



Microhub: Analyzing Higher Education Interventions

in Rwanda's Refugee
Camps

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ABSTRACT

This summer a team of three University of Virginia students (Porter Nenon, Political and Social Thought; Kaija Flood, Masters of Public Policy; Adam Jones, Economics) travelled to Rwanda to research the state and progress of higher education in the country's refugee camps. The team hoped to learn about the political and cultural underpinnings of the education infrastructure in Rwandan refugee camps in order to better develop a social enterprise centered on this subject. The team's research and social entrepreneurial efforts coalesced to form microHub.

Once in country, Porter further established the team's contacts in the higher education and refugee communities. After speaking with various advocacy groups, non-profits, politicians, and educators, microHub settled on working with two specific NGOs that combined the team's interest in refugee aid and higher education. MicroHub (mHub) assesses Rwandan NGO education platforms to develop

predictive statistics and technology implementation plans to better serve the displaced population within Rwanda.

BACKGROUND

The past year saw record-high rates of forced displacement. Globally, 59.5 million people are displaced by conflict—the highest level in recorded history [1]. More than sixty percent of the world's refugees are trapped in protracted crises, meaning they have been displaced for five years or longer [2]. Economic opportunity in refugee camps is scarce. In most countries, refugees are legally barred from earning an income. For children, education is similarly

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difficult to access, with secondary school enrollment rates sinking below 2 percent in Eastern Africa [3]. Without viable opportunities, students often turn to violence, prostitution and extremism [4]. Last year, rates of forced displacement reached the highest levels in recorded history. Moreover, rates and durations of displacement only continue to grow [5]. Humanitarian crises now last an average of ten years and, if resolved, usually recur.

Education is essential for ending current crises,

rebuilding communities, and preventing future conflicts. But children in crisis-affected areas are nearly three times more likely to be out of school than children in other low-income countries [6]. Though the Gross Enrollment Ratio (GER) for primary schools across all UN refugee camps nears 80 percent, secondary school enrollment varies widely, sinking as low as 2 percent in Eastern Africa [7]. Higher education opportunities for refugees are effectively nonexistent. Less than 1 percent of refugees participate in tertiary



Photo taken in Rwanda. Kiziba Camp from a distance.
By Adam Jones.

education of any kind [8].

A growing refugee crisis, mixed with a dearth of education opportunities, is exacerbated by nongovernmental organizations' inability to accurately report impact. Since 2005, more than \$90 billion has been spent on humanitarian assistance [9]. But the impact of that spending has not been consistently or rigorously evaluated. Humanitarian crises are complex and fast-paced situations where demand for aid typically far exceeds its supply. The chief obstacle to evaluation is capacity: aid workers do not have the time or money to run large research initiatives. More specifically, aid initiatives for vulnerable people in crisis situations have been almost entirely neglected. Globally, less than 100 impact evaluations have ever been conducted in crisis-affected places [10]. Consequently, a large amount of time and money is spent on unsuccessful or inefficient humanitarian aid projects, largely because we lack evidence of what works and why. The humanitarian assistance community has

long asked for better evidence on how each dollar should be effectively spent [11]. In particular, it is very difficult—but extremely important—to understand the differential distribution and uptake of humanitarian assistance among vulnerable groups like refugees.

MicroHub attempts to address these three major issues – forced displacement, lack of tertiary education opportunities, and inefficient data collection – by developing a data analytics platform that will help NGO's focused on refugee education. mHub's aim is to help these NGO's expand to refugee camps throughout Rwanda, all the while improving their operational efficiency and impact.

RESEARCH QUESTIONS

MicroHub aimed to explore two different approaches to tertiary education in the Kibiza Camp outside of Kibuye, Rwanda. The Kiziba Camp was opened in 1996 to refugees fleeing the Democratic

Republic of the Congo after the First Congo War. It is the oldest of the country's six camps, and home to over 17,000 refugees.

MicroHub aimed to explore two different approaches to tertiary education in the Kibiza Camp outside of Kibuye, Rwanda.

The first approach was designed by Kepler, an NGO based in Kigali, Rwanda. Kepler offers an accredited U.S. degree through their partner Southern New Hampshire University. Based on a competency-based curriculum, students can earn degrees in Communications, Health Care Management, and Management. After establishing a successful curriculum in Kigali in 2013, Kepler looked to expand its degree offering program to

refugee camps in August 2015. They started with Kepler Kiziba, bringing in advanced students from their Kigali program to act as teacher aids. Now in its second year, Kepler Kiziba looks to admit 25 additional students each year [12]. With generous support from the IKEA Foundation and the United Nations High Commission for Refugees (UNHCR), Kepler is now trying to expand its educational offerings to the remaining refugee camps in Rwanda [13]. MicroHub was contracted by Kepler to assess possible expansion plans through the use of predictive analytics, leading to our first research question: "To which Rwandan refugee camp should Kepler expand its accredited degree program next?"

