



Education Interventions in Kakuma Refugee Camp: A place for modern technology? Field Report:

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Acronyms and abbreviations

AI	Artificial intelligence
CEBs	County Education Boards
ECD	early childhood development
EMIS	Education Management and Information System
HR	human resources
HU	Hogeschool Utrecht
ICEFIL	International Centre of Excellence for Innovative Learning
ICT	information and communications technology
INS	Instant School Network
IT	information technology
JET	JET Education Services
JWL	Jesuit Worldwide Learning Services
KCSE	Kenya Certificate of Secondary Education
KEEP	Kenya Equity in Education Project
KU	Kenyatta University
LWF	Lutheran World Federation
NGO	non-governmental organisation
SIR	Solidarity Initiative for Refugees
SV	solar photovoltaic
TOM	Tacit Object Modelling
UNHCR	United Nations High Commissioner for Refugees
US	United States
WIK	Windle International-Kenya



Purpose of the field visit to Kakuma Refugee Camp

This report outlines current practices and programmes in initial teacher education, ICT in education and technical and vocational education in the Kakuma and Kalobeyi refugee camps. It provides an overview of the camp, observed programmes and their challenges and some ways in which artificial intelligence (AI) could provide opportunities to enhance and expand administrative capacity and opportunities for access to education, primarily addressing programmes within the realm of initial teacher education and vocational and lifelong learning.

Recommendations for visiting the camp are provided in an appendix.

Methodology

Methodology included observations and semi-structured interviews with UNHCR staff (including safety officers, human resources (HR) personnel, operations managers and the site manager), programme staff and participants, and interactions with volunteers. The visit was not highly structured, and interviews were undertaken on the basis of opportunity and availability. UNHCR staff directed JET Education Services (JET) to areas of interest including adult education initiatives, information technology (IT) training sites and vocational opportunities being pursued by UNHCR operating partners.

The areas of interest explored were:

Access and Equipment

- ◆ What equipment is provided within the training centres? How is this equipment currently utilised?
- ◆ Has connectivity stabilised? What are the specifications of the connections available?
- ◆ What are the specifications of the available hardware?
- ◆ What software programmes are currently being used in the training centres?
- ◆ What are the usage statistics of training centres?

Systems and Capacity

- ◆ How are students tracked and evaluated, both in the programme and in the larger system?
- ◆ How are these operations connected to broader systems operating in Kenya?
- ◆ What is the human capacity that can be leveraged to maintain, operate and train others? What does succession planning look like for key positions?
- ◆ How stable is the presence of local partners and/or key personnel?



Programme aspects which may be augmented through the use of AI/similar

- ◆ While the programme has shown responsiveness to the needs of communities, are there ways in which this could be enhanced?
- ◆ How is available expertise within the community leveraged, and are there opportunities to develop this aspect?
- ◆ What are challenges faced on the ground by students and programme staff?
- ◆ How is scale to be achieved, and what quality assurance measures are in place for scale?
- ◆ How is data collected, analysed and used in the programme? How are learner achievements tracked, reported and recognised?

Findings

Area and population

Kakuma is a sprawling camp in the northwest corner of Kenya, consisting of four zones referred to as Kakuma 1, Kakuma 2, Kakuma 3 and Kakuma 4. The four zones are home to roughly 186,000 refugees, 60% of whom have arrived in the last four years, although the camp has been open since 1992.

The environment is dusty and dry, with high temperatures during the day that cool off slightly towards the evening. The area is known for poisonous snakes, though their number has declined thanks to a decent population of semi-feral cats in the camp. The area is also prone to mosquito-borne diseases such as yellow fever and malaria; however, during our visit at the end of October and beginning of November, there was not a mosquito in sight. This was described by our hosts as “a very good mosquito year”.



Image 1: Kakuma landscape

The area is lowland and is susceptible to sudden floods, even when it is not raining. Two rivers which run through Kakuma fill when it rains in the highlands upstream from the camp. When the rivers are flowing it is impossible to move between areas of the camp: it is possible to pass through a dry river in the morning and then not be able to cross back. For this reason, the UNHCR recommends always carrying enough water and a snack such as biscuits or chocolate, just in case one becomes stranded. At the best of times, climbing the banks of these rivers makes for rough roads; at the worst, homes



are lost as the low lying area around the rivers floods. This was reported to happen roughly every other year. Happily, it did not happen while we were in the camp. One road across a river did become impassable during our stay as the entire road collapsed, similar to a sinkhole.

The majority of Kakuma residents are from South Sudan, with other groups from Uganda, Somalia, Burundi, the Democratic Republic of the Congo (DRC), Ethiopia and elsewhere. Overall there are 19 ethnicities in the camp. Settlement patterns are based on arrival time, so although ethnic groupings do tend to occur, it is due to increased strife in the areas of origin and not any plan on the part of the UNHCR. Violence in the camp is not a major concern, though there are occasional flare-ups over tribal and political differences (as well as football) which have at times led to tribes or clans being temporarily relocated within the camp. Another spate of violence occurred in the camp when the UNHCR announced the implementation of school fees for secondary school (currently set at 3,000 Kenyan shillings per year)¹.

The goal of most, if not all, of the people in the camp is to resettle elsewhere due to the inhospitable climate of Kakuma and the lack of significant economic opportunities. Most expressed a desire to return to their countries of origin, but most also noted that this was impossible for them, either due to the political situation at home or the fact that there “was no place to return to”. The UNHCR takes a similar view, noting success stories of individuals who “make it out”. There is an understanding in the camp among the refugees that the exceptional will become these stories, an attitude which in some promotes ambitious pursuit of any opportunity to learn or differentiate oneself – and in others gives way to despair. Religion is omnipresent and is one of the only coping mechanisms available in the camp.

The town of Kakuma is nearby and houses a small population of indigenous Turkana people who are traditionally nomadic. The Turkana can freely enter and leave the camps and often do so to buy items from the refugees to stock their small shops as well as to conduct other business in the camp. Some tensions have flared between the Turkana and the refugees over collection of firewood and the perceived higher level of support given to the refugees as compared to the indigenous population. A quick survey of the situation will convince any onlooker of the same; although the situation for the refugees is perilous, the host community remains significantly marginalised and under-developed.

