

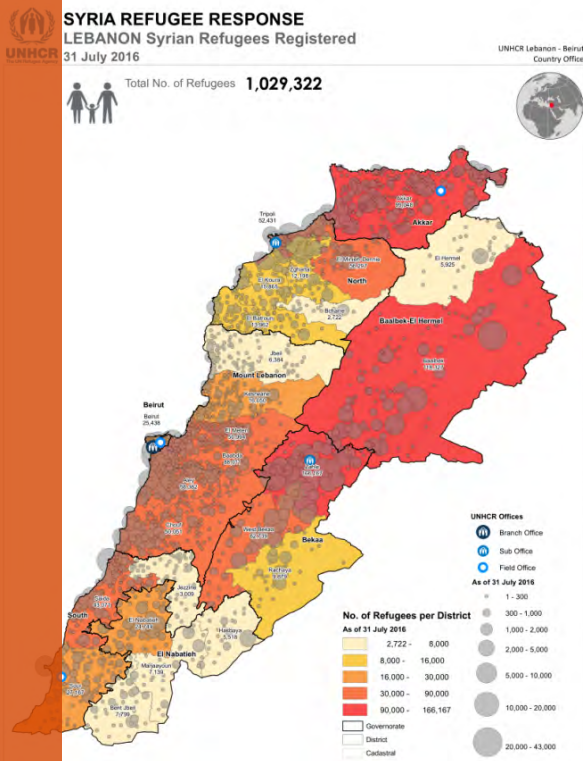


CAPSTONE PROJECT MAY 2017

# DIGITAL CLASSROOM FOUNDATION

Bringing Education to Developing and PostConflict Environments

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Syracuse University

Lebanon Pilot Program for Syrian Refugees




## Executive Summary

The Basic Education Coalition (BEC) finds, "the average conflict lasts 12 years and refugees and IDPs were often displaced for an average of 17 and 20 years respectively." The United Nations identified 28 million out-of-school children residing in conflict zones and comprising 60% of the total population.<sup>1</sup> Education disruption impacts generations in post-conflict societies and developing nations leaving youth unprepared for the labor market, unable to fully participate in civil society reconstruction, and susceptible to return to conflict. Education in post-conflict societies and refugee camps is often impacted by poorly trained teachers, classroom overcrowding, corruption and security issues, and travel distances.

The Digital Classroom Foundation (DCF) intends to develop a pilot program, which mitigates the above-identified issues, for Syrian refugees residing in Lebanon. Lebanon has over 1 million Syrian refugees registered with UNHCR; this population comprises 25% of Lebanon's total population making it the world's largest per capita refugee location. At the beginning of the crisis, 40,000 Syrian refugees enrolled in Lebanon's public schools. This population has grown with the most recent numbers (2014-15) estimated over 106,735 students or 36% of Lebanese public school students. Due to this growth, the Lebanese Ministry of Education (MoE and MEHE) has implemented second shift programs in nearly 259 schools. Identified barriers to refugee education were costs (including travel), security concerns, and conflict with seasonal child labor. This information comes from the World Food Program school feeding assessment.

DCF's goal is to combine already existing technologies and methods in an innovative manner to provide quality literacy and math education in the least permissive, post-conflict environments. Equipment and basic school infrastructure will be delivered in modular containers drawing from current NATO military logistics systems. The delivery methods would be compatible with current United Nations and World Food Program logistics support. Classroom electricity will be provided by a combined generator and renewable energy platforms



(solar and wind). Web-based programs are delivered via satellite or cellular/wi-fi based technology. DCF would like to partner with Facebook to use their Facebook Live application to serve as the classroom instruction platform. The teaching method and instruction modalities will use blended learning and Khan Labs independence levels format. The school's structure is a hub and node design. Teachers will deliver real-time, web-based instruction to classroom nodes established in refugee camps and villages in conflict zones. Teachers are supported by an adult or adolescent facilitators located at the node. The hub-node format mitigates travel issues for both students and teachers, security issues for teachers, housing costs for teachers, improve teacher quality for students in camps or isolated regions, and provide a nimble school platform that can be established in nearly any location where there is a need.



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# 1. Digital Classroom Foundation: Need & Description

## 1.1. The Need for Digital Classrooms

UNICEF and the international community consider access to education and literacy to be a human right, but education goes beyond this tenet to be a means for community resiliency and a tool for crisis recovery. Schools can benefit communities by mitigating economic and sexual exploitation, recruitment into militias, and as a central locale to care and account for youth impacted by the crisis. For children, schools can become a refuge by restoring a sense of normalcy and reestablishing a daily routine. Moreover, schools can become a conduit to provide the necessary skills and knowledge required for crisis survival. In chaotic times, education empowers youth by providing “information on landmine safety, HIV prevention, basic hygiene, healthcare, and methods for peacebuilding.” In caring for children, schools supplement family support systems that once relied on extended family and community members. Furthermore, classrooms can become venues where former belligerent youths can learn to work collaboratively and engage in problem-solving thus becoming a foundation for peace and potentially breaking the conflict cycle.

All too often school buildings in conflict environments sit idle waiting for teacher instruction or are staffed with under qualified local volunteers. A method for delivering quality education while mitigating travel and security issues among already stretched thin teacher resource is necessary. Additionally, we seek to bring education immediately to the 28 million children currently in conflict zones and to build community resiliency among people often displaced up to 20 years.<sup>2</sup> The Digital Classroom Foundation (DCF) is an expeditionary method for deploying education technology and communications resources to refugee camps, villages, and urban spaces. The purpose is to provide advanced learning capabilities to remote locations, insecure environments, and overburdened school systems while providing high-quality, skilled teachers utilizing MoE approved curriculum and testing standards. The technology employed by DCF allows teachers to deliver instruction live and with real-time responses to student questions.



In countries without clear MoE standards; the DCF system will defer to UNESCO and PISA achievement goals. DCF systems are designed to be temporary learning centers, but technology and resources can be transferred to hardstand buildings to create a permanent education solution in remote and less secure locations. DCF uses technology to offer flexible access for students, which can be retrieved at home, via Wi-Fi service, or, preferably, at DCF nodes.

## 1.2. Digital Classroom Foundation Description

The DCF uses current, expeditionary logistics methods, communication technology, and teaching platform synergy to deliver MoE-approved curriculum to refugee, IDP, and remote or underprivileged communities. Its logistics system matches current delivery methods used by the United Nations and other GO and NGO institutions. The communications platforms are globally ubiquitous VSAT and cellular Wi-Fi technology. DCF teaching methods are derived from Khan Labs and Khan Academy. DCF hopes to partner with the Qatar Foundation International (QFI) to translate online modules into Arabic and provide literacy support. The DCF uses a **hub-node** method that allows teachers to broadcast, safely and in a more cost-effective manner, their classes from **hubs** located in urban centers to students in node classrooms. **Nodes** are distributed across the learning community with the saturation goal of a 1:40 teacher to student ratio. The Hub-Node method is innovative for post-conflict environments because it places school access closer to the communities that need schools, reducing travel time for younger and female students thus increasing student safety and reducing travel costs. The same results occur for teachers by placing the hubs in urban centers where living amenities are often better, security is typically more easily maintained, and travel time to the classroom is instantaneous.

## 1.3. Aligning with the UN Sustainable Development Goals

This program synergizes development efforts, working to attain the following UN Sustainable Development Goals among the Syrian refugee population. DCF will work to monitor and evaluate progress in helping to achieve the following specific targets:



**Goal 4: Ensure inclusive and quality education for all and promote lifelong learning**

- Target 4.3: By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including universities.
- Target 4.4: By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.
- Target 4.5: By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations.

**Goal 8: Promote inclusive and sustainable economic growth, employment and decent work for all.**

- Target 8.3: Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services.

**1.4. Program Partnership**

UNHCR, UNICEF, WFP, World Bank, the Qatar Foundation International (QFI) are the current collaborating partners within the Syrian refugees' education coalition. Along with the MoE, these organizations have specialized expertise to uniquely position them as key educational service providers within the Lebanese public school system and refugee communities. DCF will involve different actors from these organizations in order to keep cost to a minimum through the sharing of available resources. WFP is currently on the ground providing nutritious meals for refugee and indigent children in schools. The program has been successful thus far, especially following the Lebanese government's crackdown on street peddling by Syrian children and their families. Our program will rely on WFP to provide meals for




students enrolled in the DCF's program. DCF would like to partner with WFP for logistics support during nodes site establishment.

## 2. Syrian Refugee Situation & Lebanon Context

### 2.1. Pilot Program Location/Community Description

According to a 2015 UNHCR report “poverty drives refugee families, particularly in the Bekaa region to send children and youth to work.” The majority of the refugees registered in Lebanon came from the Northern Governorates of Homs (21.4%), and Aleppo (20.5%) or from rural Damascus (14.1%) and about 85% of these refugees are settled in 3 governorates in Lebanon: Bekaa (36%), North Lebanon (25%), and Mount Lebanon (25%).<sup>3</sup> The Syrian refugee population includes a large percentage of children and youth coming from low socioeconomic backgrounds, and a large percentage of women heads of households. Although we recognize that there is greater need in The Bekaa and Northern Lebanon, the program will be piloted in the Mount Lebanon region because of its proximity to the central government and MoE. The Bekaa and Northern Lebanon areas are under the control of different factions such as Hezbollah in the Beqaa and Sunni fighters in the North. It is, therefore, risky to send supervisors or IT technicians there, and even transport equipment that could be stolen or vandalized. The urban areas in Mount Lebanon are better equipped in terms of teachers and infrastructure, and they will be closer to headquarters of other UN organizations operating in Lebanon. If the pilot program proves successful, we will take our successes and our lessons learned to the two other regions in Lebanon.

