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Refugees and Learning: A Study of Early Grade Mathematics Competency in Kebribeyah and Awbarre Refugee Schools, Ethiopia

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Abstract

Despite the consensus that early-grade mathematics is a gateway to success in school and life, evidence from refugee settings remains scarce to inform policy and practice. Therefore, this study aimed to investigate the mathematics learning competency of children in Kabribeyah and Awbarre refugee schools in Ethiopia. Using a comparative survey design, the study involved 229 randomly selected grades 2 and 3 refugee and host community children in the sampled schools. Analysis of data collected using the Early Grade Mathematics Assessment (EGMA) tool showed that the mean scores of refugee and host community children amounted to 64.73% and 60.33%, respectively. Comparative analysis, however, revealed no statistically significant difference between these two groups (t= -1.90, df= 227, p= 0.059, 2-tailed). Nor had sex made a significant contribution in this regard. Accordingly, further research on a wider setting and predictive factors was recommended to influence policy and practice in early-grade mathematics learning in the context of refugee schools in Ethiopia.

Key terms: *Competency, Early grade, Learning, Mathematics, Refugee*

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1. Introduction

Ethiopia is one of the signatory countries of the 1951 Refugee Convention and subsequent directives. The country has also made such provisions laws of the land (FDRE, 1995). Article 9 (4) says, "All international agreements ratified by Ethiopia are an integral part of the law of the land." Even the interpretation of human rights and freedoms should be the same as that of the international frameworks. Article 13(2) states, "The fundamental rights and freedoms specified in this Chapter shall be interpreted in a manner conforming to the principles of the Universal Declaration of Human Rights, International Covenants on Human Rights and International instruments adopted by Ethiopia." In general, the global refugee legislative documents indicate three important points: protection by the accepting government, services such as the education of children and rights of refugees to get those services. Education in a refugee setting is both a right and a developmental issue. The 1948 Universal Declaration of Human Rights, the 1951 refugee protection agreement, as the UN 1989 Convention on the Rights of the Child all underlined education as the right of every child. Furthermore, UNHCR (2001) asserts, "education provides a vehicle for rebuilding refugee children's lives through social interaction and gaining knowledge and skills for their future lives" (P. VII).

According to the 1951 convention, the first global framework, refugees are persons forced to flee and resistant to return to home country because of insecurity rooted in political, racial, religious or any other difference (UN, 1951). Given the current

prevalence and increasing scope of recurring conflict and violence in the world, UN considers this collective agreement on refugee protection and support as valid and relevant even in the 21st Century (UN, 2010; UNHCR, 2011). Global evidence on refugee population shows that the number in recent years has been on the rise.For example, the number of refugees at global level grew from 22.5 million in 2016 (UNHCR, 2017a) to 26.4 million in 2021(UNESCO Institute for Statistics & UNHCR, 2021).

Ethiopia too hosts over 800,000 refugees (the third largest in Africa) from countries like Somalia, South Sudan and Eritrea (UNHCR, 2022a). The number of schoolchildren attending primary education reached 111,776, constituting 50% Gross Enrolment Rate (GER), as of October 2022 (UNHCR, December 2022b). Similar trends hold true in the current study area, which is Somali Regional State, Ethiopia. As of July 2020, a total of 39,286 persons have been sheltered in refugee camps found in Jigjiga area,[2] in which primary education was able to cover 84% of the eligible children in the area (UNHCR, 2020a). In 2021/22, a total of 26,879 refugee children that constituted 41.6% gross enrolment rate (GER) were attending primary education (grades 1-8) in Somali Regional State (MoE, 2022).

Refugee children in Ethiopia attend their primary education in refugee schools funded by humanitarian organizations. After the Djibouti declaration (IGAD, 2017), however, Ethiopia developed a five years refugee education strategy (2020-2025)

[2]Jigjiga area refugee in Somali Regional State, Ethiopia, includes Kebribeyah, Awbarre and Sheder refugee camps.