¹ The UNHCR suffered budget cuts in relation to management of the camp between 2017 and 2018, and the implementation of school fees was one measure put in place to offset the cuts and to pay for teacher incentives (currently roughly 3 USD per day). However, some members of the Sudanese community boycotted schools and committed some violence against those not willing to protest. Fortunately no lives were lost and eventually everyone agreed to pay.





Image 2: Turkana in and near the camp

Partially in response, aid measures for the Turkana are being pursued with sponsorship from the World Bank. Most of these efforts are situated in Kalobeyei, a settlement outside of Kakuma which currently hosts 38,000 refugees.

In this settlement, for the first time, interaction between the refugees and the host community as well as economic participation and self-sufficiency for the refugees is encouraged. Refugees can open, own



Image 3: Heading into Kalobeyei Settlement

and register businesses, create businesses with local partners and compete for work in a regular market.

Kalobeyei is home to five early childhood development (ECD) centres, five primary schools and one secondary school which refugees and the host community can attend. There are plans to build a university nearby. In addition, various vocational training initiatives are being undertaken



in Kalobeyei, particularly with support of the Danish Refugee Council². This area is essentially a pilot for a more liberal refugee policy, and the UNHCR is anxious to see it succeed.

Outside of Kakuma and Kalobeyei, especially towards the borders of Kenya, the Turkana often arm themselves to defend their livestock from cattle (or camel) raids conducted by denizens of neighbouring states, especially Uganda. Travelling any distance outside of the Kakuma/Kalobeyei area is not recommended without an armed escort.

Overarching structures and systems

There are three administrative compounds located just outside the camp in Kakuma town. Compound 1 hosts the Lutheran World Federation; Compound 2 the UNHCR; and Compound 3 the National Council of Churches in Kenya (NCCCK). Together these three organisations and their subsidiaries manage the delivery of key services in the camp.



Image 4: Headquarters

The UNHCR oversees all interventions in the camp as well as its basic services, health and education. The UNHCR works with implementing partners as well as operating partners. Implementing partners are organisations that responded to calls for proposals and were selected. UNHCR's education implementing partners are Windle International-Kenya (WIK or Windle), which runs secondary school programmes; the Lutheran World Federation (LWF), which runs the ECD and primary education sector within the camp; and Don Bosco, which manages the technical and vocational education in the camp. Funding for implementing partners is provided by the UNHCR.

In addition to implementing partners, there are 44 operating partners working within the camp to deliver various interventions across the range of child services, health, training and so on. Operating partners deliver interventions using external funding and engage in projects under a memorandum of understanding (MOA) with the UNHCR. Some initiatives of interest are discussed under the interventions section.

Refugee registration

On arrival, refugees and asylum seekers are taken to a reception centre where they wait while preparations in the camp are finalised. Preparation includes providing water and clearing land where necessary. In the reception area, biometrics of new arrivals are taken, and adult members of the household receive a card which allows them to access food allocations, hospital services, firewood or the monthly cash transfer through the “bambakachula” sim card service. Children are linked to the accounts of the adults in the household. The reception centre is often where many organisations and agencies start off their programmes, especially where unaccompanied minors are concerned. LWF's Child Services identifies unaccompanied minors who must then be adopted by a host family before they can leave the reception area. Families are often willing to take in additional children, incentivised

² These are discussed in detail under the existing initiatives section.



by additional allowances and support with chores such as fetching water. Children who believe they are mistreated by their host families can appeal to the field support offices located in the camps and will be returned to the reception area for a new family assignment should their situation be found wanting.

While registration happens relatively quickly, taking a few weeks, receiving refugee status can be a much longer affair. The camp accepts both refugees and asylum seekers. South Sudanese nationals automatically receive refugee status (*prima facie*), while others must go through an interview process as asylum seekers to determine whether they are eligible to remain in the camp. A case file is created for asylum seekers during the refugee status determination (RSD) process which culminates in an interview. Due to the low capacity of UNHCR in the area, asylum seekers often wait two years for their interviews. Treatment of refugees and asylum seekers is in all respects the same in terms of food and cash allocations, and both groups can apply for the available scholarships to study. However, only refugees are eligible for settlement in Kalobeyei.

Refugees move en masse to their space in the camp, and each family is given materials for roofing and posts as well as an initial allocation of food and firewood to sustain them until the next distribution day. Those with refugee status may be permitted to move to Kalobeyei settlement, but this option is not available for asylum seekers until their status is determined.

In the camp, each family must swipe its card to access food or services, and a record of these interactions is kept electronically. Families can add or remove members at the field posts. Most families are quick to add but tend to take more time to have deceased members removed from the register due to the reduced allocation of goods they will receive. A death in the family must be reported within six months, and this is largely based on an honour system as there are no further checks.

Basic services

There is no electricity at most sites in the camp, and even the UNHCR offices are off-grid and run by generators. Homes do not have access to electricity and do not seem to invest in candles or similar aides. Schools generally have electricity in some rooms but not in the classrooms.

The UNHCR headquarters is equipped with flush toilets but pit toilets are the norm at sites throughout the camp and the settlement.



In general, despite the climate, it did not seem that water was much of an issue. One member of the UNHCR noted that below the dry riverbeds was “plenty of water” as the whole area sat on an underground aquifer. Borehole sites pump water to various steel drums which provide water access through taps spread throughout the camps. Families access water by carrying jugs or plastic jerry cans to and from the taps. Taps are also available at schools and are used to varying degrees at each school. The water supply is currently potable but with the situation regarding the use of pit toilets for 200,000 people resting on top of an underground water supply, this is unlikely to remain the case without concerted efforts towards a water treatment plant of some type. Cholera outbreaks have been recorded in the camp.



Image 5: Water collection

There are two hospitals located within the camp. We did not get much information on these as thankfully we did not have to visit.

