Main findings

- Naturalized refugee children did significantly better than their counterparts from the rural majority group on both literacy and numeracy tests.

- Girls showed significantly better literacy than boys and boys showed significantly better numeracy than girls.

- Naturalized refugee children mathematics and literacy attainment was comparable to their counterparts from the urban majority group.

- Family SES and demographic variables predicted both reading and mathematics attainment, while refugee background predicted literacy attainment.

- Naturalized refugee families prioritized children's education as a path to integration into the host society.

1.1. Introduction

Increasing access to high-quality educational opportunities is a priority in many developing countries in sub-Saharan Africa (Dembele & Lefoka, 2007; Hardman, Abd-Kadir & Tibuhinda, 2012; Sifuna, 2007). Tanzania has made impressive gains in universalizing education, with respect to access and equity (UNESCO, 2015; Zhang, 2006). Enrolment rates at the primary school level are almost 90 percent, and seven out of 10 pupils enrolled are likely to finish the basic primary education cycle (Tanzania Ministry of Education and Vocational Training (MoEVT), 2015; Sumra & Katabaro, 2014).

However, recent independent assessments and national examinations have shown learning outcomes at all education levels in the country are falling sharply. From 2010 to 2015 most children in age-appropriate grades were not learning at their grade level (Uwezo, 2010, 2015). Results of Primary School Education Leaving Examinations (PSELE) and the 2013 - Big Results Now initiative show that, in the past five years, numerous pupils completed the basic education cycle without acquiring the knowledge and skills required to pass the examination and attain the intended learning outcomes (EQUIP-Tanzania, 2014; MoEVT, 2015). Similarly, results from independent studies by RTI International (2014), Sumra and Katabaro (2014), and Kafle and Jolliffe (2015) show declining literacy and numeracy learning outcomes among primary school-aged pupils. Against this background, this study aims to:

(i) investigate differences in literacy and numeracy learning outcomes between pupils from naturalized refugee and urban and rural local majority backgrounds, in the mainstream Tanzanian education system; and

(ii) examine how differences in family SES and home learning environments among the three groups influence children's mathematics and language attainment.

12. Context of the study

In recent years, many developing countries in sub-Saharan Africa have been setting aside a huge portion (10-25%) of their annual national budget to finance education (UNESCO, 2007, 2012). In Tanzania, the annual budget for education has been on an upward trajectory for the past 10 years (MoEVT, 2015), with a relatively large portion of the budget earmarked for developing human capital, material resources, and school infrastructure (Galindo & Sonnenschein, 2015; Hardman, et al., 2012; Uwezo, 2015).

The Universal Primary Education (UPE), Primary Education Development Plans I and II, and Big Results Now initiatives have broadened access to education throughout the country (Kafle & Jollife, 2015; MoEVT, 2015; Sifuna, 2007). However, the main foci of expanding educational opportunities have been the primary, secondary, and tertiary levels. Recently, free and compulsory pre-primary education has been provided, with every primary school being mandated to offer a pre-primary class (MoEVT, 2015).

1.3. Naturalized refugees in Tanzania

For the past fifty years, Tanzania has been a safe haven for and home to almost two million refugees who fled their countries for political or economic reasons, or because of civil wars in their respective home countries (Tanzania Ministry of Home Affairs (MoH), 2014; UNHCR, 2013). Most come from such neighboring countries as Burundi, the Democratic Republic of Congo (formerly Zaire), Rwanda, and Somalia. The first wave of refugees, commonly known as "the first case-load," came to Tanzania in 1972 (CSFM) 2008; UNHCR, 2010). This group was initially settled in different parts of the Kigoma region, especially in border villages along Kigoma and Kasulu towns. About two-thirds of them were later moved to

Ulyankulu, Mishamo, and Katumba settlement areas in the Tabora and Katavi regions, while the rest remained in villages among the local majority, as "self-settled refugees" (CSFM, 2008)

By 2010, the first case-load refugee population had risen from 150,000 to about 240,000, while the self-settled population had grown from about 55,000 to 90,000 (UNHCR, 2014), some 72 percent of whom were born in Tanzania (MoH, 2014). A distinctive feature of the self-settled refugees was that they did not receive any kind of assistance from the UNHCR, apart from meeting their educational needs. This was financed through the government of Tanzania (Ongpin, 2008, UNHCR, 2014). The second wave of refugees (or second case-load) came to Tanzania throughout the last decade of the 20th century, and was settled in camps in north-western Tanzania (UNHCR, 2014). However, some illegally moved from those refugee camps to urban areas across Tanzania and beyond (Chaulia, 2003; CSFM, 2008).