(UNHCR, 2020b) and the move is towards integration into the national education system. However, evidence on how refugee children in Ethiopia are learning in general and on mathematics achievements in particular is scarce.

Refugee Education and Early Grade Mathematics Learning

Education of refugee children is a shared responsibility of the global community because of the communal commitments and problems. Cognizant of the child's right to education and its critical role in human development and success in life, the 2030 Agenda for Sustainable Development Goals (SDGs) renewed the collective commitment to ensure inclusive and quality education in all settings (UN, 2016).In a world where schools determine the fate of adulthood and even nations (U.S. Department of Education, 2008), providing inclusive and quality education is even more critical in refugee settings to compensate for deficiencies and improve prospects through evidence-based reforms or interventions. Osofsky (1999) also claimed that education for refugee children helps develop hope and cope with crises emanating from displacement and trauma.

Unfortunately, however, global data shows that developing countries that are facing challenges in supporting quality education for their own citizens are hosting the majority (about 84% in 2016 and 86% in 2021) of refugees (Muhumed& Ahmed, 2022). In Ethiopia too, the four major areas hosting refugees are regions categorized as ‘emerging’ because they lag behind othersregions in the country in social service and infrastructure development such as education (UNHCR, 2020b).Consequently, refugee education is generally underfunded because of other priorities such as food

aid, shelter and safety (MacKinnon, 2014; Mccarthy, 2017; UNHCR, 2017b) and evidence on learning in this regard is scarce.

Mathematics learning strengthens the assertions on the advantages of education and contribution towards social and individual development. U. S. Department of Education (2008) described the comparative advantages of mastery of mathematics to a nation or society as follows:

> The eminence, safety, and well-being of nations have been entwined for centuries with the ability of their people to deal with sophisticated quantitative ideas. Leading societies have commanded mathematical skills that have brought them advantages in medicine and health, in technology and commerce, in navigation and exploration, in defense and finance, and in the ability to understand past failures and to forecast future developments. History is full of examples (p. 1).

This recognizes how mathematical skills transcend beyond school context and give society power to define their comparative advantages. The future also requires mathematical skills more than ever because the overflow of information, digitalization and globalization are replacing manual and cognitive-oriented jobs with computerized and quantitative skill-intensive tasks (Gravemeijer et al., 2017).The prospect even gives more space to mathematics learning because not only it widens college entry, career and earning options but also jobs are becoming numeric in nature. According to the U.S. Department of Education, “The value of such preparation promises to be

even greater in the future. The … growth of jobs in the mathematics-intensive science and engineering workforce is outpacing overall job growth by 3:1" (p. xii).

On the other hand, school achievements, future career and increased income level of individuals have profound foundation in early year's mathematics learning. Research shows that early grade mathematics (aka numeracy)[3] ability development sets the basis for learning, including in other subjects such as science and literacy, has far-reaching effects on later academic achievements, and even success in life (Antoni &Heineck, 2012; DES, 2011; Duncan et al., 2007; French, 2013; Glass, 2002; Purdie et al., 2011; Shomos, 2010). In the same way, early mathematics learning difficulties tend to affect the learning progress of children and those who lag behind their peers are likely to achieve comparatively lower in upper classes and ultimately become school dropouts (National Economic and Social Forum, 2009).In summary, early learning difficulties or strengths in general and of mathematics, in particular, tend to accumulate eventually and ultimately affect life or career destinations (Cramman et al, 2018; Purpura & Reid, 2016).