Prior to the Syrian crisis, educational attainment was quite low, with only 9.5% of the Syrian population completing secondary school, and it is even lower for the refugee population. It is important to note that 86% of youth refugees in Lebanon have been successfully receiving primary education, which leads us to conclude that the need is higher at the secondary level than it is at the primary level.



“The Syrian population differs in terms of composition and structure from the population in Lebanon. Syrians tend to be younger, are more likely to work in agriculture, and less likely to work in services. Most Syrian refugees may not be qualified to work in the employment categories sought after in the economy of Lebanon. Lack of qualifications, combined with tight restrictions to enter the Jordanian and Lebanese labor markets, will compel many refugees to move to low-paid and low-skilled employment. Another severe consequence is the resulting erosion in skills and employability of Syrian refugees, which may affect the long-term development trajectory of the Syrian economy after the crisis.”<sup>4</sup>

## 2.2. Public schools in Lebanon

Lebanon has one of the highest literacy rates in the region due to its well-developed system of education which is compulsory for males and females till the age of 16. The system is divided into two sectors; private and public. Both private and public schools follow the curricula established by the Lebanese Ministry of Education. “Education in Lebanon is highly privatized with less than a third of the Lebanese school-aged children enrolled in public schools.”<sup>5</sup>

There are four levels of education in Lebanon which include the primary level for six years, the intermediate level for three years, the secondary level for three years, and the tertiary level. The first three levels are free for any child who attends public school and the first eight years are compulsory by law. The medium of education is Arabic in public schools and universities, except for math and sciences, which are taught either in English or French. French and English are the medium of education for most private schools and universities. Only public schools will be examined for the purpose of this project. Upon finishing primary school, students move to an intermediate school where they are separated into one of three paths: Path 1 is a three-year academic program that prepares students for entry into mainstream secondary education. Path 2 is a three-year vocational program that prepares students for vocational schools or teacher training centers. Path 3 is a three-year technical program that prepares students for less skilled trades.



Students earn an intermediate certification following national examinations. Secondary school education will follow the three paths that students have graduated from in the intermediate level. Upon passing a baccalaureate examination administered nationwide students continue to tertiary education either at a College, University, or a vocational training school.

According to a UNHCR report “Lebanon has 1,365 public schools, most of which are located in Akkar (North), the Bekaa and the South, with the highest concentration of Lebanese students and Syrian refugees who attend the same schools. The refugee students render schools inaccessible or overcrowded, resulting in 37,289 Syrian students on ‘waiting lists’ in 2013.”<sup>6</sup> The government-run facilities are usually poorly equipped and lacking many of the amenities such as libraries, laboratories, and playgrounds that private schools have. Public schools, especially in rural areas, are understaffed, which has led to chronic extreme overcrowding (up to 50:1) in the classroom and poor teaching outcomes in comparison with private institutions. UNHCR reports that “poor school infrastructure, deteriorated WASH facilities and the lack of any usable recreational facilities affect the overall educational experience for all public school students, especially with the pressure imposed by the second shift on available facilities.” According to a public school teacher and political activist Walid Daou, only 8 out of 1000 students graduate from high school in public schools.<sup>7</sup> In 2010, the Lebanese government established a five-year plan to develop and reform public education, but this plan has been sidetracked by the influx of Syrian refugees since 2011.

### **2.3. Student Demographics in Public Schools**

Since the start of the Syrian War in 2011, neighboring countries have been struggling to accommodate the influx of refugees into their cities and villages. In Lebanon, Syrian refugees do not live in refugee camps set up by UNHCR, but they are spread across the country living in empty buildings or renting rooms or apartments according to their socio-economic status. Syrian children and youth have suffered the most because their education was interrupted due to the war, and many were forced to take on adult roles prematurely to help their families. At the secondary level specifically, demand far outweighs supply, leaving the majority of refugee youth




excluded from quality formal and non-formal education. In Lebanon, secondary level public schools are under-resourced and overcrowded in spite of the double-shift system. Self-settled refugee communities tend to find housing in affordable areas, removed from central city locations where schools are more widely available. This means students have to travel and incur those costs to continue their education. Refugee students require institutional certification and

**Figure 1. Enrollment Trends of Lebanese and Syrian students**

Enrollment numbers from Ministry of Education and Higher Education (MEHE) and Center for Educational Research and Development (CERD), March 2016.

School Year	2011-12	2012-13	2013-14	2014-15	2015-16
Number of UNHCR registered refugees aged 3-18	<6,000	45,350	327,900	501,765	487,723
Number of Lebanese enrolled in all public school grades K-12	248,826	247,723	238,928	237,872	249,494
Number of Syrian refugees enrolled in public pre-school	3,794	5,281	12,557	6,632	17,719
Number of Syrian refugees enrolled in public school Grades 1-9, all shifts	14,190	36,905	79,240	91,493	122,716
Number of Syrian refugees enrolled in public secondary school Grades 10-12, all shifts	796	1,351	1,830	1,155	1,287
Percentage of students in first-shift public schools that are Syrian refugees, all grades	8%	18%	26%	17%	23%
Number of Syrian refugees in second-shift public schools	N/A	N/A	30,418	59,024	83,675

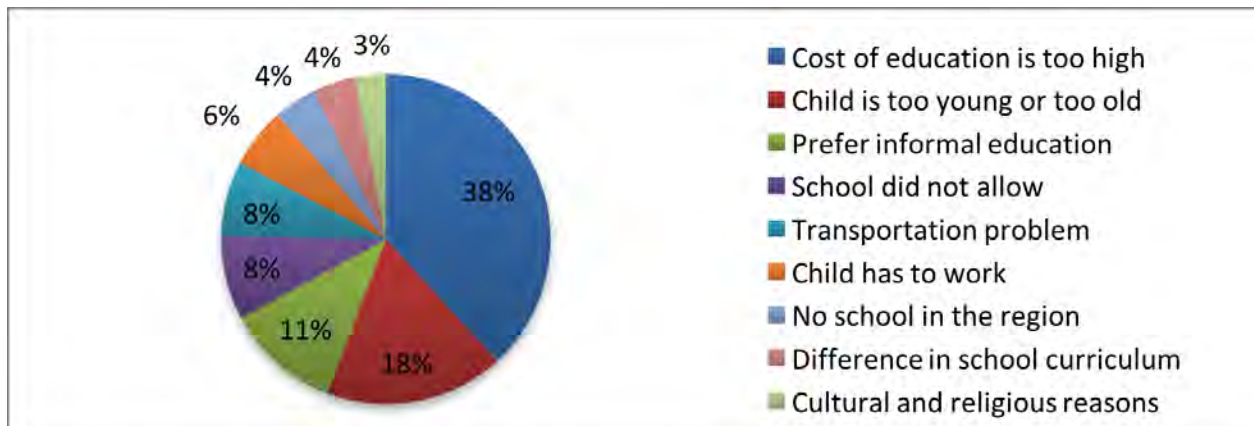


accreditation for formal and non-formal education to ensure any qualifications attained outside of Syria will be recognized upon return home or in other countries.<sup>8</sup>

Self-settled refugees living outside camp settings make up the majority of students. For this population, access to local public schooling is highly limited, which can prolong the time spent without formal education. Double shift systems, in the morning and afternoon, were used to expand the available space in schools. The afternoon's second shift is largely dedicated to refugee students. This system has come under criticism for reducing learning time, separating refugee and host community students, eliminating expressive arts and sports activities and positioning less experienced teachers to deliver the second shift.<sup>9</sup> The morning shift program which lasts 6 hours includes Lebanese and Syrian students who seem to benefit much more than students in the afternoon classes. The afternoon shift is 4-hour long and students are segregated by nationality. Students who attend the afternoon shift are usually among the poorest and the least likely to succeed. The afternoon shift has the highest rate of students' attrition; this is especially true for boys at the secondary school level. Regarding education and learning, there is a marked lack of opportunity for young people to learn the skills and gain the experience relevant to domestic and global labor market needs.<sup>10</sup> Moreover, older students who come from the Syrian education system are not well prepared for the demands of the Lebanese curricula, especially in STEM fields. The medium of teaching for STEM is French or English, two languages that Syrian children have not learned in their schools. Syrian children at the elementary level have less trouble adjusting to the language issue than their older counterparts, and seem to be more likely to succeed.


Upon their return to Syria, refugee populations hope to have the skills necessary for the reconstruction and peacebuilding efforts of their country. For this to happen, they should have the necessary education to be employable in the workforce. In the short-term, however, long-term peace in the Middle East region would be contingent upon providing young people productive and rewarding alternatives to joining the ongoing conflict. With these objectives in mind, the project will be working with youth aged 15-18 to help them learn academic and practical skills during their time in Lebanon's public schools.

