, scratch and web design facilitator, Mrs. Chika Ekwom WAAW STEM teacher alumni, classroom management facilitator, Mrs. Remi Willouby, hands on STEM activity in the classroom facilitator, Ms. Shalom, Building resume and LinkedIn facilitator.

Day 1
The day began with a presentation of WAAW foundation videos and the warm-up exercise by Mrs. Tolu, the first session for day one began with Why STEM, digital literacy & coding matters and how teachers are a key component by Tolu. She commenced with the training by showing a motivational video of previous WAAW foundation STEM trainings and events after which she talked about digital literacy and its importance in their various classrooms, this was followed by an ice breaker game. Second session was facilitated by Mrs. Remi, she gave the teachers hands on challenge to build a car powered with balloon using cardboard, bottle caps, straw pipes, and pen case. The third session was facilitated by Mrs. Chika Ekwom was one of the teachers that participated during the first teachers training in Abuja 2016. He was able to motivate the teachers by sharing his story and the impact he got from the teachers training, She engaged the teachers on Challenges Teachers in Nigeria are facing. - Data gathering. This session was an open discussion with the participants, see below some of the challenges they face in their various classrooms as highlighted by the teachers. Jonah and Loveth Facilitated the last session for the day which was on Scratch program, The teachers were able to instructional codes using scratch and were also able to build a game.
Day 2

The second day started with hands on activity challenge facilitated by Mrs. Remi. The teachers were expected to build a newspaper house using newspapers and tape only which will have one exit and can house a team member of their various teams. The second session was facilitated by Ms. Susan on how to build a wind turbine and its uses. The teachers were provided with locally sourced materials such as cardboards, tape, PVC pipes, generator, gear, hub, LED bulbs etc to build a windmill that can power an LED bulb. During lunch, Mrs. Remi shared a video on internet safety with the teachers and informed them how they can guide their students on the importance and danger of the internet. Ms. Susan facilitated the last session which was on Arduino. The teachers were able to write programs that powered LED bulbs they connected on the Arduino boards.

Day 3

The third day featured designing a parachute (soft landing), the materials used are eggs, sticks, balloons, rubber bands and tape. Mrs. Remi explained the concept of this session by sharing a video associated with a slide presentation of what the activity is about. The teachers designed and built parachute using the aforementioned materials. Mrs. Tolu Handled instructional strategies during lunch break. The third session was on CS unplugged (Maze and Blockly) the teachers played a game on how to write and interpret a program. Susan facilitated this session, the teachers were able to write instructional lines of code using blockly. The fourth session on HTML/CSS started afterwards. This session was facilitated by Mr. Jonah, he commenced by asking each participants to install a number of application which included bracket, on their personal computers, after which a class exercise that involved designing WAAW foundation website was practiced using the HTML coding.

Day 4

The activity for day 4 started with introduction to WAAW foundation connecting classroom program known as “GLOCAL Classrooms”. GLOCAL Classroom is a platform where students from developing countries are connected with global students to learn and share ideas together with the aim of solving a community challenge. The next session which was on building a professional resume and a Linkedin profile was facilitated by Ms. Shalom, She informed the teachers on practical steps in setting up a professional bio/resume. She introduced the teachers to Linkedin platform and guided them on how to set up a professional profile. Loveth facilitated the third session on classroom management after lunch break, she discussed with the teachers on the importance of taking charge of their classrooms and understanding the students temperaments as this help with productive teaching and learning. She also told the teachers to connect with their students and track their performance as well. The third session was on building bridges facilitated by Susan, She gave the teachers the following materials wooden sticks, gum (top bond) to construct a bridge that will be able to uphold a certain weight. Mrs. Remi facilitated the last session. She introduced the teachers to hands on activities they can use during their maths classes. Activities such as calculating areas and working with polygons using geoboards and tangrams.

Day 5

The first session started on a high note with the introduction to robotics by Mrs. Remi. She explained to the teachers the fundamental principles of how a robot functions. She showed the teachers how a robot can be programmed and urged them to embrace STEM as its a huge advantage to their career. Susan facilitated the next session afterwards on Solar energy. The teachers were taught the principles of solar
energy and they teachers were tasked to assemble a solar panel kit that will power an LED bulb and pump water.

Having completed the teachers training Loveth and Tolu charged the teachers to set up a STEM club in their various schools and adopt hands on activity during teaching.

Dr. Unoma founder/CEO of WAAW foundation gave a congratulatory speech to the teachers and welcomed them on board as “WAAW Master teacher trainers”. Tolu guided the teachers to fill out the post survey form after which Certificates of training were then awarded to each of the participants and the training-workshop was closed by Mrs. Tolu with a group photograph at 5:00PM on 9th September 2017.
WAAW foundation trained 9 teachers from Durumi Internally displaced people’s (IDP) camp on 15th of December, 2017. This one day training program train Teachers on the importance of STEM hands-on activities in the classroom.

The workshop was a comprehensive session covering topics such as effective STEM teaching methodology, classroom management and STEM hands-on activities. More emphasis was laid on infusing exciting activities into science subjects (e.g. basic science and mathematics) taught in their various classrooms. The program went as scheduled below.

**FIRST SESSION: Welcome address, About WAAW**
The first session started immediately after the registration. Miss Loveth commenced the training by introducing the teachers to WAAW Foundation mission and programs, the founder and the Foundations previous collaboration with the Internally Displaced People. The session also opened the teacher’s mind to the essence of WAAW Teacher training workshops and the previous workshop organized by the Foundation. The teachers were also prepared towards their individual expectation from the workshop.

![Image](image1.png)

**SECOND SESSION: What is STEM? Importance of STEM/Hands-on Learning in classroom with Hands-on activity 1**
The second session was handled by miss Lucy. She educated teachers on Science, Technology, Engineering and Mathematics (STEM) education and its importance on quality learning in the classroom. The session was a combination of transferable hands-on activities and slide presentation. She trained teachers on building objects such as balloon powered car with locally available materials such as cardboard paper, balloon, straw, cello-tape, bottle cap and ink pen. Teachers were grouped to work in teams of three. In their various teams, they built a car powered by balloon, tested the balloon car and had a discussion session relating the mechanisms of the moving car to subjects taught in the classroom.

**THIRD SESSION: Classroom Management**
The classroom management session taught by Mr. John Bosco of the Abuja Technology Village Foundation, was an interactive session about teacher’s relationship with their students and the impact of genuine concern on the quality of education. The session enlightened teachers on how to improve students performance using hands-on activities and creative skills. Teachers were admonished to play active roles in the academic and personal lives of students to ensure both effective teaching and learning. Among the strategies taught were active conversation, tolerance, commitment and understanding. Teachers were then engaged in an interactive session to discuss some of the difficulties they face in their classroom and raising possible strategies to handle the challenges identified.