Camp organisation

The camp is arranged in blocks which are often surrounded by fencing of some type, either sheet metal or branches. Individual homes may also be fenced in this manner but it seemed that block fencing is more prevalent in most areas. Each block has a block leader and chair lady. These block leaders and chair ladies are elected positions and the incumbents are responsible for ensuring order in their areas. Block leaders are also responsible for handling or dealing with challenges regarding conflicts or disputes which arise among block members and are a first point of contact for reporting illegal activity. The leaders work collaboratively with the Kenya police as well as UNHCR to solve challenges which arise in the blocks. For instance, there is a curfew in the camp (loosely enforced) which was suggested by the block leaders in order to cut down on crime, and they have uniformed community volunteers who patrol at night to support security efforts. The only check on school attendance rests with the block leaders who are tasked with identifying which children have been missing school and taking appropriate action; it was reported that attendance is too high at the schools to record properly. Schools provide a feeding scheme for learners daily, which is a significant driver of attendance.

Attendance is not generally reported accurately, even in the wider system, as Kenya is still in the process of transitioning to a National Education Management and Information System (NEMIS). Schools are meant to send a quarterly report to the County Education Boards (CEBs)³ which should compile a county school status report and submit it to the National Education Board. However, due to low capacity in schools (to collect the data), and low capacity within the quality assurance function, validity checks are sporadic, and a common tendency is to report county level data based on a “sample” of a few schools in the county instead. UNHCR staff were interested in receiving technical support in setting up more rigorous systems, particularly EMIS.

³ CEBs are 47 in number and similar to district offices.



Opportunities in the camp

Movement of refugees in Kakuma is generally restricted, with very few economic or relocation opportunities. Refugees from Kakuma must have a government pass in order to travel outside of the camp; these passes are readily issued for education or medical purposes and can also be obtained for general travel. However, it was noted that there is a process to obtain these documents.

Refugees can also apply for a refugee passport which enables international travel but it takes a long time to obtain one. Work permits are necessary for economic participation, and the Kenyan government does not issue these easily. The refugee must have a company sponsor and prove that the work they are to do cannot be done by a Kenyan; this is a long process that is rarely successful.



Image 6: Market street

Opportunities for work in the camps are scarce and the pay is an incentive rather than a wage, usually set at around USD 3 per day. Teaching is one of the more prominent opportunities, with 1,118 teachers working in the camp. Other opportunities are in community protection as each block has a volunteer community guard who assists the Kenyan police in keeping order in the camp. These individuals are not police officers but are uniformed members of the community who can report crimes or other hardships to the relevant authorities.

Additionally, some members of the refugee community have managed to set up shops and businesses along major streets, where they sell snacks, food, drinks, clothing and other necessities. Cottage industries including sewing clothes, bag-making and making tyre sandals also exist, and these items can be found intermittently in the market areas. The UNHCR has a vision of promoting distance work, known to some as the ‘gig economy’, by upskilling refugees so that they may work remotely.



Image 7: A cottage industry

At the moment, efforts and thinking in this direction are focused towards information and communications technology (ICT) skills, specifically graphic design and gaming.

Schools

Within Kakuma are 13 ECD centres serving 16,500 children up to age five; 21 primary schools serving 58,891 learners in Grades 1 to 8; and five⁴ secondary schools serving 10,200 learners in Grades 9 to 12 (referred to as Form 1 to Form 4). At the end of primary school, Kenya administers a national examination known as the Kenya Certificate of Primary Education (KCPE) to all learners; within the camp this examination has an 84% pass rate. Learners who perform above a cut-off mark are offered entrance into the secondary schools. While exact information was not forthcoming, the Kakuma pass

⁴ Kakuma Refugee, Morneau Shepell; Greenlight; Somali-Bantu; Vision ; and Kalobeyei Settlement Secondary Schools



rate for the Form 4 Kenya Certificate of Secondary Education (KCSE) exit examination was reported as being below 10%. We were told the Kakuma pass rate is only slightly below the national average. There are additional challenges with transitioning students through the system due to having numerous primary schools and very few secondary schools.

All public schools (including the ones in the camp) run the Kenyan curriculum, delivered through two modes in primary school, one of which is an accelerated programme which teaches the core content of the seven-year curriculum in four years. This accelerated curriculum is used especially for learners coming late into the system without having had adequate prior learning.

Of the schools in Kakuma, one primary and one high school are girls-only boarding schools which were built by private donors. These schools serve high-performing female learners in Grades 4-8 (Standards 4- 5) and 10-12 (Forms 1-4) respectively; the schools are also used as safe houses for girls who are at risk of abuse or early marriage. The primary school is named after its sponsor, Angelina Jolie, and the high school is called Morneau Shepell. Entry into these schools is highly competitive: Angelina Jolie accepts 50 learners per year from an application pool of 1,000 applicants, and the total number of learners in Morneau Shepell is 382 across the four grades. Learners who are placed in Angelina Jolie



Image 8: A prefab school block

due to risk are automatically accepted into Morneau Shepell, while those in Angelina Jolie on merit have to apply with the general pool. These schools each have an Instant School Network (INS) centre as well as other resources provided by their donors. The everyday running and cost of Angelina Jolie is left to the UNHCR, as with other schools, with the exception of Morneau Shepell which receives a yearly contribution from its donor to assist with operating costs.

The schools visited were well-kept with generally decent infrastructure, although perhaps a shortage of chairs. Buildings were either airy prefabs or older concrete block buildings. One of the schools had undertaken an initiative to plant trees and build an outdoor seating area as well as to grow a vegetable garden with primarily sweet potatoes and sorghum, solid choices for the climate. Trenches had been dug from the water taps to assist with supporting the crops. The school also had a mudfish pit and shower facilities which were left open for learners' use.



Image 9: A school food garden in the camp



Image 10: A classroom in Kakuma camp



Teachers

Eighty per cent of the 1,118 teachers in the camp are reported to be refugees. While the UNHCR is working to change this, the schools in the camp currently receive little to no support from the Kenyan government, although they are registered as public schools in Kenya. Therefore, the staffing of these schools is left to the UNHCR and its implementing partners – LWF in the primary schools and ECD centres and Windle International-Kenya in the secondary schools.

