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The path to this Internet Health Report took a few years and a bit of chance. Esther & Uffa met at the 2017 Internet Governance Forum in Geneva as Internet Society Youth@IGF fellows; then took the 2018 Mozilla Open Leaders Course together as part of the building process of Digital Grassroots.

Together, Esther & Uffa participated in Mozilla Open Leaders X in 2019, co-presented at Mozilla Festival, designed the Community Leaders for Internet Health, selected the brilliant young participants, trained them, and connected them to mentors. And now this beautiful report that is in your hands.

SPECIAL CREDITS:

COMMUNITY LEADERS: Bendjedid Rachad Sanoussi, Brenda Nyaringita, Nandini, Tanya Lallmon, Tatiana Houndjo, Hanna Pishchyk, Lewis Munyi, Miriam Kakii, Norman Angel Agong

MENTORS: Bhuvana Meenakshi, Bolutife Adisa, Danny Rayman, Eriol Fox, Faith Zuma, Harry Smith, Justin Francis Bionat, Sarah Kiden, Vishal Chavan, Wathagi Ndungu

MOZILLA: Abigail Cabunoc Mayes, Chad Sansing, Solana Larsen, Eeva Moore
The articles featured here are an outcome of the Community Leaders for Internet Health program as part of the Mozilla Open Leaders X project that took place from March – May 2020. This course included 4 weeks training on open leadership principles, and 2 weeks of one-one mentorship, designed and managed by Digital Grassroots. The README on the next page explains why this is important to us and highlights why this matters for Internet Health.
In 1970, the architecture for the internet was designed by the founding fathers, scientists who pioneered and led the remarkable growth of the Internet from theARPANETresearch network of four interlinked universities in 1969. This process was informed by the fundamental principles of open technical standards, freely accessible processes for technology and policy development, transparent and collaborative governance, and distributed responsibility for technical management and administrative functions. These considerations have defined the foundation for Internet technology, management, community, and commercialization that is used today.

Presently, as we work towards developing a healthy internet, we must recognize the voices of marginalized and underrepresented communities. It will be impossible to achieve a truly universal internet without attaining distributed ownership that stems from ensuring that all internet users are involved in processes that shape the digital future. Around the globe, users from underrepresented communities should understand the challenges and opportunities of the network as it relates to internet principles of openness, decentralization, web literacy, digital inclusion, privacy, and security. This way, we may develop the required skills to connect to the broader national and international policy environment. We will also learn the best practices involved in engaging safely with the digital world.

THE BIG PICTURE

At first look, the internet appears open and free for all. Thecloud storygives us a promise of unlimited bandwidth and growth. If we put the internet through an x-ray, we will see a diagnosis of physical infrastructure including undersea cables, data centers, and telecommunication lines. It becomes easy to make the error of believing that the increasingly private internet infrastructure is a public utility. The cost of this dissonance is that the mainstream narrative is predominantly about creative futures such as artificial intelligence, e-learning, and digital IDs, for example; meanwhile, underserved communities are still grappling with basic infrastructure issues that lead to a ripple effect of poor web literacy, lack of autonomy, and exploitation of their digital footprint.
As with everything in life, what we do not see has an impact, even much more than what we see. The numbers, however, are evident. Google, Amazon, and Facebook-owned or leased 60 percent of the internet infrastructure in 2018. This is increasing. The top 10 data centers are predominantly in the USA, with a sprinkle in Europe and one in China. The top 5 technology companies, all US-based, had a revenue of 5 trillion US Dollars at the start of 2020. In contrast, for example, it is estimated that at least 100 billion US Dollars would be required to connect the entire African continent. The mapping of internet infrastructure tells a clear story - where there is robust internet infrastructure, there is higher connectivity.

An aggregated image of the top 10 data centers, undersea cables owned by Google, Amazon, Facebook, Microsoft (Mozilla, 2019), and the percentage of internet penetration across the globe (Kemp, 2018).

Here comes the double-edged sword - do underserved communities want to get connected or not? The urgency to connect the disconnected has reached fever-peak during the ongoing COVID-19 pandemic. The already-monopolized private sector is promising a digital utopia while others argue that the government is more equitable for the task. During the 2019 Mozilla Festival, we posed the question to the internet community and one participant’s question stands out; What stops us from operating a fully citizen-led internet - would this even be good?

THE KEY PLAYERS

Internet issues are not one size fits all. The reality of consumption and exploitation experienced by internet users differ across the globe. Therefore, we should not expect that internet best practices created in developed regions will be suitable to respond to the needs of users from underserved communities. It simply cannot work that way. For starters, in underserved regions, the technical community was at the forefront of the Internet boom. They deployed the infrastructure which connected the disconnected and brought Internet access to rural areas.

Moving on to the more recent times, the challenge is how to adopt new and emerging technologies and other sophisticated services and platforms associated with high-speed internet connectivity. In order to close the digital divide, the private sector, led by big tech giant companies introduced numerous tech innovations in the areas of artificial intelligence, Internet of Things, 5G, and cloud computing. Their activities in underserved communities have also enabled local tech entrepreneurship through digital innovation hubs that leverage these emerging technologies to output solutions that meet the specific needs of the societies.
But this does not stop there. Yes, underserved communities now have connectivity for telecommunications and they have built amazing services and platforms that work on the network.