**FOURTH SESSION: Instructional Strategy with Hands-on Activity**
The fourth session was a blend of hands-on activity and slide presentation. The session was facilitated by Mrs. Sefunmi. She educated the teachers on the power of instructional strategy in enabling students understand and retain lessons. She also helped teachers understand the use of unconventional strategies to teach mathematics to younger students. Teachers were instructed on how to make mathematics fun for students using shapes, papers and substituting difficult terminologies for less ambiguous words.
Teachers were also asked to act as engineers for the benefit of the session. Teachers, acting like civil engineers built structures such as Truss bridge and habitable houses. They worked in groups of three, using engineering design process to plan, build and test the strength of their project.

**FIFTH SESSION: Building resume, Portfolio, Linkedin**

This session was about teacher professional reputation and how to market themselves through professional social platforms such as LinkedIn. They were enlightened on unique opportunity available for outstanding teachers and the need to present themselves confidently. Resume development and presentation was also enumerated.

**CERTIFICATE PRESENTATION**

Certificate of training was presented to participants after the training, bringing the teacher training workshop to close as participants had refreshment and took pictures.

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**She Hacks Africa Coding Workshops**

In January 2017, WAAW foundation launched “She Hacks Africa” a Software programming, Entrepreneurship and Leadership training workshop for youths between the ages of 17 to 30 years in Nigeria. The aim of the boot-camp is to provide fun hands-on engaging Software Programming training that will help build self-confidence of young African women as community change makers and technology innovators, while giving them relevant skills to build technology enterprises.

**COHORT 1 – January 2017**

From January 23 to February 10, 2017, WAAW foundation launched the first cohort of its new initiative “She Hacks Africa” in Abuja, Nigeria. 10 young women attended the programme covering a wide array of undergraduates, graduates and post-graduate students from Nigeria and Cameroon. In order to pilot this programme, WAAW foundation ran its college STEM outreach fellows training workshop during the first week of the boot-camp. WAAW outreach fellows serve as mentors and role models in secondary school, while providing tools to demonstrate computer science and STEM, discuss research and inquiry based learning, and use integrative problem based activities to whet secondary school students’ appetite for STEM and CS innovation.

The boot-camp introduced participants to Software programming on full stack web application including HTML, CSS, MySQL, PHP, Design Thinking, JQuery Tutorial, Mobile Friendly Design, and Phone-Gap, facilitated by highly skilled and experienced trainers from the USA and Nigeria. Our Nigerian based trainers, Fatima Agbonika and Lukeman Ismaila led most of the training sessions, other facilitators/mentor include Kishau Rogers, a twenty-year programming veteran and CEO of Websmith Group; Vannessa Oguamanam, a Master’s student in Human-Computer interaction at the University of Maryland, College Park, (UMD).

Over the course of the workshop, participants were taken step-by-step through the process of creating a web page. They built a simple application that addresses an issue in Nigeria using LAMP and all the technical skills gained.

Week one kicked off with Introduction to HTML and Javascript by Fatima. Kishau Rogers trained participants on building demo mobile applications. She also lectured the participants on “How the Internet Works,” and how to make people embrace an app by ensuring it is user friendly. One of the apps speaks to curbing vandalism of pipelines by sending signals to security agencies; another app was built to address sexual reproductive health of girls and another on entrepreneurship skills and coaching classes for young people.
Concluding activity for week one was a visit to Phase3 Telecom, an Africa's leading independent aerial fiber optic network infrastructure and telecommunications services provider. Our participants were mentored on Career path, and shown how the Internet, Simple Network Management Protocol (SNMP), and Multi-Protocol Legal Switching (MPLS) work through a visual presentation by the Phase 3 Telecom staff. After the presentation and tour of the company, our participants had the opportunity to showcase their project – the demo-app to Phase3 Engineers, they received lots of feedbacks and suggestions including additional users friendly features.

In the cause of activity for week two and three, Fatima and Lukman tutored the participants on JQuery Tutorial, WordPress, Mobile friendly design, and Java Script.

Participants had a career and motivational talk session, facilitated by Ebowe Blessing, a software developer at Andela. Blessing shared her professional journey - life as a female software developer and opportunities for female programmers at Andela.

Rounding up activities for week three was a project presentation by the participants on prototype tech apps that could potentially tackle identified societal challenges.

The evaluation feedback suggests high levels of engagement of the participants in the boot camp. Participants were interested and enthused by presentations of effective practice, customer discovery as well as the career/motivational talk, and participated actively across the full duration of the programme. They developed a wide range of cognitive capabilities and practical skills, independent of technologies. They gained confidence to be knowledgeable users of computer programming and builders of computer applications.

It is worth noting that most of the participants agreed or strongly agreed that the workshop had inspired them to try to make their own websites or apps to solve problems in their communities (90%) and that it had boosted their interest in a possible future career in coding and seeking a job/entrepreneurial activities in Software development (80 percent).

Additionally, 50% rated the workshop either excellent or satisfactory; 90% responded that they are very likely to attend future training with us, 90% responded that they perceived the content to be either extremely helpful or very helpful; and 80% answered that they would be extremely likely to use the learning from the workshop in their future practice.
Although some participants came to the boot camp with some prior coding or web development experience, others had no such prior experience (20%). Novice coders tended to say they got more out of the workshops, and their comments indicated that the workshop had helped to demystify programming languages. These findings suggest that the workshop provided a learning opportunity that some of these young women may not otherwise have encountered at home, workplace or at their schools. Participants also appreciated the opportunity to network with peers and mentors.

Consequently, the immediate conclusions to be drawn from these survey results are that the basic concept and methodological approach are sound and should continue in the future iterations of the programme.

**COHORT 2 – April 2017**

Working to Advance STEM Education for African Women (WAAW) foundation organized a 3-week Coding workshop “She Hacks Africa” bootcamp for 5 youths from April 24 to May 11, 2017 Lagos, Nigeria. Participants at the Lagos bootcamp learnt digital marketing and software programming on full stack web development using HTML, JAVASCRIPT, Wordpres, CSS and MySql programming languages.

Digital marketing session

The digital marketing session was aimed at giving participants short, sharp shot of digital management skills delivered by a young digital professional, Wale Bakare. This training opened a new world of digital skills opportunities for participants—both personally and professionally. The training focused on learning how to use digital marketing tools in exploring the digital opportunities available in the Small Medium Business (SMB) sector. The SMB landscape in Nigeria and the significance of digital marketing in growing the sector. Equipping participants with the digital skills needed to run their business including pitching, planning execution, measurement, reporting and pricing models.

During the training the participants were able to complete comprehensive Digital Marketing core areas that is 70% hands-on practical and 30% theory. They learnt how to:

- Grow any business sales and revenue faster.
- Get a well paid job in the digital marketing field.
- Start and grow digital marketing agency.
- Make more money as an affiliate marketer or Freelancer.

**Wordpress Session**
The wordpress session started with an Introduction to Wordpress, Features of wordpress, differences between pages and posts, getting a domain name and host, installing wordpress, installing themes and plugins. The participants were introduced to wordpress as an online, open source website creation tool written in PHP which is the easiest and most used Content Management System (CMS).

Participants were exposed to the cpanel (Control Panel) and were taught how to create Email account. They were also taught how to install wordpress from the Cpanel using the SOFTACOLOUS APPS INSTALLER and how to install wordpress themes from the dashboard/admin panel, using cpanel and FTP.