Due to the demographics of the camp, there are very few qualified teachers available. Most of the teachers are drawn from a small pool of Form 4⁵ graduates. There is a process of recruitment through advertising in the camp, and the top performers are drawn into the teaching profession. Most of these new teachers are completely untrained, entering their first jobs, and are often younger than some of their students – around 20 years old. Also, due to gender bias in the refugee communities, very few girls attain Form 4, and the vast majority of teachers are male. UNHCR has attempted to address the discrepancy by lowering the teacher recruitment achievement requirement for females (currently set at B- for males and C+ for females) but the imbalance remains.

On average, teachers remain employed in the schools for between one and one-and-a-half years. Recruitment of teachers takes place annually, given high degrees of turnover.

Challenges in Education

i). High turnover

One of the major challenges with pulling the top performers into the teaching profession is that these are the very individuals most likely to achieve the small number of scholarships offered each year through programmes such as the World University Services of Canada (WUSC) and the UNHCR's Albert Einstein German Academic Refugee Initiative (DAFI)⁶. A majority of individuals in the camp want to leave, even if only temporarily, to study, and as such the competition for these scholarships is fierce. Scholarship recipients are likely to be selected from the pool of teachers due to the similar selection criteria. This is a major contributor to the high degree of turnover, as is the fact that the majority of those accepting teaching positions are not actually interested in teaching but accept the position as a fall-back due to the limited avenues open to them. Most teachers we met indicated that they would like to go into telecommunications, IT and/or business. None indicated that teaching was a first-choice profession.

ii). Gender Equity

Equity in education is a serious challenge in the camp as girl's education is undervalued by many of the cultures represented in the camp. Adult women who wish to study are only able to do so with the permission of their husbands, who tend to be selective in the skills they value, though of course there are exceptions. Women and girls are highly vulnerable as a result of community attitudes towards

⁵ Equivalent to a South African Matric, or Grade 12 completion in the United States.

⁶ The number of scholarships was cited at around 80 per year.



women and women's empowerment, leading to interventions specifically targeted to reduce child marriages and to support female education.

iii). Congestion

The education system covers 70,000 learners in Grades 1 to 12 (primary and secondary education), in a total of 26 schools, two of which are small schools which host a total of about 700 pupils. The remaining 69,000 plus learners are in 24 schools, resulting in an average of around 3,000 learners per school. The large class sizes pose a continuous challenge to teachers where classroom management is concerned. Overcrowding in the camp has also led to use of the 2-in-1 model (double shift system) for secondary schools, which cover Grades 9 to 12. The shift system offers a shortened school day; the morning session is four-and-a-half hours, while the afternoon session is three hours per day. The schools are overseen by one principal but have a different set of teachers for each shift.

iv). School Resourcing and Accountability

The government of Kenya to date has essentially left the funding, management and operation of its public schools in Kakuma and Kalobeyei nearly entirely to the UNHCR and its implementing partners, resulting in a situation of essentially privately-managed, publically-endorsed schools which use the Kenyan curriculum but only have tenuous accountability and support lines to government institutions. Officials were reported to check on exam delivery to ensure national standards were met but there did not seem to be any support outside of this. Budget cuts in the UNHCR in the last year led to a reduction in the number of teachers employed by the agency and its implementing partners, and the implementation of school fees in secondary schools is a strategy likely to exacerbate gender imbalances in the schools and possibly affect enrolment. The situation has raised pertinent questions about the sustainability of current programmes, and in response, UNHCR is attempting to better integrate their programming with the public education system. Talks are at an advanced stage in this regard, and it is hoped that the government will extend better support to schools, especially where teacher recruitment and pupil capitation grants are concerned.

v). Equivalency

In adult and further education, certificates and proof of matric/Form 4 equivalency has proven to be a challenge. One teacher trainee currently enrolled at Kenya University stated that being admitted into KU was relatively easy for him as he had completed his secondary and most of his primary schooling in Uganda, where qualifications have equivalency in Kenya. However, this student is in the minority. Many refugees flee without bringing documentation of their academic achievements and are thus excluded from further education opportunities by some universities; for others, equivalency issues arise. Obviously, the inability of refugees to pay higher education fees affects the number of universities willing to enrol them as well as the number of spaces available to them within the higher education sector.

Even those who complete education are forced to return to the camp due to their circumstances and status as refugees. As there are few opportunities within the camp for meaningful work, linking education to opportunity is especially difficult in these circumstances.



vi). Language barrier

Language issues are pervasive, with English and Kiswahili used as lingua franca in the camp. Most adults can speak one or the other, if not both; however, language was reported to be a barrier to achievement in secondary schools in particular.

vii). Information gap

Teachers also find themselves overwhelmed by the “information gap” between the expectations of the textbooks and the realities of the learners. One teacher recounted an episode in which he had spent the majority of one class trying to explain what a forest was to a group of children born and raised in the desert conditions of the camp – they found a large group of trees difficult to conceptualise. Resources, although available, are primarily designed for mobile, middle to upper class citizens who have a wider variety of experiences to draw from. Limited access to pictures and printers exacerbates the situation.

viii). Other

Other challenges noted by participants which were seen as contributors to poor performance were a lack of basic skills attained in primary schools; untrained teachers who were often younger than their students; large class sizes; and time to study – this is severely limited for those in the camp as children are expected to perform a variety of household chores, and few have access to light sources after dark. Attendance can also be disrupted by illness (including of family members) and community protests, although instances of the latter to date have been rare.

Interventions

The team visited a number of intervention sites during the brief visit and was able to interview most of the key staff on the UNHCR team as well as various implementers.

Primary school education interventions

In addition to managing the schools, LWF and WIK run the Kenya Equity in Education Project (KEEP) funded by the United Kingdom’s Department for International Development (DFID) in 33 primary schools spanning the host community and the camp. KEEP provides remedial interventions for 1,400 low-performing girls in Grades 4 to 6, delivered through Saturday morning classes; teacher training on gender, pedagogy and administration; and training for parent-teacher associations (PTA) and boards of management (BOM).

