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ARE REFUGEE CHILDREN LEARNING? EARLY GRADE LITERACY IN A REFUGEE CAMP IN KENYA

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ABSTRACT

Currently, more than 25 million people across the globe live as refugees, having been driven from their countries of origin by crises and conflicts. Although the right to education is articulated in global agreements, national education systems in the host countries are primarily responsible for refugee children's instruction. In one of the first studies of its kind, we assessed all the schools providing lower primary education to refugee children in Kakuma refugee camp in Kenya, one of the largest and oldest refugee camps in the world at the time of data collection. The outcomes for these students were concerningly low, even lower than for those of disadvantaged children in the host community, Turkana County. Literacy outcomes differed among the refugee children, depending on their country of origin, the language of instruction used at the school in Kenya, the languages spoken at home, and the children's self-professed expectation of a return to their country of origin. Our findings point to the urgent need to invest heavily in improving learning among refugee children, rather than focusing solely on their access to education.

INTRODUCTION

By the end of 2017, 25.4 million people across the globe were living as refugees (UNHCR 2018a, 2). At that time, Consolatte was a refugee child in the second grade attending school in the Kakuma refugee camp in Kenya, one of the largest and oldest refugee camps in the world (UNHCR 2017a). Along with more than one million others, she and her older sisters fled the conflict in South Sudan and

now live in exile in Kakuma. Consolatte is one of the children and youth under age 18 who constitute more than half the worldwide refugee population. Unlike Consolatte, however, four million of these refugee children are out of school, and many of those who do have access to school struggle to achieve even basic literacy and numeracy (UNHCR 2018b, 10). Consolatte attends school with 121 classmates, who sit squished together on long wooden benches in a tin-shed classroom. There is barely any space for Madam Anna, Consolatte's teacher, to pass between them from the front to the back of the classroom. Her students are from different countries—Democratic Republic of Congo (DRC), Somalia, Sudan, South Sudan, and Uganda—and they speak many different languages. Some have missed years of schooling, so that teenagers seeking an education sit with 8-year-old classmates. Although Consolatte is in school, it is located in one of the world's most challenging places to learn.

Refugees' right to education is articulated in the 1951 Refugee Convention (UNHCR 2011), to which Kenya is a party. This global agreement asserts refugees' right to education, but within the framework of the host country's existing provision. It notes that all signatory states "shall accord to refugees the same treatment as is accorded to nationals with respect to elementary education . . . [and] treatment as favourable as possible . . . with respect to education other than elementary education" (UNHCR 2011, 24). The 2016 New York Declaration for Refugees and Migrants, which articulates a set of nonbinding global commitments, reasserts this right to education for refugees but expands the scope to both primary and secondary schooling (UN General Assembly 2016, 14). The Global Compact on Refugees, which was adopted by the UN General Assembly in December 2018, emphasizes that, while this right is articulated at a global level, its realization is the responsibility of hosting nation-states. The Global Compact states that global "resources and expertise" will aim "to expand and enhance the quality and inclusiveness of national education systems to facilitate access by refugee and host community children (both boys and girls), adolescents and youth to primary, secondary and tertiary education . . . [and] in line with national education laws, policies and planning, and in support of host countries" (United Nations 2018, para. 68).

Relying on host countries' national education systems to meet the goals of refugee education is the current prevailing approach, adopted initially in the UN High Commissioner for Refugees' *2012-2016 Education Strategy* (UNHCR 2012) and most recently codified in UNHCR's *Refugee Education 2030: A Strategy for Refugee Inclusion* (UNHCR 2019a). Historically, refugees who were educated at all received services outside the host country's national education system in refugee-only

schools that used the country of origin curriculum and language of instruction. This approach assumed, however misguidedly, a swift return to the country of origin (Dryden-Peterson 2016a). In 2010, only 5 of 14 of the largest refugee-hosting nation-states used their national curriculum and languages of instruction to educate refugees, but by 2014, 11 of these states did so (Dryden-Peterson 2016a). Before UNHCR's *2012-2016 Education Strategy* was created, the organization did not have a relationship with a single government authority in the education sector in any country in which it worked (Dryden-Peterson 2011). By 2016, however, UNHCR had formal relationships with national authorities in 20 of its 25 priority country operations and aimed to negotiate the inclusion of refugees in national education systems (Dryden-Peterson 2016a).

Key policy reasons for including refugees in national education systems reflect the nature of contemporary displacement and aid structures. The average length of exile for refugees is estimated at between 10 and 25 years—up to three times as long as it was in the early 1990s (Crawford et al. 2015; Devictor and Do 2016; Milner and Loescher 2011), which means that refugees are likely to get their entire schooling in exile. This protracted displacement means that the only opportunity for many refugee children to attend school and learn the kinds of skills and knowledge they need in the present and will use in the future is in exile. Furthermore, 60 percent of refugees were living in urban areas by the end of 2015, which has made refugee-only schools increasingly impractical (UNHCR 2016, 53). Moreover, refugee-only schools are unsustainable over the long term, even in camp settings, given the persistent shortfalls and unpredictable funding for refugee education (UNESCO 2017a, 7-8). The funding gaps persist with inclusion models, especially as national systems must expand to accommodate larger student populations and external funding remains limited and unpredictable (UNESCO 2019a, 2019b). Under these circumstances, educating refugees in national education systems can make access to a stable education with an established curriculum, trained teachers, and certification possible, if not guaranteed (Dryden-Peterson et al. 2018).

While clear policy rationales guide inclusion, significant gaps remain in our understanding of refugee students' learning outcomes in contexts of inclusion, which is critical to achieving the Sustainable Development Goals. Given that refugee students often spend their entire schooling in exile and that their education increasingly takes place in the context of national school systems in host communities, it is imperative that we clearly understand the learning and academic progress of refugee students who are included in national education systems. Moreover, refugee students are among the most marginalized students globally, thus examining their learning outcomes has important consequences

for understanding and closing equity gaps in education (World Bank 2018) and furthering the global education community's commitments to Sustainable Development Goal 4, in particular "ensuring inclusive and quality education" by 2030 (United Nations 2016).

Research Questions

Given the lack of available learning outcome data from refugee camps in low- and middle-income countries (LMICs), this study aims to both document existing learning outcomes and explore how refugees' learning outcomes differed on factors that policy and programmatic responses could address, including country of origin, language of instruction used in Kakuma schools, and children's expectations for their future.

Research Question 1: What are the literacy outcomes in English and Kiswahili for children in Kakuma, and how do these outcomes compare with children's learning across Kenya?

Research Question 2: How are specific characteristics of refugee children and their settings (country of origin, language of instruction used in Kakuma schools, and the children's expectations for their future) associated with literacy outcomes in English and Kiswahili?

In this paper, we conceptualize and empirically explore the inclusion of refugees in national education systems as it relates to refugee students' learning outcomes. We do so in what to our knowledge is the first population-representative study of refugee children's learning outcomes from an entire refugee camp. We were unable to identify any other studies that have shared population-representative learning outcomes for refugee learners in lower primary school. Our unique dataset from Kenya consists of the results of the Early Grade Reading Assessment (EGRA) for children in grades 1-3 in all 21 schools in Kakuma refugee camp that have lower primary classes, and from two schools in the adjacent, more recently established Kalobeyei settlement.[1] Importantly, all of these schools follow the national curriculum of Kenya, have both Kenyan and refugee teachers, and teach using English and Kiswahili, Kenya's official languages. As is common for refugees globally, refugees in Kenya access education in marginalized areas of the country where the quality of education is low. Kakuma is located in Turkana County, one of Kenya's poorest counties (Kenya National Bureau of Statistics and Society for

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1   Kakuma refugee camp and Kalobeyei settlement are distinct places neighboring each other. However, in this paper Kakuma refers to both Kakuma and Kalobeyei unless otherwise noted.