They were introduced to installation of THEME DEMO CONTENT which helped them to get the better layout of the website that they can work with. They worked on LAYER Slider plugin and changed slider images, sizes and timing. Participants also learn how to create pages and add to Menu, and also they learned how to work on pages using Page Builder.

At the end of the section, participants designed a responsive website using wordpress as a Content management System.

**JavaScript Session**

First, we discussed JavaScript as language itself. We talked about how it can include programs that interact with the user, control the browser, and dynamically create HTML content. We also talked about
its advantages: less server interaction, immediate feedback to the visitors, increased interactivity and richer interfaces. We discussed how a program is built out of statements, which themselves sometimes contain more statements, how Statements tend to contain expressions, which themselves can be built out of smaller expressions and how putting statements after one another gives a program that is executed from top to bottom.

Participants learnt about the methods of introducing disturbances in the flow of control by using conditional (if, else, and switch) and looping (while, do, and for) statements. In addition, they learnt how variables can be used to file pieces of data under a name, and how they are useful for tracking state in your program.

**HTML Session**

HTML stands for “Hyper Text Markup Language” and it is the language of the World Wide Web. So, in short, HTML is used to build web pages. Participants learnt how to use tags to add paragraphs of text, lists (both ordered and unordered), tables, quotations and headlines. They learnt how to add links into documents to lead readers to other web pages, add images to make pages more visually interesting and make form elements used to add inter-activity to websites. Beyond just formatting, participants learnt how to use HTML to describe the contents of a web page so that both humans and computers can read it. We thought them how to define text as emphasized or as a unit of time or even legal small print. Some of these descriptions will result in appearance changes as well. Also, they learnt how to use tags and create forms, tables and navigation bars.

**CSS Session**
CSS, Cascading Style Sheet is a computer language to describe presentation (for example width, height, color, background color, alignment etc.) of HTML and XML (and XML based languages like XHTML, SVG) web documents. It is the sister technology to HTML that is used to style web pages. Participants understood the three ways in which CSS can be associated with an HTML web page: the external method, the internal method and the inline method. They were introduced to the Syntax of CSS, CSS Rules, components of a CSS rule, and different types of CSS Selectors (pattern matching rules which define what style will be implemented on which element).

Finally, they learnt how HTML elements like tables, lists, and forms can be styled using different CSS selectors, properties and values.

After the introduction of HTML, CSS and JavaScript, the participants were challenged to work on two projects using the languages. First, they made a calculator using the HTML form and table element, CSS to style the table and form, and then JavaScript to make the calculator display values and evaluations made. Secondly, they made a basic quiz game using a HTML container and JavaScript conditional statements and functions.

**PHP & MYSQL Session**

The back end programming language used was PHP couple with MYSQL a database query language.

During this session, participants were taught the basics of PHP – Hypertext Preprocessor and how to use application software to develop dynamic websites. The training focused on real life examples. They learnt the PHP variables and syntax, PHP blocks and functions, Xampp installation, how to create login and registration form, how to build a real life authentication system.

Participants were also introduced to white hart hacking, Adatabase management and query using Query language – MYSQL. They were able to create database of users, activate registration form, and apply security to their website.

At the end of this session, projects were given out to the participants, which they took up with enthusiasm. Github code repository was shared with the student to follow up codes that they have written during the class [https://github.com/dapseen/waaw_foundation](https://github.com/dapseen/waaw_foundation)

**EXCURSION**
Participants visited the Andela Headquarter office in Lagos, Nigeria to connect with mentors and see the day-to-day activities of developers.

The program ended with project presentation and presentation of certificates to all participants.

**COHORT 3 – October 2017**

She Hacks Africa Cohort 3 bootcamp held from October 3rd to 25th, 2017 in Lagos, Nigeria. 29 participants from poor socio-economic background between the ages of 17-36 years, with little or no experience in coding; in-school/undergraduate, graduates, out-of-school youths attended the training program.

The first week of the She Hacks Africa workshop was dedicated to front end technologies – HTML, CSS, Bootstrap and an Introduction to JavaScript. Before the participants started coding, we had to make them understand how the Internet works – Servers, Ip Address, URL, DNS, Browser and Packets. They were divided into small groups for an interactive activities, each group came up with a 3 minutes skits to demonstrate how the internet works.

Also, it is imperative for our participants to understand customer discovery and design thinking framework before coding. This session was more of hands-on. Participants were divided into groups to
discover a particular Issue or problem facing them in their communities, define the problem, discuss why it is a problem, how they will use technology to solve the problem, and who will use the technology. We gave them office supplies like sticky notes, markers, cardboards, tape etc to design the prototype of their technology, with emphasis on no coding. They presented their prototype to real-users (Housessories’ Employees) for testing and evaluation. The feedbacks they got were used to modify their prototype designs.

Participants learned how to write HTML tags that display contents to the browser at the end of Day2. They progressed while learning most of the tags available in HTML. CSS was introduced at the end of Day 3, participants learned how to style their HTML pages compare to using just plain HTML which the students considered boring. The participants were thrilled to see the power of coding with HTML and CSS in developing aesthetic websites.

Also, they were introduced to Bootstrap framework. The students did not quite understand it at first especially how to install/add the framework to their projects but as the training continues, it became clearer. A lot of them became comfortable using bootstrap as oppose to starting from scratch. These helped them in building their web development foundation.

**WEEK 2 – Front-end (JavaScript) and Back-end Website development Training**

In Week 2, the participants were introduced to **JAVASCRIPT** and how it can be used to make their site engaging and also how to validate their form using **REGEX**. They were also introduced to PHP and MYSQL and how they can connect their form to database with their PHP function.

**Day 1:** Participants learnt JavaScript, different output method in JS (document.Write (), innerHTML, alert() , console.log); JavaScript syntax ( string, integer, comment, float); D.O.M (document Object Model). At the end of Day 1, participants were able to write a javascript code for the first time, manipulate DOM with JavaScript and add JavaScript to HTML.

**Day 2:** Participants learnt advanced JS with D.O.M, chrome Dev tools, Inbuilt Functions, Custom function, ES6 syntax, Anonymous function, Conditional statement and Arrays. They were able to differentiate between anonymous function and inbuilt function; Construct an array; Write a conditional statement; and Work with chrome dev tools to write their codes.
Day 3: Started with basics of back end development, introduced participants to PHP, functions of PHP (login from, user authentication, membership site, social network, PHP syntax, variables & data type, conditional statement, assignment and operators) Ruby, Python and JS too. Participants were able to write a custom function in php and conditional statement; Understand GET and POST method; Use assignment and operator knowledge to check variables.

Day 4: Participants learnt MySQL statement; Introduction to PHPMYADMIN and Database operations (CRUD). At the end of DAY 4, participants were able to perform database operations; Create, read, and insert data into database; Call data from database using SQL statement; Authenticate their login form; Create and store registration data into database.

Day 5: Participants learnt MVC and continued working on their group projects.

WEEK 3/African Code Week: Word press, Github, Mobile App & ionic framework, Java with Alice and leadership

Word press: Participants learnt how to install word press on their computers, create posts and pages on word press, configured word press layout with themes, install plugins for extra features and built a blog.