Mathematics education in the refugee context is different in two ways. First, research in OECD countries on migrant adults showed that the mathematics ability of migrants was low, even for those who had the chance to continue their education in the host country. However, there is no such conclusive research regarding the situation among children attending their education in developing countries. First, refugee children are in transition from their country of origin to a new setting and experience emotional

[3] Operationally, while early grade mathematics refers to the basic of number sense and counting concepts, numeracy refers to their application in and connection to real life activities of the individual.

stress caused by the process of dissociation from old environment and incorporation into new settings (Tinto, 1988).As a result, in addition to cultural, religious, language and other differences, emotional status mediates their learning effectiveness. Gooset al. (2014) asserted that learning interest, confidence and consistency to deal with problems depend on a child's emotional comfort and the determination to apply quantitative skills for success in life. Second, unlike in the past, there is a growing consensus that mathematics learning is affected by cultural activities or context. Mathematical contents and outcomes such as symbols, numbers, sum and difference might not change but content processing strategies, examples, pictorial representations, understandings and applications call for contextual restructuring of the knowledge at hand (Goos et al, 2014; Li, Silver & Li, 2014; Stigler & Baranes, 1988). In the same way, learning early-grade mathematics in refugee schools need context and intention fit learning models (Gooset al., 2014). This notion is better explained by Steen (2001) while describing the role of mathematics in the development of quantitative skills such as commutation, data handling, spreadsheet management, statistics and reasoning. These skills, Steen asserts, require relevant content and context specific processing. Refugee children are equally different from others because of not only detachment from their original settings, but also because of requirements for immediate subsistence-based activities and future destinations, i.e., integration in hosting country, transmigration to a third country, or going back to country of origin.

Conceptually, early-grade mathematics has two foundational constructs: Counting Concept (CC) and Number Sense (NS). CC comprises one-to-one correspondence,

stable number (missing number), cardinality, order irrelevance, and abstraction, while Number Sense (NS) includes number identification, counting skills, understanding quantity, and ability in the four operations(Baroody, 1993; Clarke & Shinn, 2004; Gelman & Meck, 1983; Smith, 2010). Some assessment formats even include mathematical sub-domains such as place value, word problems and shape recognition into data collection measures (Platas et al., 2014).Figure 1 shows the interplay of variables considered in the present study.

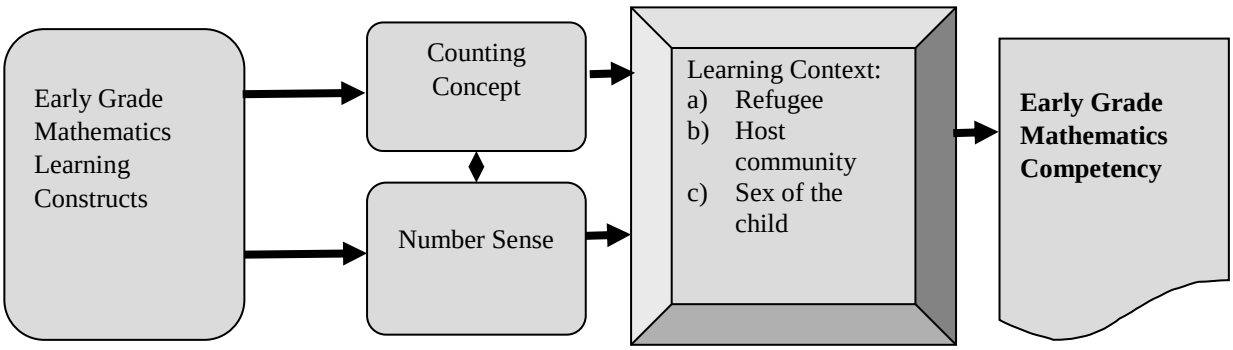

Figure 1.*Conceptual framework of the study*

Figure 1 shows the conceptual mapping of the study variables and context with learning outcomes. The relationship shows that selected sub-domains of the two constructs represented the measurement of early grade mathematics learning in this study. Furthermore, the connection between the two constructs is dashed because there is no conclusive finding yet regarding the relationship between counting concept and number sense constructs (Smith, 2010). Nor is this relationship an agenda of this study.

2. Statement of the Problem

This study was situated on what we know so far regarding early-grade mathematics learning in refugee context. It has become an acceptable reality that migrants have relatively lower mathematical abilities compared to their peers in the host countries (Nortvedt& Wiese, 2020). However, evidence on learning outcomes from refugee settings remains so thin to inform the status and its defining elements (Fransen et al., 2018) (UNHCR, 2018, 2020).