International Development-East Africa 2013), where average learning outcomes are among the lowest for nationals anywhere in the country (Uwezo 2016).

In this context of forced displacement and high poverty, we examine how the population-level early literacy outcomes for refugee children in Kakuma compare to those of Kenyan nationals outside the camps; how these literacy outcomes vary by refugees' country of origin; and what policy-relevant factors are associated with these literacy outcomes. We first conceptually situate refugee learning within national education systems, in particular vis-à-vis their marginalization and differentiated learning needs. We then present details of our data sources and our findings, and conclude with implications for policy and practice. We document, we believe for the first time, the extremely low early literacy skills of children living in a refugee camp. We also indicate how these children's literacy performance compares to that of the nationals among whom they live in Kenya and how they vary by the dimensions we predict may influence their learning, including country of origin, the language of instruction used at school in Kakuma, and the children's expectations for the future. Our findings have implications not only for educating refugees but for reaching other children who have been left out of the global movement to provide high-quality education for all.

CONCEPTUALIZING REFUGEE LEARNING

The goals of global refugee education policy, which focus on expanding and enhancing the quality and inclusiveness of national education systems, echo education development goals more broadly. Despite the proliferation of low-cost private schools and the persistence of community-based education, most development aid continues to focus on education as a national-level public endeavor and on systemic change as the route to improved and more equitable outcomes for children (see, e.g., Bellino, Faizi, and Mehta 2016; Menashy 2017a; Pritchett and Viarengo 2015). Since the 1990 World Declaration on Education for All, global investment in education has risen in LMICs, access to education has massively expanded, and there has been a persistent focus on strengthening national education systems and their public-sector schools (see, e.g., Carney, Rappleye, and Silova 2012; Menashy 2017b; Turrent and Oketch 2009).

Despite these transformative achievements, we are faced with what Winthrop and McGivney (2015) called a 100-year gap, which refers to a gulf of 100 years in students' average number of years of school between developed and developing countries and, most critically, their levels of achievement. In North America

and Europe, close to 100 percent of students meet basic standards in math and reading after four to six years of schooling (Winthrop and McGivney 2015). However, UNESCO's "Global Education Monitoring Report" noted in 2017 that 56 percent of school-age children worldwide—387 million children—did not achieve minimum proficiency in reading; they were concentrated almost entirely in LMICs (UNESCO 2017b).

Refugees access education at a lower rate than other children globally. While the exact numbers are uncertain, only 63 percent of refugee children accessed primary school in 2018, compared to 91 percent of all children globally; at the secondary level, 24 percent of refugee children accessed education, compared to 84 percent of young people globally (UNHCR 2019b). Although this study, as noted earlier, is the first to our knowledge to document learning outcomes for refugees at a population level, case study research and agency reports have long documented that little to no learning occurs in settings where refugees are educated (see, e.g., Dryden-Peterson 2016b; International Rescue Committee 2011; Mendenhall et al. 2015; UNHCR and Global Education Monitoring Report 2016). At the same time, such an extreme example—a situation with low enrollment and low learning outcomes—can act as a canary in the coal mine for broader phenomena (Flyvbjerg 2006), such as equity gaps in early grade literacy outcomes in LMICs. We argue that our analysis of learning outcomes in refugee education illuminates two central dimensions of a forward-looking agenda to meet the learning needs of all students, both refugees and nationals: marginalization and differentiated learning needs.

The seven years since the adoption of the approach to include refugees in national education systems have highlighted the learning needs of both refugees and the marginalized national populations among whom they live (Dryden-Peterson et al. 2018; Dryden-Peterson et al. 2019). The vast majority of refugees—85 percent—live in a country neighboring their country of origin, most often in developing parts of the world, and 28 percent of refugees live in a country categorized as least developed (UNHCR 2018b). Even within nation-states, refugees often live and access school in communities where learning outcomes are lower than in the host country population as a whole and where "delivering education to the poor" consists of "delivering poor education" (Williams 2017, 559). In Lebanon, for example, only 30 percent of Lebanese nationals attend public schools, which are the schools to which refugees have access. Lebanese nationals who are able to do so elect out of the public system (Center for Educational Research and Development 2016), meaning that the quality of education offered to refugees is rejected by all but the most marginalized Lebanese nationals.

The type of public education refugees have access to elsewhere is similar to that of Kenyan nationals in the geographically isolated area where camps are located. Kenya's Turkana County, where Kakuma refugee camp is located, ranked 45th out of 47 counties in learning outcomes at the end of lower primary: fewer than 12 percent of students completing grade 3 were able to do grade 2 work (Uwezo 2016). Even with these extremely low learning outcomes, research in Kakuma has shown that refugee youth distinguish between the kind of education available to them in the camp and that in schools outside the camp, which they believe is of higher quality and could enable them to have a more promising future (Bellino and Dryden-Peterson 2018). Thus, it is critical to understand what and how well refugees are learning in the context of the marginalized nationals among whom they live, who themselves are often underserved by their public education system.

The presence of refugees in national education systems also illuminates the diverse needs of students, especially within heterogeneous populations. Uwezo's (2016) research in East Africa has shown that a large percentage of children in Kenya, Uganda, and Tanzania are unable to do grade 2 work when they have reached grade 7 or its equivalent, and that many of these children have very low early literacy skills. Research conducted in Kenya has consistently shown several factors associated with literacy outcomes, which include the languages spoken in the child's home, the language of instruction at school, the child's socioeconomic status, whether the parents can read and write, and whether the child attended school before grade 1 (Gove et al. 2018; Piper, King, and Mugenda 2016; Piper, Schroeder, and Trudell 2016). Previous qualitative research among refugees has indicated that learning outcomes can depend on prior education in the country of origin, missed years of schooling, experiences during and the length of displacement and exile, and alignment between languages of instruction in the country of origin and country of exile (Dryden-Peterson 2006, 2016b; McBrien 2005; Mendenhall, Bartlett, and Ghaffar-Kucher 2017; Waters and Leblanc 2005). We expected these characteristics to predict learning outcomes for children in Kakuma, and that the magnitude of the relationships might be particularly large for those further marginalized within the already marginalizing experience of living in a refugee camp.

BACKGROUND: EDUCATION AND REFUGEES IN KENYA

In Kenya, refugees are required to follow a policy of encampment that dates back to the early 1990s. As a result, as of April 2019, 84 percent of the 473,971 registered refugees in Kenya were living in camps; a much smaller percentage

were living in urban areas (UNHCR 2017b, 2019c). Kakuma and Dadaab are the two main refugee camps in Kenya. Kakuma was established in 1992 to accommodate an influx of Sudanese refugees fleeing the civil war in Sudan, who were soon followed by refugees from Ethiopia. In December 2013, renewed conflict in newly independent South Sudan dramatically increased the number of refugees entering Kenya, and in 2014, Kakuma swelled well above its capacity, spurring the development of the Kalobeyei Integrated Settlement 25 kilometers from Kakuma town. The settlement was envisioned as a place where refugees and Kenyan nationals would be socially and economically integrated, including in the schools (UNHCR 2018c).