**Figure 2: Reasons for Being out of School for Children Aged 5 to 17 (data for 28,351 out-of-school children out of a sample of 57,577 refugee children). From: UNHCR Household Survey, March 2016.**



## 2.4. Teacher Demographics in Public Schools

Lebanon is not signatory to the UNHCR’s 1951 Refugees Convention, but the Lebanese government is still bound by other Human Rights treaties such as the Universal Declaration of Human Rights to provide equal access to education to all children in the country, including refugees. MEHE addressed the growing needs of Syrian youth in Lebanon through the creation of the RACE (Reaching All Children with Education) program. Through this program, MEHE implemented double shifts in public schools with mostly Lebanese children attending in the morning and Syrians attending in the afternoon. Afternoon shifts are shorter (four hours) than morning shifts (six hours) and there are complaints of poor quality of education and teachers’ chronic absenteeism. On the other hand, teachers in the public schools have had to accommodate the double shifts, working long hours, and attending the ongoing training and supervision to conform with quality standards. Classrooms, which were predominantly overcrowded, are now dealing with complex psychological and social issues, requiring “careful lesson planning, strong classroom management skills and positive discipline strategies.”<sup>11</sup> Many teachers in public schools have basic training to start with and are paid low salaries, which forces them to look for secondary jobs to supplement their income. “This in turn jeopardizes teaching



quality, with limited capacity for teachers to dedicate time to lesson planning and in-service training. Without adequate salaries, support and training educational staff will struggle to deliver high quality education and respond to the complex issues presented in the classroom.”<sup>12</sup>

Moreover, teaching methods in public schools in Lebanon rely on rote memorization for student learning, and classrooms are mostly teacher centered with little opportunity for students’ participation. The poor quality of education, especially during the afternoon shifts, is compounded by the lack of support at home where many parents are either illiterate or too busy to support the academic needs of their children. MEHE, as well as international NGOs have recognized the need to increase the number of teachers and offer more training. This has led to initiatives such as “collectively training Lebanese and Syrian teachers on learner-centered approaches and INEE’s minimum standards for education in emergencies.”<sup>13</sup>

### **3. DCF Goals**

#### **3.1. Short Term Goals**

The program’s short term goals are to start a pilot project aimed at decreasing the student volume in public secondary schools in the Mount Lebanon area by 400 students. This decrease will alleviate the pressure on the delivery of education services to Syrian refugees as well as indigent Lebanese youth through the use of an online delivery system. The main goal is to attain these results during the first year of the creation of the program. If successful, the program will work to increase students’ enrollment in the digital classroom model doubling it each year. Older Students will be recruited following the administration of the Wechsler Adult Intelligence Scale (WAIS) which is the standard test for testing youth 16 and older, and through informal conversations to assess their abilities, interests, and level of educational attainment. The project will utilize psychologists already on staff at MEHE in order to cut down on the cost of testing and evaluation. Youth who are deemed capable of working independently and who are motivated to enroll in the program will be given high priority. If the numbers fall below the expected enrollment, then we will recruit from an alternate list of students. Social workers with MEHE will visit families of selected students to explain the project and incentivize them to enroll their





children in the program. The purpose is to keep students as long as possible in schools to give them the opportunity to learn more life and academic skills before joining the adult workforce.

Students perceived as leaders among their peers will be particularly encouraged to remain in the classroom through giving them the opportunity to be paid tutors to new recruits within the program. Students who are struggling and special needs students will be given plenty of opportunities to practice and will be paired with peer tutors selected among the students discussed above. Due to cultural and religious constraints, students will be segregated by gender since the successful recruitment of students, and the long-term success of the program might be contingent upon this condition. Female nodes will be established closer to home communities.

### **3.2. Long Term Goals**

The project's long term goal is to graduate 50% of the student population enrolled in the program in the next four years. The students' selection process will measure a baseline of their learning capacity. Testing will be done in partnership with local school psychologists who will assess students' abilities and interests. Students will be divided into six independence levels. The baseline education level is an 8th grade literacy and numeracy, and the goal is to select  $\frac{1}{3}$  of the students and give them a vocational education followed by apprenticeship and eventual employment.

## **4. Implementation Plan by Phase**

### **Phase I – Relationship Development**

This phase begins with outreach to the Lebanese Ministry of Education (MoE) and critical partners for program endorsement and implementation. The phase ends with a memorandum of understanding with the MoE, United Nations (namely the World Food Program), Khan Academy, Qatar Foundation International, and Facebook to provide material and proprietary support to the Digital Classroom Foundation (DCF). Further monetary support


will be derived internationally from governments (GO) and non-governmental (NGO) organizations.

The Relationship Development phase is the foundation for all future operations. During this phase, DCF must gain MoE permission to provide educational support to Syrian refugee children, an endorsement to use Lebanese teachers for digital classroom instruction, approval to change to a blended learning curriculum and to find physical space for both hub and node sites. Additionally, DCF requires permission to use Khan Academy's independence levels and teaching materials. QFI is leveraged for curricula translation from English to Arabic and Arabic literacy classes for Syrian students. Finally, Facebook will be engaged to utilize the *Facebook Live app* as a platform for real-time classroom instruction from the hub schools to node sites. DCF believes that Facebook will be willing to use their *Live app* to deliver instruction because of their desire to provide philanthropic innovation to developing nations.

Lastly, WFP has a feeding program for public school students in Lebanon. They have the lift capacity and logistics knowledge to support the delivery of node assets to the Mt Lebanon region. DCF would like logistic support from WFP to deliver a total of 20 QUADCON containers to five different node sites (4 to each) in the program's first year and doubling over the following two years. Further, DCF requires monetary support from GO/NGOs to fund payroll, rent office space, and purchase equipment. Total costs can be found in the budget section. Comparative analysis of digital classroom establishment and new school construction places the digital classroom at a lower price by several hundred thousand dollars. By Replicating the digital classroom over multiple regions, the MoE can educate children more efficiently and in an economical manner.

## **Phase II – DCF Program/MoE Curriculum Alignment**

This phase begins with identifying the MoE's desired learning end state by grade and correlating those outcomes with Khan Labs' independence levels. The phase ends with the material fully translated by QFI and MoE approval for the blended learning curriculum. These facets are necessary for the hub – node format to work.



During curriculum alignment, DCF will match math, science, and Arabic language lessons from Khan Academy and QFI materials with current Lebanese public school curricula to meet or exceed learning standards. It is imperative to gain support from the MoE for Khan Labs' independence levels, blended learning methods, and online material because these program aspects allow teachers to effectively instruct students from hub locations and increase learning capacity for students.

### **Phase III – Digital Classroom Site Selection**

This phase begins with assessing Syrian student needs in Mt Lebanon refugee communities. It ends with the selection of two locations for hubs and multiple locations (up to five) to establish classroom nodes. Schools selected as hub locations must have dedicated electric utility service and space for computer servers, a class for up to 20 computers, and dedicated rooms for five teachers to broadcast lessons to node sites. Establishing nodes sites are discussed at length in the User's Manual section but can be deployed off-grid, require approximately 50m x 50m space, and direct road access. The Syrian student population at each node site include 80 students from multiple learning levels per location. Older students may be expected to travel farther to attend node sites delivering their appropriate independence level. The goal is to set up node sites within walking distance for all Syrian students. The end result is two hubs with five teachers each delivering classes to 400 students learning in five node locations.

Furthermore, node sites are vetted by both WFP and VSAT service provider. The WFP will gauge locations for logistical parameters to ensure timely equipment delivery. VSAT providers will assess the area's ability to achieve line of sight between the satellite and node receiver. Node sites are also judged for their capacity to support the node's electrical needs either through utility infrastructure or renewable sources. Solar capabilities will require a two-panel minimum with six continuous hours of direct sunlight. Wind and water energy parameters will be established based upon need, equipment, and resources at the chosen location. DCF staff will work with MoE to analyze the student population size and anticipate the numbers by

independence level at potential node locations. Three to five node locations will be selected based on these parameters.

## **Phase IV – Teacher Training 10 Weeks**

This phase begins with receiving ten teachers and 20 classroom facilitators to train DCF blended learning modalities, Khan Labs' independence levels, hub and node set-up, and DCF standards for maintenance and support. The course will take place during summer break and comprise ten weeks of training. DCF would like to provide an incentive stipend to the teachers participating in this class to supplement MoE salaries. Stipend size will depend on budget support received from GO/NGO community or United Nations.


This phase ends with all teachers understanding blended learning modalities and Khan Labs independence level methods. Moreover, teachers will have established classroom Facebook accounts, received their technology package, and class assignment. Facilitators will receive training on program methods, node site setup, and technical maintenance.

## **Phase V – Equipment Delivery & Site Staging**

This phase begins with receiving equipment at port and transport either directly to node sites or DCF storage facility. The phase ends with all hub and node locations established and communications tests complete (approximately one week before the school year begins). Hubs and nodes are constructed as described in the User's' Manual section.

