PRELUDE

We arrived in Uganda armed with a doc full of research questions and fortified by a months-long collaboration with the people of Project Hello World. Our shared challenge required a leap of imagination — could we reach out and work with communities around the world to make high quality learning accessible for all?

The Avenues research team has been working on autonomous, project-based learning, while Project Hello World has been on the ground in East Africa figuring out the hardware, design, and — critically — the community-based orientation needed to sustain internet access points in low-resource locations. In the course of collaborating, our Avenues group had gathered some sense of the communities and their usage of the access points, including initial work with online learning. Yet anecdotes, imagination, and even data were not enough — we needed to add first-hand observations and direct conversations to more fully complete the picture.

AVENUES TIGER WORKS
FIELD RESEARCH TEAM

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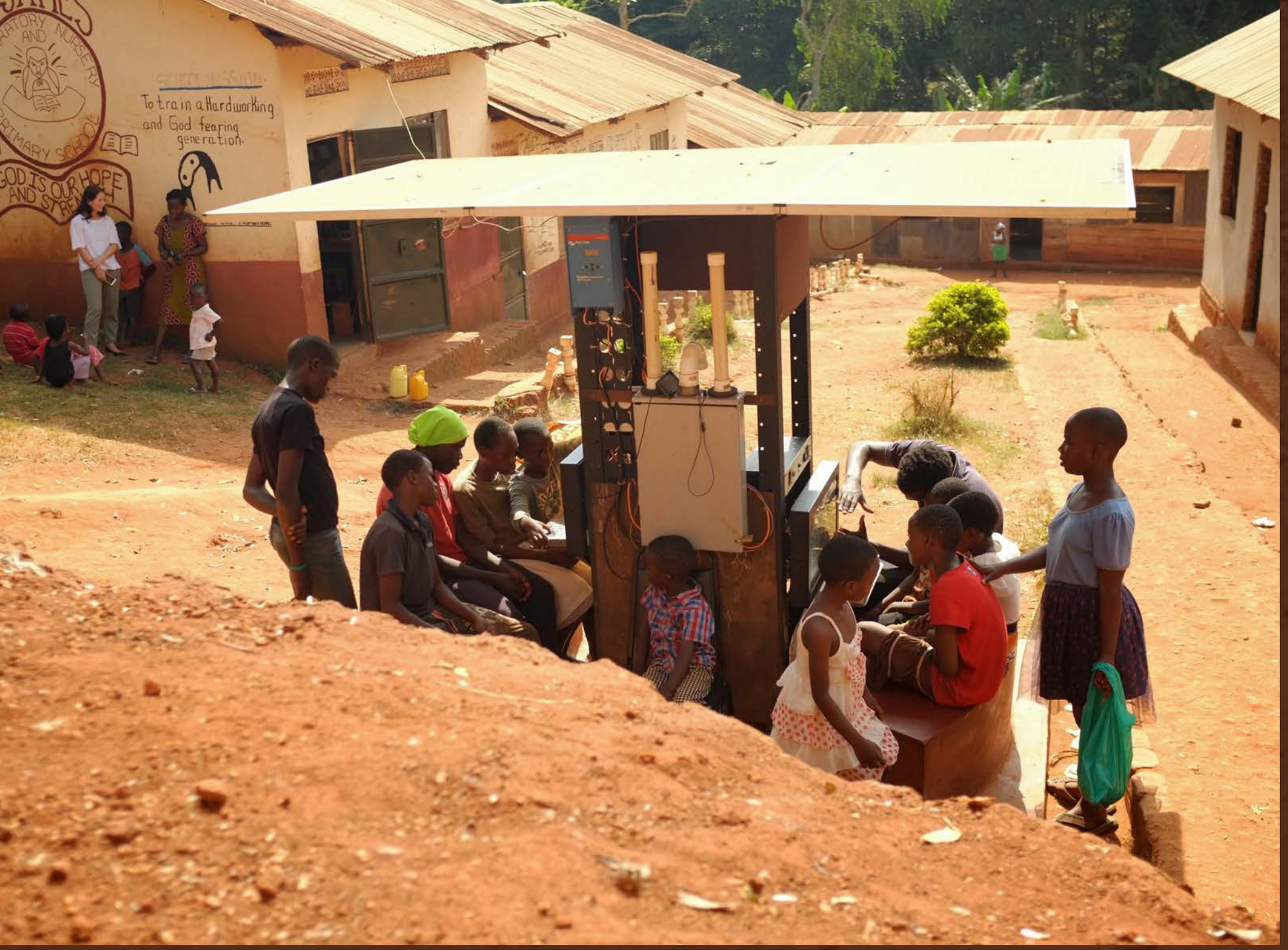
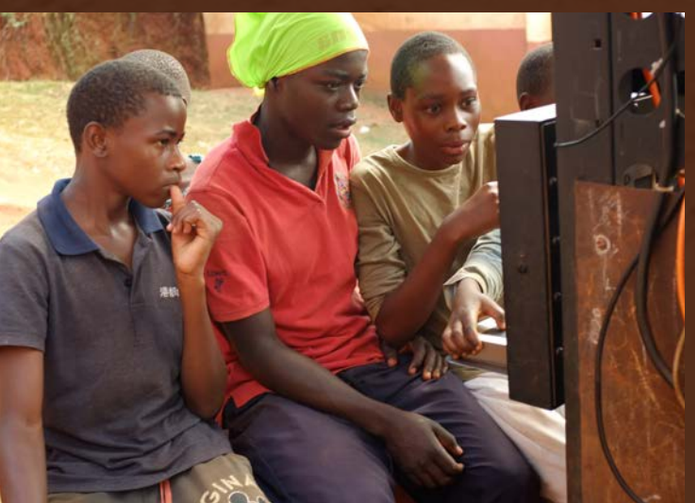
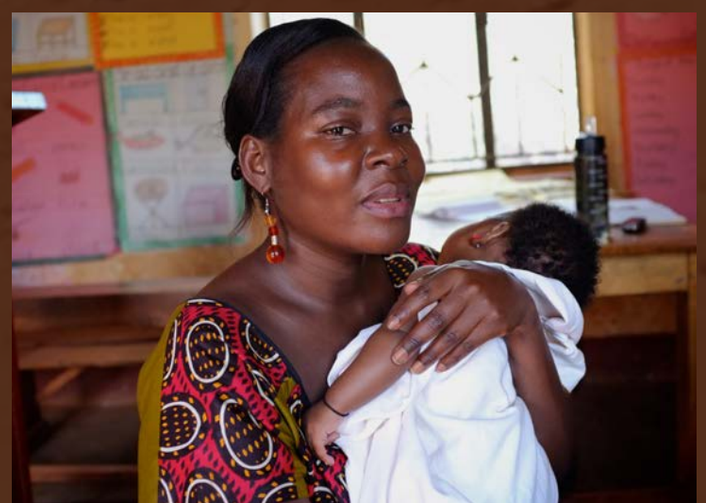
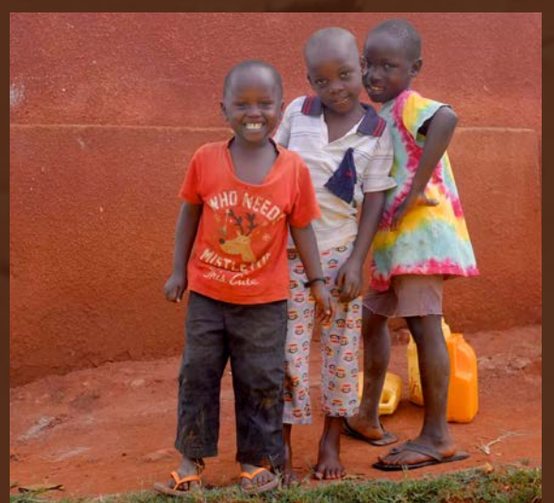
FIRST GLIMPSE