Kenya's national education policy broadly calls for schools to use the local language as the language of instruction, but that policy is seldom followed in Kenyan schools (Piper and Miksic 2011). English is the primary language of instruction in the subject areas, and Kiswahili is often used instead of local languages (Trudell and Piper 2013). This is the case in Kakuma and Kalobeyei, which follow the Kenyan curriculum using English and Kiswahili as the primary languages of instruction. In Turkana County, where Kakuma is located, research has shown that English is used as the language of instruction and that children are often punished for speaking in Turkana (Ng'asike 2019). We recognize the complex language context of a refugee camp, particularly in light of Kenya's policies on language of instruction, which reflect a static notion of local language as tied to a geographic location. Refugees, who are by definition displaced, encounter the local language of their new place of residence—in this case, Turkana—and the many local languages of the teachers' and students' places of origin; in Kakuma camp this means dozens of languages from South Sudan, Sudan, DRC, Ethiopia, and others (see also Reddick and Dryden-Peterson forthcoming).

This instructional context of language has created a situation in which many Kenyan children are able to pronounce English words accurately but their reading comprehension outcomes in English are very low. Conversely, Kenyan children face the challenge of learning to decode in Kiswahili and local languages, but if they are able to do so, they understand a higher percentage of what they read in these languages than what they read in English, likely due to their oral proficiency in these languages (Piper, Schroeder, and Trudell 2016). A variety of pedagogical methods are used to teach literacy in Kenya, including the "look and say" method, in which teachers point to objects or words and have the children repeat them without breaking words into individual sounds, which would help the children develop decoding skills (Commeyras and Inyega 2007; Dubeck, Jukes, and Okello 2012).

Some interventions have helped change these traditional teaching methods. In the Health and Literacy Intervention program, implemented in 51 schools in coastal Kenya, teachers organized children into mixed- and same-ability groups before and after class, and used printed classroom materials to help them learn to read (Dubeck, Jukes, and Okello 2012). Prior to recent literacy improvement efforts in the rest of Kenya (Freudenberger and Davis 2017), multiple factors resulted in very low literacy outcomes, with only one-third of the country's learners reaching the Ministry of Education (MoE) benchmarks (Freudenberger and Davis 2017).

To our knowledge, there is no evidence of the literacy pedagogical methods used or the learning outcomes achieved in Kakuma prior to a recent UN Children's Fund (UNICEF)-funded pilot literacy intervention, which expanded Tusome, Kenya's national literacy program, to Kakuma. Given the predominant use of the Kenyan curriculum and teaching methods (Mendenhall et al. 2015), we would expect lower results in Kakuma, as the children in the camp likely have lower socioeconomic status than local Kenyan children, and higher levels of poverty are associated with worse literacy outcomes in Kenya (Piper, Jepkemei, and Kibukho 2015).

The implementation of the Tusome literacy program included an external evaluation that collected baseline data from children across Kenya in 2015 (Freudenberger and Davis 2017). This nationally representative dataset enabled us to compare the learning outcomes from Kakuma camp to the rest of Kenya. Given that school-level information is unavailable in Kenya's national literacy baseline study, it is impossible to directly compare learning outcomes from Kakuma camp and the neighboring Turkana County prior to the Tusome intervention. Nonetheless, the nationally representative literacy assessment provides a relevant comparison to the 2018 literacy assessment we present from Kakuma camp.

METHODS

The EGRA tool has been used to assess literacy among children in more than 65 countries (Dubeck and Gove 2015). Adaptation of EGRA for Kakuma followed the standard methods for Kenya and was implemented by experienced researchers working with RTI International (for standard methodology, see RTI International 2016). The Kakuma baseline study used standardized EGRA tools for English and Kiswahili, with the specific subtasks assessed described in Table 1. The version of the tool used in Kakuma had been used previously in Kenya, but the Kakuma-adapted student interview included several unique items that examined the students' backgrounds and their refugee status. The study measured students'

abilities in letter-sound fluency, segmenting, syllable fluency, decoding fluency, oral reading fluency (ORF), reading comprehension, and sentence comprehension, with slightly different tasks assessed in English and Kiswahili, as shown in Table 1. Each child was interviewed about their socioeconomic background using a standard EGRA pupil context interview, adapted for Kakuma.

Table 1: Kakuma EGRA Subtasks, Measures, and Descriptions, by Language

Subtask	Measure	Description	English	Kiswahili
Letter-sound fluency	Correct letters per minute	Measures the ability to recognize letter sounds by identifying letter sounds in an array of 100 letters within 60 seconds.	▪	▪
Segmenting	Percentage correct	Measures the ability to identify and sound out each sound in a word. Students were asked to segment 10 words.	▪	
Syllable fluency	Correct syllables per minute	Measures the ability to read syllables from an array of 100 syllables within 60 seconds. This was measured in Kiswahili, given syllables' importance in the language.		▪
Decoding fluency	Correct nonwords per minute	Measures the ability to decode nonwords fluently from an array of 50 nonwords within 60 seconds.	▪	▪
Oral reading fluency	Correct words per minute	Measures the ability to read a story fluently. Students were given a stimulus sheet with a connected-text story of approximately 60 words to read within 60 seconds.	▪	▪
Reading comprehension	Percentage correct	Measures reading comprehension. After reading a passage, students were asked up to five questions about the passage they read. Students were only asked questions relevant for the portion of the passage that they read.	▪	▪
Sentence comprehension	Percentage correct	Measures the ability to read and comprehend 20 simple sentences.	▪	▪

Source: Piper, Kwayumba, and Oyanga (2018, 6-7)

Research Tools

To evaluate the reliability of the tools, we fit separate Cronbach's alpha measures for the English and Kiswahili tools. The English and Kiswahili reliability scores were .77 and .73, respectively, both above the .70 benchmark but somewhat lower than in other studies in Kenya (Bland and Altman 1997; Tavakol and Dennick 2011).

Thirty assessors were selected for this study. The Turkana County host community provided 18 assessors and the research team selected 12 residents of Kakuma camp. Selection criteria included individuals' highest completed education level and their fluency in Kiswahili; the latter criterion was the key determinant of an individual's suitability as an assessor. Experienced EGRA coordinators trained the assessors for five days in the camp and provided practical support on how to use the open-source Tangerine™ application on tablets, interact with school administrators and students, and upload data daily for quality control checks. Assessors underwent three rounds of interrater reliability (IRR) assessments to ensure a high level of agreement among them. The average final IRR score of the assessors who were chosen to implement the assessment was 90 percent in both English and Kiswahili.

The data-collection period was March 12-18, 2018, approximately two months after the start of the academic year. The assessors collected data in teams of three. One assessor, the supervisor, managed the relationship with the school and supported the simple quasi-random sampling process used to sample the children, as described below. Children's participation was voluntary, and any child who did not want to engage in the assessment was allowed to leave. Nineteen pupils refused to undergo the Kiswahili assessment, and six refused the English assessment.