This is so because of competing priorities and lack of resources for such purposes. AsKhoudour and Andersson (2017) indicated, low-income countries struggle to share resources for quality learning and research in refugee schools. Research also shows that intervention priority in refugee schooling is on language acquisition and technical skills. While language learning is meant for social communication, cultural awareness and integration with the host community, technical skills are employment - motivated. It is unfortunate that early grade mathematics ability in refugee context is overlooked so far despite its strong associations with school achievements, developing accuracy and managing living such as income, expenses, communication and shopping (Lüssenhop& Kaiser, 2019).

In some cases, schools may not be safe places for children to learn. Rebecca and Kirk (2008) indicated that refugee schools can be places of political contentions where the school community might be deliberately attacked by armed groups and teachers be instruments of political interests of others. Muhumed and Ahmed (2022) too showed how education was an instrument of social conflict because of contentions on

resources between refugee and host community in Kebribeyah area, Somali Regional State, Ethiopia.

Research in Ethiopia shows diverse factors contributing to status of children's learning. For example, low household income, low parental education and absence of role models (Camfield, 2011; Poluha, 2004; Rose & Al-Samarrai, 2001), rural setting (Abraha, 2015), and gender biased textbooks (Muluemebeat, 2007; Tamirie, 2009) put girls at a disadvantage. Tatek (2007; 2008) too identified an interactive association of livelihood, socialization and school context as significant contributor of learning in primary schools in Ethiopia. However, Questions of comparability of education quality and defining equity issues in refugee schools still call for further investigation.

In fact, Muhumed and Ahmed (2022) claimed that when refugees stay for considerable time in a host country, like the case in Somali refugees in Kebribeyah, the societies share resources, and lifestyle but education remains an issue. Conflict occurs when refugee schools start getting learning resources and building better school environment due to support from international organizations, while host community members still pay for the education of their children. However, there is no scientific evidence whether or not this perceived enhanced opportunity to learn in refugee schools transcends itself into higher learning outcomes. Therefore, this paper tried to address both the scarcity of evidence in the area and the contribution of better resources on student learning, focusing on early-grade mathematics competence in two refugee schools (Kebribeyah and Awbarre), and selected host community schools.

The issue of the research was basically a concern of equity in learning competency between refugee and host community schoolchildren as measured by Early Grade Mathematics Assessment (EGMA). This equity issue of competency (the ability to perform correctly within a given time (U.S. Department of Education, 2008) is very important because it indicates equality of capabilities realized (Lin, 2018). This theoretical conception shaped the study to focus on the status of learning and the normative relativity of early grade achievements in the refugee and host community settings to draw relevant conclusions and implications. Evidence from other equity issues shows that mathematics learning disfavors children at a disadvantage because of gender, cultural norms, socioeconomic variables, etc. (Malzahn et al., 2020; Vale et al., 2020; Yig, 2022). Though the works of Kirk and Winthrop (2007) and UNHCR (2020) showed that girls are doubly disadvantaged in access (because of early marriage, safety issues and lack of clarity in destination), evidence on learning disparity remains scarce so far.

Though small in scale, this study has global implications because supporting refugee education is a shared global commitment. If left unaddressed, transmigration, like the case in East and Horn of Africa (Marchand, Reinold& Dias e Silva, 2017), will extend the problem to many other countries in the globe. Accordingly, the paper intended to answer the following basic questions:

1. What the status of early-grade mathematics competency is among grades 2 and 3 children in Kebribeyah and Awabare refugee schools?

2. Is there a difference between the mathematics competency of early grade refugee and host community schoolchildren?
3. Does sex have a contribution to early grade mathematics competency in Kebribeyah and Awbarre refugee and host community schools?