We trotted down the hand-dug drive sloping from the newly paved road to Kampala, kicking up little clouds of red dust with each footfall. The morning sun was still angling in sharply from the foothills to the east, but it promised a continuation of the withering heat and drought that was afflicting Uganda. As we passed modest homes with their stands of *matooke* and maize, we caught a first glimpse of the St. James Primary School, one of four Hello Hub pilot sites in the country.









COMMUNITY

School was between sessions, but the courtyard was lively with a cluster of older boys focused on the Hub while smaller children wove among the school buildings and mothers watched from neighboring houses.

St. James was a reflection of its community — stable and supportive even with limited resources. One classroom building was finished, complete with “talking walls” (learning content painted on the exterior) but without electricity. The second was a work in progress — in use by younger children and their teachers, but still in need of windows, doors, and plaster. A third building of recovered wood planks served as church and gathering space.

Built and operated by the community, the Hello Hub defined the fourth side of the courtyard, with its concrete seats, minimalist steel rack and shade-giving solar panels. It was a highly technological object in a very traditional space, but surface oxidation and the red dust that touched everything in the area formed a patina that allowed it to blend with its surroundings.

LIFE WITH A HELLO HUB

Teacher Grace is a primary school teacher at St. James and a community volunteer for the Hello Hub. She learned to access the internet with little prior experience to research lesson plans, illustrate concepts she teaches, and enrich her classroom. Before the Hub became part of the community, she said her kids had been singing the same few songs and nursery rhymes over and over again, but now new music can be heard throughout the school. She also helped to lead the community to adopt reserved time on the Hub for girls and women to ensure they have fair access.

LOCAL EXPERTS

Faith (right foreground) is a nine-year-old student at St. James and Teacher Grace's daughter. Living nearby and with her mother often on grounds, she has frequent opportunities to use the Hub. She shyly professed to using it for Facebook chats with friends, watching YouTube, playing math games, and doing school research. Separate conversations with others in the community revealed that Faith is actually a local expert, a go-to among kids and adults to demonstrate applications from email to video recording.

Raymond (left) is a community volunteer. Challenges blocked his paths to traditional education, but he became proficient with the Hub, where he continues to teach himself with resources like Khan Academy. He is often on grounds, sharing his knowledge and helping to apply the community's decision to ensure access for girls and women.

DAY AND NIGHT

We visited the St. James Hub at midnight on a Monday and found the system fully in use. Every seat was occupied and multiple activities were running on each screen. As in the daytime, the screen, keyboard, and trackpad were shared among several users, with one window running YouTube and others simultaneously showing Facebook, email, or other applications. Hub communities have had mixed reactions to the presence of groups of boys and young men late at night, but are moving toward accepting that the usage is legitimate and productive.

ADAPTATION

The Hello Hubs were designed to survive the outdoors, with the solar panel providing some shelter for weather-resistant system components (and for the humans using them).

Nevertheless, people and gear remain challenged by the reality of the climate. The ever-present red dust in the region around St. James settles on the solar panel and display, cutting solar output and the screen's legibility. Rainy season brings driven rain that can penetrate sealed boxes. Direct sun and indirect glare obscure the screen, making screen text nearly illegible at certain times of day and making the seating area uncomfortably hot.

The communities are improvising adaptations like hanging textiles around the Hub for shade while the design and engineering team consider longer-term solutions.

CONTRASTS

We visited four Hello Hubs, in communities with distinct social and economic conditions, cultural groups, and dialects. Busawuula's urban setting, with a transient population transitioning from rural to urban life, was different from the stable St. James community less than a mile away. The Tooro Hub was in a cooler upland area, in an urban community with greater resources. The Kidubuli Hub was in the same region, but more remote, with no electricity in the village and noticeably less-abundant resources.

During our time at Tooro, Andrew, James, and several friends — mostly students from a nearby private secondary school — were gathered at the Hub, alternating between TED Talks, music videos, Facebook, and email. Andrew, who had been using the Hub for school research as he prepped for A-levels, asked for pointers on how to start his own blog.

OPPORTUNITIES

We met Danielle at the Kidubuli Hub, near the western edge of Uganda, just below the dormant Lake Kyaninga explosion crater. She was quietly hovering around the edges of the community's Hello Hub as groups of boys largely monopolized the seats, but her interest propelled her forward to the front row to get a good view and a better platform for commentary on whatever was on the nearest screen (at that moment, a kung fu movie on YouTube).

HANDS-ON LEARNING

Back in Katale, children gathered at a neighborhood community center to try Project Weather Station, an Avenues Online (AON) learning module designed to put concepts in physics, math, and meteorology to real-world use by building DIY weather measurement instruments from common materials and using them to track the local weather.

Once introduced to the project by a mentor, the kids self-organized into teams and focused intensely on the online videos demonstrating the instruments' construction and use. Jumping into the building phase, written instructions were largely lost in the excitement of creation, but working anemometers and wind vanes emerged from the flurry of snipping, gluing and packing of freshly excavated clay.

One instrument maker, a secondary school student, spoke enthusiastically about the project after she completed recording the first of her videos describing the instruments. She contrasted the hands-on approach favorably with the passive, lecture-based approach typical in her school.

CHALLENGES

The DIY instrument makers in Katale took on their project with enthusiasm and focused intensity, but the process highlighted the limits of a purely online environment and the gap between the assumptions underlying AON and the reality on the ground in a community with limited resources and a distinct cultural and educational perspective.

Cost and availability of materials, language proficiency, the need to build awareness of the program, lack of familiarity with interface conventions, shared use of computer resources, gender equity issues — the list of challenges is long, but the kids, mentors, and other members of the communities provided deep insights about possible solutions.