By 2008, peace and stability had been officially restored in almost all neighboring countries that had experienced socio-political upheaval, and the second case-load was repatriated, or resettled in a third country (CSFM, 2008). The government of Tanzania and international donor agencies had to seriously consider long-term solutions for the first case-load of refugees still in settlement areas, as well as the self-settled refugees. This group was considered distinct, due to both the length of time they had been in exile in Tanzania (more than half were born in Tanzania), and their economic benefit to the country (Kuch, 2016; Ongpin, 2008).

Children from this group face numerous educational challenges within the mainstream educational system (CSFM, 2008; Kuch, 2016). Such challenges includes mastery of Kiswahili – the medium of instruction, as most of the children speak Kirundi at home (Kuch, 2016), and limited access to educational resources (CSFM, 2008). There has been a dearth of research on

the educational needs of pupils from naturalized refugee groups. Even the limited literature available from Tanzania and other sub-Saharan countries tend to focus on their economic and legal welfare (Akarro, 2001; Alix-Garcia & Saah, 2009; and Ongpin, 2008). As a result, very little is known about their specific educational needs and school achievements.

1.4. The gap in socioeconomic status, home learning environments, urbanicity and learning attainments

There has been extensive research on the relationships among home learning environment, family socioeconomic status (SES), urbanicity and children's learning attainments in both developed and developing countries (Coleman, 1966; Ip, et al., 2016; Kafle & Jollife, 2015; Magnuson, et al., 2004; Melhuish, et al., 2008; Reardon, 2010). Children from higher SES urban families have more favourable home environments than their lower-SES peers from both urban and rural areas (Bradley et al., 2001; Byrnes & Wasik, 2009; Galindo & Sonnenschein, 2015; Gilborn, 2006; Kafle & Jollife, 2015). They also show better achievement than children from low SES families. In developing countries, the learning achievement gap persists, and sometimes expands as children progress through the school system (Kafle & Jollife, 2015; Kapinga, 2014; Rao, Sayed & Morris, 2015; Uwezo, 2015).

In a context in which print materials are scarce and qualified early grades teachers are in short supply, home learning environments is one of the most important factors that influences children's attainment (Bradley, 2002; Kafle & Jollife, 2015; Rawle & Attfield, 2015; Uwezo, 2015). Children from higher SES families are more privileged as they have access to many learning resources (Ip, et al., 2016). Their parents spend more time engaging them in mental-stimulating activities and have higher educational aspirations for them than other parents (Bradley, Caldwell & Rock, 1988; Kafle & Jollife, 2015). However, a rural child from lower

SES family in low-income country has a less stimulating home environment than an urban one in the same country because of differences in standards of living and the absence of national social security (Bradley et al, 2001; Carneiro & Heckman, 2003; Ghate & Hanzel, 2004; Kafle & Jollife, 2015). As it is the case in higher-income contexts, the urban-rural divide and SES differences are also found and do influence learning attainments in Tanzania (Kafle & Jollife, 2015; Kapinga, 2014; Uwezo, 2015).