A similar programme is run by the United States (US) State Department’s Bureau of Population, Refugees and Migration (BPRM) but this programme targets high-performing girls in Grades 7 and 8.



The United Nations International Children's Emergency Fund (UNICEF) runs the ROSCS (Return Out of School Children to School) programme in the area, targeting children from the Turkana host community which, as a primarily nomadic population, has its own challenges with regard to consistent attendance.

Finally, a small but significant initiative operates out of the community library. This programme gives 24 primary-school-aged youth access to coding training, specifically focused on game design. Youth are selected based on teacher recommendation, and 10 of the 24 are female, which must have taken a concerted effort on the part of the programme as ICT is primarily viewed as “a man thing”.



Image 12: Instant Schools Network

Image 11: The community library

Secondary school initiatives

The Vodafone INS has six centres across the camp: one in a primary school (Angelina Jolie); one in a community centre; one in a library; and three in secondary schools.

The three secondary schools with centres are Greenlight Secondary School, Kakuma Refugee Secondary School and Morneau Shepell, the boarding school previously described. The INS programme provides 50 tablets at each centre which are available for use by learners and/or community members.

Educational content is loaded onto the tablets, and teachers are able to create lessons for learners to view on the tablets using pre-set applications and programs. Review for examinations is also provided.



Image 13: Review programme screenshot

The content observed was limited in that it was uni-directional; as learners are unable to save their own work, there is no feedback loop between learners and teachers using the tablets. Learners can access practice tests, videos and other materials, although to have a record of their own work they must record questions and respond in their notebooks.

Higher education initiatives

In response to the shortage of trained teachers in the camps, Hogeschool Utrecht (HU) began implementing a teacher training programme at the request of both Windle International – Kenya and the UNHCR using a blended learning methodology which leverages the ICT resources such as the tablets provided by Vodafone as well as a bespoke platform, content and the expertise of trainers from HU and the International School of Moshi in Tanzania.

The programme is an embedded part of a three-year accelerated teaching diploma offered by HU, Kenyatta University (KU) and Moi University in Kenya supported by the MasterCard Foundation. A



cohort of 40 appointed teachers is taken through a year of training entailing four modules for in-service teachers covering “generic” teaching knowledge: “Learning in Schools”; “The Teacher as a Pedagogue”; “The Development of the Adolescent”; and “Dealing with Differences and Diversity”. The programme also discussed possibility of working in training on cross-curriculum language in learning (English across the curriculum) as that had been identified by participants as an area of need.

The training is delivered through a blended learning model using the tablets and in-person training four times a year, and the programme staff provided 11 laptops for the use of the programme participants. However, the programme still faces difficulties such as uneven connectivity in the camp, limitations of the tablets, high demand for laptops in the camp, and difficulties with providing documentation and/or the recognition of foreign certificates at Kenyan Universities. Students without certificates are required to enrol in a Kenyan high school at Form 3 level and sit a qualifying test; if they pass, they can then proceed to Form four and then sit for the national exam, the KCSE. This process can be discouraging to potential trainees.

One other programme observed in the camp and which has faced and solved a similar issue is the Jesuit Worldwide Learning Services (JWL) Arrupe Learning Center. The JWL centre offers adult education through vocational and online courses in conjunction with a variety of Jesuit Universities, using a two-step model. This includes a two-and-a-half year initial bridging degree which results in receipt of a diploma at the same level as a US high school graduate certificate. This diploma enables further study at higher education institutions. Participants are then eligible to remotely attend a number of three-year courses offered by the networked universities, focusing on social work, business or education. Students in Afghanistan often choose business, while in Kenya the track of choice tends to be social work as these students often want give back to or help their communities due to the level of need that they have witnessed within the camp. Additionally, shorter certificate courses are also on offer and take three months to complete. These include courses in psycho-social care, teacher training, youth social work and sustainable agriculture and are also offered online. The JWL centre also offers other courses for non-academic oriented students, for example, the youth sports facilitator course, which has been quite successful in Kenya. In regard to qualification equivalency, the JWL students receive transcripts that are accepted by most (foreign) universities. The courses are not accredited locally however, and an assumption made here is that each university affiliated to the programme is well-recognised and the qualification readily accepted.

The programme currently has 60 students, with female enrolment sitting at approximately 50%. The selection of students into the JWL diploma programme is conducted by the affiliate university, and requirements revolve around students being able to communicate well in English and being able to use a tablet or laptop. Additionally, students are required to submit essays speaking about their lives and what has impacted them significantly. This is then followed by an interview. JWL does not currently track graduates of the programme; they are however, working on improving the database and alumni relations in general and hope to one day connect their global network of students. However, it is thought that many graduates proceed to work in the non-governmental organisation (NGO) sector, while others start businesses in Kakuma. Some students return to their countries of origin and work for their governments or set up their own NGOs.



Support is provided in IT and course completion at the centre, which also provides computer access. This programme attempts to address the initial qualification challenges faced by many refugees regarding entrance into higher education. The programme targets adults, the majority of which specialise in social work⁷.

Connectivity was cited as a challenge, as was linking programme graduates to work. The scale of the programme is also relatively small compared to the need and is limited by the size of the available network and spaces in the various universities.

In addition to these initiatives, we were told about a pilot for teachers run by Columbia University using mobile mentoring and peer coaching.

The UNHCR has also partnered with Google.Org, offering the use of the Kolibri learning platform which allows teachers to aggregate and curate content. The programme is scheduled for Greenlight Secondary School, Morneau Shepell Secondary School and host community schools.

In addition, Microsoft has plans to support the building of the Turkana West University Campus, which is slated to begin construction in January 2019 and open in June 2019, to support the expansion of INS to six more schools and to support youth centres with computers and courses.

Vocational initiatives

A number of truly phenomenal vocational initiatives are operating in the camp and especially in the Kalobeyei Settlement.

