

Makerspace Playbook Site Survey: Global Minimum Inc.
March 2015



CONTACT INFORMATION

Name: David Sengeh

Title: President of Board, Co-Founder

Personal social media:

<https://twitter.com/dsengeh>

<https://www.linkedin.com/today/author/17110883>

ORGANIZATION

Organization Name: Global Minimum Inc. (GMin)

How would you describe your organization type (library, museum, school, community organization, etc.)? A Youth Development Organization

Organization website: www.gmin.org

Organization social media links:

<https://www.facebook.com/GlobalMinimum>

<https://twitter.com/globalminimum>

Blog and/or site most related to programming, making: <http://gmin.org/blog/>

Organization news/publicity links:

<http://www.nbcnews.com/science/science-news/innovators-prosthetic-socket-aids-boston-marathon-victims-n75386>

Location (city, state): Freetown, Sierra Leone

Is your organization rural, urban, or suburban? We work in rural and urban areas.

Is your space and/or elements of your programming mobile? Elaborate, if necessary.
Not at the current moment.

Target audience(s): Youth, ages 13–21, across Africa, specifically in Sierra Leone and Kenya.

Annual budget (indicate if public or not public): \$200,000, not public

Percentage free and reduced lunch served (if known): N/A

Access: Is your organization open to public, age restricted (elaborate below), membership-based, free, and/or admission required? Are there specific groups that you serve?

Our organization serves youth between the ages of 13 and 21. Our programs are free and open to the public.

Tell us about your organization. What distinguishes you from others?

With the expansion of accessible, low-cost technologies, and rapid developments in the learning sciences, we believe young people across Africa today have an unprecedented potential to enact positive change in their communities. At Global Minimum Inc. (GMin), we have devoted our time, energy, and resources to understand how young people in Africa can nurture their capacity to become innovators, leaders, and influencers in their communities.

MAKING AND CORE VALUES

What is your mission statement?

Global Minimum seeks to foster a generation of young innovators and leaders who tackle challenges affecting their communities through critical thinking and hands-on learning.

What does it mean to “make” in your space/organization?

Making means to take civic action.

How does the above relate (or not relate) to your core values?

We believe that by making solutions that tackle community challenges, youth develop self-efficacy and become innovators and influencers in their communities.

What forms of making (all creative endeavors) occur?

Our youth engage in electronics and robotics, woodworking, programming, arts and crafts, filmmaking, etc.

Are you influenced by any particular pedagogies (approaches to learning)?

We're most influenced by project-based learning, human-centered design, and experiential education.

What are some good examples of especially powerful/ ambitious/ successful making experiences?

Recycle Bin: In our *woodworking workshop*, a group of students chose to focus on the issue of waste management in their school. The school compound is usually littered with papers, bottles and other garbage. Trash bins in public places and homes in Sierra Leone are also rare to find. Students therefore constructed a unique trash/recycle bin using only wood materials. They produced multiple designs and constructed a trash bin that can be easily replicated and emptied. The students hope to educate their school on waste management, and are advocating for the adoption of their trash/recycle bin by many other schools and centers in Sierra Leone.

Storytelling Through Films: In our *filmmaking workshop*, a group of students made a short [documentary film](#) on Kroo Bay, one of the most impoverished neighborhoods in Freetown, to portray the living conditions of people in the community. They used iMovie on iPads to edit the film, which were generously donated by [Kiddify](#). During the Ebola crisis, students from this group created an Ebola sensitization film using the skills they learned in the filmmaking workshops.

Storytelling Through Art: In our *art & design workshops*, students used various art techniques to demonstrate the issue of flooding in Sierra Leone. The students learnt about clay making and chose to use clay to construct houses and build a miniature town. They also used Legos to enhance their town. After constructing the town with clay, they used poster paper to illustrate issues of deforestation and solution through afforestation.

Storytelling Through Scratch: In our *programming workshops*, students wrote a program using Scratch. Using various characters and unique programming skills they learnt, they completed a Scratch project that highlighted electricity issues in the country. The characters in the Scratch game can also be controlled by [Makey Makey](#).

Storytelling Through Blogs: In the *electronics workshops*, students learned computer and internet basics and started a [blog](#) that highlighted the poor standards of living in many of their communities near their schools, such as Kingtom and Kroo Bay. The

students used the Tumblr blog instructions in our InLabs Curriculum.

GOALS

What are the goals of the programming and experiences provided?

- Provide a physical space that fosters a culture of creativity through the idea of “learning to make and making to learn” within physical spaces
- Provide a diverse set of tools (hardware, art supplies, computers, etc.) and hands-on workshops to foster innovation
- Provide mentorship and leadership through the conception of innovation clubs
- Support local secondary school students as they develop their entrepreneurial and creative capacities, to ultimately promote a spirit of innovation

How do your environment, tools, and materials reflect these goals?

We develop and implement various programs from innovation challenges to innovation lab activities, which foster a collaborative, creative learning environment. We offer the tools and materials that align with activities in the arts, design, woodworking, etc. Our goal is to enhance our students’ critical and creative thinking skills.

How do you know when you’ve met your goals? What are your metrics of success?

We have a number of monitoring and evaluation methods. We assess student progress through (1) attitudinal assessments to measure their self-efficacy (2) documenting the development (which includes failures and successes) of their projects to measure the evolution of their learning (3) rubrics to measure the technical skills they’re acquiring through our workshops (4) blogging to measure how they communicate about their own development and learning.

What are your plans and hopes for the future of your space and programming?