Mobile App development: Participants learnt mobile app development using ionic framework. Ionic is a tool that makes cross-platform mobile development super easy. With early introduction to HTML, CSS and JavaScript, the students leveraged on these programming languages to build an Ionic mobile app. The apps created were a simple compilation of a brief bio of the participants and facilitators. The participants were thrilled to see that they could build a mobile app in such a short time.

JAVA with Alice: Facilitators from our partner organization, Oracle Academy introduced our participants to Java programming using Alice IDE that provides a real-time view of the front end result of back-end functions. Using simple drag and drop method, participants constructed lines of codes and developed animation-based stories.

Leadership and self-development training by LEAP AFRICA: Participants understood the Art and Act of leadership, importance of goal setting and self-awareness. Facilitators from LEAP Africa demonstrated principle of leadership through activities like videos, peer games.
WEEK 4: Entrepreneurship and Project presentation

The last week of the workshop focused on Entrepreneurship training, career sessions and project. It is imperative for our participants to have a vision for their career in mind. We connected them to Mentors - Andela Ladies in Technology and Chinyere, a researcher in Global Health Informatics, who advised them about choosing a niche in programming and how to keep developing their skills after the training.

Participants also learnt how to give their new skill a business approach. Facilitators from Leap Africa took participants through different approaches and principles of Entrepreneurship such as developing business plan, accounting and budgeting, sales and marketing.

Pitch, Career Day and Award Ceremony

She Hacks Africa cohort 3 boot camp ended with a pitch and career day event, with the presence of leaders of Technology companies and our partners, who acted as Judges during the project presentation.

SURVEY SUMMARY

13.3% of the students rated their knowledge and confidence in software programming as GOOD before the training and 85.7% rated their knowledge and confidence as EXCELLENT and VERY GOOD after the program. 89.3% of respondents developed ideas on how to use software programming to solve problems in Africa after the training. 89.3% respondents showed interest in learning more about software programming after the training and 96.4% expressed their excitement about continued engagement in technology. 71.4% of respondents were excited about seeking a job/entrepreneurial activities in the area of technology.

Participants’ responded increased knowledge in HTML, CSS, Java Script (from 60% to 90.4%), increased knowledge in Mysql and PHP (from 16.6% to 89.3%) and increased knowledge in Wordpres (from 60% to 82.1%).
At the end of the training, 96.4% of the participants reported overall increase in knowledge and skills and were happy with what they learned. 100% rated the training program as Excellent and satisfactory. 96.4% reported that they will recommend the training to their friends.

**College Scholarship Initiative**

WAAW Scholarship program was launched in 2012 with the aim of supporting African college students in achieving their career aspirations in the STEM sectors both internationally and locally. The WAAW scholarship program offers $500/year for need-based female African students admitted to a University, College or institute of higher learning in Africa studying Science, Technology, Engineering and Math (STEM). Till date, WAAW has given scholarships to 27 young African women.

<table>
<thead>
<tr>
<th>Scholarship Year</th>
<th>Number of awards</th>
<th>Countries represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>4</td>
<td>Nigeria, Kenya, Cameroon and Uganda</td>
</tr>
<tr>
<td>2013</td>
<td>4</td>
<td>Nigeria, Malawi, Kenya (Juja &amp; Nairobi)</td>
</tr>
<tr>
<td>2014</td>
<td>5</td>
<td>Uganda, Cameroon, Nigeria, Kenya (Juja &amp; Nairobi)</td>
</tr>
<tr>
<td>2015</td>
<td>4</td>
<td>Nigeria, Kenya, Ethiopia, Tanzania</td>
</tr>
<tr>
<td>2016</td>
<td>4</td>
<td>Kenya, Zimbabwe, Ghana, Uganda</td>
</tr>
<tr>
<td>2017</td>
<td>5</td>
<td>Nigeria, Kenya, South Sudan, Liberia and Rwanda</td>
</tr>
</tbody>
</table>

Objective of the WAAW Scholarship program is to provide funds as financial support to enable female students’ access to higher STEM education and motivate continuous participation in Science, Technology, Engineering and Math careers.

Our Scholarship program provides a platform to recruit STEM Chapter lead college girls. A rigorous selection process ensures that only highly motivated girls with a desire to give back to their communities, and want to or are already engaged in secondary school mentoring programs are selected as lead fellows. Commitment to community outreach and becoming a lead fellow is one of the requirements to receiving the scholarship.

Providing Scholarship furthers WAAW’s mission of increasing the pipeline of African women in Science, Technology, Engineering and Math (STEM) related disciplines, and work to ensure that this talent is engaged in technology innovation to benefit Africa.

In 2017, five girls were awarded scholarship bringing the total of scholarship recipients since inception to 27. The 2016/2017 scholarship recipients are:

<table>
<thead>
<tr>
<th>Name</th>
<th>Country</th>
<th>School attending</th>
<th>Course of study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winnifred Odunoku</td>
<td>Nigeria</td>
<td>Olabisi Onabanjo University</td>
<td>Microbiology</td>
</tr>
</tbody>
</table>
We believe that WAAW foundation’s efforts in empowering African women through education will have far reaching and rewarding impacts. Our objective in 2018 will be to ensure that our campaign targets non-represented countries by creating more awareness.

**Summer STEM Camp And Code School Program**

In partnership with Afrotech girls Initiative and the Women Beyond Boarders, WAAW foundation conducted STEM training for 93 secondary school students in Lagos and Ondo states, Nigeria and organized a 3-week Coding school in Abuja, Nigeria.

**AFRO-TECH GIRLS & WAAW CAMP**

The Afro Tech Girls’ training in partnership with WAAW Foundation held on the 9th of August, 2017 in Lagos. 28 girls were trained on Arduino and Scratch programming. The training held for 6 hours in one day.

As a result of the training experience, the students:
- Increased their understanding of how to use technology and its applications to real-world scenarios in order to create solutions to societal problems.
- Developed valuable 21st century skills such as critical thinking, collaboration and problem-solving.
Elevated their confidence with Computer Science concepts and skills to explore more ways of incorporating computer programming to real-world challenges.

Learn about educational pathways in Computer programming.

**The Arduino programming Session:**
The girls were introduced to this program and they learnt its features as a micro-controller. They practiced projects on how to control the blinking of an LED, using potentiometer to control the LED light intensity and volume of a buzzer (alarm). They understood these lessons are used in real-world applications such as controlling lightening systems and the volume of a radio, TV or alarm systems, to boost their problem-solving skills. They also learnt to write the Arduino codes from its sketch.

**The Scratch programming Session:**

They were introduced to this program. They learnt how to program a Sprite to move within specific directions and how to design the background. They also learnt how to program using the drag-and-drop method. They were able to create 2D animations to tell a story.

**OVERALL OUTCOME:**
1. The students were really excited about the Arduino program and were eager to use more components in the kit. The students liked seeing the electronic components work with the examples or written program.
2. They also loved the practice of creating a 2D animation to tell a story using Scratch programming.