What next? We need to establish mechanisms for the good governance of the network and its services. Who should be responsible for this? Who has the power? In developing countries, power is the government. Hence we realize that decision making in these communities is most times multilateral rather than multistakeholder. Time and time again we have seen how governments abuse the power and control the internet through internet shutdowns, data privacy and security breaches, stifling of free speech online, and limiting access to information and resources over the network.

So how can the voices of users be heard on the same table with other internet stakeholders? By connecting to the Internet, civil society enters the internet ecosystem as digital citizens. Therefore, we should understand the principles of a healthy internet as it relates to trust and identity online. We need to attain a level of self-awareness online which will guide our morals in defining the do's and don'ts for the universal internet.

What does it mean to have your voice heard as a digital citizen? Whose voice counts online? At the Mozilla Festival, the internet community wrote an open letter titled I Want To Do That Too! This letter speaks to the challenges faced by minority groups as they adopt new and emerging technologies. Every voice must count and an equal understanding of open principles on the internet is what makes this possible.

POWER IN DETAILS

The big stuff matters, but so do the small ones. We must not have to sacrifice one to achieve the other. A healthy internet is only possible when the smallest unit pieces (and we'd argue the crucial human aspect) are healthy. A homogeneous solution to diverse internet issues lacks the intersectionality necessary for inclusiveness and a bottom-up approach - all fundamentals of the original internet. As we have already established in this article, the internet is fundamentally unequal. How can we ensure equity online when the physical and digital infrastructure dictates internet users are not on the same page on access, literacy, and security, for example? Do we make the deliberate choice to leave underserved communities behind for the sake of progress? To whose benefit? When is it justifiable to make decisions for entire communities without their consultation?

If we argue that there is a necessity for intersectionality to exist online, a quick rebuff would be pointing at the voice the internet has given to the disenfranchised; from the Arab Spring to MeToo, and Black Lives Matter, to name a few movements that have garnered power through leveraging the internet. It's almost like a home-owner telling a tenant that they are free because the wall fence is wide enough. But the rent is not free. The internet is not free, technically speaking. And as in matters of the Law, language becomes very important. Not only in terms of the lingua-franca of the internet - but the language of the original internet which embodies principles of openness.

Learning about internet health issues should not be very tasking. Using digital platforms is not equivalent to participating in Internet governance. There is a need for critical literacy on ownership, principles, and security online. It really should be all about 'how do we get more people from local communities talking about internet issues in an everyday manner?' Interactive community tools, such as the Digital Rights Monopoly, creates an innovative and engaging platform for internet users to learn about internet issues which affect them. It will be extremely foolhardy for us to continue to bring the internet to rural communities without creating a plan to ensure that users from those communities fully understand all the issues that are associated with being connected safely and securely.
The internet has been overshadowed by acronyms, big technical words, and lengthy Terms and Conditions - making it seem out of reach. The crux of the internet is people - both the private sector and government function for this purpose, though this is often forgotten. The internet has a territory, through its physical infrastructure. While our networks have no (physical) borders, the digital infrastructure dictates how different groups interact, ultimately creating an infrastructure that replicates the oppression of particular groups online.

Our focus in this README has flowed from macro-level, to the meso-level, and not least, the micro-level issues on internet health. This is to prod questions and offer a reflection of the digital future in underserved communities. 2020 is the acupuncture point for the future internet. We must be proactive to ensure that the purposes of the original internet are protected so that no one is left behind.

This special edition of the Internet Health Report features 8 young Community Leaders from 5 countries; Belarus, Benin, Kenya, Mauritius and Uganda. They are proactively working to address structural digital inequalities in an underrepresented community. These stories are a reminder and a hope that ultimately, the internet is about its people.
In this era of the fourth industrial revolution, Africa has been racing to catch up with global digital trends. Kenya has not been left behind. In 2014, an e-platform for all government services, eCitizen, was launched. Services initially done on paper required the common mwananchi* to be digitally literate to sign up for crucial services such as health.

In the same year, the education sector joined the movement as the government rolled out a project to distribute laptops to some students in primary schools. Further, in 2017, the Competency-Based Curriculum (CBC) was launched. This is a new education system that offers digital literacy to students in primary school.

Realizing a gap in digital literacy among teachers, the Kenyan government, in 2015, sought to train teachers in every public primary school. With over 200,000 teachers in primary schools, the government still has a long way to go before this gap can narrow further down.

Other organizations such as Young Scientists Kenya (YSK) have brought an aspect of mentorship, encouraging high school students to pursue courses in STEM. In 2019, I interacted with nearly 200 students from Isiolo county from their outreach mentorship. During a breakout session, while introducing Scratch programming, we realized that nearly 70% could not easily type or use a mouse to navigate a computer. An introduction to computing had to be done before proceeding for students to familiarize themselves with typing at the least.

The education ministry asks schools to set aside every Wednesday afternoon for extracurricular activities. With this, schools in town areas have added ICT related clubs with the aim of exposing more students and encouraging innovation. Teachers have however often felt left out as the clubs are run by external organizations or volunteers who visit on Wednesdays. One teacher expressed that she could not help her students with projects during the week while the trainers were away. She wished she was more involved in the training as well to train more students as the clubs limit the number of students.

* mwananchi noun - Definition, pictures, and pronunciation
Furthermore, schools in rural areas may not have the privilege to have such clubs as most trainers are found within the town areas and some of the schools do not have computers to run such STEM clubs. This has highly contributed to the lag in digital skills awareness in rural area schools.