This phase is logistics and staff intensive. Node site establishment will require community or day-laborer help. DCF staff will coordinate among WFP, Lebanese traffic police, and workers at node sites to reduce friction points in equipment delivery. DCF staff will conduct a route reconnaissance with WFP drivers 24 hours before delivery. Node site equipment delivery will be carried out before early in the morning to mitigate traffic issues in densely populated areas.

During setup, DCF staff will visit locations to monitor progress and confirm proper site layout. DCF will synchronize with VSAT contractors to install communications equipment. As



satellite equipment is installed, DCF staff will conduct thorough communications checks between hub and node sites. DCF will sign responsibility for the proper care and maintenance of hub and node equipment to the responsible MoE parties. MoE will be responsible for any material loss, pilferage, or damage due to negligence. Equipment under contract service and support will be the responsibility of the contracted company (primarily VSAT equipment).


## **Phase VI – Digital Classroom Program Support**

This phase begins at the school year's start and ends with data collection relevant to student progress, test scores, and teacher surveys. The goal is for all participating students to achieve academic growth over the year. DCF would consider the program a success if 25% of all students progressed to the next independence level and all participants were literate and numerate at the primary MoE standard. Success among the teacher population would be measured by the ease of use and the ability to alleviate some of the workloads when compared to the previous system. MoE is responsible for distributing and collecting student release forms. Additionally, the MoE provides baseline test data from the past year or the beginning of school, as well as the end of year exam data.

During this phase, DCF will also assess the facilitators' ability to maintain equipment, support students at the node, and prevent pilferage. DCF staff will conduct weekly checks to ensure standard operating procedures are used. From these weekly assessments, DCF may implement additional support methods and hire more support from either Lebanese nationals or the refugee community.

## **Phase VII – Program Assessment**

Activities for this phase are conducted throughout the school year by first collecting baseline data and then comparing data to both the baseline and other Lebanese public schools, which will serve as evaluation controls. The phase begins with the compilation of all data and ends with published findings delivered first to the MoE and then to DCF program partners. If the program meets the outlined success standards (found in Phase VI), then DCF will seek further



funding and continued program growth for 2019 in the Mt. Lebanon region. Program growth will require an upscaling evaluation and the eventual hiring of more staff, teachers, and facilitators. Additional hiring also produces a need for another 10-week training cycle.

## Phase VIII – Program Expansion into Bekaa Valley and Northern Lebanon

This phase begins with a regional needs assessment based on student population, teacher capacity, and MoE recommendations. The phase ends with temporary DCF branch office establishment in provincial capital or centrally located cities to enable program growth. DCF will replicate methods used in Phases II through VII and adapt methods to meet the needs on the ground. Further still, DCF intends to meet with local leaders to establish working relationships and identify locally specific concerns. During this phase, WPF and DCF staff will collaborate to identify supply chain challenges and required delivery methods for DCF equipment.

## 5. Long-Term Vision of Success

### 5.1. Program Impact

This program ultimately aims to improve the education and economic status of Syrian and indigent Lebanese students for a better future. Within a five-year timeframe, the Program puts forth the following Program impact analysis, based upon the construction of 40 individual program facilities:

#### 1 Year

- Number of Centers: 5
- Number of Students: 400 - 5 Centers x 80 students per Center
- Number of graduating students: 160

#### 2 Years

- Number of students: 800 - 80/class X 10 individual sites, every year, after first 2 years of program



- Number of graduating students: 320 students

### 3 Years

- Number of students: 1,600 - 80/class X 20 individual sites,
- Number of Graduating students: 640

### 4 Years

- Number of new Centers in other areas in Lebanon: 5 in Beqaa and 5 in North Lebanon
- Number of Students: 2,400 - 30 Centers x 80 students per Center

### 5 Years

- Number of new Centers in other areas in Lebanon: 10 in Beqaa and 10 in North Lebanon
- Number of Students in total: 3200

## 6. Budget

### 6.1. Overall Estimated Program Budget

The following draft program budget is based upon a 40 site construction. The overall budget, as well as the number of individual program sites can easily be adjusted based upon funding and support received by the joint program partners as well as outside interested donors. The following program budget is divided by start-up costs, the costs for one year of program operations, as well as an overall budget estimation for five years of program implementation. Startup expenses are estimated to be roughly \$683,415. Main start-up expenditures are from the procurement of 7 Quad Con classroom facilities as well as Bandwidths. The other expenses for program startup are material purchase as well as costs related to curriculum and program development.



Fig.3 Five Year Budget

Five Year Budget Plan	
Startup expenses	\$608,449.00
First Year expenses	\$359,000.00
Second Year expenses	\$801,255.00
Total Two Year Budgetary Expenses	\$1,602,510.00
Total Five Year Budgetary Expenses	\$4,571,705.00

Transitioning from construction to program implementation, major budgetary expenses shifts from capital expenditures to personnel costs. One year of program operations is budgeted at roughly \$ 324,100. Over a five-year period, the overall budget is estimated at \$ 4,571,705.00 for all program sites. The programming partners (UNHCR, UNICEF, WFP, as well as MoE) aim to (with the assistance of outside donors) cover the full programming costs for a minimum five period pilot phase within Lebanon refugees areas. The intent of this program proposal is to replicate in areas with high refugee populations within Lebanon and the Arab region.

## 7. Sustainability & Fundraising Strategy

### 7.1. Program Sustainability

Since UNHCR, UNICEF, and WFP are currently, and will continue to finance operations within Lebanon’s refugee population, this program model is particularly sustainable. Facility and operational costs will be covered by the three organizations, though it will seek additional assistance from outside partners. During Program expansion, additional programs will be





implemented in other parts of the country where refugees are located and which are administered by the three program partners.

## 7.2. Program Fundraising Strategy

For funding, the Program aims to partner with organizations such as the Bill & Melinda Gates Foundation, and other organizations who might find the program's objectives appealing. The program will also seek partnerships with private sector companies interested in public-private partnerships in Lebanon and in new and emerging markets within the region. For this reason, a special focus will be placed on leveraging partnerships with IT private sector companies. In addition, the program will seek additional financial support from other bilateral donors, such as USAID, with a special effort to partner with bilateral donors in the region, such as with the United Arab Emirates and Qatar. The program is also open to partnering with the World Bank.

With this joint Program proposal, the Program partners will be actively marketing the Program, and seeking financial partners throughout the first 10 months until program implementation. Ultimately, this program has been designed to have the capacity to be supported by the joint program organizations (UNHCR, UNICEF, and WFP).

## 8. Program Monitoring & Evaluation

### 8.1. Program Monitoring Strategies

Teachers and program managers will monitor the program to gather data related to enrollment, attendance, as well as rate of completion as necessary. Such data will be utilized to address Program issues and to devise ways of overcoming programming shortcomings in the short term.

#### Indicators

- Program enrollment rates
- Program attendance



- Program Graduation Rate
- Future Apprenticeship placement rate
- Success of expansion

## 8.2. Program Evaluation Strategies

Program managers will gather the data and communicate with the Program's committee on a monthly basis. These data points will be used to form the basis of the committee's annual overall programmatic review. Additionally, in the program's first four-years, after the first student cohort's graduation, the committee will begin tracking job placement and student employment status through a biannual review.

### Indicators

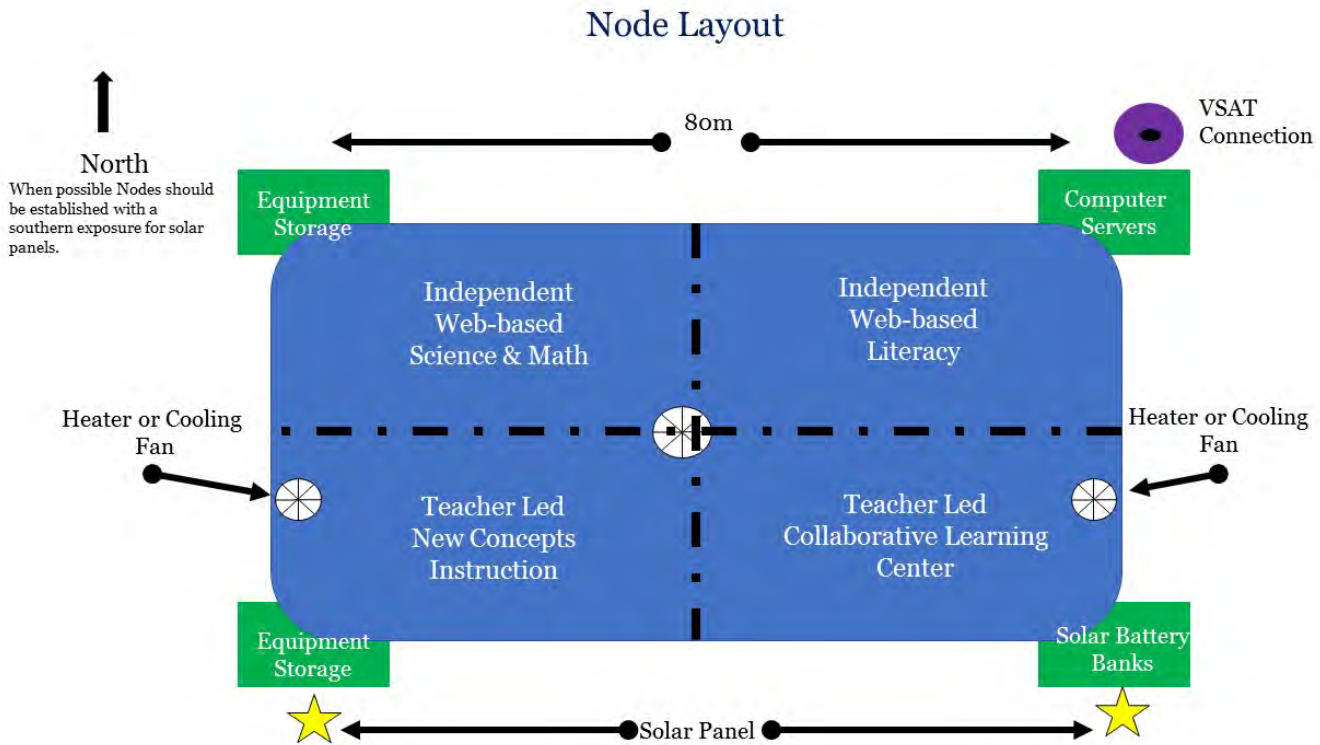
- Graduation and attrition rates of the Program
- Number of graduates working within their sector after completing the program
- Sustainability of employment beyond the first year