**WOMEN BEYOND BORDERS & WAAW CAMP**
The 2017 summer STEM & ICT residential camp is a full-day, week-long technology program organized by Women Beyond Borders Initiative in partnership with the Working to Advance STEM Education for African women (WAAW) foundation to engage 43 secondary school students in hands-on, interactive coding and STEM activities. The camp program took place at Impact International School, Akure, Ondo-State, Nigeria. Our goal is to teach students the concepts of computer programming, renewable energy and encourage them to think about complex ideas and concepts rationally and logically.

The camp used hands on activities, lectures, tutorials, experiments and games, led and presented by female role models who were WAAW foundation STEM trainers and college fellows, as an avenue to engage students especially the girls and develop their interest in STEM and CS fields and careers. The camp emphasized computer programming as well as how Technology will be used to solve energy problems and clean water problems in Africa, using locally available resources and integrated inquiry based learning heavily biased to hands on learning experience. Modules taught at camp included Website design using HTML & CSS, Wind Energy, Computer Science Unplugged, SCRATCH programming, Blockly, Arduino, Blockly (maze and turtle) programming, circuit sewing, etc.

**Scratch Programming session:**
The class entailed programming and creation of animation. The students were able to learn how to program without memorizing any coding syntax, working on the principle of arranging series of block
instructions as codes. It created room for creative thinking for the students as they were able to explore and design their animated work during and after the course duration. They were mostly captivated by the sound features as well as that of the creation of new sprite.

Generating Electricity session:
Generating Electricity class was also fun but considered stressful by the students. Their reason was that the class involved counting the number of turns of the copper coils to the housing of the simple generator kit of which they were distracted while doing so. Their fun part of the class was using the magnets in generating electricity that was able to light up a bulb. We also discussed the concept of generating electricity as well as comparing the simple generator with the ones they were used to as their curiosity was built up.

Renewable energy session I (using solar energy to generate electricity)
The students were thought how energy is been converted from one form to another including the conversion of solar energy (energy from the sun) to electrical, mechanical and other forms of energy using solar panels, wires, LED bulbs etc. At the end of the session, students were able to generate 15 voltages of current from solar energy which was used to light up a LED bulb, charge a phone and pump water.

Renewable energy session II (using wind energy to generate electricity)
Students learnt how to build a wind turbine to generate electricity using locally available materials (PVC Pipe) that generated 12 voltages of current which was used to light up a LED bulb and pump water. They understood the principle of energy conversion from wind energy to electrical and mechanical energy.
Ballooned power car session:

Students were made to use straw, rubber band/tape, chopsticks, bottle caps, cardboard and balloons to build a 4-wheeled air-powered car. The stored air in the balloon pushes through the straw, creating thrust—the force that pushes the car forward. So when air from the balloon moves in one direction, it pushes the car in the opposite direction. This was an illustration of kinetic and potential energy, velocity, friction and speed. This hands-on activity introduced the camp participants to engineering concepts.

Arduino Programming session:

Students were introduced to Arduino programming and they learnt its features as a micro-controller. They practiced projects on how to control the blinking of an LED, using potentiometer to control the LED light intensity and volume of a buzzer (alarm) and using a single server to control the rotation of a robotic arm. They understood these lessons are used in real-world applications such as controlling lightening systems and the volume of a radio, TV or alarm systems, to boost their problem-solving skills. They also learnt to write the Arduino codes from its sketch.

Physics of Flight session:

The history of the airplane was explained with contributions from the students. The forces of drag, thrust, weight and lift, required for the flight of a plane was explained. The wing of a plane was drawn on the board to demonstrate the flow of wind around the wings. Then, students in each group made paper planes...
using the instructions of the different plane styles. The planes were tested to check the flight of each plane on the basis of starting, balance, destination target and landing. Results were collated and the groups re-designed to obtain better results in the next test. The students seemed bored with the lecture at first but got excited when they started designing and testing their paper-planes. They enjoyed the class and it was fun because the groups competed for the top position.

**Paper Structures & design session:**

In this lesson, simple materials like newspaper, cardboards, were used to create load-bearing structures. The students worked in teams to create various structures such as: a Helipad, bridge, house, table, etc, using paper. The students went through the design process to build and test the strength of their structures.

1. They learnt how to work in teams and went through the design process of gathering information, planning, building, testing and evaluating.
2. They evaluated which designs were the strongest and found similarities between these designs.

**Climate Change Session:**

Students learnt how greenhouse gases and human production of carbon dioxide is having an effect on the earth’s climate. They participated in games and models to show how these phenomena works, and made research that illustrates how climate change is affecting different regions of Africa. At the end of class, they brainstormed on solutions to climate change problems.

**Outcome**

1. Students were able to describe how carbon dioxide molecules trap heat.
2. Students understood how the greenhouse effect works in our atmosphere.
3. They understood the human influence on the amount of heat being trapped in our atmosphere.
4. The students stated some of the effects of climate change that are already being seen in their communities.

**Blockly & Maze Programming**

The blockly and maze brought out the competitive spirit in them as they were left to complete the blockly exercise. Students created and ran programs by arranging blocks with a simple click, drag and drop. This session was similar to scratch’s as it involved merging blocks of codes to achieve the aim of each level. We later reviewed that maze can be carried out using javascript as they took down the codes of both the blocks and javascript.
Introduction to Website Development (HTML & CSS)

Students were introduced to building a website by writing codes using – Hyper Text Markup Language (HTML) and Cascading Style Sheet (CSS). They understood the basic knowledge of HTML and how to create webpages and then progressed to learning CSS.

There was also time for dancing, outdoor sport and team building games which allows the girls to bond and to increase their ability in working together and help each other. By talking to each other, they were able to learn the importance of clear communication and leadership.

SURVEY SUMMARY

The survey data from students indicated a positive result and enjoyment of the camp experience. Over the course of the summer camp, participants were exposed to a variety of career options, and more of them began to consider using STEM in their future careers. The careers data showed most success in increasing interest in Technology & engineering careers. 83.3% of campers reported they think developing animations, apps, or programming would be a fun career after attending the camp. 57.1% started thinking about ideas of using technology to solve societal problems.
Survey results showed that the summer camp promote STEM learning, particularly in terms of knowledge of Science, engineering design, and programming. With no or low previous exposure to hands-on STEM course in school and unique skills required in programming, it is not surprising that the students showed significant gains in knowledge in these three areas.

Results from a review of participants’ survey responses demonstrated that participants did well and reported gains in STEM knowledge and interest during the camp program. They also reported increased comfort or confidence with some areas of STEM and an increased familiarity with and understanding of inquiry based learning. 71.4% reported interest in learning more about computer programming.

97.6% of campers indicated they would attend camp again, 92.9% indicating the camp as exposed them to new technologies and STEM learning, 38.1% changed their career as a result of the camp activities and 85.7% agreed they would recommend the camp to others.

Informal survey and feedback from instructors also indicated a positive level of student engagement in all aspects of the STEM Camp curriculum.

**WAAW SUMMER CODE SCHOOL**

WAAW conducted a four-week summer coding and computer programming school for boys and girls in primary and secondary school in Abuja from from 8th - 31st August, 2017 with the goal of teaching the kids concepts of coding and computer programming, website development, animation, renewable energy and hands-on fun activities that develop their thinking abilities.