Kakuma and Kalobeyei Schools

Our sample included a total of 23 regular primary schools, 21 in Kakuma and 2 in Kalobeyei.[2] There also were 12 Alternative Basic Education (ABE) centers in Kakuma that provided education services to out-of-school children and youth in the camp. Because only two of the ABE centers had students in grades 1-3, the Kakuma baseline data collection took place in all 23 regular primary schools and in the two ABE centers with older learners (oldest was age 16) who were receiving education at the equivalent of grades 1-3. The results analyzed in this study are from all of the primary schools with lower primary learners that were in operation at the time of this study in Kakuma refugee camp and in the newer Kalobeyei settlement.

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2   "Regular" is the official term in Kenya for schools that do not serve learners with special needs.

Student Sampling

The Kakuma baseline study included all of the schools in operation at the time of the data collection. Simple quasi-random sampling was used at the school level. This sampling strategy targeted 10 students (5 male and 5 female) in grades 1, 2, and 3 in each school, for a total of 30 students per school. The supervising assessor asked all female and male students present on the day of data collection to form a line, and then counted each student. The assessor then took the total number of students present and divided it by five to get the sampling interval. This interval was then used to select students for the assessment. Starting at the beginning of each queue, an assessor counted off the children using the interval until they reached the required sample of five children per sex, per grade. At schools with more than one stream for a given grade, students from all the streams were asked to line up by sex and the sampling interval was determined in the same way described above. The sampling strategy, which aimed for sex parity, resulted in a dataset with 51 percent males.

Data Analysis Using Weighted Data

To analyze the data, we cleaned the baseline study data to remove incomplete student assessment results. The data were weighted using enrollment information so that the results were externally valid to the entire Kakuma camp. Weighting considered the total number of children enrolled in each grade rather than the number of children present in particular classes. The final weighted dataset included 732 students, and each sampled child received a particular weight that corresponded to the sampling undertaken in their particular grade and school. To account for the sampling in our analysis, we used the weighted dataset and the *svy* suite of Stata commands for our analyses (StataCorp 2019). The results include robust standard errors that consider the clustered nature of the schools.

Limitations

Our research was limited in several ways. First, the data we present were collected using the EGRA tools (Dubeck and Gove 2015), which have been criticized for focusing on speed, which suggests that untimed measures of reading accuracy would be more appropriate (Dowd and Bartlett 2019). The experience of reading in a timed setting could force students to privilege speed over accuracy or otherwise affect their reading skills, particularly if they are not used to this kind of testing environment (Bartlett, Dowd, and Jonason 2015; Goodman 2006). However, other research shows that the timed nature of EGRA does not meaningfully affect the

fluency or reading comprehension of students in Kenya (Piper and Simmons Zuilkowski 2016). Moreover, like other one-on-one assessments, which are standard for learners of traditional lower primary age, EGRA measures children's ability to perform with an assessor, rather than in their usual classroom setting. Despite these limitations, we present these findings as an initial diagnostic of refugees' specific literacy skills. Additional context- and language-specific assessments could enable us to refine our conclusions.

Although the study included all schools operating in Kakuma camp at the time of data collection, the 732 lower primary learners were a relatively small student sample, compared to the EGRA samples in other locations (Dubeck and Gove 2015). This smaller sample resulted in our analyses being constrained in their ability to compare learning outcomes meaningfully across some analytic categories of interest. In particular, we were unable to draw firm conclusions in our country-of-origin analysis, given that the samples of learners from some countries (e.g., Ethiopia and Rwanda) were relatively small.

Given the location of the study, our aim of using assessors from the assessed community, and the fact that EGRA had not been administered previously in Kakuma and Kalobeyei, the assessors selected for this study were not as experienced as those chosen for other EGRA studies in Kenya. While the final IRR scores were 90 percent, the research team had concerns about the quality of these assessors because of their lack of experience. Future studies in Kenya should continue to use local assessors but extend their training period to ensure a more precise administration of the assessment.

The background data we used as predictors in our analyses were self-reported by students in the pupil context interview. The reliability of these data is modest, as young children often have poor recall. Furthermore, questions about their households might have been particularly complicated and difficult to answer for students living in a refugee setting, given that their households might have been dealing with a higher than usual amount of uncertainty.

This paper presents learning outcomes data from March 2018, just before the April 2018 launch of the Tusome literacy program in Kakuma. Using this round of data collection as a baseline, future analyses of learning outcomes in Kakuma should be able to determine whether the Tusome program improved the literacy skills of children in this study, which were demonstrably very low. Despite the limitations noted above, the findings provide important insights into the literacy development

of refugee children in Kakuma. These findings are a first step toward providing more equitable learning opportunities for the most marginalized students.

FINDINGS

Before reporting the learning outcomes from Kakuma and Kalobeyei (see Table 2), we present descriptive statistics from relevant variables and background characteristics of the sampled children. The column "All children" shows the percentage of children who reported affirmatively on that item, while the next two columns present the percentages of males and females separately. We present descriptive statistics for a number of student-level background characteristics that allow us to better describe our sample. These background variables were collected in an oral interview between the assessor and the student in a language the child was familiar with. After the background information, we present descriptive statistics for the student outcomes for English and for Kiswahili, presented for the entire sample, for males, and, finally, for females.

Table 2: Descriptive Statistics for Background and Learning Outcome Variables

Variable	Range	All children mean (*N*=732)	Male mean (*n*=373)	Female mean (*n*=359)
Background variables				
Female		0.48 (0.03)		
Child age (years)	4–16	10.1 (0.13)	10.5 (0.17)	9.7 (0.18)
Percentages responding "yes" rather than "no"				
Speaks Kiswahili at school		63.5 (2.6)	63.4 (3.7)	63.5 (3.7)
Speaks English at school		37.6 (2.7)	41.5 (3.7)	34.2 (3.8)
Speaks other language at school		9.9 (1.6)	7.3 (2.0)	13.3 (2.7)
Speaks Kiswahili at home		25.4 (2.3)	21.9 (3.0)	29.1 (3.6)
Speaks English at home		3.9 (1.1)	4.5 (1.7)	3.4 (1.4)
Speaks other language at home		66.7 (2.6)	64.5 (3.7)	68.7 (3.7)
Morning shift student		72.4 (2.5)	70.1 (3.5)	73.8 (3.5)
Mother is literate		47.0 (2.8)	39.3 (3.7)	54.4 (4.0)
Father is literate		56.6 (2.7)	51.0 (3.8)	62.4 (3.7)
Student is from South Sudan		46.8 (2.7)	48.3 (3.8)	43.3 (3.8)
Student is from Somalia		8.7 (1.4)	8.7 (1.7)	8.8 (2.3)
Student is from DRC		9.1 (1.4)	9.8 (2.2)	8.8 (2.1)

