

*Can MOOC's be a Model For Providing Quality Higher Education to Refugees?
Lessons from the First Experiment*

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Abstract

The literature on refugee studies thus far has explored the role of education in the settlement of refugees in their host countries (Hek, 2005). Efforts to integrate them through various socio-economic programmes have met limited success with millions forced to work illegally in the informal economy (Orhan, 2015). Although holistic assistance is required to ensure their effective integration, we believe that access to quality education is the single most important variable that can define their socio-economic success in years to come. Traditional models of higher education have been largely inefficacious in bridging this gap as refugees face a multitude of obstacles in accessing higher education in their host countries, from legal documentation and high tuition fees, to language barriers. The advent of Massive Open Online Courses (MOOCs) has paved the way for a new model to facilitate democratization of education. Thanks to the widespread usage of mobile devices and computers among refugees in Germany, Kiron Open Higher Education is experimenting with the first ever attempt to provide open higher education to refugees through an online curricula that is mainly composed of MOOCs. The current research paper summarizes the lessons learnt from Kiron's pursuit to bring refugees on board with the German higher education system, deriving from the engagement with its first two batches of students.

Keywords: MOOCs, refugee education, forced migration, higher education, democratization, digitalization

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1.1 Introduction

The current wars and civil unrest in Syria, Iraq and Afghanistan have interrupted the education of hundreds of thousands of people who are of age to enrol in higher education (Ward, 2014), and has caused what is widely referred to as a “refugee crisis” in neighbouring countries and throughout Europe. Indeed worldwide the current number of refugees and displaced persons is higher than it has ever been (UNHCR, 2015). Observers have warned of the creation of a “lost generation” of young people who could possibly never receive access to higher education. Furthermore, the loss of an educated professional class could possibly deepen the challenge of restoring the war-torn states once the conflicts eventually subside (Butler, 2015). This may also further intensify integration processes in host countries. In response to this the German NGO “Kiron Open Higher Education” (hereafter referred to as Kiron) was founded in Spring 2015 with the mission to remove barriers refugees face in accessing higher education. Through an innovative model of blended learning, Kiron offers tailor-made, modularised curricula of MOOCs (Massive Open Online Courses) provided by renowned educational platforms enabling refugees to start studying, regardless of their location and legal status. Additionally, it offers an extensive student support network aimed at ensuring the student’s success in completing their studies.

This paper looks at some of the lessons learnt by Kiron from its first enrolment period, where it released an initial embryonic form of the platform, and the study opportunities it now offers to refugee-students. Firstly we will look at the data Kiron was able to collect from the enrolment period between October 2015 and February 2016. Then we will discuss the lessons learnt from this initial phase, from both the data and consultation with the wider literature. This will be followed by a comparison of the data from the first enrolment phase with data from the second enrolment phase. Additionally, there will be a discussion of the several development phases of the Kiron study model. We conclude with further avenues of research that are needed for Kiron to learn about what factors influence how refugees interact with its platform.

Kiron Open Higher Education (gGmbH) is a non-profit organization founded in 2015 with the mission to remove barriers refugees face in accessing higher education. Through an innovative model of blended learning, Kiron offers tailor-made, modularised curricula of MOOCs (Massive Open Online Courses) coming from renowned educational platforms like Coursera and edX so that refugees can start studying regardless of their location and legal status. Courses in the Kiron study tracks are Engineering, Business & Economics, Computer Science and Social Sciences, which are mostly provided in English, completely free of charge for the students and all accessible via the learning platform Kiron Campus (campus.kiron.ngo). Through strong partnerships with universities worldwide, students have the opportunity to apply to a partner university of Kiron after two years, get a major part of the online modules completed with Kiron recognized, and finish their program with a regular bachelor’s degree.

Table 1 - About Kiron Open Higher Education

1.2. Kiron Open Higher Education

In September 2015 Kiron launched its platform for refugees who wished to pursue higher education. The only requirement of the students at this time was that they had to provide a certificate proving their status as a refugee. The students were able to enrol and self-select a study track with Engineering, Business & Economics, Computer Science, Intercultural Studies and Architecture as the options available. The students would then be directed to external MOOC providers, and report back to Kiron when they had completed a course. Because at this time Kiron was acting to meet the needs of a rapidly expanding number of refugees, unable to access higher education from across the globe, the platform's initial set-up represented a prototypical version of its present configuration.