Additionally, Kenyan students are required to research and apply for courses online as well as student loans before joining campus. Students with limited web literacy skills struggle to successfully apply and miss out on the vast opportunities found online for joining campus or applying for scholarships. According to a research done by Digital Skills Observatory in 2016, from 180 youth in rural areas in Kenya, 55% (p.26) could access a computer through a cyber cafe or borrowing a friend/relative, both not very convenient to learn skills to help youth thrive online.

It is these experiences in my community that pushed me, since 2017, to immerse my time in EdTech and help Kenya make its baby steps towards digital literacy. Having trained over 300 primary and high school level students basic programming, I realized the barrier that students in underrepresented communities faced. During a YSK outreach in Marsabit, we noted that students who had prior exposure to computing were more confident to learn and ask questions while the others had low confidence. With a mild introduction however, a glimpse of excitement could be seen as the levels of curiosity rose to learn more on computers and programming.

Through the Mozilla Open Leaders X program, an initiative I named ZeroToCode was born, to further address web literacy in Kenya. ZeroToCode aims to identify students who have zero digital skills, introduce them to basic computing, the internet, and eventually progress to coding. The project will see 40 students trained in the first year, 2021. To measure our impact, we will ensure 70% of these students transition to become mentors annually.

The content will contain both an introduction to computing and programming. Introduction to computing aims to make the students comfortable with typing by writing short essays, learning how to browse the internet and identifying credible sources of information. This will build a good foundation and confidence for the programming sessions. Tools used such as Scratch to introduce code, S4A and Arduino to train on robotics and simple hardware projects.

Taking advantage of the Science and Physics concepts already taught in school to create project themes will supplement the school curriculum. One project done so far uses the concept of converting electrical energy to mechanical in a motor and using a motion sensor to create an automated car park area. Addition of buzzers illustrated use of a microcontroller to control, using code, when an alarm is triggered.

After a one-day mentorship session at Kwale county, a teacher admitted to me his willingness to continue imparting his students with the programming skills they had learned that day. He however lacked a curriculum to guide him take up such sessions.

ZeroToCode aims to work open in documenting all the content taught and make it available to teachers in the most underrepresented areas. They will also be involved as contributors to guide in curriculum development. An article by The Guardian highlighted the importance of bringing teachers onboard as “We don't want to replace teachers, we want to help them”.

ZeroToCode envisions that working open will open up more STEM clubs in Kenya's rural areas, increase digital literacy among educators and ensure students looking to join campus hold the power of signing up for courses in their hands.
By 2030, it is estimated that 20 million to 50 million jobs will be created in the technology space globally. Kenya’s current generation has already brought to life the Silicon Savannah, encouraging digital innovations and job creation. Therefore, as the global internet community we are tasked to ensure our future leaders - children and youth- acquire globally competitive digital skills to keep the fire burning in Africa’s technology ecosystem. By working open to involve communities, we can write the future history, that our African youth will comprise more than half of the 50 million jobs to be created.

Contribute to ZeroToCode by signing up on this link.
Nowadays, the importance of digital literacy for a modern person could be hardly overestimated. It goes far beyond enabling people to navigate the Internet; it improves citizens’ employability, empowers them to participate in the life of their communities online, and more importantly, serves as a tool that enables them to acquire other significant life skills. At the same time, in the context of Belarus, digital literacy is also one of the most prevalent internet health issues with youth being at the heart of the matter.

Nevertheless, it can be argued by many, since young people — who are often referred to as digital natives — are considered to be the most active, advanced, and skillful group, when it comes to using the Internet and technologies. Yet, what has failed to be recognized on a national level here is that being a digital native doesn't imply that you naturally acquire such skills as critical thinking, evaluation, and analysis of information, creation of online content as well as meaningful interaction with technologies. Moreover, it is also reinforced by the traditional logic that digital literacy is something that can be taught and thoroughly covered in a few computer classes in school or university. As a result, there has been insufficient progress in introducing innovative and comprehensive courses on digital literacy in educational institutions that play a crucial role in shaping a young person's skills, knowledge, and citizenship.

Meanwhile, touching upon citizenship, it must be pointed out that citizenship education and digital literacy share one particular feature — which also can be perceived as a flaw or a challenge — in the Belarusian context. Namely, there is a lack of both a unified framework for these phenomena as well as an effective and up-to-date national strategy to develop respective skills among young people in educational institutions. Here comes NGOs, projects, and initiatives, which engage youth in non-formal education and teach them both citizenship education and digital literacy with a focus on values of civic participation.

However, while young people living in big cities have access to the myriad of such non-formal activities, students in rural areas often lack this opportunity and lag behind. Meanwhile, last year while working on the local youth events in Minsk, the capital of the country, I had an opportunity to connect to young people, who moved to Minsk from small cities and who eagerly assured me that they would like to see youth projects and events related to these issues in their hometowns.
Their stories inspired me to create a community project called Younity, an educational project on citizenship education for rural youth aged 14-20. The main goal of the project is to enable young people from rural areas with knowledge and skills for civic engagement and leadership by educating them on values and tools for exercising active citizenship both in real life and the digital environment.