Variable	Range	All children mean (*N*=732)	Male mean (*n*=373)	Female mean (*n*=359)
Student is from Burundi		4.2 (1.0)	3.4 (1.3)	5.3 (1.6)
Student is from Ethiopia		1.8 (0.7)	0.4 (0.4)	3.1 (1.3)
Student is from Sudan		18.1 (2.0)	21.0 (3.0)	15.8 (2.8)
Student is from Rwanda		1.3 (0.6)	0.0 (0.0)	2.7 (1.2)
Student is from Uganda		1.4 (0.6)	1.8 (1.0)	1.1 (0.6)
Student is from another country		8.7 (1.3)	6.5 (1.5)	11.1 (2.3)
Student is from Kenya outside of Kakuma		15.3 (1.9)	11.9 (2.5)	18.4 (3.1)
Years lived in Kakuma		4.6 (0.2)	4.6 (0.2)	4.5 (0.2)
Lived in another camp before Kakuma		10.5 (1.6)	11.8 (2.5)	9.7 (2.0)
Moved away from Kakuma		10.1 (1.6)	6.5 (1.6)	14.3 (2.8)
Parents are in Kakuma		77.4 (2.3)	72.9 (3.5)	82.6 (2.9)
Will return home in 3 years		43.8 (2.7)	42.8 (3.8)	45.1 (3.8)
Will return home in 10 years		40.0 (2.7)	44.3 (3.7)	35.7 (3.9)
Learning outcome variables			**Means**	
English literacy measures				
English correct letter sounds per minute	0–194.5	7.1 (1.1)	8.0 (1.7)	6.1 (1.4)
English segmenting score % correct	0–100	5.4 (0.8)	5.0 (1.0)	5.9 (1.1)
English correct nonwords per minute	0–142.9	6.8 (1.0)	7.7 (1.5)	6.0 (1.4)
English oral reading fluency	0–145.7	12.0 (1.5)	15.9 (2.6)	8.2 (1.4)
English reading comprehension % correct	0–100	5.0 (0.7)	5.9 (1.2)	4.1 (0.9
English sentence comprehension % correct	0–100	18.1 (1.4)	17.8 (1.9)	18.3 (2.1)
Kiswahili literacy measures				
Kiswahili correct letter sounds per minute	0–136.6	5.3 (0.9)	5.2 (1.5)	5.3 (1.0)
Kiswahili correct syllable sounds per minute	0–141.3	7.2 (0.9)	8.7 (1.2)	5.8 (1.2)
Kiswahili correct nonwords per minute	0–150	4.6 (0.8)	6.1 (1.5)	3.1 (0.7)
Kiswahili oral reading fluency	0–157.1	6.5 (0.8)	6.5 (1.1)	6.5 (1.2)
Kiswahili reading comprehension % correct	0–80	2.3 (0.4)	2.8 (0.6)	1.8 (0.4)
Kiswahili sentence comprehension % correct	0–100	14.5 (1.1)	15.2 (1.6)	13.9 (1.6)

Note: Standard errors in parentheses

Our comparison of learning outcomes in the Kenya national baseline and in Kakuma demonstrates that, in general, children attending schools in Kakuma had lower literacy outcomes than students in the Kenya baseline for both English and Kiswahili. Our analysis also revealed differences in the three relevant factors we explore in Research Question 2: average performance by students' country of origin, language of instruction at school, and children's expectations for their future. Below we discuss findings related to each research question individually, before synthesizing these findings in the discussion.

Given how interlinked reading comprehension is with ORF (Piper, Schroeder, and Trudell 2016), it is not surprising that low ORF levels are associated with poor comprehension: children correctly answered only 7.5 percent and 4.7 percent of comprehension questions about texts they read in English and Kiswahili, respectively. Previous research in Kenya has shown that fluency and comprehension scores are not meaningfully different whether an assessment is timed or untimed (Piper and Simmons Zuilkowski 2016), or whether the child reads the story aloud or silently (Piper and Simmons Zuilkowski 2015). The scores we report vary by grade and subject but represent very low average reading comprehension rates.

Table 3: Mean Scores for English and Kiswahili EGRA for Grades 1-3

Subtask	English			Kiswahili		
	Grade 1 (*n*=231)	Grade 2 (*n*=236)	Grade 3 (*n*=265)	Grade 1 (*n*=231)	Grade 2 (*n*=236)	Grade 3 (*n*=265)
Letter-sound fluency (correct letter sounds per minute [clspm])	5.3 (1.4)	4.9 (1.4)	6.5 (1.5)	3.9 (1.9)	4.6 (1.2)	6.9 (1.3)
Segmenting (% correct)	4.9 (1.0)	3.7 (1.1)	6.8 (1.4)	—	—	—
Syllable fluency (correct syllables per minute [cspm])	—	—	—	6.3 (2.1)	6.8 (1.4)	14.1 (1.7)
Decoding fluency (cwpm)	4.7 (1.6)	4.5 (1.3)	6.9 (1.1)	5.9 (2.7)	3.9 (0.8)	7.5 (1.1)
ORF (cwpm)	7.2 (2.6)	6.4 (1.8)	14.1 (1.8)	3.7 (1.6)	7.3 (1.9)	10.1 (1.3)
Reading comprehension (% correct)	1.3 (0.4)	1.8 (0.8)	7.5 (1.3)	0.6 (0.3)	1.2 (0.4)	4.7 (0.8)
Sentence comprehension (% correct)	11.6 (1.7)	11.5 (1.9)	18.7 (1.9)	8.6 (1.4)	11.2 (1.9)	21.1 (1.9)
Fluent (% at MoE benchmark)	7.2 (2.2)	8.2 (1.9)	8.6 (2.0)	10.4 (2.2)	13.9 (2.6)	8.6 (1.8)

Note: Standard errors in parentheses
Source: Piper, Kwayumba, and Oyanga (2018, 14-15)

When we examined literacy outcomes in Kakuma alongside those from the national Kenya baseline study, we found that children in Kakuma performed much worse than their counterparts in the rest of Kenya (see Table 4). The Kenya national baseline showed EGRA results from 2015 that appeared to be higher than results for comparable grades in Kakuma in 2018 for all but one measure. National baseline data are available for grades 1 and 2 but not grade 3; therefore, we were not able to compare results from Kakuma with results from Kenya for grade 3. Given the different research designs and datasets, we are unable to report these comparisons with statistical significance.

When we compared the Kenya baseline scores with the outcomes in Kakuma, we found that students in Kakuma appeared to score below students in the Kenya baseline in all fluency measures (e.g., letter-sound fluency, decoding fluency, and ORF in both English and Kiswahili). In comprehension skills, grade 3 students in Kakuma seemed to score substantially below even grade 2 students (4.7% correct for Kiswahili) in the national Kenyan baseline (22.0% correct for Kiswahili), even though they were almost one full instructional year ahead in school (Table 4).

Table 4: Mean Reading Skills by Grade

Language	Subtask	Grade 1		Grade 2		Grade 3
		Kakuma 2018	Kenya 2015	Kakuma 2018	Kenya 2015	Kakuma 2018
English	Letter-sound fluency (clspm)	5.3	15.1	4.9	10.2	6.5
	Segmenting (% correct)	4.9	11.0	3.7	6.0	6.8
	Decoding fluency (cwpm)	4.7	5.7	4.5	10.4	6.9
	ORF (cwpm)	7.2	10.6	6.4	23.8	14.1
	Reading comprehension (% correct)	1.3	4.0	1.8	10.0	7.5
Kiswahili	Letter-sound fluency (clspm)	3.9	16.6	4.6	16.2	6.9
	Syllable fluency (cspm)	6.3	11.0	6.8	20.9	14.1
	Decoding fluency (cwpm)	5.9	4.7	3.9	10.2	7.5
	ORF (cwpm)	3.7	4.9	7.3	13.5	10.1
	Reading comprehension (% correct)	0.6	8.0	1.2	22.0	4.7

Sources: Freudenberger and Davis (2017); Piper, Kwayumba, and Oyanga (2018). National data were not available for grade 3.