The engagement with a first batch of students prompted several iterations of the Kiron platform and ultimately led to an overall shift in the conceptualisation of what the organisation should provide. As such, whereas traditional research often relies on an extensive literature review before a solution is proposed to meet a research gap, this paper will instead lead with the data first, followed by reflections which will incorporate the wider literature. This reflects the process that Kiron underwent, and the lessons learnt afterwards, which were derived both looking at their data, and consulting with wider literature on refugees and online education.

2. Data from the first enrolment period

2.1. Data Collection

The data we collected for this paper consisted of information on the number of logins and user activity on the Kiron online platform during the first enrolment period, from October 2015 until March 2016. This data was provided to us as an SQL database, which we could then query for simple statistics of individual platform usage, data correlations, and usage over time. The data provided us with the students' gender, nationality, age, the curriculum they elected to take, the number of MOOCs they have completed (self-reported), the number of logins per user, and the dates of their logins. This data is not representative of the current status quo at Kiron, but its initial attempt at providing access to online education for refugees. The current status quo of Kiron's operations, and its future plans will be discussed towards the end of the paper.

2.2 Data Protection

The data we were provided was scrubbed to remove any information that may identify the students. The data was provided to us for research purposes with the consent of Kiron.

3. Data Analysis

For the data analysis of the SQL database we queried it using Python software. Typical queries involved comparing one data table with another, for example the number of user logins with students from different nationalities, to see if there were any meaningful results. We looked at means of logins and course completion self reports across nationalities, gender, age, level of education, and course selection. There were very few significant results ($p < 0.05$) coming from the data, and we will consider the implications of this in the discussion. However, the analysis did reveal some results that are meaningful to Kiron as an organisation, which we will detail below.

3.1. Results from the first enrolment period

In the first enrolment period 1,246 students applied to Kiron, however 527 did not respond to the invitation to complete their registration. Of those who did, 494 used the platform on multiple occasions. During this first enrolment period 73 students reported completing courses (there were 326 MOOCs available). To do this, the students would have to have logged into the platform at least twice. For the analysis, we compare those who logged in more than 20 times, “frequent users” (approximately once a week), with less regular users of the platform. However, as we shall see below, this was not useful as a representative of completion of online courses or general academic activity away from the platform.

Total number of applications:	1246
Total number of students who logged in at least once:	719
Total number of users who logged in more than once:	494
Total number of course completions:	263 (by 73 students)

Table 2 - Numbers of Applications, User Logins and Course Completions

The majority of students who registered for Kiron were from Syria ($n=702$), and the second most common national group were Afghans ($n=84$). Smaller national groups included Eritreans ($n=31$), Pakistanis ($n=43$), Palestinians ($n=35$) and Somalis ($n=57$) (see figure 1). However, for the analysis all the nationalities except for Syrians and Afghans were grouped together because there was not enough data from the smaller numbers to identify significant outcomes. Ultimately however, we found no cogent correlations between nationality and usage of the platform or course completion in the data.