Younity also aims at creating an online platform where the participants of the project can share their ideas, experience, and knowledge on the topics learning material, connect with each other and find useful learning materials for deepening their knowledge on the discussed issues. The project consists of a series of workshops conducted in different towns around Belarus. Each workshop gathers around 18-22 participants and is based on non-formal education methodology.

During the activities, participants learn about and discuss issues such as sustainability, digital literacy, and global citizenship. As part of digital literacy tutorials, module participants get to know digital rights and responsibilities, Internet Governance, privacy and security, digital inclusion, and related issues that help youth reflect on the digital environment from different perspectives and explore their role in shaping their communities online and offline. At the same time, there have been 2 workshops conducted in different cities this year, which gathered 39 participants in total; another 5 workshops are planned to be implemented till the end of 2020.

One of the open leadership practices that the project has a vision for is sharing leadership tasks with the participants of the workshops. It involves both giving them an opportunity to take on responsibilities within the project as well as encouraging them to become peer educators and organizing their own educational activities for young people in their communities based on the knowledge they acquire as part of the project.

When I think of a message to a global Internet community on Internet health what comes to my mind are the words of a famous American physician, Mark Hyman “The power of community to create health is far greater than any physician, clinic or hospital.” There can be a variety of stakeholders, however, it takes common efforts to create and sustain a healthy Internet for us as one connected community.
In the year 2018, my father developed a strange complication that brought excruciating pain to his eyes. Even painkillers could not help. After several fruitless trips to numerous opticians, in desperation, I took to the internet for possible answers. I looked up the common visual illnesses that could lead to blindness and how to treat them but I couldn't make a diagnosis since I was not a medical practitioner. Fortunately, a doctor discovered the infection and a few weeks later the pain was gone and my dad was healed. However, the thought of my dad almost going blind, and the changes it would bring to my family still haunted me years later. I could only imagine what families in my communities whose members suffer from blindness go through and when I acquired some skills in machine learning, I naturally decided to use them to try and solve a real-life problem around visual impairments. My research here led me to discover diabetic retinopathy.

In 2015, the International Diabetes Federation estimated that 2-5% of Kenya’s population has diabetes and over 50% of cases are undiagnosed. As the prevalence rises, cases of diabetic retinopathy also rise and greatly affect the population. In Kenya, 1 in every 3 people with diabetes develops diabetic retinopathy. Most patients seek treatment when it is too late and thus end up developing permanent organ damage to the eyes. Diabetic retinopathy is detected by frequent scans of the retina done by a certified medical practitioner. In Kenya, most people do not get regular medical checkups unless they feel sick. This causes a lot of cases that are reported to be detected late when anomalies are incorrigible and the damage too much to be reversed.

Different organizations and groups in the world have tried different solutions to try and reduce the number of cases of blindness caused by diabetic retinopathy. One of these solutions is employing artificial intelligence and deep learning in the detection of the disease. This involves training a computer model to analyze retina images from patients and point out those affected by the complication. Approximately 17% of the global population in 132 countries have access to less than 5% of the global ophthalmologist population. This shortage can be mitigated by setting up machines that require minimal supervision from ophthalmologists in more centers around world populations. The centers can diagnose and refer patients for treatment regularly before it is too late.

Bearing this in mind, I was motivated to develop, Smartsight, to provide a solution to this problem. I decided to leverage the power of the internet to help assist medical institutions and hospitals around the world.
This project involves using artificial intelligence to aid the early detection of diabetic retinopathy in communities around me, thus reducing the number of cases of blindness. Smartsight is a software application that runs on cloud servers that are accessible over the internet. It utilizes Artificial Intelligence (AI), which refers to the simulation of human intelligence on machines that are programmed to think like humans, to make informed decisions when provided with a problem. The AI specifically employs neural networks where the application learns to perform certain tasks by analyzing training examples. In this case, the training examples will be sets of retina images with varying degrees of diabetic retinopathy progression from patients. Doctors will also specify the degrees of the progression of the disease to help train the AI model.

Training, testing, and storing the models are computationally intensive therefore, these activities will be migrated to cloud resources where they can run faster and more securely. Privacy concerns arise when crowdsourcing confidential data from clinics in the country. Medical institutions and clinics in the country have strict policies regarding how patient information is shared or transferred. This is to maintain patient confidentiality and privacy.

The Ministry of Health, however, sought to enable data sharing safely through guidelines in a project called mHealth. We will partner with clinics on the mHealth project to share data and all data being uploaded to the platform will be encrypted at the source before being stored. Encryption and decryption keys will be stored on the host's computer. Grouped accompanying images will be available publicly for use but patients have rights of ownership of their data and images and can redact them through the clinics. Access to the platform will be granted through a web interface portal. The trained model once deployed will be made available offline to participating clinics because most rural areas in Kenya do not have access to a fast internet connection. However, they will be required to update and sync the models with the cloud every 90 days in order to remain up to date.

According to the Community Eye Health Journal, there are about 50 practicing ophthalmologists in Kenya for a population of about 45 million people. This shortage of personnel along with other problems like deteriorating outreach services due to increased operating costs, shortage of equipment and supplies, plus difficult procurement procedures make discovery and treatment of the disease difficult. This project aims to mitigate this by using artificial intelligence to help aid in the discovery of the disease.