Reading comprehension in the languages of instruction, in this case English and Kiswahili, are central to academic outcomes and progress through schooling (Piper, Schroeder, and Trudell 2016). Given the central role of reading comprehension for success at school, we compared the rate of correct responses on English and Kiswahili reading comprehension questions among students in Kakuma and Kenya (Figure 1). This comparison is particularly meaningful in relation to questions about the appropriate language of instruction for school in Kakuma, given refugees' different language backgrounds and their enrollment in the national education system. Kenya's language of instruction policy is not closely followed and, like refugees, many (if not most) Kenyan children do not speak English or Kiswahili as their home language (Trudell and Piper 2013), although they are likely more familiar with spoken Kiswahili than refugee children would be. Nevertheless, Figure 1 shows that the comprehension levels of children in Kakuma were considerably lower than those in the baseline Kenya study. Grades 1-3 students in Kakuma correctly answered 1.3 percent, 1.8 percent, and 7.5 percent, respectively, of comprehension questions about English language texts. Although English comprehension scores in the Kenya baseline were disappointingly low, the grade 2 English comprehension rate in Kakuma (1.8%) was lower than the grade 1 rate in Kenya (4.0%), and the grade 3 English comprehension rate in Kakuma (7.5%) was lower than the grade 2 rate in Kenya (10.0%).

Even lower were the Kiswahili comprehension scores in Kakuma. Among grade 1 and 2 students living in Kakuma, comprehension scores in Kiswahili were 0.6 percent and 1.2 percent, respectively, and 4.7 percent in grade 3. The outcomes of the Kenya baseline assessment were much lower than expected (i.e., 8.0% in grade 1 and 22.0% in grade 2); however, they dwarfed the outcomes in Kakuma.

Figure 1: Reading Comprehension Outcomes for the
2018 Kakuma Baseline and 2015 Kenya Baseline
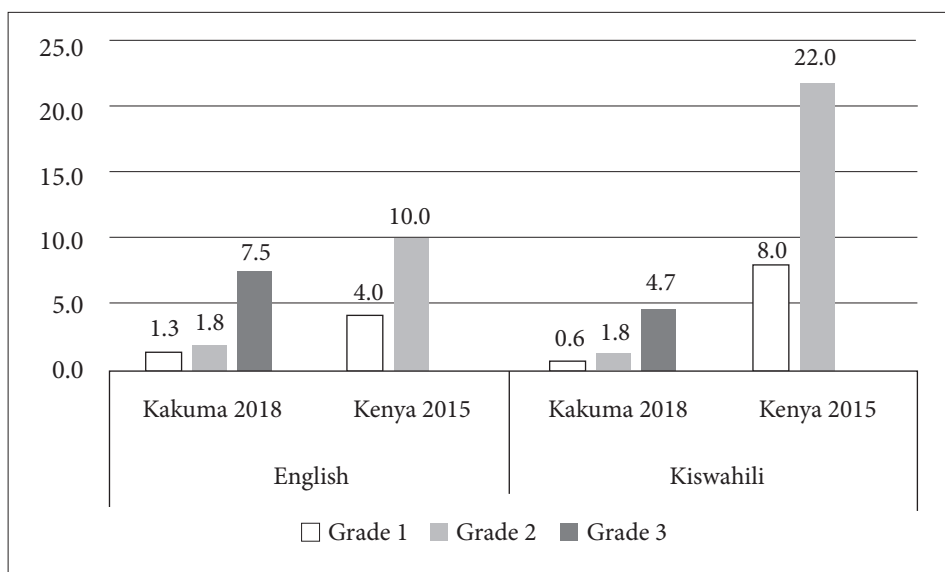
In addition to investigating literacy outcomes for children in Kakuma, we examined whether there were differences in literacy outcomes by country of origin. Before discussing those differences, however, we offer an overview of children's origin countries in the various phases, or areas, that make up Kakuma. Kakuma's population is very diverse (see Table 5). Nearly half (41.7%) of children assessed in grades 1-3 were from South Sudan and 16.7 percent were from Sudan. Children from DRC (8.8%) and Somalia (8.6%) made up the next largest shares of the population, followed by smaller populations from other countries (e.g., Burundi and Eritrea). Additionally, the composition of the different geographic phases (like zones) within Kakuma varied greatly by country of origin. In general, the population of Kakuma Phase 1 was similar to that of the camp overall—42.8 percent of children were from South Sudan and 18.2 percent were from Sudan. A large proportion of the population of children in Kakuma Phase 4 were also from South Sudan (65.6%) and Sudan (13.5%). However, there were far fewer children from South Sudan living in Kakuma Phases 2 and 3 (28.9% and 25.9%, respectively). The highest proportion of Somali children lived in Phases 2 and 3 (20.0% and 19.0%, respectively). There also were many children from DRC living in Kakuma Phase 2 (18.5%), while in Kakuma Phase 3, 20.7 percent of the children were either from other countries (e.g., Tanzania), from different parts of Kenya, or born in Kakuma camp itself. The newer Kalobeyei settlement predominantly

hosted children from South Sudan (60.8%), with a proportion from Sudan similar to that of the camp at large (17.7%). There were no children from Somalia in Kalobeyei schools and only a few from Burundi, DRC, and Rwanda (3.9% each). Kalobeyei is designed to allow nationals and refugees to cohabitate, but none of the sampled children identified Kenya as their country of origin, although 9.2 percent indicated that they were not from the countries given as options, and we could not identify whether they may, in fact, have been Kenyan.

Table 5: Country of Origin by Kakuma Phase (% of the population)

| Country	Overall (*N*=731)	Kakuma 1 (*n*=325)	Kakuma 2 (*n*=136)	Kakuma 3 (*n*=117)	Kakuma 4 (*n*=101)	Kalobeyei (*n*=52)
South Sudan	41.7	42.8	28.9	25.9	65.6	60.8
Sudan	16.7	18.2	16.3	15.5	13.5	17.7
Other	14.8	19.4	8.2	20.7	5.2	7.8
DRC	8.8	7.1	18.5	7.8	4.2	3.9
Somalia	8.6	4.0	20.0	19.0	0	0
Burundi	4.1	4.0	3.0	5.2	5.2	3.9
Uganda	1.9	1.9	2.2	1.7	3.1	0
Ethiopia	1.7	1.2	2.2	1.7	2.1	2.0
Rwanda	1.5	1.2	0.7	2.6	1	3.9
Eritrea	0.1	0.3	0	0	0	0

Source: Piper, Kwayumba, and Oyanga (2018, 19)

We fit univariate ordinary least squares (OLS) regressions to determine whether there was variation in children's literacy outcomes by country of origin. In this analysis, we focused on ORF scores, given that ORF had the most variation and is used by Kenya as the key literacy outcome variable (Piper, King, and Mugenda 2016). We graphically present our findings in Figure 2, which shows both the average fluency rate and the number of children in our sample. It is important to note the relatively small sample size from some countries of origin. We found that the 302 children from South Sudan had fluency scores very close to the overall averages, which is logical, given the substantial South Sudanese population in the camp (see Table 5). The South Sudanese English ORF was 8.2 cwpm, which was statistically indistinguishable from the overall mean of 9.6 cwpm (*p*-value=.63), while the South Sudanese Kiswahili ORF was 6.2 cwpm, also no different from the overall mean of 6.5 cwpm (*p*-value=.72). The 62 Somali students performed 7.8 cwpm better than average in English (*p*-value<.10), but not different from the average in Kiswahili (*p*-value=.35). The 64 Congolese students read 16.3

cwpm in English (p-value=.32) and 4.7 cwpm in Kiswahili (p-value=.74); these values were not significantly different from the average values. Although the 12 Ethiopian students performed well (i.e., 23.5 cwpm in English and 43.1 cwpm in Kiswahili), their small sample meant that comparison with other groups revealed no statistically significant difference for English (p-value=.12) but a significant difference for Kiswahili (p-value=.05). Finally, the 11 Rwandan students read only 0.4 cwpm (p-value<.01) and 0.1 cwpm (p-value=.01) in English and Kiswahili, respectively.