Nationalities of students who registered with Kiron

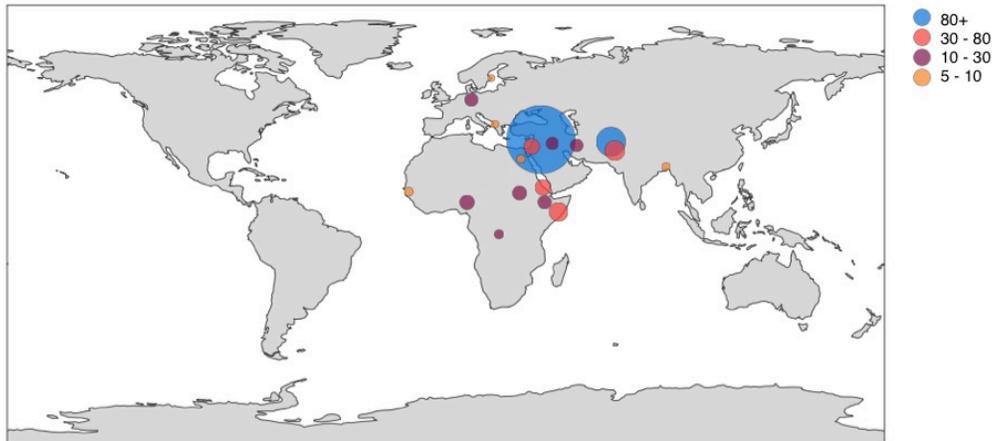


Figure 1 - Map of registered users by country of origin

Figure 2 – Graph of logins to courses completed

From here we excluded users who had never logged into the platform, and we looked at the correlation between logins and courses completed. In doing this we found no convincing correlations (see figure 2). However, there were some clusters (shown by the different colours), and which identify some striking groups of outliers. Three users had a very low number of logins, but high course completions, yet, for four users it was the opposite, with a high number of logins, but a low level of course completions. Here, several factors have to be taken into account. Firstly, the course completions by Kiron students are entirely self-reported. Kiron generally links to course content on external partner