Technical and vocational education and training is supported in Kakuma by Don Bosco through the Don Bosco Vocational Training centre which offers courses in masonry, electrical training and tailoring. Some individuals receive start-up funding thereafter, based on their business plans. Some individuals practice animal husbandry, with goats, chickens and even some cows in the camp; however, it did not seem that these efforts were widespread or currently coordinated in any way. Nonetheless, Kakuma is home to a fairly large-scale agricultural and training initiative located along the banks of one of the dry rivers. As it was the dry season, large portions of the available land were currently fallow but some of the fields had been planted with okra and were being tended. The agricultural initiative is linked to local markets.

⁷ The programme targets adults with a particular orientation which was described as “spiritual grounding”; it was suggested this orientation influenced the direction students opted to take and explained the de-emphasis on business.



In Kalobeyei camp, the emphasis is on creating independence and self-sustainability, and individuals only receive cash transfers rather than a mix of rations and cash. Individuals are trained on home gardens, a number of which can be seen scattered throughout the settlement. Many of these are in poor condition, and the settlement could benefit from some additional resourcing and training on more area-appropriate models such as tiered and multi-level or raised-bed gardens which would limit loss of moisture.



Image 14: Technical education

The Danish Refugee Council (DCR) supports a larger scale vocational training centre in Kalobeyei targeting 200 adults in a basic literacy and numeracy programme and 400 adults in vocational training including electrical wiring, electrical fitting, solar photovoltaic (SV) installation, plumbing and pipe fitting, masonry, carpentry and general fitting, electronics (phone and general repairs), painting and decoration, refrigeration and air conditioning, and sign-writing. These courses are accredited by the National Industrial Training Authority (NITA). In addition, the centre hosts a barber course and a sewing and tailoring course attended primarily by women.

The centre offers morning and afternoon courses paced for frequent absenteeism; on the day of the visit, attendance was roughly 25% of enrolment in the morning class, although the afternoon may be fuller. One teacher indicated that he repeats lessons frequently due to absenteeism.

The focus is primarily on providing hands-on training for all, and the competency-based approach is the main approach used, with students trained in both theoretical and practical approaches according to a 10% theory, 90% practical split. Training is also provided in business skills/entrepreneurship in order to ensure that participants graduate with skills that are relevant as far as the market is concerned. Participants complete an examination at the end of the course which licenses them to practice in their respective fields. Even before graduation, participants begin benefitting the community due to the practical nature of the courses. For example, participants in the plumbing course had installed a Jojo tank and piping leading from the tank to the tap, and the SV installation course participants had installed solar power for another initiative, a chicken hatchery.

Speaking of the hatchery, in this initiative, run in conjunction with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and other partners, a building and incubator were initially provided to a conglomerate of 80 community members who bring eggs to the facility to be hatched. Hatchlings are kept in the building for two weeks, after which community members collect their chicks which are then raised for eggs and meat. The eggs are sold at a stall/kiosk in the market for 15 Kenyan shilling each (\$0.15); the kiosk has sold between 50 and 60 eggs a month since it opened⁸.

⁸ Prospects for November are looking good, as we bought sixty eggs as gifts on 1 November.





Figure 1: Kiosk selling eggs in Kalobeyei Settlement

Across the road from the egg stand is a chicken feed shop which cited slow but increasing business – there has been some effort spent in convincing the community that chickens need to be fed at all. Another challenge cited was chicken theft, an issue which the community will need to address once block leaders are elected. On the same block is a restaurant serving goat meat, a petrol stand, a tailor and a barber.

The emerging ecosystem is visibly developing in Kalobeyei through the emphasis on vocational education suited to the climate and community needs. However, a future challenge which is easy to see is the sustainability of such enterprises should cash transfers cease as there are no obvious sources of income generation which link either the camp or the settlement to external markets.

The UNHCR and its partners are not blind to this challenge, and conversation focuses around marketable vocational education such as agriculture and tailoring. There is also a meaningful conversation developing around exploitation of the “gig economy”, which may be one way to circumnavigate the limitations on economic activity placed on refugees. The UNHCR is charting a course towards education geared to applicable skills such as graphic and game design which could lead to online consulting. This is the current proposal on offer from Microsoft. It was noted that the transfer fees from external currencies can be a challenge but is not insurmountable as refugees are eligible for bank accounts and associated services such as M-Pesa⁹.

Potential applications of ICT

In the realm of IT, there are some initiatives in place that are worth noting and building on: A community initiative known as the Solidarity Initiative for Refugees (SIR) runs an exemplary coding programme three times a week for primary school learners, and the UNHCR focus on IT skills which can enable remote consulting is promising. SIR also runs a project known as the Kakuma Youth Freelancers’ project where youth are trained in how to use specific software and other digital skills such as reporting and data entry, using the Ajira Digital Programme. IT courses focusing on graphic design, game design and so on could be supported remotely very effectively, and practicals would take place using the hardware and software itself, as long as efforts were made to work within and/or expand the limits of the connectivity.

There is also some space for supplementary learning about agriculture as the skills within the community do not match the needs of the environment; adaptations to current practice could be displayed and discussed through remote learning, although hands-on support would still be

⁹ A mobile phone-based money transfer, financing and microfinancing service launched in 2007 by Vodafone.



preferable. The same is true of basic animal husbandry techniques which might improve current practice – the equivalent of first-aid for goats, cows, sheep and chickens, for example, as well as food handling and hygiene. Business is a third area of need which could be filled by a blended learning programme, as identified by the current planned model. The limitations of the legal framework for refugees needs to be carefully considered in either of these offerings; and it may be worth targeting this to the Kalobeyi settlement rather than Kakuma camp.

There is also space in the lifelong learning arena for maternity health and care, child development and nutrition, hygiene and first aid and other areas related to everyday family life. In my view, these should be targeted to the immediate needs of refugees.

However, the first major challenge in implementing any of these programmes is going to be hardware. The tablets at hand are not suitable for programme delivery as participants are unable to save work on them, either for future reference or for future submission. Additionally, access to the tablets is limited as they are located in schools – current programme participants are unable to access the tablets for months at a time when schools are closed. Tablets are also scheduled for students' use during school hours and are not available for programme participants during these times. The laptops are more likely to be useful but there are a very limited number across the camp – 11 procured for the HU programme, 12 in use by the primary school coding programme at the library and maybe another 10 or 15 at the adult learning centre run by JWL. According to HU trainees, assignments are easier to complete on a laptop where one can copy and paste the notes into Word rather than using a mobile phone, which is what they currently use to complete assignments. Additionally, due to their size and lack of space, downloading the notes on a mobile phone is difficult.