The second approach is financed and run by International Teams Rwanda, a national, Christian NGO that founded the camp's central library. The most popular program the library offers is an English language class, taught by refugees with higher-level education degrees. I-Teams has ensured that the library is stocked with English literature



for the camp's young adult populace and have deftly managed donations to expand its resources. In the year leading up to mHub's visit, I-Teams started appropriating funds to an account dedicated to a future investment in technological resources for their students. I-Teams Rwanda contracted mHub to put together a proposal looking at how these funds should be used. This leads to our second research question: "What is the most significant and effective

technological intervention I-Teams can financially afford in the Kiziba Refugee Camp?"

Through the lens of these questions, the microHub team was able to explore the intricate dynamics of refugee politics. From the Rwandan Development Board to the interactions between community leaders and the NGO partners, mHub was faced with various difficulties while exploring these issues. But framing our research goals

with these two overarching questions helped to direct our work and ensure our deliverables were valuable to Kepler and I-Teams Rwanda.

I METHODOLOGY

Because of institutional constraints, microHub was unable to directly interact with refugees. Therefore, the direct goal of observing and analyzing the status of higher

education in refugee camps took the form of mHub's research questions - an indirect approach to observing higher education through the work of NGOs. The difference between the two questions, one addressing predictive statistics and the other assessing technology's role in education, combine to form a larger picture of the educational environment in Rwanda's refugee camps.



Photo taken in Rwanda.
By Porter Nenon, Kaija Flood & Adam Jones.

In regard to our first research question, “To which Rwandan refugee camp should Kepler expand its accredited degree program next?”, mHub first started looking into Kepler’s admissions data for its Kigali and Kiziba programs. Through speaking with Kepler’s administration officials, we discovered that most of Kepler’s admission statistics, specifically baseline-control group data, had yet to be digitized and saved to the Kepler database. Thus, the first step toward a recommendation was digitizing these records. MicroHub spent the first two weeks of our visit combing through admissions tests, anonymous personal statements, and living situation information to form a broader picture of the applicant pool and admitted students. The insight gained from this process was interesting, yet its value was questionable.

The first data set mHub looked at was standardized test results from Kepler’s Kigali program, the reason being that Kigali is Kepler’s longest and most robust program, therefore providing the most data for any

type of predictive model. When looking at this information, it is important to have a basic understanding of the Rwandan secondary schooling structure. After their fourth year in primary school, students take all classes in English.

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Secondary schooling is broken down into two chronological groups: Junior Secondary School and Senior Secondary School. While 28,000 students take the National Secondary Education Ordinary Level test at the end of their time at Junior Secondary School (ninth grade), only 13,000 students will be admitted to the public system of Senior Secondary School. While in Senior school,

students concentrate on a set combination of various subjects, for example: Physics-Chemistry-Mathematics (PCM), Math-Economics-Geography (MEG), History-Economics-Geography (HEG), English-French-Kinyarwanda (EFK), English-Kiswahili-Kinyarwanda (EKK), Math-Physics-Computer Science (MPC), or Literature-Economics-Geography (LEG). At the end of Senior Secondary School (twelfth grade), students take their final national exam on the three subject combination

they chose, in addition to Entrepreneurship and general paper [14]. Understanding this system was key to decrypting Kepler Kigali’s admission statistics. However, because of changing education standards and the fact that most refugees did not attend secondary school in Rwanda, this data was relatively irrelevant when looking at refugee camp outcomes. Thus, mHub’s methodology had to shift from strictly looking at standardized tests to examining more pointedly at admissions applications.



Photo taken in Kibuye, Rwanda countryside.
By Adam Jones.

Quantifying the mostly qualitative data provided by these questionnaires was difficult, but luckily, Kepler had already set in place an objective scale for interview performance as well as a basic critical thinking and English-readiness tests. MHub used these numbers to first look at descriptive statistics in the form of correlations, and based on those findings, attempted to look at predictive analytics in the form of multivariate regressions.

With respect to International Teams Rwanda, mHub's approach to developing a cost-efficient technological intervention required us to start with a comprehensive literature review. Drawing on previous technological interventions and academic research, we settled on the finding that technology has the power to make higher education "both a means to refugee empowerment and a form of empowerment." [15] After concluding that technology can, in fact, be a force of good in higher education, we next set out to look for ongoing interventions that have been

successful thus far. This required us to look at news articles, explore government websites, and review the latest social enterprises. In light of the current refugee situation resulting from the Syrian civil war, there is an increasing amount of attention focused on refugee aid, specifically education. While the protracted situation of Congolese refugees in Rwanda is much different from the sudden upheaval and resettlement of Syrian refugees in neighboring countries, certain technological interventions are still relevant to I-Teams' mission.

Due to the aforementioned institutional and political roadblocks mHub faced, our research required an indirect exploration of higher education in refugee camps. Our methodology in attacking our two research questions was meant to shed light on the current state of education in these camps while providing helpful services to two NGOs whose presence in the Kiziba refugee camp is crucial and indispensable.