platforms, such as Coursera or EdX. Users could potentially access the courses prescribed by Kiron via the external providers, and then log into the Kiron platform again only to mark a course as completed.

We also compared the user-logins based on gender (see figure 3). Here we found that females were far less likely to register on the platform than males. Of the 1246 that applied, 226 were female (18%) and 1020 were male (82%). This is a somewhat concerning find that will be discussed in the next section of the paper. That said, as we can see in figure 3, females who did complete their registration and used the platform were using it just as much as the males. So, although fewer females were registering on the platform, their usage statistics were quite similar to the males, if not slightly better.

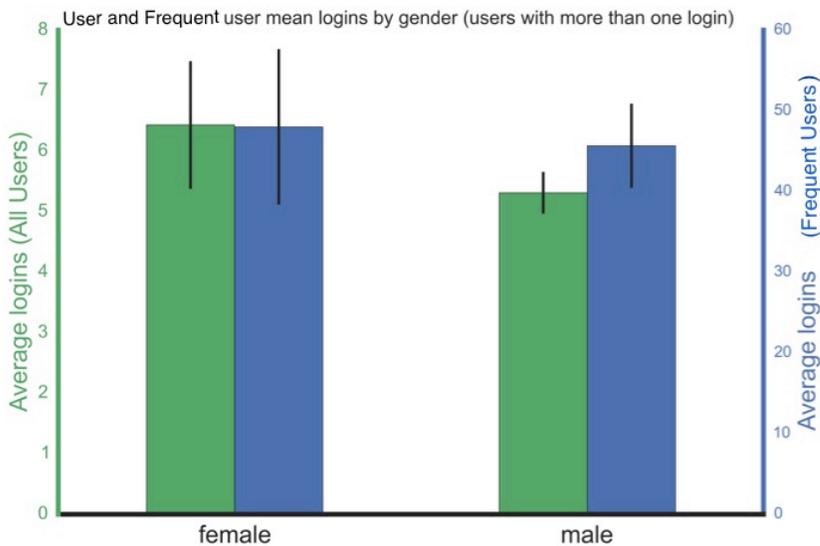
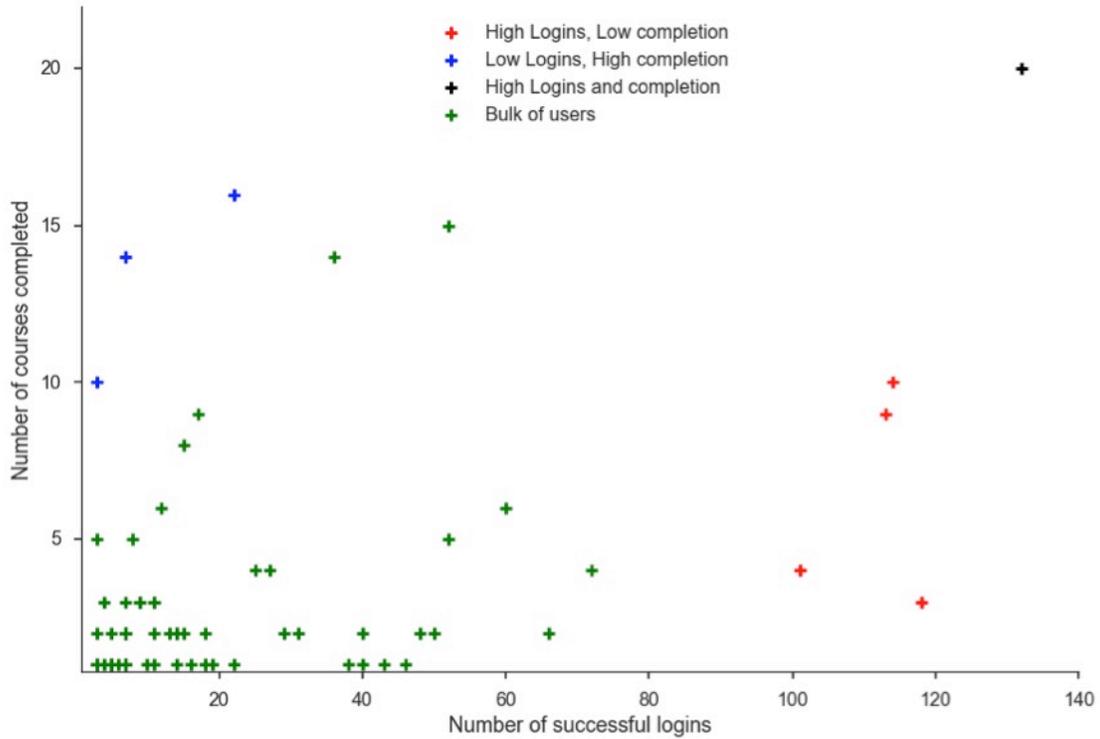