3. Materials and Methods

Participants

The data for this study was extracted from a learning status assessment conducted in January 2020 to inform the 'Building Self-Reliance Project (BSRP)' introduced by Save the Children in the refugee and host community schools. The study targeted grades 2 and 3 children because they best represented the notion of the early grade continuum (grades 1-4), and children in these grades were assumed to have enough schooling experience to sit for the assessment.

With the objective of uncovering the level of early-grade learning, the study employed a survey design that used a two-stage sampling technique, i.e., selecting schools followed by students. The selection of sample schools from refugee settings was almost direct and focused on the available primary schools (Kebribeyah and Awbarre refugee schools). From a list of 16 host community primary schools identified for the purpose, however, a total of four (two from each site) were selected using a simple random sampling technique or lottery method.

In the case of sampling grades 2 and 3 children, a systematic sampling technique was employed. Enumerators lined up children by grade and gender and picked the required number based on computed intervals. The total sample size was fixed to be a multiple of 40 children per school for the purpose of analyzing data using inferential statistical tools, including at the school level if need be. The return, however, was less in Gobyarey host primary school due to the absenteeism of children during the data collection time. Table 1 shows the sampled schools and sample sizes by school.

Table 1

Sample schools and sample sizes by school

Region	Site	Name of school	Sample size	Type of school
Somali	Kebribeyah	Kebribeyah refugee school	40	Refugee
		Sheik Yusuf Kawnaye	40	Host community
		LabaShap	39	
	Awbarre	Awbarre refugee school	40	Refugee
		Abdi KamilAwale	40	Host community
		Gobyarey	30	
		Total	**229**	

Table 1 depicts, in addition to the two refugee schools, Sheik Yusuf Kawnaye and LabaShap primary schools from Kebribeyah, and Abdi KamilAwale and Gobyarey primary schools from Awbarre area were included as comparison schools for the study. Besides, the study's sample size reached 229 (95.4% of the plan).

Table 2 and Figure 2 also provide additional background information in terms of grade level, type of school children were attending, and gender.

Table 2

Grade level and gender of participants by school type

No	Type of school	Grade	Gender			
		2	**3**	**Boys**	**Girls**	**Both**
1	Refugee (total)	**40**	**40**	**41**	**39**	**80**
	Kebribeyah	20	20	21	19	40
	Awbarre	20	20	20	20	40
2	Host community (total)	**75**	**74**	**74**	**75**	**149**
	Sheik Yusuf Kawnaye	20	20	20	20	40
	LabaShap	20	19	19	20	39
	Abdi KamilAwale	20	20	20	20	40
	Gobyarey	15	15	15	15	30
Grand Total	**115**	**114**	**115**	**114**	**229**	

Of the 229 total sample size of the study, 115 (50.2%) and 114 (49.8%) were grade 2 and 3 children respectively. Similar proportions hold true for gender disaggregation of boys and girls in the same order.

Another background variable reviewed was age distribution of participant children, which was skewed to the left (See Figure 2 below).

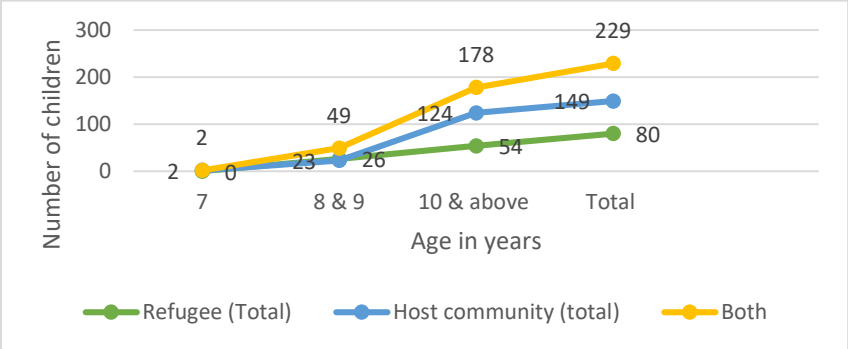

Figure 2: *Age range of sampled children by type of school*

Official entry age to grade 1 in Ethiopia is seven. By ages eight and nine children are expected to attend grades 2 and 3 respectively. Evidence on Figure 2, however, shows that considerable proportion of children in both settings reported over the age limits expected for the two grades. While the proportion of over aged children in refugee schools was 67.5%, that of host community schools reached 83.2%. Thus, despite magnitude differences, enrolment of averaged children in early grades was a common denominator in both settings.