Unlike doctors, once an AI model has been trained it can be deployed to multiple locations at once and with little operating and maintenance costs. This should lead to an improvement in the discovery of affected patients early enough. Community members who choose to use these services will also be informed that they are not only helping themselves by sharing their data but also contributing to the wellness of others and the improvement of the Kenyan healthcare system.

The project is going to be deployed to at least 20 optical imaging centers around Nairobi in the test phase. These centers are equipped with imaging machines that take pictures of the eye's retina. Doctors can then upload the pictures to the artificial intelligence model and train it on what category the image falls. The application will ask the doctors to specify the degree of infection on a scale of 0-10. After a few months of training, we will proceed to the test phase where the accuracy of the model will be determined. If the accuracy is high enough we seek to expand to rural areas.

The Kenyan government, through an initiative called Beyond Zero, set out to deploy mobile clinics in rural areas in 2013. These clinics availed essential maternal care services to patients in those areas. We plan on partnering with Beyond Zero in acquiring the scanning machines. These machines will be developed en masse and deployed in these clinics. The machines will use the deep learning model to determine if a patient has diabetic retinopathy. If the patient exhibits signs they will be referred to the closest specialist.
With this project, we aim to reach 300,000 people in the first year of its launch. From there we aim to increase that number by 100,000 every year until all mobile clinics are equipped and the majority of the population can receive check-ups regularly. Cases that will be discovered early can be treated and serious consequences such as blindness can be avoided. All patient data that is uploaded to the model is private and confidential, and as such should be treated with care on the internet. All user identities will be encrypted to prevent misuse of it and patients who do not want to share their information can retract it at any time from a clinic. This data will also be shared openly to help other organizations that might be interested in conducting research in this field do their research. The application has been fully open-sourced and we are thus accepting contributions from software companies and developers in the country to improve the application. With all these measures in place, we are going to provide an innovative solution to reduce the number of patients with diabetic retinopathy using a healthy internet.

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Growing up, my father owned a desktop computer he used for work. From time to time, he would teach me basic computer operations such as how to power it on and off, and how to use applications such as word processors and web browsers. Not many children my age had the privilege of interacting with a computer. This steered me to start an initiative and volunteer in programs that offered digital literacy training to kids, so they would not miss out on opportunities in the growing digital economy.

Over the years there has been widespread adoption of technology, specifically the internet, around the world. Its universal acceptance has not yet translated to its integration in education systems with only 10 percent incorporation in developing countries (EduTech). Kenya’s education system falls under the larger percentage as it does not account for web literacy throughout its curriculum. Consequently, this has created a skill gap in computer and web literacy amongst university students. Despite efforts by the government to incorporate computer lessons in primary schools through the Competency-based Curriculum which was launched in 2017, the probability of students succeeding online, particularly those in my community, is still dependent on the knowledge they do not have. How to maneuver on the internet remains the question of what, how, and where. What is a browser, how does it work, and where can one get trustworthy information?

I started volunteering as a digital literacy trainer in 2016. Primarily, my knowledge is self-taught, and I learned the rest through an Arduino training while at the Jomo Kenyatta University of Agriculture and Technology. My knowledge advanced through some units contained in the Telecommunication and Information Engineering course I undertook. Currently, creating a balance between my full-time job as a Technical support engineer, a Cybersecurity intern and personal projects has proved stressful, especially now that the COVID pandemic means my shifts have doubled as I am an essential worker. This has not deterred me from dedicating most of my weekends to my volunteering work which involves training kids and planning while in lockdown.

Introducing a child to coding improves their problem-solving skills and level of creativity and as a result, impacts their growth and capacity to innovate. Access to ICT facilities remains a major challenge facing most African countries at a 1:150 ratio of computers to students against the ratio of 1:15 in developed countries (Kiptalam). In my community, the situation is made worse due to the lack of electricity in schools situated in areas that are not connected to the national electricity grid.
Many schools are still unable to obtain computers for their students despite generous donations by organizations attempting to bridge the gap. Even so, schools that have computers may lack internet access due to the high cost of connectivity. A country is considered technologically advanced by the strength of its coders.

Kenya has rolled out a Digital Economy Blueprint not only for Kenya but the rest of Africa as well. The Blueprint identifies the pillars of the digital economy such as a Digital Government and Digital Skills and Values. Kenya’s digital government was achieved in 2014 through the launch of public service delivery e-platforms. This was followed by the competency-based curriculum in 2017 in a bid to equip primary school children with digital literacy skills and knowledge. Introducing digital literacy to young children eradicates the fear of new technology as it will better prepare them for their future careers.

During special sessions, we host or visit children from orphanages who would have otherwise missed out on the opportunity. The sole intent of the initiatives I volunteer in is to equip children aged between six and thirteen with basic programming and computer skills that are essential in today’s world. Our primary training avenue is the internet as it is a great information resource.

Despite limited participation from those who lack internet access, the internet offers a channel for interested contributors to sponsor in-person sessions and a wider audience to exemplify the children’s inventions and creation. Students at all levels are largely affected by their inability to access additional material that could complement their school course work. This, in turn, affects their overall performance compared to students with computer know-how and internet access. Consequently, there is a negative lasting effect on their lives and careers. It is because of this I am creating a structure to guide the delivery of the information we offer to kids. For example, starting from Firefox to search for information, sublime text to write code, and GitHub to share their work but most importantly ensuring they do not share personal information due to the presence of online predators.