Figure 3 – Comparison of male and female login averages

Finally we looked at the login patterns of users and frequent users over time (see Figure 4). Here we found that, while the logins of frequent users remained at a fairly stable level over 24 weeks (reaching just about 100 per week), the logins of regular users dropped sharply after the first two weeks, and then stayed quite low throughout the rest of the time period. This suggests to us that it is important to make a strong effort to connect with the

students in the first two weeks of enrolling on the platform; otherwise they are unlikely to continue using the platform after this period.

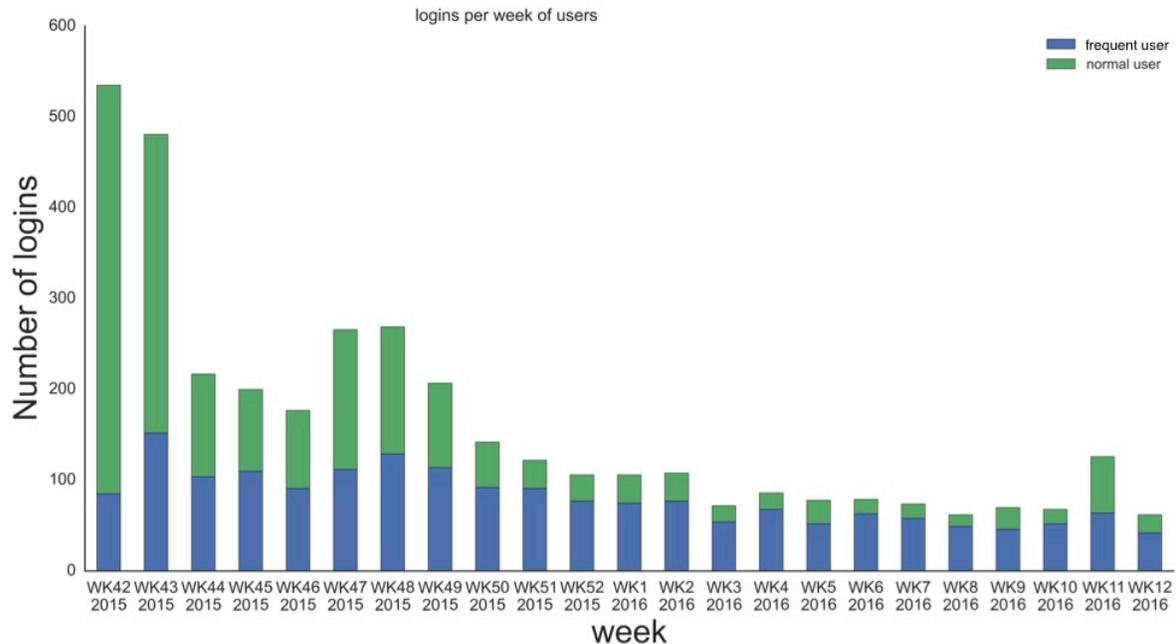


Figure 4 – Logins of users over time

3.2 Summary of findings from the first enrolment period

- Only a minority of users reported completing a MOOC as part of the Kiron curriculum so far (although this could be due to end dates of the courses extending to beyond the date of the data collected).
- User behaviour based on nationality indicated no direct correspondence between the user’s activity and their country of origin.
- We found that there was no correlation between user logins and course completions, although there were some interesting outliers of users who recorded a high number of logins but few course completions and vice-versa.
- There was a large gender divide, in favour of males, in the number of applicants, but females using on the platform were, if anything, more likely to login on average.
- The first two weeks seem to be the time when most users will login, so an effort needs to be made in the first two weeks of enrolment to retain and engage the students who have logged on.

4. Discussion – Lessons learnt from the data and wider literature

4.1. Indications of platform usage

We found that the country of origin was not directly related to the success of student’s study outcomes (course completion). In order to better understand and finally link the heterogeneous educational biographies of their students to their learning experience on

the platform, Kiron needs to further investigate their individual educational backgrounds. Fortunately there are clues within the literature on where to look in order to better understand what factors can have an impact on study success for refugees.

Prior educational attainment has been found to indicate the study success of refugees who enter higher education, particularly in English language (Fennelly & Palasz, 2003). **Providing appropriate support** is another aspect that requires special attention, as many refugees feel disadvantaged compared to non-refugee students because of a lack of support on entering higher education (Earnest, Joyce, de Mori, & Silvagni, 2010). In Germany refugees wishing to apply to a university face a multitude of hurdles. For instance, during the often tedious process of being recognized as asylum seekers, they are legally subjected to an “obligation of residence” (Wohnsitzauflage), which constrains their mobility and therefore their choice of university. At the same time, refugees are often put into collective housing, which research has shown can drastically impair the learning situation and access to the Internet (Schammann & Younso, 2016).

Providing sufficient support, and understanding of the structural disadvantages that refugees face is essential in ensuring that as students they will be motivated to continue in Higher Education. Unfortunately there has not been much research in this area beyond what has been detailed above. That said, although research has shown that refugees find academic life challenging, many find ways to cope with the different issues at hand through seeking peer support, and finding places more conducive to study (Hirano, 2015).

4.1.1. Lesson learned

What Kiron has since implemented on its study platform now reflects this need for additional guidance and support. When students register with the platform they must now inform Kiron of their previous level of education, so that in the future Kiron can see how much of an impact this has on their use of the platform. Also, as part of the registration process the students are presented with an English language test, so that they can better understand the level of English that is required of them to complete the online courses. The final change is that Kiron now offers support for students in terms of study buddies, psychological counselling, career mentors and English language support, to help to increase the retention of students through improving students’ study experience and well-being.

4.2. Literature on Refugees and MOOC-based Distance Learning

How refugees have, or could use Distance Learning as a way to gain access to formal higher education has thus far received very limited attention in academia. However, considerable effort has been devoted to researching the efficiency of Massive Open Online Courses through analysing data on student learning behaviour (Seaton, 2014).