## 9. Program User's Manual

### 9.1. User's Manual for Establishing a Node & Hub


#### 9.1.1. Node Layout & Orientation

Node equipment is delivered one week before the beginning of the school year and will require oversight and checks to prevent pilferage. Empty Quadcons or the classroom tent can be used to shelter facilitators acting as site security. On delivery day, facilitators will ensure that two equipment storage Quadcons are placed at the node site's western edge approximately 40m apart on a north/south axis. Computer server and solar equipment Quadcons are placed 40m apart from each other on a north/south axis and 80m from the equipment storage Quadcons along the site's easterly edge. The result should be a rectangle 40m x 80m with the longest axis running from west to east.



An “x” with symbols are sprayed by DCF staff prior to delivery for the placement of all Quadcons. All four Quadcons serve as a corner base for four tents. The tent frames are attached to each other and the Quadcons. Then the tent canvas is placed on top dividing the space into four classrooms.

The site layout is essential for equipment maintenance and longevity. Computer servers are set in the northeastern corner to reduce ambient heat, and solar equipment aligns on the long southern axis for efficient collection. These items are located on the eastern side to decrease dust from westerly winds. Nodes operating in the southern hemisphere would employ an inverse layout. The web-based, independent work classrooms will have 10 each two-by-two desks with a total of 40 computers (20 in each class). The teacher-led classrooms will have a large television/monitor with two computers and 10 two by two desks for students in each location (total 2 televisions and 4 computers). A large fan or heater is centrally placed, and smaller fans or heaters are placed in either the northern or southern classrooms as necessary.

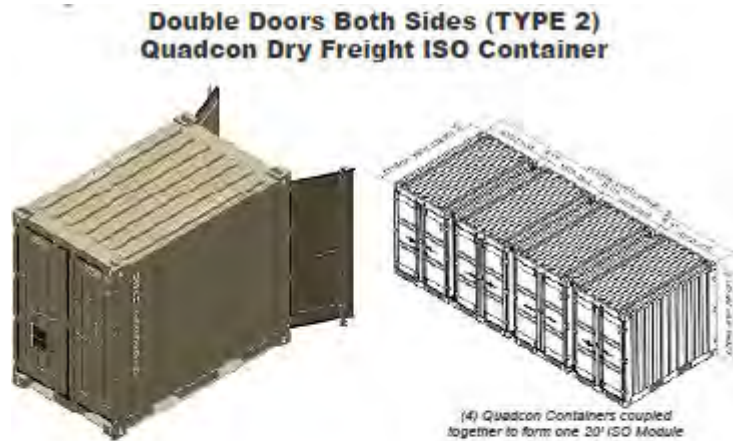


The digital classroom is technology based requiring daily equipment maintenance. Facilitators will ensure students wipe down, blow-out or vacuum all computers before leaving the Node site. Computers are also placed in cases at the day's end and locked in a storage Quadcon. Facilitators will vacuum or blow-out, with forced air, the computer servers, and solar battery banks. Facilitators check all wires and connections weekly. VSAT is serviced by a contracted provider monthly. DCF staff will check node sites monthly at a minimum. Tent canvas will be examined every six months and replaced when needed or every five years, whichever occurs first.

Hubs are established in brick and mortar locations with dedicated electrical infrastructure. Each teacher will have their office or classroom space with a whiteboard or chalkboard, curriculum materials, television/monitor (to view their class at the node site), and laptop or computer with a webcam to broadcast from hub to node site. Hubs are connected to node sites virtually by VSAT communications. Teachers use a web-based platform to facilitate two-way instruction.

#### 9.1.2. Node Equipment Description and Function

**DCF Shipping Containers and Method**—DCF systems will use military style QUADCON containers to house all node hardware and classroom supplies. Four QUADCONs will carry all the necessary material to service 80 students. The Four QUADCONs serve not only a delivery method but also as secure storage for equipment, when not in use, and as bases for the classroom's canvass tent roofing system. Telescopic pole systems will be attached to the QUADCON tops to create a simple framed, tent roof. Tent canvas matching those used by UNHCR will be used to cover the classroom space protecting students and electronic equipment from the elements.



#### PRODUCT FEATURES

##### STANDARD FEATURES


- Corrugated steel sides, roof, and functional swing doors on both sides
- Heavy duty steel floor
- Four-way fork lift pockets
- Wall tie down steel lashing rings, 2,000 lbs. cap., tested at 3,000 lbs. each, (16) total
- Vents, (2) each in door panels

##### OPTIONAL FEATURES

- Connecting couplers, (3) per Quadcon
- Connecting coupler storage bracket, (1) each

Graphic derived from: <http://www.globalsecurity.org/military/library/policy/army/fm/55-80/appe.htm>

QUADCONs were first deployed as part the Marine Corps' Family of Intermediate Size Containers and were adopted by other DoD branches. This system is fast becoming the primary Equipment Deployment and Storage Systems (EDSS) container for surface movements. This system has corner fittings to allow for coupling QUADCONs together into 20-foot arrays. The container is designed to be lifted as four connected units and moved as a 20-foot unit in ocean shipping. The QUADCON is certified to meet all ANSI/ISO standards and CSC approvals. The containers can be moved using a wrench device or decoupled for forklift movement. Each has four-way forklift pockets and lockable double doors on each end that provide full access to the contents. A storage cabinet can be installed, or removable inserts shelves to accommodate smaller items.<sup>14</sup> For DCF's purposes, QUADCONs can be purchased through Sea Box Inc and other civilian companies at a single purchase rate of approximately \$4,800.<sup>15</sup>



**Power Generation**—DCF’s goal is to have self-sustaining, off-grid systems that primarily use renewable energy to power classrooms. DCF recognizes that not all situations will be optimal for renewable capabilities. Future operations will require certified electricians to safely and legal tie DCF nodes to access existing electrical infrastructure. To remain expeditionary DCF may use petroleum powered generator systems where renewables prove to be less efficient. In instances where generators are employed additional budget resources will be required for fuel purchase and delivery.

**Generators**—Commercial off the shelf generators cost between \$3-5,000 per unit with varying warranties and multiple fueling methods to include gas, diesel, propane, and natural gas. These systems are typically 200 amp/ 20kW models that provide enough power to run DCF system servers, computers, lights and two air-conditioning or heating units or multiple fans. These units could also be hardwired into buildings for long-term use.

**Solar Power**—Companies like MILSPRAY could provide the necessary power sources for DCF systems and are compatible with QUADCON logistics. This company produces expeditionary units with power outputs ranging from 2 kW up to 60 kW. The units also meet the 3 phase standards for power generated equipment. Scorpion Energy Hunter produces up to 18 kW (120 V, 208 V AC, 60 Hz) three-phase to meet the power challenges presented by different equipment. MILSPRAY designed equipment to ensure power quality in addition to off-grid availability. The Scorpion system can handle surges to almost 40 kW to maintain its 18 kW of continuous output power and in desert environments can be a stand-alone resource. (All data derived from MILSPRAY)<sup>16</sup>



Photo derived from: <http://www.milspray.com/products-services/scorpion-renewable-energy-systems/general-info>