Data Collection Tool and Pretesting

The data collection tool for this study was Early Grade Mathematics Assessment (EGMA) format that contains oral counting, one-to-one correspondence, number identification, cardinality, number sense, place value, addition, and subtraction sub tests. In fixing items, the standard tool was reviewed in view of the functional curriculum of the Somali regional state. Furthermore, for relevance, ease of communication and validity purposes, the tool originally developed in English was translated into Af Somali by two professionals with experiences in textbook development in the same language.

Data collection process involved four enumerators selected on the basis of qualification (BA and above), experience in similar tasks, and fluency in Af Somali. Training organized on the procedures of data collection for two days (14-15 January 2020) included practicing data collection in the actual school setting for two basic reasons: (a) familiarize the enumerators with actual data collection context, and (b) collect data for the reliability index computation.

EGMA is an established format and has been used in the Ethiopian context at different times. However, pretesting took place on randomly selected samples of grades 2 and 3 children from Garbi primary school, Kebribeyah area, Somali Regional State to address context-specific psychometric issues and enhance assessors' competence in conducting the assessment. Pretest data was collected from a total of 34 children (i.e., 14 grade 2 & 20 grade 3; 20 boys & 14 girls). *Cronbach's alpha* applied to the pilot data showed reliability statistics of 0.68, which according to Cohen, Manion, and Morrison (2007, p. 506), is an acceptable index for research purposes.[4]

Procedures

EGMA administration is a one-on-one protocol. The first three of the eight subtests used in this study (oral counting, one-to-one correspondence, number identification, cardinality, number sense, place value, addition, and subtraction) were timed tests intended to measure accuracy and speed. Each of these measures different but overlapping learning outcomes (RTI, 2009).

Oral counting:	the ability to name numbers orally starting from one.
One-to-one correspondence:	the ability to count objects.
Number identification:	understanding of children's ability to identify written symbols.
Cardinality:	measures the ability of children to understand the number of objects through counting.

[4] For split-half and alpha coefficients, suggestions on cut-off points vary from author to author. There is no question that tools with higher reliability index are better. However, from pragmatic point of view, the minimum limit suggested is 0.67 (Cohen, Manion & Morrison, 2007, p.506).

Number sense:	this subtest combines quantity discrimination (comparing magnitude) and missing numbers (understanding order of numbers and the missed symbol in the sequence given).
Place value:	Understanding base-ten number system and the value associated with numbers (0-9) because of the place each hold.
Addition and subtraction:	understanding symbols and preforming number operations.

In the process of assessment, students were not supposed to write their answers but provided oral answers to questions presented by the enumerator orally or using a stimulus. The enumerator recorded answers as per the specified procedures.

Ethical Issues

The process of data collection focused on securing consent from the school principals and assent from each child. Both the head teachers and students were informed regarding the objectives of the study, the limited use of the information collected, confidentiality and anonymity. Furthermore, children were informed that participation was completely voluntary and they could skip an item, and take rest in the middle, if necessary.

Data Analysis Techniques

The data on the status of student learning collected was coded into SPSS (version 20) software, cleaned, and processed to identify basic findings using both descriptive and inferential statistical techniques. While descriptive statistics such as mean and standard deviation were employed to understand the status of learning, t-test (both one sample and independent samples) was used to compare achievements with expected

standards and between independent groups (refugee vs. host community schools and gender). Finally, tables and graphs were used to present and discuss findings as appropriate.