As we discuss below, we were unable to determine the factors that might have contributed to these performance patterns by country of origin, including students' educational experiences in their countries of origin, their length of stay in Kenya, their home language or language of previous schooling in linguistically diverse countries of origin, their expectations for the future, or other factors. Further research is needed to understand the ways children's experiences before and during exile may contribute to their learning in refugee settings.

Figure 2: ORF Scores by Country of Origin
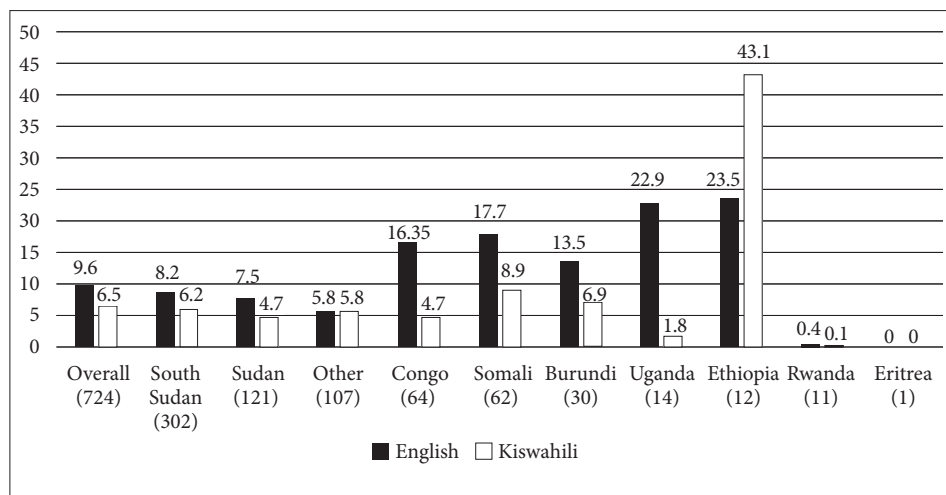
Source: Piper, Kwayumba, and Oyanga (2018, 19)

Finally, we sought to understand what policy-relevant factors are associated with literacy outcomes in Kakuma. We focused on predictor variables that we believed could be relevant for children's learning and that could guide differentiated teaching for refugee students, including the child's country of origin, the language of instruction at school in Kakuma, and the children's expectations for their future.

To understand the potential relationship between these factors and literacy outcomes in Kakuma, we fit separate OLS regression models with English ORF as the outcome variable and predictor variables drawn from the student background questionnaire. The first and second model regressed Kiswahili and English ORF on location, while the third model removed phase and regressed ORF on student background variables. The first and second models controlled for the specific phase of Kakuma or Kalobeyei that the schools were in, the grade, and the Tusome treatment group the school was assigned to. These findings were robust to models that also controlled for age and gender. Results were relatively similar for OLS models with Kiswahili ORF as the outcome variable (Piper, Kwayumba, and Oyanga 2018). First, we fit a model that compared learning outcomes by location, comparing Kakuma's four phases and Kalobeyei, controlling for grade, gender, and age, and with scores in reference to outcomes in Kakuma Phase 1. We present the results in Table 6. Kakuma Phase 2 outperformed Phase 1 by 3.7 English cwpm (*p*-value<.10), Phase 3 outperformed Phase 1 by 5.7 cwpm (*p*-value<.10), and Phase 4 outperformed Phase 1 by 14.5 cwpm (*p*-value<.001). Kalobeyei was no different from Kakuma Phase 1 (*p*-value=.33), although the absolute magnitude of the outcomes was close to that for Kakuma Phase 2. In Kiswahili, we did not find any statistically significant differences by Kakuma phase or Kalobeyei, except that Kakuma Phase 4 outperformed Kakuma Phase 1 by 7.5 cwpm (*p*-value<.05). Note that the regression models examining the physical location of the schools predicted only 4.6 percent and 6.4 percent of the variation in student outcomes for Kiswahili ORF and English ORF, respectively.

Table 6: Results from OLS Regression Models Controlling for Gender, Grade, Age, and Treatment Group

Predictor	Kiswahili ORF (*N*=666)	English ORF (*N*=683)	English ORF (*N*=683)
Kakuma Phase 2 compared with Phase 1	3.9	3.7†	
	(2.5)	(2.1)	
Kakuma Phase 3 compared with Phase 1	1.0	5.7†	
	(2.0)	(3.0)	
Kakuma Phase 4 compared with Phase 1	7.5*	14.5**	
	(3.3)	(4.3)	
Kalobeyei compared with Phase 1	1.2	4.3	
	(3.1)	(4.4)	
Student is from Rwanda			-3.8†
			(2.1)
In 10 years, I will have returned to my home country			-5.6**
			(2.1)

Predictor	Kiswahili ORF (*N*=666)	English ORF (*N*=683)	English ORF (*N*=683)
In 3 years, I will be in Kakuma			-4.7*
			(2.2)
Student is from South Sudan			-5.2*
			(2.3)
Student is from Somalia			7.0†
			(4.2)
Kiswahili is spoken at home			9.1*
			(3.8)
English is spoken at school			9.1**
			(2.8)

Note: † p<.10, * p<.05, ** p<.01, *** p<.001. Standard errors in parentheses.

We identified a number of statistically significant relationships between student background characteristics and English ORF, as shown in Table 6. We found statistically significant relationships between whether English was spoken at school and children's English ORF. Children read 9.1 cwpm more fluently (*p*-value<.01), on average, if attending schools where English was the primary language of instruction at their school, and 9.1 cwpm more fluently (in English) if Kiswahili was spoken at home (*p*-value<.05). We also found three statistically significant relationships between English ORF and country of origin: as described above, being from Somalia was associated with 7.3 cwpm higher in English (*p*-value<.10), while being from Rwanda and South Sudan was associated with 3.9 cwpm lower (*p*-value<.10) and 5.3 cwpm lower performance (*p*-value<.05), respectively, on English ORF. With respect to expectations that they would return to their home country, we found that a refugee child who thought they would still be in Kakuma in three years scored 4.8 cwpm lower in English (*p*-value=.02). In contrast, those who anticipated that they would be in their country of origin in ten years read 5.2 cwpm less fluently in English (*p*-value=.01).

DISCUSSION

Our analysis of early literacy data for refugees in Kakuma demonstrated at the population level that these learning outcomes were exceedingly low. Grade 2 students in Kakuma scored below students in the national Kenya baseline on all fluency measures (e.g., letter-sound fluency, decoding fluency, and ORF) in both English and Kiswahili. For example, only 8.6 percent of grade 3 students in Kakuma met the MoE grade 2 benchmark for reading fluency in English and Kiswahili, and average ORF rates were some of the lowest fluency outcomes available in large-scale databases in LMICs (Dubeck and Gove 2015; Raza, Kabir,

and Rashid 2019). Moreover, in comprehension skills, which are critical predictors of later academic success, grade 3 students in Kakuma scored substantially below grade 2 students on the national Kenyan baseline, scoring only 4.7 percent correct compared to 22.0 percent correct, even though they were almost one full instructional year ahead in school.