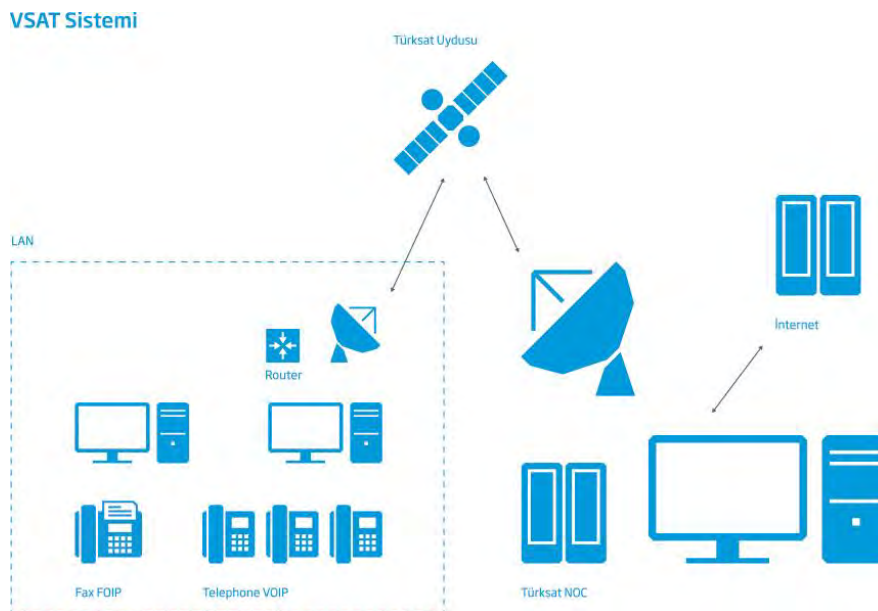
Harvested energy is not always available at the time it is needed. Excess solar above and beyond required loads are used to charge the batteries. Cycling and equipment density determine the right battery technology; system batteries are selected to handle temperature extremes and “deep cycling.” Some options are lead-acid, and lithium-ion chemistries, common among deployable renewable energy systems because of their flexibility and proven track records in deployment environments such as Afghanistan and Iraq. These batteries offer the high kilowatt-hour per volume and long run times required by DCF systems. These renewable power systems have been deployed in Afghanistan where a 60-kW FlexGen system reportedly saved 50 to 70 percent in fuel in microgrid environments when used with generators.<sup>17</sup>

**Wind Power**—Wind power has been used in developing countries for many years to run irrigation systems and small-scale electricity generation. Small wind turbine systems have capacities ranging from 50 W to 10 kW based on rotor diameter ranging from about 0.5 m to 7 m. These systems are primarily used for battery charging and match arrays set-up for solar collection systems. Up to eight small wind turbine masts can be attached to the DCF QUADCON




bases for supplemental power to solar or generator power systems. (All data derived from Wind Energy Foundation)<sup>18</sup>

**Communication**—The program uses either VSAT or cellular Wi-Fi to transmit course instruction and learning material from the hubs to nodes. For this program's purpose and other near, future operations VSAT will be the primary communication method. VSAT stands for very small aperture terminal, which is the antennae description ranging from 30-48 inches. VSAT is an easy set-up, mobile telecommunication earth station that transmits and receives information in real-time via satellite. Data delivery rates are optimally delivered at 16 megabits per second (Mbits/s). This technology was created in 1960 to facilitate communications for space exploration and was first used commercially to transmit the Tokyo Olympics in 1964. Today, VSATs are ubiquitous in the developing world for television and internet transmission. The technology is widely used by the military and aid organizations to meet various communications needs. VSAT is likely the cheapest and most widely recognized communications method for our program partners.



Graphic derived from: <https://www.turksat.com.tr/en/satellite/satellite-services/vsat/turksat-vsat>





The program uses VSAT to transmit broadband signals carrying classroom instruction video or web-based learning from hubs to orbital satellites that deliver to nodes within the learning community (see graphic above). These end user nodes have boxes that act as an interface between the node server and the external, satellite dish transceiver. The satellite transceiver sends data to and receives data from a geostationary satellite in orbit. The satellite transmits and receives signals from both teachers in hubs and students in the nodes. Each end user is connected to each other through the satellite in a star topology. VSATs are most commonly used to transmit broadband data to provide internet access to remote locations, Voice over Internet Protocol (VoIP) or video feeds. Standard systems have 4Kbits/s up to 16 Mbits/s data delivery rates. (All data derived from Tech Target)<sup>19</sup>

## **9.2. User’s Manual for Teachers and Facilitators Activities at the Hub & Node**

### 9.2.1. Node Activities Description

Node sites are divided into four classrooms to serve students from multiple independence levels. Each location can support four of six Khan Labs independence levels described below. Each of the four node classrooms are meant to support a 20-student limit for a total of 80 students. Two spaces feature teacher led instruction, for new concepts and group learning, while two other classrooms feature web-based learning in STEM and literacy. Node facilitators are present to help students with technology, answer simple questions, facilitate breaks, and to keep students on learning tasks. Facilitators, at the node, work in tandem with teachers, located at the hub, to ensure an active learning environment.

During the school day, half the students at the node will either perform individual work on web-based material or receive teacher-facilitated instruction for a blended learning method. A web-based platform is used to deliver course content to students in real-time. Higher independence levels will begin the day with individual work, and lower levels will start with teacher-led instruction.


### 9.2.2. Instruction Delivery Method

DCF would like to work with Facebook to use their *Facebook Live* app to provide real-time two-way communication between teachers at the hub and students at nodes. Each teacher will have a DCF Facebook account, and each node will have two DCF Facebook accounts. During teacher-led classes, students "follow" their teacher's *Facebook Live* feed to receive instruction and teachers "follow" their students' node feed on *Facebook Live* to answer student questions either asked or typed.

### 9.2.3. Teaching Method and Learning Material

**Blended learning** is a formal education program through which students learn in three ways: 1. Either partially or entirely online learning, when using this method students along with parents and teachers have control over time, location, path, and learning pace; 2. Part of the learning occurs in a fixed, brick and mortar location (DCF node); 3. The student's learning path is integrated among the different coursework or subjects.<sup>20</sup>


In an attempt to synchronize with Khan Lab's learning method, to be discussed below, the program will employ a combination of the rotation and flipped classroom models. The rotation model is less like the Khan Lab's approach but has greater potential in a development or crisis context where project-based learning and environmental distractions may detract from the student's learning experience. In a rotation model, the students rotate on a schedule or at the teacher's discretion within a particular subject and between different learning modalities with online learning being, at a minimum, one of the modalities. Other interventions are small group learning, group projects, individual tutoring, and workbook assignments. The flipped classroom approach has the student participate in online learning that is further reinforced by face-to-face instruction or teacher-guided practice. For our program, these aspects would be delivered in a web-based format with real-time interaction. This method best aligns with the program's student population because the content and instruction are delivered primarily online and further facilitated by teachers' instruction. This process should alleviate some of the pressure on Lebanese teachers and the public-school system. The biggest obstacle in this instance is working with the Lebanese Ministry of Education to ensure their understanding of the teaching method



and the program's compliance with the MoE's educational standards and quality control. (All data derived from Khan Academy)<sup>21</sup>

**Applying Modified Khan Labs Model**—The Khan Academy and Lab school curricula are changing the landscape of education in America. DCF believes that this educational approach can best serve refugee and IDP students because the Khan Lab model focuses the student's learning experience and ability rather than restrictions based on educational access or age. For DCF purposes the program of instruction is developed based on Lebanese MoE curriculum, Khan Lab School instruction methods, and a repertoire of online learning modules developed by Khan Academy and translated into Arabic by the Qatar Foundation International. Learning modules are supplemented further by Lebanese teachers, who film "new concepts instruction" to enhance Khan Academy online content and to meet MoE standards. All new concepts are derived from online modules or teacher instruction and reinforced with group instruction and individual student-teacher interventions. The Khan model does not articulate a specific participation rate; because of the cost to establish and staff the digital classroom students are required to meet a 75% attendance rate to meet MoE standards.


The Khan Labs concept and method is a student-focused format providing greater learning autonomy to the student as they progress through independence levels 1 to 6. The model's approach focuses on developing core skills and then providing context based upon inquiry and mastery concepts. These concepts are explored in project-based inquiry arcs. Recreating the projects based aspect found in this program will be difficult for DCF without skilled local facilitators. Students learn and progress through this system when they have mastered objectives, skills, concepts, and objectives targeted for a particular independence level. In applying this approach, Khan Labs believes that students tactic allows for time to be the learning variable while student subject mastery and knowledge are constants. In traditional learning environments, the opposite is true; courses are taught at a relatively constant rate, but quality and mastery vary. Further, student learning will be measured using diagnostic, formative, and summative assessments, student goal tracking, and individualized meetings with the student, node facilitators, teachers and parents (when available) to review student data derived from



online curriculum sources. Both quantitative and qualitative data is collected and shared with the student and parents to reassess learning goals. Again, DCF recognizes that these aspects may be difficult to implement in crisis or development settings. Additional, focus on these factors will occur during the pilot program to mitigate friction points.

Rather than dividing students by academic ability or age, Khan Lab groups students by independence level. Independence levels provide students with the necessary support and structure to complete academic coursework. Independence levels are divided into six levels that typically take one to three years to complete, and student peers are often no more than three years apart. For this program's context, DCF recognizes that greater age disparity may occur. If significant age differences occur among a greater portion of the student population, then further cohort divisions may be applied by teachers and DCF staff. Some environments may require gender segregation, DCF will establish separate nodes when required, and older male students will be the first to be required to travel longer distances to nodes. Generally speaking, independence levels, 1-3 represent the elementary school, levels 4-5 are middle school and a transition to high school in levels 5-6. At level 6 students are considered career ready for Lebanon pilot program's purposes this level will have a greater focus on vocational training and transition to apprenticeship. Students establish learning goals with their teacher at the term's beginning and initiate a discussion with their teacher when they feel they are ready to progress to the next independence level. In the Khan model students' progress once they have mastered the majority of skills, typically no more than three skills from the previous level can be left unattained. DCF would like to implement an all skills completed in no longer than three years' policy to ensure student progress and achievement in challenging learning environments.