While MOOCs provide students with high flexibility, through the possibility of accessing the same content multiple times, anywhere and anytime (Welsh & Dragusin, 2013) they

are typically said to have a low average retention rate, 15% (Jordan, 2015). Chung (2015) and Khalil and Ebner (2014) have explored the reasons for this low retention rate, and they have found the following factors as particularly relevant to a high dropout rate:

- Lack of time
- Diluted learner motivation to complete the course
- Feelings of isolation
- Lack of interactivity in MOOCs
- Insufficient background knowledge and skills
- Hidden costs
- Limited access to technology (particularly salient to refugees)
- Low levels of self-organisation
- Unwillingness to seek help

However, there is considerable debate on whether completion rates are indicative of the overall success of an online course. Reich (2014) prominently argues that these rates are typically evaluated without accounting for student intentions. When viewed in the appropriate context, the apparently low retention rate often appears to be more reasonable (Koller, 2013).

To our knowledge there has only been one account of research with refugees using MOOCs. Moser-Mercer (2014) found that in a small-scale study (2 male refugee participants, aged between 24 and 28) that learners face three main types of challenges, which were **technological** (e.g. access to the learning platform), **contextual** (e.g. time management is problematic in a refugee camp) and **linguistic** (e.g. following instructions in English, and understanding and completing assessment tasks).

The German Rector's Conference (HRK) has also emphasized that the amount of existing offers as well as the total number of traditional universities involved in host countries like Germany is not sufficient to systematically ensure access to higher education through MOOCs (HRK, 2014) neither for refugees nor any other target group of higher education. In general, the recognition of credits for MOOCs as well as the equivalence with on-campus programmes is still not widespread, even within many universities who themselves offer MOOCs (Bates, 2015).

4.2.1. Lesson learned

Since the first enrolment period Kiron has moved to tackle some of the challenges above that the may potentially students face and has rearranged its curriculum in order to better cater to the needs of its target group as well as ensure the general feasibility of its study tracks.

4.2.1.1. Study tracks

As a result of student feedback, as well as matching processes with partner universities, Kiron has rearranged its study tracks. As of March 15th 2016, Kiron now only offers 4 different study tracks: Engineering, Business & Economics, Computer Science and Social

Sciences. These provide the framework for a modularization of Kiron core curricula that facilitate the matching processes for study programmes at different partner universities.

4.2.1.2. Modularization

Kiron's academic concept is now following the common standards of the European Higher Education Area (EHEA) based on the Lisbon Recognition Convention as well as study programme accreditation guidelines provided by the German Accreditation Council. As a result of weak outcomes in student success rates with an academic model focussing on the single MOOC instead of coherent curricula, Kiron went forward in implementing a fully modularized curricula based on learning outcomes as the main indicator for successful learning processes. In July 2016 Kiron completed module handbooks for all four study tracks with at least 60 ECTS (transferable university credits) of potentially recognizable MOOCs clustered in modules with a workload of 5-10 ECTS. Kiron is also a member of working groups on virtual student mobility aiming at developing transferable guidelines for the recognition of MOOCs in on-campus degree programmes.

4.2.1.3. Kiron's Blended Learning 2.0

Kiron's academic concept is based upon different levels of blended learning that are realized through different platforms and academic partners. Its main goal is to find the appropriate balance between openness/flexibility and the individualisation of teaching and learning.

4.2.1.3.1. Synchronous and asynchronous e-learning

Especially self-paced Massive Open Online Courses provide a very asynchronous e-learning environment that makes highly flexible learning processes possible (see the literature section above). The low importance of location and time (Wannemacher et al., 2016) makes higher education much more accessible for mobile populations such as the target groups of Kiron. In order to facilitate synchronous e-learning processes and ensure the development and testing of the learning outcomes describing Kiron's modules, the organization has developed its own synchronous teaching concept called Kiron Direct Academics. Here, qualified academics can provide real-time interactive online tutorials in their field of expertise for students on a voluntary basis. Students get direct feedback and individualized support with key competencies such as academic writing.

4.2.1.3.1. Online and offline learning

The core of Kiron's innovative approach towards higher education is the possibility to get online credits acquired through the successful completion of a modularized set of MOOCs recognized for accredited bachelor's degree programmes at the partner universities of Kiron Open Higher Education (see figure 5). Refugees get the chance to combine a two-year online-study-phase at Kiron's online learning platform (campus.kiron.ngo) with a two-year offline study phase as a normal student in an accredited degree programme. This offers a totally new route to a bachelor's level degree to refugees who are not able to enter the traditional higher education system in their host country from the very beginning.