Open leadership practices have proved essential to the success of my projects. Tasks such as budget development, resource planning, and time management, are appropriately distributed to each member of the team to ensure all participants feel included through managing a key project responsibility. Organizing community events has remarkably demonstrated the benefits of the project and attracted the attention of potential stakeholders. Additionally, acquiring and using feedback from volunteers has ensured we maximize the impact of their contribution by continuously improving our project. Finally, documenting the progress and achievements of the project ensures its continuity.

Having successfully trained a little over 300 children, partnering with interested organizations and schools will help us to easily secure a venue for meetups, have internet access during sessions, have skilled tutors as trainers and relevant equipment such as laptops that are pivotal in running the project in a bid to train even more children.
The COVID-19 pandemic has brought about a wave of disruption, devastation, and desolation. More than 30 per cent of the global population is under COVID-19 lockdown and school closures have impacted more than 75 percent of children worldwide. While online communities have become central to maintaining many children's learning, support, and play, they have also increased their exposure to risky online behaviour and sexual exploitation. The situation is aggravated by children's lack of access to school friends, teachers, social workers, and the safe space and services that schools provide.

In Mauritius, the Ombudsperson for Children's Office and the Information and Communication Technologies Authority have seen an increase in online sex crimes against children online during the COVID-19 outbreak. Researchers at the African Network for the Protection and Prevention of Child Abuse and Neglect have found that when it becomes more difficult for offenders to operate where they normally do, some tend to migrate elsewhere. In the current situation, given that the global pandemic has restricted physical relocation, more pedophiles have moved their activities online. The African Network Information Centre reports that the high internet penetration rate and ease of access to open networks in Mauritius have made it easier for sexual predators to get into contact with children and to link up with like-minded offenders. This also facilitates the access, downloading, production, and sharing of sexually explicit child abuse material.

According to experts at UNICEF, digital cameras, laptops, and mobile phones have greatly influenced the production of videos and images of child sexual abuse. In particular, they enable perpetrators to conduct their illegal operations within the privacy and safety of their own homes. ECPAT International reports that "tech firms have had to scale back on the number of moderators tackling sexual abuse, thereby providing offenders with an unprecedented opportunity to target children who are spending more time online and are increasingly lonely or anxious because of the lockdown."

As part of the broader response to COVID-19, the My Body is My Body Programme is a useful tool to protect children from the heightened risk of violence, exploitation, and abuse. The program contains activities to impart abuse prevention techniques to children through animated songs. The songs teach children that nobody has the right to touch them, hurt them, or do things that make them feel uncomfortable. Talking to young children about online child abuse can be a daunting prospect for most parents, teachers, and carers - especially given the shocking nature of such a sensitive topic.
As highlighted by Human Rights Watch, now is a critical time for parents to educate their children about online abuse. Additionally, through its explanatory videos, the My Body is My Body Child Abuse Prevention Programme provides guidance to parents about ways of opening lines of communication with their offspring about the use and misuse of the Internet. By dealing with the subject in a fun but delicate manner, the programme helps to break the taboo surrounding online child abuse in the Mauritian society. The informative videos also instruct adults on the potential signs of online child abuse.

The programme teaches adults how to enquire with children if they suspect any abuse, how to listen to children, how to react if a child discloses abuse, and how to report the abuse. As stated by the creator of the programme, Chrissy Sykes, "there is no use teaching a child to seek support if there is nobody that will listen or if people do not know how to help them. This can be just as damaging as the initial abuse to a child." Hence, the programme also focuses on how to develop a supportive environment for children so that they can safely tell responsible adults if they feel threatened online.

Through its thousands of ambassadors across the globe, the My Body is My Body Programme has helped more than 10,000 parents, teachers, carers and social workers in teaching more than 350,000 children about online child abuse prevention. The educational materials are available for free public use in 18 different languages on the programme website. Since its inception, the My Body is My Body Programme has made significant progress in protecting children from online abuse. The momentum gathered should not be lost during the current turmoil.

Therefore, we must join our forces to keep up the fight against online child abuse. We must do all we can to keep our children safe now. We bear the collective responsibility to educate our children about the dangers they face online. We must plan together so that once the immediate health crisis is over, we can get back on track towards the goal of making the internet a safe place for our children.

The free resources of the My Body Is My Body Program are available on this link.

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Ombudsperson for Children's Office: Confinement : toute forme de violence contre les enfants est inacceptable

UNICEF: Children at increased risk of harm online during global COVID-19 pandemic

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ECPAT International: Why children are at risk of sexual abuse and exploitation during COVID-19
The Internet is increasingly becoming a significant tool for social, economic, and human rights development in Uganda. Internet usage in Uganda continues to grow, with an estimated 18 million internet users nationwide (40% of the population). Although it is hard to determine what percentage of children aged between 13-18 years are internet users, the Uganda government is making striding efforts to ensure internet access in all schools in the country.

There has been a drastic increase in the number of school teachers as well as the number of students taking up Computer Studies as a subject at Ordinary level from 1,400 to 18,000. Further, more than 1,000 schools have implemented Information Technology labs across the country. With such initiatives in place, it is certain that the number of young people connecting online is on the rise in Uganda especially with the increased popularity of social media tools like Facebook, YouTube, Twitter, and Instagram. Facebook penetration in Uganda estimated at 3.6%, with 66.5% male and 33.5% female using the platform. However, there is little or no documented evidence of the online behavior of young children in Uganda. Further, it emerged that there is an urgent need to create awareness among young children on the dangers of the internet in Uganda.