Topics covered during the code school are Web design (HTML & CSS), introducing to computer science & programming (SCRATCH, Arduino, Blockly: maze and turtle graphics), Renewable energy (wind, solar, hydro), internet safety, Animations, Blogging, CS unplugged and different hands-on fun activities (paper house, paper kitchen capers, balloon powered car etc).

The summer was unique and fun for the kids as they were exposed to explore on IT skills dispensed with a specialized WAAW curriculum; very practical and engaging with every session was highly educative. This immense code school classes was open to children between the ages of 7 - 17 years ranging from primary and secondary school. The summer was a blissful on for the kids as they have to widen their horizon and help them become technically inclined into IT skills as software & developers and builders of this digital age. In addition, kids developed valuable 21st century skills such as critical thinking, collaboration, problem-solving and communication and increased their understanding of how to use technology to expand their own learning and creation solutions to societal problems.
**WEEK 1**

**Day 1** began with a presentation of WAAW foundation videos and the warm-up exercise by Ikpesu Lucy. Loveth Ubi took the critical thinking session where students were made to build a paper house using newspaper. Students built houses of different structures and sizes. Second session was facilitated by Ikpesu Lucy on Blockly maze where students were introduced to basic computer programming and writing lines of codes to program a robot. This session was interesting as students were excited coding. The last session was facilitated by Loveth on real-life algorithm.

**Day 2** began with an ice-breaker by Ikpesu Lucy. Loveth Ubi took the first session for day on digital literacy & coding matters and how students should be conscious and use internet for better purpose. She commenced with the training by showing a motivational video of the girl that provided electricity in her village in Kenya, after which she talked about digital literacy and its importance in their various classrooms. Next Session was facilitated by Ikpesu Lucy on graph paper programming which is using sets of instructions or arrows symbols to programme. Getting looping : maze loops and artist loops to introduce student to coding and computer programming and better understand programming a robot.

**Day 3** began CS unplugged blindfold session and was taken by Loveth, students practicalise how a robot is programmed by the programmer on the computer. Lucy facilitated introduction to website development session. Students were taught the difference between the front-end and back-end of a website. Thereafter introduced to using HTML basic tags (<h1>, <p>, <br> etc) for a web page.

**WEEK 2**

**Day 1** We began with assessing students assignment on web development using HTML. Thereafter, Loveth took the hands-on critical thinking session on kitchen capers. Students were grouped in pairs to design/build any kitchen utensils. It was an amazing session as students presented different kitchen utensils to the audience with their brand name and uses. The HTML session was continued by Lucy and introduced students to CSS. Loveth took the Binary Bracelet session as students explored on understanding binaries and made a paper hand bracelet using using the first alphabet of their names with the binary alphabets.

**Day 2:** The day’s activities began with hands on activity to build a “balloon powered car” facilitated by loveth. This was built using cardboard, bottle caps, straw pipes, and pen case. The students were amazed at the car they built using just cardboard paper and balloon. The second session was facilitated by lucy on introducing the students to CSS which is a styling sheet for a web page. Students were able to add background colour to their webpage, add image and style other elements on the webpage.

**Day 3:** The students were introduced to energy map and renewable energy. Thereafter we had a practical session on generating electricity from solar energy. Students were taught the principles of solar energy and they were tasked to assemble a solar panel kit that will power an LED bulb and pump water. The next
session was facilitated by Mr. Chiama Chukwuma, an expert on Animations. Students were introduced to creating stories or adverts using videoscribe animations.

WEEK 3

Day 1: The session on animations was continued by Mr. Chiama as students explored with their assignment and further exercises were done by students in the class. The next session was facilitated by Loveth on introducing students to computer programming using Scratch. They were taught how to use scratch programming to tell stories and build games.

Day 2: Loveth Ubi began the day’s session with hands-on activity on tangram. The students were able to use 7 different shapes cut out of paper to build/ design a house and other objects. The session on scratch programming continued with Loveth as student submitted their assignment from the previous class and more practical activity were done with students as they built games and interesting stories.

Day 3: Introducing students to website design using wix.com was facilitated by Loveth. Wix site is an online web design platform with template that can easily be edited to a desired website. Students built their business webpage, personal webpage and portfolio using the wix site templates. At the end of all sessions of the day, students choose different templates as projects which they will present on the last day of summer code school. Projects topics were as Scratch programming, Website development, Animation and blogging.

WEEK 4
Day 1: The session began with Student exploring on their projects and preparing for the project presentation. Seyifunmi took the students on blogging. Students were taught on how to create their own blog using wixsite.com. The second session was facilitated by Lucy on renewable energy by building a wind turbine. They understood the principle of energy conversion from wind energy to electrical and mechanical energy. Students designed the wind blades and coupled a wind turbine to generate electricity using locally available materials (PVC Pipe) that generated current which was used to light up a LED bulb.

Day 2: It’s was the last day of the summer code school and it ended with project presentation by students, projects ranging from Blogging, Scratch, spackol (animation) and website development. There was also presentation of awards to outstanding projects and promising projects and certificates were given to all participants.

We used a Pre- and Post- survey to collect quantitative data and statistics from all participants on their skills and experience.

Skills / knowledge

<table>
<thead>
<tr>
<th>Survey Questions</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you learnt about computer programming?</td>
<td>20%</td>
<td>100%</td>
</tr>
<tr>
<td>I will like to learn more on how to write a computer codes</td>
<td>39%</td>
<td>70%</td>
</tr>
<tr>
<td>Do you know how to code</td>
<td>25%</td>
<td>90%</td>
</tr>
<tr>
<td>Have you ever learnt about website development</td>
<td>10%</td>
<td>87.8%</td>
</tr>
<tr>
<td>Do you know how to build animations and games</td>
<td>10%</td>
<td>89.7%</td>
</tr>
<tr>
<td>Have you learnt about SCRATCH</td>
<td>34%</td>
<td>92.8%</td>
</tr>
<tr>
<td>Have you learnt about renewable energy and generating electricity from it</td>
<td>15%</td>
<td>85%</td>
</tr>
<tr>
<td>I want to be a computer programmer</td>
<td>38%</td>
<td>76.9%</td>
</tr>
<tr>
<td>I can build a website and blog</td>
<td>0</td>
<td>95%</td>
</tr>
<tr>
<td>Science is simple and interesting</td>
<td>5%</td>
<td>80%</td>
</tr>
</tbody>
</table>

College To Secondary STEM Outreach Program

The WAAW Foundation STEM outreach program was launched in 2013. This program aims to train and equip the WAAW Foundation Scholars to organize STEM outreach cells within their Universities. The STEM cell leaders recruit other STEM fellows and organize outreach and mentoring programs to 3-5 neighbouring Secondary schools in their communities to promote STEM education and learning amongst secondary students.