In major cities in Germany the organization has created study hubs to combat feelings of isolation and increase learner motivation. These pilot projects are also places where students can seek help with their work, discuss the tenor of a course, and share knowledge with their peers.

However, there are still challenges ahead. Because of the nature of distance learning, Kiron has to invest additional efforts into studying the life circumstances of their students. Kiron is a free service, and the MOOCs it offers access to are also free, but that does not necessarily mean that the students who use the platform have time and resources to devote themselves to regular study. Factors such as having easy access to technological infrastructure and sufficient funds to support being a student instead of working have to be taken into account. Kiron must also work to better build rapport with its students both online and offline to better understand their unique needs.

4.3. Gender gap in access and usage of the platform

In the data from the first enrolment period we found that there was a large gender gap in favour of males registering to use the platform. Here we will look at what the literature suggests may be obstacles for female refugees accessing higher education, and discuss the significance of this gender gap.

In their study on female refugees, Harris and Spark (2015), found that they may feel stronger pressures upon themselves when entering higher education, as pursuing education may challenge traditional cultural roles and identities. Limited access to higher education for female refugees is also a problem that has been recognised by the European Parliament (Europarlament, 2016). The gender divide within Kiron still strongly favours males. However, this may be more of a reflection of the demographics of refugees entering Europe. In 2015 the proportion of refugees entering Europe and claiming asylum, of university age (18-34), was 21% female and 79% male (Eurostat 2015). There is currently no reliable data that reveals the number of women among those 21% who have the educational background suitable to entering or re-entering higher education. This is understandable, as refugees may not be able to take documents with them that show their educational achievement, or their educational achievement in their home countries may not be recognised where they are now residing. However, one further statistic for us to bear in mind is the highest number of users from one country is Syria. Since half of Kiron students from the first enrolment cycle come from Syria (and the majority of females using the platform are also Syrian), we should take a look at the gender ratio in Syrian higher education before war times. Before the war women in Syria comprised of 41.4% of the university population (Hausmann, Tyson, & Zahidi, 2011), and had equal enrolment in secondary education (Bekhouche, Hausmann, Tyson, & Zahidi, 2013), yet our enrolment numbers for Syrian women are not representative of this. We have 834 male Syrians and 209 female Syrians who applied to the platform, a ratio of approximately 4:1, which shows an imbalance compared to the proportion of Syrian students who *could* enrol on Kiron. However, those Syrian refugees might not be in a position to gain access. At the moment this issue remains somewhat of a black box. A further consideration is the type of courses that Kiron offers, which are mostly STEM

courses. This adds another dimension to the gender inequality, because traditionally STEM subjects attract more male students (UNESCO, 2015), so Kiron may also need to become aware of the efforts in this area to attract female students.

4.3.1. Lesson learned:

Kiron is now increasingly aware of this general problem of female refugee access to higher education and is developing strategies to encourage more females to register on the platform. In order to develop these strategies Kiron is trying to find out more about what barriers female refugees face in accessing higher education, and what the organisation can do to support female refugees who wish to pursue higher education on their platform.

4.4. Further steps taken to tackle the rapid decline in users after the first two weeks

We saw from the data above that the number of students who used the platform declined after roughly two weeks of platform-usage. Therefore, for the next cohort of Kiron students, as of March 15th 2016, Kiron has implemented a multi-step registration and introductory phase. Kiron now requires several steps of registration in order to assure that the students who are registering for their platform are ready to embark on online higher education. Firstly the students have to take a short motivation test including questions about their educational background. Secondly, an English language proficiency test is compulsory with a minimum English Common European Framework of Reference (Council of Europe, 2001) level of B2. As a third and major step the students have to complete two test MOOCs before they can start accessing the Kiron curricula and choose one of the Kiron study tracks (see figure 6). After a beta phase Kiron is planning to introduce self-assessments developed together with partner universities the latest by October 2016.

Students can take modularized online courses to the amount of 60 ECTS via Kiron's online platform before applying for a partner university of Kiron.