Internet use is evolving in many ways and thus enabling different users especially children and youth who connect mainly for online gaming, schoolwork assignment, and social networking. A study by Uganda Communication Commission in collaboration with Internet Society Uganda chapter shows that children in Uganda use 30% of the internet for Chatting with friends, 22% for watching/downloading movies, 16% for Playing video games, and 31% for Homework-related research. However, as these children use the internet, they face serious risks, such as online predators, cyberbullying, and consequences from revealing too much personal information. Furthermore, the biggest challenges on the internet reported by children were cyberstalking (33%), cyberbullying (20%), and harassment (11%), with no mention at all of the issues such as pornography, child pornography, with only a small mention of online abusing.

A crucial part of keeping children safer online there is by teaching them about online risks and how to make responsible decisions. I am working towards promoting Child Online Safety in Uganda. I am developing an Online Safety Education Kit (E-Safety Education Toolkit for Young People in Uganda) to raise awareness about cybersecurity risks management in Uganda.
It sensitizes young people on how to deal with cyberbullying, to think before posting to avoid revealing too much information about themselves, create strong passwords to secure and keep the information on their devices and online accounts safe, report unwanted sexual request to the school, parents or trusted adults prevent online victimization and promote online safety pledges that outline clear simple guidelines for safer Internet use.

I am engaging primary and secondary schools, children, and child online experts to educate, and empower them on child online safety in Uganda. Children between the age of 5 and 20 years make up a very vulnerable percentage of internet users. They should recognize online potential risks, prevent themselves from being exploited online, report victimization to trusted adults, and support community online safety education efforts.

Children should be taught how to adopt healthy online practices. They should not post any personal information online like your address, email address, or mobile number, they should think carefully before posting pictures or videos of themselves, keep privacy settings as high as possible and never give out their passwords. They avoid being befriended by people they don’t know and not meet up with people they’ve met online. Speak to their parents or a trusted adult if they see something online that makes them feel uncomfortable, unsafe or worried.

This community project adopts open leadership best practices. We are Organizing community events to bring more and new contributors to the project and connect them with each other, gather them, together-in person, if possible. These events will happen in virtual, online spaces with the possibility of face-to-face. We ensure that the local community has a real stake as project contributors. This ensures the long-term sustainability of the project. We also document the e-Safety Education toolkit and ideas clearly and thoroughly to ensure the reuse of the project content. Local participation of contributors is important to achieving our goals.

A healthy internet is private and secure. Users should always have the power to decide what information they share and with whom they share and to safeguard themselves and their information against attacks. Protecting children online is a global challenge, and it is a collective responsibility. They are at a vulnerable stage in their lives and need to understand the basic principles of internet health with regard to privacy and security. Communities should focus on creating a better internet by promoting safer and more responsible use of online technology and mobile devices especially among children and young people.

Online child safety experts, child education stakeholders, and technologists designing online platforms that will be used by children in Uganda are invited to share collaboration ideas for an impactful project. You can get involved by helping us publicize the program to impact a wider community across the globe. In terms of content resources on child online safety, materially fund the project and expertise by visiting our Project page or sign up here.

REFERENCES

Uganda Communication Commission: Child online Protection Case for Uganda
Benin was one of the first countries in West Africa to have access to the Internet. Already in 1994, a few Beninese people enjoyed the Internet; they could send emails through the Benin Online Service System (BOSS). The history of the Internet officially began in Benin in 1995. Today, Benin is developing a digital ecosystem that relies heavily on the Internet.

The exponential growth of the Internet in recent years has led to an increasingly remarkable appropriation of digital technology among the population and especially in professional circles. Despite this, there is no complete document tracing the history of the Internet in Benin to the present day – this document would present the current Internet ecosystem in Benin with particular focus on the actors involved, the initiatives contributing to the evolution of the Internet, and the challenges or issues related to the Internet in Benin.

According to the ITU, many people are excluded from the digital revolution. Digitalization in Benin has led to the development of internet access infrastructures, resilience systems, and an increasing demand for quality of service. Nonetheless, there remains a gap in the implementation of policies that allow for a greater number of people to access the Internet for two purposes and to create favorable conditions for its use in the service of human social development. For instance, several thousand farmers in Benin do not have better access to broadband services and digital solutions in rural areas. By increasing access to all sectors of Benin’s society, Beninese internet will be shaped by its citizens. This is why the project to map the history of the Internet is crucial. This allows citizens to become involved in processes aimed at designing, implementing, monitoring and evaluating policies that have contributed to the current internet scenario in Benin and give citizens a voice in choices and orientations that will shape the digital future of Benin.

Creating an inventory of the state of the Internet in Benin has been my goal as a member in the working group working on this as part of Internet Society Benin Chapter. It involves synthesizing and reconstructing the archives to publish a book in clear and accessible language with illustrations to explain and present the current state of the Internet in Benin.