We hope to have a space that incorporates more high tech tools in order for students to collaborate with their peers in other parts of the world. We want to provide students with the opportunity to exhibit and exchange their work with others. In our communities, specifically, the hope and plan is to advocate project-based learning to as many schools, community centers, and youth centers across Sierra Leone.

TOOLS

What are your most frequently used and commonly available tools? (Anything used to make with, no matter how simple. Scissors count!)

- Electronics: iPads, video cameras, digital cameras, soldering irons, Makey Makey, LEDs
- Art & Design: Paper, crayons, colored pencils, markers, Legos and Empathy Toys
- Woodwork: hammers, nails, knives
- Textile: cloth, glue, cardboard, scissors

List any special tools that require supervision, training, and/or certification.

- Soldering iron requires supervision
- Saw and other major cutting and drilling items for woodworking

What are the favorite tools (most popular/most desired, even if you don't have many, or just one)?

- Electronics: iPads, video camera, digital camera, Makey Makey, laptop (Scratch program)
- Art & Design: Empathy Toys and Legos
- Woodwork: Etching knife
- Textile: Glue, cardboard, and some cloth (to make shoes)

MATERIALS

What are some of the most popular, and frequently used materials?

- Electronics: iPads, Video camera, digital camera, Makey Makey, laptop (Scratch program)
- Art & Design: Empathy Toys and Legos
- Woodwork: Etching knife
- Textile: Glue, cardboard and some cloth (to make shoes)

What are some of your most interesting/ unexpected materials?

Empathy Toys and our textile materials were very popular.

What are the most continually re-used materials? Most consumed?

Paper, pencils, pens, markers, colored pencils, and erasers were most consumed.

Share any specific or general sources for materials.

We usually shop at the local marketplace, hardware stores, and a few boutiques.

COLLABORATION

Describe any local, national, and global partnerships and collaborations.

- West African Medical Missions
- iEarn
- Sierra Leone Broadcasting Channel

SPACES AND ENVIRONMENT

In what physical places does making happen in your organization? A single dedicated space, multiple dedicated spaces, general use areas, a workshop (metal, wood, sewing, etc.), outdoors, a theater, a music studio, an art studio? Everywhere? Somewhere else?

All of our making happens In our innovation lab, located in the compound of a secondary school (Prince of Wales in Freetown, Sierra Leone).

Elaborate on where making happens, if needed.

Our innovation lab is open Monday through Saturday from 10 a.m. to 5 p.m.

How are the spaces, tools, and materials organized?

They're separated into various sections: Art & Design, Textile, Electronics, Woodworking, etc. We keep our materials in separate bins on shelves (similar to what you would find in a hackerspace).

How large is the space(s) where making happens?

20 feet by 15 feet

Please describe how your site and makerspace(s) are staffed, including numbers of full and part-time staff and volunteers.

We have two full-time staff members at the Innovation Lab, with about five active part-time volunteers, one active faculty member, and two part-time mentors.

First impressions of space(s):

When participants first enter the lab, they see a white board with "Welcome to the Innovation Lab" and activities for the day. They hear other kids discussing the projects they are working on. They feel the excitement the junior students have about shooting a video or connecting a bulb. They engage in the design thinking process by participating in various workshops in the space. They leave with a sense of accomplishment, a feeling of inspiration and joy.

Describe your approaches and priorities in creating environments for making/learning.

Our approach is to facilitate the learning process and not impose ideas on the minds of those using the space. So staff, teachers, and volunteers who assist with workshops and various activities in the lab are trained on how to ask questions and challenge students but not to give them answers. Our priority is to support youth in discovering challenges they would like to solve, how to break down those challenges, how to brainstorm ideas to solve those challenges and to follow through with making solutions.

PROGRAMMING

Describe the kinds of programming offered.

- Computer basics: What is a computer, how to use basic things on the computer
- Internet concepts: How to use the internet, how to search for things on the internet, how to create a Tumblr page
- Filmmaking: How to storyboard your film, types of filming styles, editing films

How did your space and programming get started?

The idea was born out of our annual innovation challenge. Through our programming, our goal is not only to ask students to submit ideas they have and create prototypes but to provide them with a space where they can easily access the materials and mentorship they need to successfully create their projects.

**How do you decide on/design/make possible the space and components of the program?
How has your environment and programming evolved? What has worked well, and why?
What has changed? What could still be improved?**

The space started off being very simple, with only a few materials. As more students expressed their interest, more materials were gathered that supported those interests. In addition, as we

gained more staff and volunteers who had technical skills in STEAM, we created programs that leveraged their expertise. An open interest-driven environment for youth has worked very well.

We started as a completely open space with few structured workshops (except for design-thinking workshops) to running a combination of structured programs on some days and open days on others. This helped to introduce the students to topics they were unfamiliar with but also allowed them to pursue their interests. We can improve how we engage with educators at the school. Their schedules, in addition to the concept of project-based learning (which many were unfamiliar with), made it difficult to bring them into the lab.

EQUITY AND ACCESSIBILITY

Are there segments of the population that you hope to serve better?

Perhaps students in primary/elementary school and college students.

What strategies do you employ to help increase the accessibility of your space/program to all learners?

Visiting many institutions and spreading the word about the space verbally. Advertising on various media stations, such as radio and TV channels, has helped our visibility.

What has worked well? What has been the greatest challenge?

- Worked well: As stated above, the open but also structured environment. This helped the youth acquire various skills at a fast rate.
- Greatest challenge: Lack of certain things in the space such as running water, electricity, internet access, and engaging educators.