4. Analysis and Major Findings

Early Grade Mathematics Skill Development among Sampled Children

Mean scores of each subtest and the total are indicated in Table 3 below. Results shows that refugee children consistently scored relatively higher than the host community children in all the subtests and the overall. Except in number identification, each group registered above average mean score in each subtest and in the aggregate. Overall, while the mean score of refugee children amounted to 64.7%, that of host community children was 60.3%. Results indicate there was about four-point difference between the two groups in favor of the refugee setting. However, variability of scores was higher in the distribution for the host community school children (S_2 = 18) than in the refugee setting (S_1=14.2).

The overall mean score of refugee children was also compared with the Ethiopian Education and Training Policy guideline that set 50% cutoff point for a pass mark (MoE& USAID-AED/EQUIP, 2008). The one-sample t-test showed that this difference was statistically significant in favor of refugee schoolchildren's performance (t= 9.29, p< .001, two-tailed). Thus, it can safely be concluded that the refugee children's EGMA achievement was higher than grade four children achievement trends learned from the four year cyclic Ethiopian National Learning Assessment (ENLA) results that ranged from 37.1 to 40.3 (MoE, 2000; 2004; 2008;

2013) but lower than the average means scores of the national EGMA results (over 70%) (National Educational Assessment and Examinations Agency, 2014; 2018).

Table 3
Mean scores of sampled children by type of school

Subtest	Refugee schools (n=80)				Host community schools (n=149)			
	Mean	**S_1***	**Min. Value**	**Max. Value**	**Mean**	**S_2**	**Min. Value**	**Max. Value**
Oral counting	85.6	24.1	0	129	80.0	25.3	10	133
One-to-one	21.2	3.1	0	22	21.2	2.7	0	22
Number identification	32.6	11.9	0	68	30.4	17.7	0	67
Cardinality	4.0	1.2	0	5	3.9	1.3	0	5
Number sense (Ordering + quantity discrimination + Missing number)	16.2	3.6	0	20	13.8	5.4	1	20
Place value	5.0	2.9	0	10	4.2	3.5	0	10
Addition	7.7	2.3	0	10	7.3	2.6	0	10
Subtraction	7.7	2.6	0	10	6.9	3.1	0	10
Grand Total in %	**64.7**	**14.2**	**23**	**93**	**60.3**	**18.0**	**14**	**95**

Note: S_1 = standard deviation of the sample 1 (refugee children)
S_2 = standard deviation of sample 2 (host community children)

Is the difference obtained in overall mean score between refugee and host community schoolchildren statistically significant? Table 3 below presents the resulting findings of the test of significance.

Table 4
Results of t-test on mean differences between refugee and host community schoolchildren

Group	N	Mean (%)	SD	Std. error mean	Mean Diff*	Std. error Diff*	t	df	Sig. (2-tailed)	95% confidence interval
Refugee children	80	64.73	14.2	1.6						
Host community children	149	60.33	18.0	1.5	4.4	2.3	1.90	227	0.059	-0.17 - 9.00

* Diff = Difference

The achievement difference between refugee and host community schoolchildren was checked for statistical significance. The resulting figures showed (Table 4) that there was a no statically significant difference between the two groups (*t= 1.90, df =227, p=0.059, 2-tailed*). In other words, the mean difference of 4.4% did not represent population difference but sample error. Another point of discussion was the contribution of sex in early Mathematics achievement. Since there was no statistically significant difference between the two groups, within-group difference was conducted as an initial step. Table 5 presents the contributions of sex within the two settings (refugee and host community schools).

Table 5
Results of t-tests on early grade mathematics total mean difference by setting and sex

Setting	Group	N	Mean (%)	SD	Std. error mean	Mean Diff.	Std. error Diff.	t	df	Sig. (2-tailed)	95% confidence interval
Refugee	Boys	41	65.71	15.5	2.4						
	Girls	39	63.70	12.8	2.1	2.0	3.2	0.63	78	0.53	-4.3 – 8.3
Host community	Boys	74	61.0	19.5	2.3						
	Girls	75	59.7	16.4	1.9	1.3	3.0	0.44	147	0.66	-4.5 – 7.1

The computed independent samples t-test to uncover if there was any difference between the achievements of boys and girls in the same setting showed that there was no statistically significant difference at all. That is, there was no statistically significant gender difference in scores neither for refugee schoolchildren (t=0.63, df=78, p = .53, 2-tailed) nor for the schoolchildren from the host community (t=0.44, df=147, p = .66, 2-tailied). Thus, the mean differences observed in the samples in favor of boys did not represent respective population behaviors but were found to be sample error occurrences.