The project will map the path of the internet in Benin for 25 years and envision its future. The project is open in the way it will include many contributors from Benin, such as digital ministry professionals; jurists; historians; ICT professionals, researchers, students, Internet Society Benin Chapter members, Benin IX (IXP) members, designers, editors, and publishers.
The open contribution to this work will ensure that no one is left behind. After validation of the roadmap, the plan is to assign responsibility for the various drafting parts to sub-groups. Each sub-group is coordinated by a lead. We will then have two validations of the document after the pooling of the different works of the subgroups. Before the final validation, another sub-group will be created to proofread the document. And finally, the publication of the document will follow. Currently, the roadmap for drafting the document has already been validated.

As co-leader of the project, I am working on it openly because of the nature in which it has encouraged volunteerism and collaborative from the community. The power of collaboration is creating space for important community members to draft a comprehensive document on 25 years of the Internet in Benin. This will allow members to build on this project and maximize its usefulness equally to Benin citizens and internet users. Everyone has a role to play in achieving digital inclusion. And in this way, we are shaping a healthy internet by making sure no one is left behind. And most important, a complete document tracing the history of the Internet in Benin (1995-2020) over 25 years will finally be available.

It is imperative to raise awareness among users on the history and future of the internet in order to build understanding on the challenges and opportunities of digital citizenship. A thorough knowledge of the journey of the internet in Benin will allow citizens to contribute meaningfully to other Internet health issues including decentralization, privacy and security, openness, and Web literacy. Advocacy for health on the Internet must be daily.

Interested contributors can contact us on our different social media accounts (Twitter, Facebook) by searching @isocbenin. To support our project, you can also make proposals by contacting ISOC Benin Chapter to improve the final document. All are invited to participate.

REFERENCES

‘INCLUSION NUMERIQUE’, ITU.
Half the world is without the internet. Emerging economies and marginalized communities are often the last to gain access (UNESCO). The digital landscape has evolved in the last few years to involve major industries that affect our everyday lives such as business, education, banking, transport, politics, and healthcare. Despite this, internet shutdowns and censorship have become one of the defining tools of government repression in the 21st century. My country Benin is not an exception to this phenomenon that is seeking to suppress dissent in the guise of preserving national security. The wave of disinformation in the age of fake news is making access to correct information much more challenging. This critically affects internet health at a time when more people are relying on the internet.

Benin is one of the African countries experiencing the digital divide and lagging in the digital revolution. Young people in Benin are digital natives and are more connected to the digital world. Digital inclusion is more than just access. Young people in my community are using social media and internet services without a clear awareness about their digital footprints, their online reputation, or the critical media literacy necessary to be safe online. The COVID pandemic has spiked the spread of fake news in Benin and across the globe; official channels are the most reliable channels to get information online.

Digital4Growth is a program of African Youth Empowerment for Future Initiative (AYEFI), my youth-led organization. With the ambition to be recognized as one of the top innovative youth-led organizations promoting digital inclusion in Africa, AYEFI through its program Digital4growth is tackling the digital divide and addressing internet issues by promoting digital inclusion. The program involves designing capacity-building workshops that empower youth with the required digital skills, critical media, and web literacy that they need to excel as global accountable leaders in this digital age. This allows young people to benefit from economic and educational opportunities on the internet and adapt themselves to the labor market’s realities by using internet resources.

Critical media literacy is crucial because, despite the benefits of being connected, the internet also has its pitfalls. The online nature of anonymity, immediacy, and trust online can also favor radicalization; extremist groups manipulate information to spread hate speech or to recruit new followers. Therefore, it is fundamental for young people in Benin, Africa, and across the globe to understand the risks of their behavior online. Some risks involved include making important choices based on false information, believing the wrong sources, legal proceedings as a result of poor online behaviors, and our data being used against us.
These actions (or inactions) can lead to further marginalization due to an incapacity to efficiently use the internet and digital tools.

One of the core aspects of Digital4Growth is to prepare young internet users in the region with behavioral skills to fully realize themselves and act responsibly on the internet, including social media. To be specific, the project will organize capacity building workshops on themes such as education on best practices to have on the internet (to be secure and secure others), critical media literacy, creation of quality content, and how to use the internet for the economic growth. Furthermore, the program will advocate for suitable and inclusive laws regarding the internet to engage with different stakeholders to limit internet shutdowns and censorship in Benin and other regions affected by the same.

Building a digitally inclusive community requires participation and support from all sectors and that is why we are choosing to work open. Community-based organizations, business, government, policymakers, and individuals can contribute by engaging with our team, helping design the different programs, becoming technical and financial partners as well as communicating the critical media literacy we create for young people.

Our digital life is becoming as important as real life. Having internet enthusiasts working together toward the same goal without discrimination of race, gender, or social classes is what ensures a healthy internet. Critical media literacy allows marginalized communities to participate in the digital transformation while ensuring that the internet stays open, accessible, and safe for all.
WE NEED YOUR SUPPORT
TO INCREASE DIGITAL CITIZENSHIP IN
GRASSROOTS COMMUNITIES

The following are some ways you can help. Please visit www.digitalgrassroots.org to see current opportunities to get involved and make a difference in local communities.

So far, we have reached 128 young people in over 65 countries with equal gender balance since 2018. We can do more with your support.

Get in touch with us or connect us with someone who can help: digra@safetyfirstforgirls.org

@digigrassroots
@digitalgrassroots
@digitalgrassroots
INTERNET HEALTH REPORT

A MOZILLA OPEN LEADERS X PROJECT
EDITED BY ESTHER MWEMA & UFFA MODEY

featuring 8 Youth Led Community Initiatives from 5 countries