RESULTS AND OUTCOMES

MicroHub's research into Kepler's expansion to other refugee camps was unfortunately inconclusive. The data mHub was given access to was insufficient to produce any type of significant predictive tool. Initial findings showed a strong correlation between secondary standardized test scores and admittance to Kepler's university program, but the lack of uniform and accurate secondary school data from refugees made that correlation meaningless when analysis expanded beyond Rwandan citizens. Interview scores and admission exam results provided little meaningful relationship within the small sample size of admitted students to Kepler Kiziba. In retrospect, this small sample size is likely what caused the lack of significant evidence of specific indicators. However, in the midst of microHub's research, UNHCR announced a partnership with Kepler to expand to the Mahama refugee camp [16]. This expansion seemed the most natural given

the data microHub was allowed access to. Mahama is made up mostly of Burundi refugees, who's secondary schooling data was relatively robust compared to the other camps. UNHCR conducted the feasibility study of this expansion based on internal data microHub was not given access to. However, despite inconclusive statistical findings, the microHub team would agree with UNHCR's assessment of and decision to encourage expansion to the Mahama camp.

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MicroHub's research question dealing with a technological intervention in a library run by International Teams Rwanda proved more successful than



Photo taken in Rwanda.
By Nebil Nuradin.



our work with Kepler. After reviewing current interventions and considering the needs and wants of the Kiziba library, the microHub team developed two main recommendations for I-Teams.

The first involved purchasing tablets developed by a company called Rumie. Rumie provides tablets to refugees in countries throughout Africa and the Middle East. Rumie has an open source online library of free educational and learning software. This includes tutorials, textbooks, dictionaries, and many more tools. Rumie works with local partners to identify educational needs in the community, and uploads the appropriate content onto \$50 tablets. This content can then be accessed offline in the refugee camps. I-Teams would need to apply to the Rumie program. Upon successful admission, I-Teams would work with Rumie to curate content for the tablets, which would then be uploaded to the Rumie tablets. I-Teams would determine how tablets will be stored and managed. Each tablet needs to be charged for five hours each day, so I-Teams

must determine how this would be done [17]. MicroHub recommends charging the tablets in the library overnight, in a secured room or box. The total cost of this specific intervention would be \$765, well below the amount of money set aside by I-Teams for future technological expenses.

The second recommendation was a combination of a portable Wi-Fi block and tablets. For this option, I-Teams would purchase a BRCK, a portable, durable, Wi-Fi device that has an 8-hour battery life. The BRCK can be charged using a power outlet, computer, or solar charger. The BRCK would allow students to access the Internet using tablets, smartphones, or laptops. If I-Teams provided the devices as well, an Amazon Fire tablet is an affordable option that would be well suited to the needs of Kiziba students. After the equipment is purchased and delivered to the Kiziba library, I-Teams can work with library personnel to determine how the equipment will be stored and protected. If there is no adequately secure area, I-Teams may purchase or construct a box with a lock to



store the equipment. I-Teams might also wish to provide library personnel with training or a manual on how to use and charge the equipment properly. This recommendation would be \$1,000, only slightly below I-Teams budget for this project.

The research conducted opened many bureaucratic doors that could lead to further research in the area of higher education in refugee camps. Particularly, the partnership formed with Kepler proved invaluable, and the logistical expertise of this NGO could be leveraged for further exploration of Rwanda's educational system. Our research should serve as a building block for a deeper dive into the consolidation and universality of refugee education data tracking. Our digitization of hundreds of applications and administrative files enables future researches to perform powerful predictive analysis that can be used to further streamline the expansion of tertiary education programs. Furthermore, as refugee situations across the globe become more and more protracted, information

on best practices for implementing these programs will be indispensable. Further refinement and analysis on the data we collected can have a massive impact on these developments.

While microHub's work with the I-Teams project produced more tangible results, both research questions led to fascinating experiences and insight into an overlooked and underfunded global issue: higher education in refugee camps.

PERSONAL STATEMENTS

The microHub team learned a great deal about working and conducting research in another country. We faced challenges such as political roadblocks in gaining access to data, distrust from local partners, and a lack of expertise in our research area within the country. All of these challenges led to valuable learning experiences, resulting in the team not only developing innovative solutions, but also creating priceless memories. The team

learned a great deal about statistics, data management, and the importance of a comprehensive impact assessment and evaluation system.

MicroHub would like to thank both Kepler and International Teams Rwanda for their help in developing our research questions. Without their willingness to cooperate, the project could not have happened. Porter, Kaija, William, and Adam learned a great deal from not only working with these organizations, but also from interacting with their personnel and creating meaningful relationships. No doubt, this experience will shape the future endeavors of all team members involved as we continue working in the public sector, both at home and abroad.

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Photo taken outside Kibuye, Rwanda. Entrance to Kiziba Camp.
By Adam Jones.