Discussion

Refugee settlement is characterized by displacement from one place to another and detachment from one's familiar setting. Such displacement may impact the education of children because of factors such as infection with disease (Connolly et al, 2004), food shortage (Dharod et al, 2013) and displacement resulting in trauma in general. However, those fleeing to other countries might be better than those staying at home because of the right to protection and social service provisions resulting from the 1951 convention (Fransen et al, 2018).

Despite such indicators from previous research, early-grade mathematics achievement findings of Kabribeyah and Awbarre refugee camps, which amounted to an average of 64.73% was found to be essentially comparable to that of the host schools, whose mean score was 60.33%. The four point differences in favor of refugee children did not have the power to represent population behavior as independent samples t-test produced no statistically significant difference between the two groups. Nor did sex make any statistically significant difference in boys' and girls' early grade mathematics mean scores. Besides, the achievements in both refugee and host communities were better than the trends of achievements depicted by other studies, including the periodic national learning assessment in Ethiopia. Such higher learning means and fewer learning gaps between the settings and boys and girls may be attributed to two basic reasons:

A) Kebribeyah and Awbarre refugee camps were opened in 1991 and 2007 respectively. Hence, the communities in the refugee camps are settled, and children are likely to have been born in the refugee camps and might be less

affected by the memories of conflict and pulling factors. In the same way, displacement for the school-age children in the refugee camps is more theoretical; displacement may not have practical effects on their emotional status and, thereby, on their education.

B) International NGOs often provide educational support to refugee and host community schools. The Building Self-Reliance Project (BSRP), implemented by Save the Children in collaboration with other organizations, covered refugee and 17 host community schools in both Kebribeyah and Awbarre areas. Such an inclusive support system might have a great contribution towards the enhancement of learning opportunities (fulfilment of inputs and improving learning process), especially the availability and use of educational materials and teacher capacity but needs further investigation.

In many ways, as stressed by Shuayb and Crul (2020), refugees have peculiar experiences that may not necessarily be same as other groups like migrants whose displacement may be due to economic reasons than life-threatening situations. In the context of this study, the otherness prevails (Muhumed & Ahmed, 2022) but its effect on children's learning competency seems to be minimal. Lin (2018) argued that equality in input, process and output (such as retention, promotion rates, etc.) are important but the development of competency (like numeracy skills) is more important because of its far-reaching effect on further learning and a child's overall development. Thus, the equality of learning competency in the current study (between refugee and host community settings) demonstrates encouraging changes in the area.

5. Conclusions

Based on the basic questions set and findings identified, the following conclusions are drawn.

(a) Early grade refugee and host community schoolchildren performed about 65% and 60% respectively. From the policy perspective set by Ethiopian Ministry of Education (50% pass mark) and the trends in national surveys, such achievements showed meaningful and encouraging departure in the education of refugee as well as the national setting.

(b) There was no statistically significant difference in mean scores between refugee and host community settings, and even between boys and girls in each setting. However, the situation calls for large-scale further research to ensure such equity in achievement is systemic or generalizable to similar contexts.

The study covered two refugee camps found in Somali Region of Ethiopia., i.e.Kebribeyah and Awbarre. However, there are around 800,000 refugees in different corners of the country. Besides, the research focused on analysis of learning outcomes from the study area and did not cover contextual, person and system level variables that may shape student learning. Hence, further research on wider scope and context specific variables is helpful to understand the situation better and introduce appropriate intervention schemes.

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