In 2017, WAAW Foundation launched 5 new chapters led by the 2017 scholarship recipients. In total there are 19 chapters in 12 countries, including Nigeria (3), Kenya (2), South Africa (1), Uganda (1), Cameroon (2), Ethiopia (1), Ghana (1), Zimbabwe (1), Rwanda (1), Tanzania (1), Togo (1) and Liberia (1) led by recipients of the WAAW Foundation Scholarship and university students.
<table>
<thead>
<tr>
<th>Country/Name of Chapter</th>
<th>Location/Host University</th>
<th>Name of Chapter Leader</th>
<th>Status/Current Phase</th>
<th>Number of Fellows</th>
<th>Total no. of Schools visited</th>
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<tbody>
<tr>
<td>Kenya Nairobi Chapter</td>
<td>Univ of Nairobi</td>
<td>Monica Wanjiru, Rebecca Nanjala</td>
<td>Outreach started (1 done)</td>
<td>4</td>
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<tr>
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<td>Fed. Univ of Tech, Minna</td>
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<td>Farida Guelue</td>
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<td>Gisele Shema Uwineza</td>
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<tr>
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<td>Stella Murugi</td>
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<td>International university of East Africa</td>
<td>Betty James</td>
<td>Outreach started (4 done)</td>
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</tbody>
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Here are some pictures from the 2016 outreach and mentoring program:
Below is a summary of the activities of the STEM Chapter program from January - December 2017

<table>
<thead>
<tr>
<th>Month</th>
<th>Name of Chapter Leader</th>
<th>Name of Chapter</th>
<th>Date of Outing</th>
<th>No. of Student Impacted</th>
<th>No. of girls Impacted</th>
<th>No. of Teachers Impacted</th>
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<td>Date</td>
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<td>July</td>
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<td>TOTAL</td>
<td></td>
<td></td>
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<td>2,589</td>
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</table>

**CONCLUSION**

From the above table:
- WAAW STEM Chapter fellows conducted 43 outreach visits to schools
- Impacted 2,589 secondary school students
After School Clubs & Weekend Coding Workshop

AFRICA CODE WEEK 2017


The goals of the She Hacks Africa coding bootcamp include increasing Nigerian youths interest and confidence in programming, providing them with coding skills to trouble shoot, problem solve and think critically, connecting them with mentors & role models in technology fields, who encourages them to stay in Tech profession and emphasizing using technology to solve real life problems in their communities.

29 participants from poor socio-economic background between the ages of 17-36 years, with little or no experience in coding; in-school/undergraduate, graduates, out-of-school youths attended the training program.

The training program introduced 29 Nigerian youths to software programming languages including HTML, CSS, Javascript and Java. The students were introduced to Java programming using Alice IDE that provides a real-time view of the front end result of back-end functions. Using simple drag and drop method, they constructed lines of codes and developed animation-based stories. Also, they learnt mobile app development using ionic framework. Ionic is a tool that makes cross-platform mobile development super easy. With early introduction to HTML, CSS and programming languages knowledge to build an Ionic mobile app. The apps created were a simple compilation of a brief bio of the participants and facilitators. The participants were thrilled to see that they could build a mobile app in such a short time.

HOUR OF CODE - 2017

WAAW Foundation held the Hour of Code program on the 5th of December, 2017 at the Teenpreneurs Hub in Lagos. 14 students from different schools in the community were trained on 3D Animation using Java programming with Alice IDE. The training held for about 1 hour 30 minutes.

Tolu introduced WAAW Foundation and our mission to advance more girls in technology. She also introduced the Hour of Code program and emphasized the importance of learning coding. Then Susan started the training with the students by asking questions about their previous coding experiences and some gave examples of their experience with Scratch programming.

The African Program Director, Tolu Adeyemo said “Anyone can learn to code and WAAW Foundation is dedicated to helping students learn coding”
As a result of the training experience, the students:

- Increased their understanding of how to use 3D animation and its applications to real-world scenarios in order to create solutions.
- Developed valuable 21st century skills such as critical thinking, collaboration and problem-solving, as they worked in teams.
- Elevated their confidence with Computer Science concepts and skills to explore more ways of incorporating computer programming to real-world challenges.
- Learned new pathways in Computer programming education and 3D animation.

**ALICE PROGRAMMING SESSION:**
Susan started the training by telling them what ALICE code is and what it is used for; which is for 3D animations and also telling stories in a unique way. The students were introduced to how to select scenes, introduce objects to the scene and program the objects to suite the goal of the story. They also learned how to make use of the camera, rotation, translation and default functions.

Furthermore, they learned how to edit Java codes, include comments for each objects and run codes sequentially. Then they grouped in teams and were given projects to create a story of their choice. Then the students were given assignments to implement more on what has been taught and also try new things and be creative about it all through the coding week.

The Operations Associate and STEM Trainer, Susan Ofeimun said “3D animation is one of the most creative and unique ways of telling a story and derive a source of income from this skill”

**OVERALL OUTCOME:**
1. The students responded very well to the training and were able to implement what was being taught.
2. The students were really excited about the Alice program and were eager to create more 3D animations.
3. They also looked forward to getting engaged with their projects all through the week.

The Founder and CEO of the Teenpreneurs Hub, Soji Megbowon said “We are glad to participate and benefit from this program; we will ensure these students continue developing this skill.”

**2-DAY DURUMI IDP CAMP TRAINING**
On the 16th and 17th of April 2017, WAAW (Working to Advance STEM Education for African Women) Foundation Impacted young people, majorly girls, within the Durumi Internally Displaced (IDP) with hands on renewable energy skills. WAAW foundation is driven by its goal to impact talented African girls, motivate and equip them to lead technology innovation and change within their communities. To take the impact beyond cities and towns, Girls, aged 11 – 19 in the secluded part of FCT were impacted with a 2-day relevant renewable energy hands on skills acquisition to involve them in STEM Education and technology innovation for the use of their community.

The IDP girls watch facilitators demonstrate to them how to build a locally made windmill with locally available material (cardboard and wooden sticks among others) in their neighborhood. Students were put in two groups (Maiduguri and Lagos groups as suggested by the students) to build windmill. The participants sourced for local material (sticks and papers) around them (within the camp) for practical during the program. They marked out, cut and designed their materials and build a windmill that powered led bulb. This 2-day program impacted 20 young people on the first day while 15 young women were impacted with health talks on the second day in addition to the 20 young participants. Speeches on this day featured life related talks that cut across crisis management, planning, hygiene and career as oppose the exclusive academic session that took the younger girls through hands-on practical on the first day.

In partnership with Strong Enough Girls’ Empowerment (SEGE) Initiative, sanitary pads were donated to the women to encourage proper menstrual hygiene. In the same vein, John Bosco, Business Manager for
Abuja Technology Village (ATV) Foundation, Oluwatoyin Oluwaniyi of EduTeens Science Development Foundation, and Barrister Aisha Ngada engaged them in career talk.

ANALYSIS OF THE SURVEY RESPONSES
Table showing the data obtained from the questionnaire

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age</th>
<th>Student</th>
<th>Science student</th>
<th>Excited</th>
<th>Was the local material helpful</th>
<th>Increased level of Interest</th>
<th>Possibility of continuing</th>
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<td>0</td>
<td>13</td>
<td>20</td>
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It was seen from the table above that all twenty participants, irrespective of their gender and prior involvement in science, were motivated by the training and would continue to use locally available material around them model technology innovation.