DCF curriculum would attempt to match MoE approved curriculum with Khan Academy content in a bid to reduce Lebanese teacher workload and allow teachers to focus on effective facilitation and individual student interventions. Independence levels 1-3 focus on core mastery in literacy and numeracy. Literacy curriculum is used to supplement humanities and science. Levels 4-5 begin to employ project-based learning with greater STEM activities. For DCF purposes these STEM activities could be regionally tailored to student backgrounds, interests, or



prospective career paths. In Lebanon, the Syrian refugee population is predominately from the agriculture sector. STEM curricula for this cohort might focus on irrigation techniques, soil improvement, garden plot assessment, or orchard management. Vocational training in level 6 might incorporate plumbing, carpentry, or other construction activities. These STEM undertakings further lend themselves to post-conflict reconstruction necessary to refurbish Syrian civil society. DCF hopes to partner with Intel, Khan Academy, and the Qatar Foundation International (QFI) to provide this content. Currently, QFI and Intel have translated over 1,000 core STEM modules from Khan Academy and then pre-loaded them onto Intel laptops for Arabic students and teachers. DCF hopes to invigorate this program with the real-time teaching concept. (All data derived from Khan Labs)<sup>22</sup>


### 9.3. Pedagogy

#### 9.3.1. Curriculum

The program's curriculum will be developed within Lebanon, by a team of specialized consultants from Khan Academy, QFI, UNHCR, UNICEF and WFP, working in tandem with the Ministry of Education. The program curriculum will strive to meet regional accreditation standards in order for students to be competitive within regional labor markets. The program's curriculum will include a teacher's training certificate, which will certify teachers hired for specific modules. Teachers will attend a 10-week paid training program on the DCF program and blended learning modalities, created in collaboration with UN organizations, MoE, QFI, and Khan Academy. A team of consultants consisting of an IT Education Specialist, Vocational Specialist, Social Worker, Psychologist, and a Representative of local businesses will provide their input on best practices to the steering committee who will create the curriculum.

#### 9.3.2. Teacher Training

Teachers will be selected among recent graduates from local Schools of Education including, but not limited to, Saint Joseph University, American University of Beirut, and the Lebanese University. It should be noted that program teachers will have received their Teaching License from MoE before being accepted into the program. Lead teachers will attend the 10-week



paid summer training and certification before receiving their classroom assignments. Preference will be given to teachers who showed leadership skills and affinity to online and hybrid models of teaching. Lead teachers are expected to provide a semester vision plan as well as creating weekly lesson plans and homework assignments, quizzes and exams. Homework will be corrected by the local facilitators who are working with the students, quizzes and exams are corrected and graded by the lead teachers. Lead teachers will work in collaboration with IT specialists to ensure the smooth daily functioning of the program and to troubleshoot any issues that might come up. Lead teachers are given the necessary training to use the equipment independently, with the understanding that equipment malfunction will be handled by IT. Lead teachers are given a 1-year contract renewable upon satisfactory performance and three classroom observations performed by supervisors and representatives of the Program.

### 9.3.3. Local Facilitators Training

Local facilitators or teaching assistants will be recruited from within the refugees' community. Minimum required qualifications are a High School diploma or equivalent, with preference given to university educated facilitators. A 10-week paid training will also be provided to local facilitators which will culminate in a certificate of achievement provided by the Program. Training will take place during the summer months at designated public school locations and will focus on pedagogy and proper interactions with the students, as well as reporting attendance and homework correction results. Local facilitators will be expected to be in the classroom with students 3 days a week and will have two days a week to work on homework assignment and remedial work with struggling students under the guidance and supervision of their respective lead teachers. Facilitators will be given 6-months contracts renewable upon satisfactory performance and 3 classroom observations by lead teachers. Facilitators will be given training in the proper use of the equipment available in the DCF and will be responsible for the daily setup and close down of the DCF. Facilitators will report equipment malfunction or theft to the lead teachers who, in turn, will report it to Program Officers. Program Officers will investigate such issues and will notify proper authorities. A pattern of equipment malfunction and/or theft (more



than 3 times per semester) is reason for dismissal of facilitator. Facilitators will receive appropriate wages and salaries that will incentivize them to stay with the Program.

## 10. Conclusion

DCF working in concert with United Nations partners, Khan Academy, QFI, and donors, have an opportunity to profoundly change the future for Syrian refugee youth who currently reside in Lebanon. By providing the literacy and numeracy foundations for academic and vocational success, DCF aims to create community resiliency and by giving Syrian youth the necessary skills for the rebuilding efforts of their country should the security situation in Syria change.

DCF believes that this pilot program can be replicated in other post-conflict and post-disaster situations. With the fundamental educational skills gained from this program, students will have the capacity to share knowledge with their families, remain gainfully employed, and use their skills to rebuild shattered communities. DCF hopes that by providing education to refugees and IDPs, the conflict cycle can be disrupted to achieve enduring peace.





## 11. Endnotes

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## 12. Appendix

### Appendix A: Budget Tables by Phase/Year

START UP EXPENSES- 7 Sites (Amount in Dollars)			
Construction	Total	Number	Cost
Quad Con	\$96,000	20	\$4,800
Tents Canvas	\$5,000	5	\$1,000
VSat Hubs	\$5,000	2	\$2,500
Vsat Nodes	\$6,750	5	\$1,350
Solar Panels	\$150,000	5	\$30,000
Construction labor & transport costs	\$7,000	7	\$1,000
Bandwidths	\$147,840	7	\$21,120
Subtotal	\$417,590		
Transportation for IT staff	Total	Number of Vans	Cost
Van Purchase	\$30,000	2	\$15,000
Subtotal	\$30,000		
Material Expenses	Total	Number purchased	Cost
Laptop systems for students	\$154,000	440	\$350
Server stacks	\$28,000	7	\$4,000
Solar Water Purification Systems	\$1,250	5	\$250
Classroom long-tables	\$10,000	200	\$50
Classroom benches	\$10,000	200	\$50
Curriculum student books (for 5 years)	\$22,400	3,200	\$7



Training Manuals	\$150	15	\$10
First Aid Supplies	\$25	5	\$5
Office furniture	\$500	10	\$50
Teachers and Admin Computers	\$7,500	15	\$500
Misc. office supplies	\$2,000		
Subtotal	\$235,825		
Total EXPENSES	\$683,415		



**YEAR 1 EXPENSES- 7 Sites (Amount in Dollars)**

<b>Personnel Salaries</b>	<b>Total</b>	<b>Number of employees</b>	<b>Annual Salary</b>
Committee Manager	\$70,000	2	\$35,000
Individual program manager	\$30,000	3	\$10,000
Teacher Training	\$20,000	10	\$2,000
IT Staff	\$60,000	4	\$15,000
Teacher Training Staff	\$40,000	2	\$20,000
Subtotal	\$220,000		
<b>Site Monitors Program</b>	<b>Total</b>	<b>Number of employed</b>	<b>Cost</b>
Additional misc. educational materials	\$2,000		
Stipend Site Monitors	\$100,000	20	\$5,000
Subtotal	\$102,000		
<b>Transportation</b>	<b>Total</b>	<b>Number of Vans</b>	<b>Cost</b>
Fuel	\$600	2	\$300
Maintenance	\$1,000	2	\$500
Other	\$500		
Subtotal	\$2,100		
<b>Total EXPENSES</b>	<b>\$324,100</b>		



## YEAR 2 EXPENSES- 5 Sites (Amount in Dollars)

<b>Construction</b>	<b>Total</b>	<b>Number</b>	<b>Cost</b>
Quad Con	\$96,000	20	\$4,800
Tents Canvas	\$5,000	5	\$1,000
VSat Hubs	\$5,000	2	\$2,500
Vsat Nodes	\$6,750	5	\$1,350
Solar Panels	\$150,000	5	\$30,000
Construction labor & transport costs	\$7,000	7	\$1,000
Bandwidths	\$295,680	14	\$21,120
Subtotal	\$565,430		



<b>Material Expenses</b>	<b>Total</b>	<b>Number purchased</b>	<b>Cost</b>
Laptop systems for students	\$154,000	440	\$350
Server stacks	\$28,000	7	\$4,000
Solar Water Purification Systems	\$1,250	5	\$250
Classroom long-tables	\$10,000	200	\$50
Classroom benches	\$10,000	200	\$50
Curriculum student books (for 5 years)	\$22,400	3,200	\$7
Training Manuals	\$150	15	\$10
First Aid Supplies	\$25	5	\$5
Office furniture	\$500	10	\$50
Teachers and Admin Computers	\$7,500	15	\$500



Misc. office supplies	\$2,000		
Subtotal	\$235,825		
Total EXPENSES	\$801,255		

Total Two Year Budgetary Expenses	\$1,602,510		
Total Five Year Budgetary Expenses	\$4,571,705		

## Appendix B: DCF Program Up-Scaling Plan

This joint UNHCR, UNICEF, WFP and MoE program has a unique capacity to synergize efforts amongst the four agencies, in order to achieve greater access to education for secondary school aged Syrian refugee and Lebanese indigent students as well as the capacity to significantly reduce rates of attrition of this student population. These program synergies therefore have a greater capability of advancing the UN Sustainable Development Goals within Lebanon's at-risk groups. In addition to program collaboration, the program's partners have the unique capacity to access and provide services to vulnerable and transient populations, living under duress.