We found three factors with statistically significant relationships to students' ORF in English: country of origin, the primary language of instruction in school, and the expectation of returning to their home country. Students with origins in Somalia scored higher and students from South Sudan scored lower, possibly due to their varying exposure levels to education in Kenya and/or to English. Many Somalis living as refugees in Kenya have lived in the country for up to three decades, making it possible that current Somali students in Kakuma were born in Kenya and have parents and/or siblings who were educated in English in Kenya (see, e.g., Dryden-Peterson, Dahya, and Adelman 2017; Horst 2006). Conversely, students with origins in South Sudan were more likely to have arrived in Kenya as very young children from a country where English prevailed as the language of instruction for the very short period between Independence in 2011 and renewed conflict in 2013 (UNICEF 2017; UN Security Council 2017). Students from Rwanda also scored lower in English reading fluency, although we are hesitant to speculate as to the reasons because of our small sample of 11 students. A better understanding of students' educational histories, their parents' educational histories, and their sources of exposure to the languages of instruction could inform policy responses and appropriate instructional practices for students from different countries of origin.

As documented in other literature, students' assessed reading fluency is higher if the language of assessment is the primary language used for instruction at their school (Piper, Schroeder, and Trudell 2016). We saw the same pattern in Kakuma, where students who reported that the primary language used for instruction in their school was English read more fluently in English. Although English is one of the two official languages of instruction in Kenya and students, by policy, should be exposed to English as a primary language of instruction, teachers of refugees sometimes do not have the language skills to instruct in English and make the decision to use other languages so their students can understand the lessons (Chopra and Dryden-Peterson 2015; Reddick and Dryden-Peterson forthcoming). An important factor for teachers' professional development in Kakuma may be exposure to translanguaging practices that enable them to capitalize on languages shared with students, such as Arabic or other home languages, while exposing

students to English and Kiswahili, which, as languages of instruction and assessment, are critical to their educational futures (see, e.g., García and Wei 2014). Future research could consider how teachers' country of origin affects both the language environment of the classrooms in which they teach and children's learning outcomes.

Oral reading fluency in English also was connected to students' views of their migration and exile trajectory. We asked students where they expected to be in three years and in ten years, and found a connection between these expectations and their ORF. It seems reasonable to expect that students, or their families, might invest differentially in English or Kiswahili, or in Kenyan education more broadly, depending on their view of the future and on what languages are used in their country of origin. In our data, we found statistically significant relationships between students' expectations that their future three years ahead would be in Kakuma and lower reading fluency in English. This finding is somewhat counterintuitive, as we might expect that students who predicted that they would continue their education in Kenya would invest in English, with possible beneficial outcomes. On the other hand, without the right to work and restrictions on freedom of movement, refugees have limited ability to earn a livelihood in Kenya, thus a possible prolonged exile could limit the perceived usefulness of a Kenyan education or the perception that the future holds the kinds of opportunities that would benefit from educational achievement in general (Bellino 2018; Bellino and Dryden-Peterson 2018). We also found that children who planned to be in their country of origin ten years in the future had lower English fluency. As indicated earlier, we recognize the limits of student-reported data of this kind, especially by students in early grades, as was the case in our study. Under a policy of inclusion of refugees in national education systems, further research is needed to understand how refugee students and families perceive the use of education in exile for their envisioned futures, how this perception overlaps with the languages used in their country of origin, and how these perceptions and plans affect their investments in schooling and learning.

We found that children in Kakuma Phase 1 had lower learning outcomes than children in the rest of Kakuma camp and that the Kalobeyei results were similar to those of Kakuma Phase 1. These results were somewhat surprising, given the varying amounts of attention these areas of the camp and settlement receive from donors. Future research should investigate the mechanisms by which refugee learners' country of origin, their expectations of return, and residence in particular parts of a camp or settlement influence learning outcomes.

Future research should also examine how the poor learning outcomes identified in this study in Kakuma overlap with the somewhat higher pass rates on the Kenya Certificate of Primary Education exam experienced by older children in these same schools (UNHCR 2017c). Various hypotheses are possible: perhaps the children who perform poorly in early primary have dropped out by the time they reach the Kenya Certificate of Primary Education exam at the upper end of primary school, or maybe this finding is an artifact of a cohort effect, meaning that current younger learners in Kakuma are doing less well than previous cohorts of learners.

CONCLUSION

In addition to pointing to some discrete predictors of refugee students' early literacy, our findings illuminated challenges to learning that were exacerbated by marginalization and differentiated learning needs. Such challenges are relevant not only to refugee education but also to the global goal of providing quality education for all, including national populations in areas that host refugees. Refugees in Kenya have access to education in the national system through a policy designed to increase their access to high-quality education; however, our study showed that their learning outcomes were among the lowest seen in any study in LMICs. The lower learning outcomes we saw in Kakuma compared to those in Kenya as a whole point to the need for further research on the different learning needs of refugees, which may not be met entirely by following the national education system or may indicate opportunities to modify national education systems to meet differentiated learning needs. Given the low learning outcomes in the refugee-hosting area of Turkana County, this finding calls attention to both the need and the opportunity to situate support of refugees in the context of the marginalized nationals amid whom they live. Our findings show different learning outcomes by country of origin group. Other literature suggests that refugee students' country of origin may influence learning, possibly due to family literacy rates, ease of connection to schools and school culture, previous educational experiences in the country of origin, and length of stay in Kenya (Burde et al. 2016; Bellino, Faizi, and Mehta 2016; Organisation for Economic Co-operation and Development 2015). Education programs and practices would be usefully informed by considering these factors, instead of considering refugee students as one homogenous group of learners no matter their country of origin or as having the same learning needs as nationals.

In addition, refugee learners' home language(s) and language(s) of previous schooling are likely to affect learning outcomes following displacement. If students have developed literacy skills previously, especially in their home language(s), they are likely to be able to draw on these skills for schooling in a new language, whereas students without existing literacy skills will likely find this more challenging (Cummins 1978; Benson 2012; Genesee et al. 2006). This linguistic transfer is most productive between languages that are proximate in terms of orthography or structure, so that refugee children from language backgrounds that are quite different from the new language of instruction they encounter may struggle more than those from more similar language backgrounds (Genesee et al. 2006; Melby-Lervåg and Lervåg 2011). Effective educational opportunities for refugee children should take these factors into consideration when making decisions about language of instruction. Our research is also suggestive, though inconclusive, that refugees' expectations for the future shape early literacy learning. An uncertain future is a persistent reality for refugee children, and schools can play an important role in mitigating the ways that uncertainty may interfere with learning (e.g., Sirin and Rogers-Sirin 2015; Dryden-Peterson 2016b). Finally, although we do not have comparable data, we do know that learning outcomes in Turkana County, where Kakuma is located, are also among the lowest in Kenya. This educational marginalization of both refugees and nationals demands further research on both individual-level factors (e.g., poverty, family literacy) and school-level factors (e.g., teacher pedagogy, school climate) that are promising mechanisms to augment learning, not only for refugees but for the marginalized nationals amid whom they live, who also have been left behind by the global education movement.

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