2018 PARTNERS

One of WAAW foundation’s strategies is to build strategic alliances with other organizations whose objectives are aligned closely with WAAW foundation’s goals. By working in partnership, we improve our efficiency and effectiveness, increase our impact, and provide local and grassroots reach that enables WAAW foundation to hit the ground running.

Our major partnership in 2017 were formed with Women beyond Borders Nigeria, Afro-tech girls Initiative, Oracle academy, Andela, Leap Africa, Strong Enough Girls’ Empowerment (SEGE) Initiative and robogennigeria.

Thank you to our existing and new partners.
Thank you so much to our individual donors and partners who continue to support our efforts.

Ifeyinwa Okoye
Uduak and Eno Asanga
Jane Obodo
Alex Onuegbu
Martin Pace
Unoma Okorafor
Chinenye Okonkwo
Ijeoma Esumudje
Bobbie Baird
Awele Ndili
Natasha Yates

Oguna Agu
Ebele Agu
Justin Grimes
Mihai Murarescu
Juliet Ume
Mary Olusoga
Dele Ojelabi
Laura Buelt
Frances Van Sloun
Michel Morales
Jodi Slick
In 2018, WAAW Foundation will be moving forward to continue to pursue our mission and uphold our vision. Some key areas in which WAAW foundation will focus its collective efforts for 2018 include:

1. Shore up our fundraising efforts through:
   - Creating more sustainable income – in 2018, we hope to create STEM training kits that will be a major income generating platform for WAAW Foundation.
   - Increasing our application to various grants – while we hope to create a sustainable product, we cannot deny that grants will be needed to ensure that African girls get the support they need.
   - Business Support – seek businesses that are willing to contribute a percentage of their profit towards WAAW Foundation goals.
   - Individual and in Kind donors – we will continue to reach out to individuals who can donate their resources and time to the success of African women.

2. Increase our impacts through these initiatives: (i) She Hacks Africa and (ii) Teachers Training programs

3. Continue to build strategic partnerships with other non profits - building partnerships with other non-profits to expand our reach as we provide support for those African girls/women who need us.

4. Increase our scholarship reach – in 2018, we hope to increase our scholarship recipients to 33 including previous recipients.

5. Human Resources – having the right people who are passionate and dedicated to our mission and vision is important to achieve our goals, we will continue to restructure our board and find willing volunteers to expand our reach and focus.
"These resources will empower women in Africa. We enable, not just help. We fund change, not just charity...."
WAAW foundation also seeks individual volunteers to assist our non-profit operations with donations of their time and skills. Particular skills needed include editorial, administrative, email management, fund raising, legal services, financial services, grant-writing, graphics/website design and management skills.

1. Tax deductible financial donations, with a target of raising $200,000 in 2018.
2. Donations of office space and equipments, including office paper, office desks, chairs.
3. Donations of computer equipment including desktop computers, monitors, laptops, printers, projectors, etc.
4. Donation of frequent flier air miles.
5. Volunteer of time in the following areas of service:
   (i) Serving on the WAAW Foundation educational committee – reviewing Scholarship applications and contributing towards the initiation of educational enrichment program for secondary school girls in Africa.
   (ii) Serving on the WAAW Foundation financial committee, receiving and managing donations.
   (iii) Serving on the WAAW Foundation Projects Initiation and Management committee supporting the management of existing and new projects.
   (iv) Serving on the WAAW Foundation Fund Raising committee
   (v) Serving on the WAAW Foundation correspondence committee.
THANK YOU

Our tenth year as a not-for-profit cannot go by without me thanking each of you! In 2007, my friend and the Founder of WAAW, Dr. Unoma Okorafor, thought about this great opportunity that has grown beyond what she may have imagined then. I joined in 2011 and every year I am more awed and grateful for what we have accomplished.

Our vision has not changed, however we have continuously improved our processes, brainstormed on ways we can do better, give better and impact African girls better. This year we started the teacher training and She Hacks Africa training programs in full force. We envisioned that the teachers who have direct access to those we truly want to impact will do more than we can with some of our programs. We were right, the teachers we have trained have gone back to do more to expand the horizons of a lot of African girls in their schools and as always, we are overwhelmed with joy and gratitude.

As we continue to improve and tweak our programs to better expand our impact, we have a lot to look forward to and we know without a shadow of doubt that you - our team, partners, donors and the communities we serve will continue to support us. Our job is far from over, there are still many girls out there who need us. We are not done, we are just beginning.

I am as always honored to say thank you to the WAAW Foundation team, our institutional partners, board of advisers, members of our executive board, our individual volunteers, our friends and our donors. We acknowledge the contribution of everyone who has entrusted us with the resources needed to pursue our common vision. At every level of giving, you enable WAAW foundation to begin on a sure foot, in serving Africa and African girls striving to overcome poverty. Our girls who are impacted by all our efforts are our future and deserve to be enriched and empowered. We are deeply humbled by your partnership and your faith in our vision.

Thank you again,
Yours in service,
Ebele Agu

Executive Director

WAAW Foundation - Working to Advance STEM Education for African Women
OUR PEOPLE

Unoma Okorafor Ph.D.  
President, WAAW foundation  
Partner - Herbal Papaya

Ebele Agu  
Vice-President, WAAW foundation  
TAP Master Teacher - GPISD.

Adeyemo Tolulope  
Executive Director

Christiana Iyasele  
STEM trainer & Operations Director

Marsha Luce  
Executive Assistant

Sefunmi Obayan  
Program Associate

Ubi Loveth Olanna  
Business Development Manager

Sharon Ikhena  
Volunteer – Mentor

Vanesssa Oguananam  
Program Coordinator – She hacks Africa

Susan Ofeimun  
STEM Operations manager and STEM trainer - Lagos

Lucy Ikpesu  
STEM trainer – Abuja

OUR BOARD

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CAC/IT/NO 51689

CORPORATE AFFAIRS COMMISSION
FEDERAL REPUBLIC OF NIGERIA

Certificate of Incorporation
of the Incorporated Trustees of
WORKING TO ADVANCE AFRICAN WOMEN IN SCIENCE & TECHNOLOGY FOUNDATION

I hereby certify that

DR. (MRS.) UNOMA OKORAFOR, MRS. OLUWATOYIN ALONGE, MISS. LOVETH OLANMA UBI,

the duly appointed Trustees of WORKING TO ADVANCE AFRICAN WOMEN IN SCIENCE & TECHNOLOGY FOUNDATION have this day been registered as a corporate body, subject to the below mentioned conditions and directions.

Given under my hand and the Common Seal of the Corporate Affairs Commission at Abuja this Eleventh day of April, 2012

CONDITIONS AND DIRECTIONS

This certificate is liable to cancellation should the objects or the rules of the body be changed without the previous consent in writing of the Registrar General or should the body at any time permit or condone any divergence from or breach of such objects and rules.

Note:
This certificate does not bestow upon the Organization the right to establish any institution, engage in any business and the like without permission from the appropriate authority.

BELLO MAHMUD
Registrar - General