Due to continued conflict and political instability within the region, this program has the best opportunity to continue to serve the country's secondary school aged children living specifically within the fragile context of refugee makeshift housing. Therefore, the Program's committee feels that the successful implementation of the Program will serve as a launching pad to future implementations in other parts of the world where conflict and population displacement are present. Program expansion will be based on the trials and successes provided from this initial Lebanon-based pilot of the overall Program.





## Appendix C: DCF Program Considerations

### C.1. Cultural Considerations

As mentioned throughout this proposal, the Syrian conflict is protracted and there seems to be no end in sight to the resulting humanitarian crisis. The presence of Syrian refugees in Lebanon has put a lot of pressure on the already crumbling infrastructure and has caused tensions between Lebanese and Syrians. Contempt for each other has been at an all-time high, and many humanitarian agencies have come to realize that services provided to Syrians have alienated indigent Lebanese who have received none or very little. It would, therefore, be imprudent to provide educational services to Syrians alone and leave behind Lebanese students who are in need of services. Clashes between students and between families have occurred in the past and are still occurring, and students' attrition is a direct result of these clashes. Mistreatment of Syrian students by Lebanese students, teachers, and administrators has been a vexing issue that the Program recognizes. The Program officers have decided that the project will be available to students who fulfill its requirements regardless of their nationality. Another cultural consideration to take into account is the segregation of male and female students, a priority for the sustainability of the Program, and the recruitment and retention of female students. Female students will have their own DCr, latrines, and female Local Facilitators, and will be later placed into apprenticeships that take their needs and interests into consideration.

### C.2. Educational Considerations

The largest consideration for the Program is student attrition. As the targeted population is particularly vulnerable and in-flux, it is necessary to pay special attention to recruiting students who have the greatest likelihood for program completion. In this light, special care will be paid to recruit students who seemingly have the support from their families necessary to complete the program. For successful program completion, students should have already gained basic literacy and numeracy skills from previous educational experiences that would provide them with the foundational skills necessary to be successful in the program.

### C.3. Lebanese Education System Considerations

Public schools in Lebanon are already under a lot of pressure caused by the inability of the current infrastructure to support and sustain the large influx of refugees into the classrooms. Even with the division of school days into two shifts, the demand and the need remains high, and many children - up to 60%- are out of school. Some remain out of school due to family pressure and obligations, while others due to lack of room in the classrooms. The problem will not go away unless we find creative solutions that circumvent the lack of space, and the Lebanese government's inability to acquire or build more space in the immediate future. Real estate in Lebanon is extremely expensive and hard to get due to the size of the country. Lebanon's surface area is 4,036 sq mi of which 3,950 sq mi is land. Most of the population is concentrated in the Beirut and Mount Lebanon area, and the central government headquarters are located in that area as well.

Building upon its "RACE" initiative, which was supported by the international community, the government of Lebanon has launched "RACE 2". Between 2016 and 2020, the "Lebanese Ministry of Education and Higher Education and partners have agreed to prioritize scaling up equitable access to educational opportunities in the formal public system, improve the quality and inclusiveness of the teaching and learning environment, and strengthen the national education system, policies, and monitoring, by redoubling its efforts and providing additional financial support." (PID report Lebanese Government). It is important to note that even if the supply-side of education is improved through capacity building, the demand-side will impede progress, especially for secondary school education, if students and their parents perceive education as an investment with very low return, specifically for older children who could be working instead. The aim of this project is to mitigate these issues through the provision of education in an innovative setting that will a) remove older students from overcrowded classrooms, b) focus on teaching older students with internet-based tools, c) provide older children with a fast-track path to employment through vocational teaching, d) create opportunities for older children to join an apprenticeship program with local businesses.

#### C.4. Health Considerations

The program will have to contend with many health and sanitation challenges. Refugee and indigent population are particularly vulnerable to malnutrition and abuse. As such, the Program will partner with WFP to provide one (1) nutritious meal per day and one (1) nutritious snack per day to all students in the Program. Clean drinking water and hygienic latrines will be provided in partnership with the other UN agencies working on the ground. The Program will strive to ensure a sanitary and safe environment within its facilities. All personnel and students will be required to be up to date on their immunizations, and when needed, will receive any missing inoculations.

#### C.5. Security Considerations

Lebanon has been through a bloody 15-year civil war that ended in 1991. Since that time, the security situation has been fairly stable. With the influx of Syrian refugees in the past 5 years, there has been some tensions between Lebanese citizens and Syrians. These tensions are manifested in schools in the forms of harassment as well as physical and verbal abuse of Syrian children by teachers and Lebanese students alike. This led to many students - especially older students - dropping out of school. The goal of this project is to alleviate the pressures and tensions between Syrians and Lebanese in the school setting by removing some students from the regular classroom, thus alleviating the congestion and preventing clashes. We are aware that Lebanese students attending public schools are not better off than their Syrians counterparts; they also come from the lowest socioeconomic strata of the Lebanese society and they could benefit from the same training that the project will provide to Syrian children. For that reason, we plan on making enrollment in the program available to both, if the pilot program is successful. According to a World Bank 2016 Systemic Country Diagnostic (SCD) Lebanon has so far failed “to generate inclusive growth and jobs” due mainly to “two overarching constraints: elite capture hidden behind confessionalism, and conflict and violence linked to broader dynamics of conflict in the region. Education was identified as a key “nested constraint,” which, if addressed, could help Lebanon make meaningful progress toward achieving growth, inclusion, and sustainability.” It is, therefore, one of the aims of the projects to reach vulnerable Lebanese




and to build resilience through the strengthening of the education system to support the influx of refugees.

## Appendix D: History of the Syrian Conflict and Refugees in Lebanon

Since his ascent to power in the 1970s, Hafez El-Assad ruled through the Arab Ba'ath Socialist Party (ABSP) and used its secular ideology as a cover for bringing his minority ethnic group, the Alawites, into key government positions. Assad's longevity in office rested on a rigid intolerance of dissent. During his 30-year reign, Assad committed some of the most egregious violations of human rights and civil liberties in the Arab world. On several occasions, Assad's government was responsible for killing thousands of Syrians. Assad's government relied heavily on a compositional coup-proofing strategy that ensured loyalty and mitigated competition within the security apparatus by privileging a single sectarian minority.

Following the death of Hafez Al-Assad in 2000, his son, the Europe-educated Bashar, succeeded him into power. During the "honeymoon" period of his regime, Bashar eased some of the restrictions of the old regime; a move that gave Syrians hope for a short while. According to a publication by the World Bank, in the decade preceding the outbreak of the crisis in Syria in March 2011, the country suffered from multiple and repeated shocks which contributed to the marginalization of large segments of its society. A sharp increase in oil prices, which was beneficial to exports, brought with it large increases in the prices of food and commodities. Moreover, prolonged drought between 2006 and 2009, in a country where 75% of the land area is used for agriculture, created millions of IDPs who migrated from rural areas into overpopulated slums surrounding urban areas. "The four adverse socioeconomic factors leading up to the Syrian crisis:

- (1) The Syrian economy's inability to create productive, youth employment that worsened demographic trends making young people the largest jobless group within the overall population.
- (2) Extensive migration from rural to urban regions due to the drought.
- (3) The unequal distribution of development across regions.
- (4) The challenge for some parts of the population to attain a decent standard of living." (World Bank).



With 30% of Syrians living under the poverty line and key sectors of the economy in the hands of the elites, dissent was brewing. Reforms promised by Bashar never materialized, and rebellion was inevitable. Revolts were met once more with brutal repression, but opponents of the regime, encouraged by revolts in other Arab countries, persisted with their demands. What started out as peaceful protests in 2009 has descended into a full-blown civil war in 2011. The civil war is ongoing, and being fought on several fronts. Soldiers loyal to the Assad regime have been given liberty to kill at random targeting hospitals, places of worship, and civilians. The death toll is in the hundreds of thousands and still rising.

Syria is most likely facing a protracted and bloody war that could last for years with no end in sight. The war has created a humanitarian crisis that has made the news around the world. “Since the beginning of the crisis in the Syrian Arab Republic, almost 4.3 million refugees have been registered (as of November 17, 2015). The crisis includes 2.1 million Syrians registered by UNHCR in the Arab Republic of Egypt, Iraq, Jordan, and Lebanon; 2.2 million Syrians registered by the government of Turkey, and 26,772 Syrian refugees registered in North Africa (UNHCR 2015a). Furthermore, over 6.5 million Syrians are internally displaced (UNHCR 2015b). The scale and impact of the spillovers from the Syrian conflict have had profound political, economic, and social consequences for the neighboring countries.” (P. Vermo, World Bank).



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