The second hurdle will be the platform design, which may be too content-heavy to manage multiple connections. This is a common challenge with content designed in the first world – it is too data-heavy to operate effectively in rural, developing contexts. Some steps are easy, such as reducing the resolution of videos and segmenting content to limit the load per page. The connection speeds in the camp did not seem to be terribly unreasonable. Researchers tested tacit object modelling (TOM), Gmail, Facebook and even YouTube several times over several days and found the loading time for all sites not to be noticeably different to that in South Africa. The challenge emerges with twenty or more simultaneous connections.

Potential applications of ICT/AI in teacher training in Kakuma

There are some applications of technology broadly and artificial intelligence (AI) in particular which could possibly augment the current and planned offerings of initial teacher education initiatives in Kakuma.

A number of AI or AI-like interventions could provide support, with varying degrees of difficulty and initial effort level.



Intervention	Effort	Pros	Challenges
Memory Trainer	Low	<ul style="list-style-type: none"> • Repetitive and personalised learning based on performance 	<ul style="list-style-type: none"> • Data must be stored on devices • Individual log-ins required
Chatbot	Moderate	<ul style="list-style-type: none"> • Responds to FAQs, filters unknown questions to mentors 	<ul style="list-style-type: none"> • Online access only • Takes time to develop/refine
Alexa/Echo	Low	<ul style="list-style-type: none"> • Data-light • Access to broad information databases • Can answer unexpected questions 	<ul style="list-style-type: none"> • Tablet settings may limit access to some sites • Accents are unlikely to be understood consistently¹⁰ • Usage and effectiveness would be difficult to track reliably
Personalised learning: Pre-tests linked to content	Low	<ul style="list-style-type: none"> • Relatively easy to set up if programme goals are well-defined • Can enable a broader range of subjects 	<ul style="list-style-type: none"> • Requires printers and/or storage capacity
Personalised learning: AI tutoring	High	<ul style="list-style-type: none"> • Allows for support tailored to different learning styles • Provides content at a level which is matched to the student or learner 	<ul style="list-style-type: none"> • Would need to be designed from scratch for subjects under study • Lack of capacity to do this (though we could find a partner)
Personalised learning: TOM	Low	<ul style="list-style-type: none"> • Responds to ground challenges • Can connect expert knowledge to participants • Low-res, low-data 	<ul style="list-style-type: none"> • Requires data and connectivity as well as hardware (smartphone, tablet with access, laptop, etc.) • Back-end may need redesigning

Other tech solutions for various camp issues

Tacit object modelling (TOM)

TOM is an AI solution which models expert decision-making. Essentially, TOM is designed using an expert in a particular topic who outlines the factors considered in her decision-making so that the process can be accurately replicated by those with less experience or skill. It is successfully used in fields such as finance, medicine and homeland security in the US. TOM is a data-light solution which was tested on-site twice with no notable challenges in loading or usage.

¹⁰ Alexa currently supports US, Canada, British, Australian and Indian English but can get confused if pronunciation does not conform to these norms. Spanish speakers in the US, for example, find Alexa is unable to cope with even a relatively light accent, which leads to 30% more inaccuracies in responses, according to the Washington Post (“The Accent Gap”, published 19 July 2018). Alexa can learn new languages through an augment called Cleo – however this is a long way off as Alexa would have to learn from individuals with recognised English accents.



TOM could be applied to the following identified challenges:

- ◆ **The long wait for asylum-seeker interviews, currently cited at up to two years:** The impression given by UNHCR staff was that the process was largely case by case (arbitrary); but if there are pre-requisites which guarantee an asylum-seeker refugee status beyond being from South Sudan, it may be possible to cut down the pool of applicants using a model created in TOM, for example, having family members in the camp and so on. This would be relatively easy to set up and test and, if reliable, could be used to determine those who would definitely receive refugee status and leave the more nebulous cases only for interviews.
- ◆ **Teacher turnover:** If a profile of teachers who stay in the system could be developed based on the situations, motivations and personalities of those who remain after two to three years, TOM could be designed to create a decision-making matrix regarding hires which may significantly cut down on teacher attrition.
- ◆ **Targeting programme interventions:** TOM could be useful in both developing and fairly implementing a selection system for various interventions.
- ◆ **Responding to teacher challenges:** TOM could link expert knowledge from universities, other conflict situations, high performers in the camp, etc. to participants on the ground. Particularly in a situation with high turnover and low skill, this is an appealing solution to democratise knowledge in a meaningful way.

eMpela

eMpela is a teacher training programme rolled out by JET Education Services and Condatech which targets teachers of mathematics, science and English. Teachers engage in a short, weekly tutorial designed on a data-light system which covers content and pedagogy of a particular topic. The programme also provides additional resources for most topics. A programme like eMpela could likely significantly improve teacher performance through a focus on content knowledge, which is not part of the current programme. The teachers are mostly secondary school graduates who likely need support in both the topics and in the pedagogy of those topics.

Adaptive learning programmes

Adaptive learning programmes and AI tutors could significantly expand the reach and effectiveness of the remedial mathematics programme for girls as well as the advanced programme for girls.

A simple diagnostic test with personalised learning workbooks, such as those offered by Reflexive Learning in South Africa, is a simple solution which could be a drop-in intervention that augments the current offerings of these programmes and could also potentially work within the limitations of the technology available on the ground.

A more personalised learning tutoring programme or any number of self-paced programme offerings could also greatly improve the reach of these programmes if the appropriate hardware can be provided.



Biometric monitoring in schools

This is a relatively feasible approach to attendance monitoring and a basic level of accountability, given the restrictions of the camp environment. Teachers are unable to take attendance regularly due to high turnover and large numbers of learners; however, a biometric system could link to existing systems set up for refugee registration and service delivery within the camp.