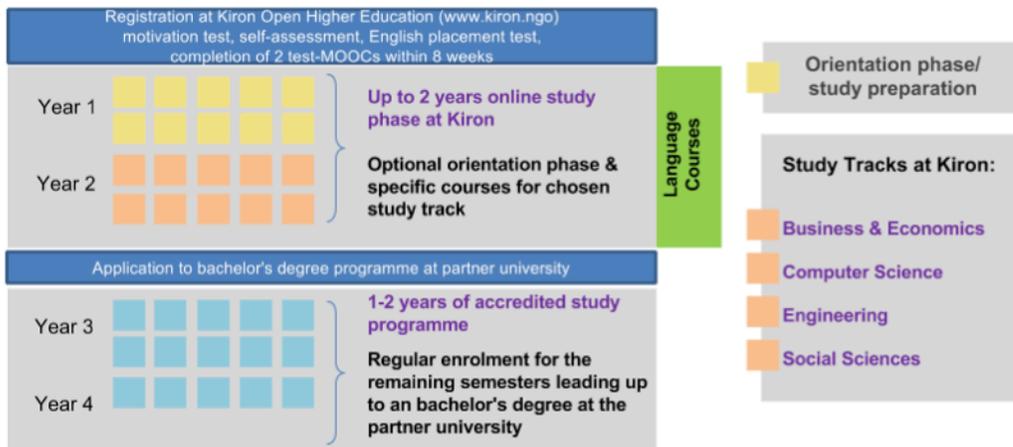


Figure 5 – Kiron’s Academic Model

5. Initial Findings from the second enrolment period

In this section we will detail some of the initial findings from the second enrolment period, which began in March 2016 (table 3). As this has period only just ended (June, 2016), they are not as detailed as those from the first enrolment period.

	2nd enrolment period	1 st enrolment period
Total number of applications:	1304	1246
Students who completed the new application components, i.e. students.	850	N/A
Total number of users who logged in at least once:	603	719
Total number of users who logged in more than once:	510	494
Total number of course completions:	347 (by 130 students)	263 (by 73 students)
Total number of MOOCs offered:	329	326

Table 3 – Numbers from the second enrolment period

As we can see there were more students who applied this time (n=1304), and a smaller proportion who logged in at least once. However, the results show that there is a greater amount of activity and platform usage from this enrolment period compared to the first enrolment period. This is evident in the number of students who have logged in more than once already, and the number of course completions from the second enrolment period (n=347), and more students in second enrolment period were completing those courses. Although this is only a comparison of two data sets, and there are limitations on the extent to which we can say there the improvement in user retention is a result of the reforms Kiron has introduced, the data from the second enrolment period is suggestive of improved student retention, and improved student engagement with the platform, and the study programme that Kiron offers.

6. Summary of Lessons learned

- Kiron needs to initiate more research aimed at better understanding the many structural disadvantages their current and prospective students face.

- In order for students to remain motivated and bridge the digital isolation from professors and co-students, Kiron is building a physical support-network for their students, which includes study-hubs in major cities, career mentoring, psychological counselling and language courses. Additionally Kiron is further developing its synchronous “Direct Academics”
- The user experience during the first two weeks of study seems to have a significant impact on student retention and motivation. Kiron has introduced several measures (intro to platform and style of learning during on-boarding, modularized study tracks) aimed at creating a smooth introduction to the study program programme.
- Additional effort needs to be made to understand what barriers limit the access of female students to higher education, and what Kiron can do to attract more female students to the platform.

7. Conclusion

Although still a very young online platform and learning provider, Kiron has been very proactive and responsive in providing a better study experience for students, and improving and expanding the services they offer. Kiron has managed to implement standards that reflect the requirements for traditional higher education institutions. Although the first set of data we were able to look at does not provide evidence for the long-term feasibility of Kiron’s academic concept. Through comprehensive research and development activities with external research partners Kiron needs to collect more valid data sets from its students from our students in order to better understand platform usage patterns, as well as the contextual factors that may influence their activity on Kiron Campus. Kiron also needs to better connect this data to its outcomes-based theoretical framework. Only from this information will Kiron be able to make further long-term decisions as to what they offer their students, and how to pursue recognition and assessment processes with partner organisations.

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