Portable servers (Blupoint, Zinduna)

For the purposes of the camp, Bluepoint and/or Zinduna could be considered for the provision of offline access to content. It does not seem that portable or remote servers have been utilised in the camp to date but they would be an appropriate solution given the low level of back-end analytics needed to evaluate the programmes, which are not graded on anything sophisticated like time-on-task but rely on evaluation of a final portfolio or examination scores. Portable servers could significantly decrease the data usage and improve performance of the network in the camp for many of the initiatives, particularly those which are data-heavy. It does take time to adapt and load programmes to the server, however.



Personal recommendations and notes from the researcher

Kakuma is an experience which opened my eyes to a context which presents a lot of new challenges in education and beyond. The scale of the problem keeps growing year on year, and there is no doubt that if we do not manage to adequately educate *and employ* 34 million refugee children, the next generation is going to be severely compromised. The situation links to a number of other initiatives JET is currently engaged in – the teacher migration protocol and work with the African Forum for Teaching Regulatory Authorities (AFTRA) in particular. It is clear that unless the continent can manage to pull together a high-level agreement on cross-national qualifications, refugees’ opportunities for employment and advancement will remain extremely limited. Kalobeyei offers much more hope than Kakuma – however, the reliance on cash transfers is a prominent feature which enables settlers’ economic participation, and it was not clear how the transition away from this will be made. Linking to external markets (both within Kenya and abroad) is essential to create a sustainable settlement and bring money into the community; and a lot of work on this still needs to be done.

The situation for women and girls in the camp is a particular concern. Secondary schools are full of boys, the INS labs are full of boys, and the teaching cohort is full of boys-becoming-men. (We didn’t have any real challenges with being female and conducting our interviews, however; the programme participants seem to have gotten used to female facilitators.) We only really spoke to one woman in the camp, a parent who accompanied us in the transport one day. She had ambitions to be a nurse as she disliked being a “kitchen manager”, as she called her duties at home. She spoke quite frankly about how her dream had ended, at least so far: “I was made pregnant by a man of the tribe. You know how it is.” She had two children, one enrolled in secondary school and the other a graduate, and she was in her early 30s. I felt the disconnect very clearly – I definitely have no idea “how it is”, and she was unable to conceptualise the different “how it is” Linda and I may have come from which allowed us both to delay having children to our 30s or to opt not to have them at all.

Regarding my expectations, most were met, and we were able to get a good picture of opportunities in general, though it was impossible to see everything in the two days we had.

Suggested packing list

1. Sunscreen: Apply regularly or face the consequences.
2. Sunglasses: It is difficult to see without them if your eyes are not used to desert glare.
3. Mosquito repellent and wrist-bands: Better to be prepared.
4. Hand sanitizer: Soap is not readily available in the camp, though it is available in the UNHCR headquarters rooms.
5. Basics for first aid: Disinfectant, antibiotic cream and small bandages. Due to the sanitation situation in the camp and the sources of water, it is easy for small cuts to become infected. Even insignificant injuries should be attended to promptly and thoroughly while in the area.
6. Lightweight, cool clothing such as sportswear or hiking wear: Although there are a variety of religions and styles of dress in the camp, short sleeves and trousers are acceptable wear for women, though it is advisable not to wear low-cut blouses or reveal your midriff. Refugees and UNHCR employees tend to dress neatly but largely informally.



7. Close-toed shoes and socks: Dust is a real thing in the camp and sandals are not recommended due to the possibility of snakes.
8. Toilet paper or tissue: You can get this from the rooms at the UNHCR in a pinch.
9. Soap and shampoo: Options are limited, so it is advisable to bring your own. There is no conditioner available in the rooms.
10. Creamer for coffee, if you like it: Access to creamer is spotty in the UNHCR headquarters.
11. A converter from the three-prong to Kenyan outlets: The two-pronged SA chargers will fit in the bottom two holes of the Kenyan outlets, however you have to push the top one down (with a pen cap, for example) before they can be inserted.
12. Small gifts for participants or others who support you: These were not expected but went over very well. I took dried mango and pens, and the refugees were very excited over the mango. UNHCR staff like to play games, and there is not much entertainment around, so a travel version of checkers went over well with them. Small packets of good soap which I brought from the hotel in Nairobi were also very appreciated by the cleaning staff.

Food



Image 15: Lunch

Prepare to eat a lot of goat meat and probably lose some weight. There is no shortage of food and it is very healthy – beans, greens, veggies, rice and meat. We did get chips one day for lunch.

You may also have an opportunity to try camel meat or milk, as the Turkana do herd camels.

I recommend bringing along some snacks which will not melt.

Other camp notes

If you don't buy souvenirs, you will spend very little money while in Kakuma (but you should buy souvenirs). Meals at the UNHCR cost about 1200 Kenyan shillings per day (\$12), and transport was provided by our hosts, the UNHCR, so there was no need to hire transport (which would not be recommended anyway as most drivers are unlicensed).



There are a number of small business initiatives which you can support while you are there, and it is worth asking the UNHCR staff to direct you. While some of the programme staff were very uncomfortable shopping in the camp markets, they are akin to the markets you will find in other areas of the developing world and were not unfamiliar to me. I went with a member of the UNHCR staff who was familiar with the prices and shops. It is advisable to watch your belongings but it was not a hectic experience. Clothing is a go-to purchase for souvenirs.

There are also some development initiatives which are supported by the UNHCR and its partners. These include tailors in both Kakuma and Kalobeyi who, given enough notice (two to three days), can make items of clothing which are truly spectacular, Ref-threads, which sells bags of various sizes made by community members; the egg shop in Kalobeyi (eggs make decent presents for those who accompany you); and the UNHCR occasionally makes T-shirts and other items for purchase.



Image 16: A camp business

On a final note – one thing which surprised us both was that we were able to take pictures in the camp and the compound without problems or challenges. Parents of children need to be asked first (as well as individuals themselves), but it was not always possible and taking pictures from the vehicle, for example, was not discouraged.



Image 17: At play in Kalobeyi