1.5. Gender divide in development and learning

Globally, there has been mounting evidence of gender differences in literacy and numeracy learning achievements (Lewin & Sabates, 2012; Liu & Wilson, 2009; Mensah & Kiernan, 2009). In international tests such as the Trends in Mathematics and Science Study (TIMSS) and Programme for International Student Assessment (PISA) boys have outperformed girls in numeracy tests, while girls have performed significantly higher than boys in literacy tests (Liu & Wilson, 2009; Mullis, Martin & Foy, 2005; OECD, 2000; 2004). All the most recent studies in Tanzania, have consistently came up with same findings as above (Berglund, Eriksson, & Westerlund, 2005; Chatterji, 2006; EQUIP-Tanzania, 2014; Kafle & Jollife, 2015; Sumra & Katabaro, 2014; Uwezo, 2015). In Tanzania, compared to boys, girls have generally been disadvantaged in learning attainments, and rural girls from lower SES families have been double-disadvantaged (Kafle & Jollife, 2015). In recent years, however, girls have begun to turn the tide in numeracy achievements (EQUIP-Tanzania, 2014; Uwezo, 2015).

In Tanzania, more girls are attending schools today than in the past. Further, girls appear to be learning better than boys (MoEVT, 2015; Zuze, 2015). Research has established that girls build closer relationships with their teachers and peers in the early grades, and thus academically progress better than do boys (Duckworth & Seligman, 2006). Such close relationships can be

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more beneficial to girls, and can bring about desired learning outcomes in the sub-Saharan context, which has limited educational resources (Zuze, & Reddy, 2016). Against this background, this study sought to answer the research questions focusing on Grades 1 and 2.

1.6. Research questions

1. Are there any differences in literacy and numeracy learning outcomes between pupils from naturalized refugee and urban and rural local majority backgrounds, in the mainstream Tanzanian education system?

2. How does the difference in family SES and home learning environments among the three groups influence children's attainments in mathematics and language?

Current naturalized refugee pupils comprise the first generation after formal naturalization. Kiswahili (the language of instruction) is not widely spoken in their homes (NBS, 2012). Hence naturalized refugees were assumed to have lower academic attainment than both the urban and rural majority (Crisp, 2004; Kuch, 2016; Ongpin, 2008). As such, it was hypothesized that: (i) children in Grades 1 and Grade 2 from the rural and urban majority group would perform better than children from the naturalized refugee group, in terms of literacy and numeracy learning outcomes; and, (ii) And children's home learning environments across groups would have different influences on their learning attainments. The hypotheses were based on the literature, which reports a relationship between pupils' learning achievements and urbanicity (Bradley & Caldwell, 1976; Chao, 2000; Delgado-Gaitan, 2004; Rao, Sun, & Zhang, 2014).

2.0. Methods

2.1. Sample selection and recruitment

The Kigoma region was chosen because it is home to a higher number of naturalized refugees of different nationalities than any other region in Tanzania. Three primary schools, each serving one of the three groups (naturalized refugees, urban majority, and rural majority), were selected. A total of 150 Grade 1 and Grade 2 pupils from the three groups were randomly selected to participate in the study.

Table 1: Sample distribution and participants characteristics across social groups

	Mean age	Sample size	% of S/size
Grade I			
Boys	6.21	38	25.3
Girls	6.22	39	26
Grade II			
Boys	6.60	32	21.3
Girls	6.73	41	27.3

Though the official age for children to enter Grade 1 in Tanzania is 6, there are variations in entry age between rural and urban, and even within individual rural schools. On average, the Grade 1 entry age in urban area was 5.9 while rural area was about 6.4. And most of the rural majority children were over aged than their peers in urban areas. This led into small age difference between Grade 1 and 2 children.

To gain information about school contexts, the principals from each of the three participating schools were interviewed to find out about the school learning environments.

Further, 45 parents (32 mothers; 15 from each group) were also interviewed to gather information about children's home learning environments. These 45 parents (i) had two or more children registered in the school; (ii) were not currently serving in School Committee, to minimize personal biases and social desirability; and (iii) their children were the first generation after naturalization (for naturalized refugee parents).

2.2. Instruments

Literacy and numeracy learning outcomes were measured using modified versions of the Early Grades Reading Assessment (EGRA) and the Early Grades Mathematics Assessment (EGMA). These verbal assessments are designed to measure foundational literacy and numeracy skills in the first two grades of primary education (USAID, 2014). Developed in 2006, the measures have been translated into over 100 languages, and used in more than 70 countries. Furthermore, being easily available and adaptable, the EGRA/MA kit has also been used for program evaluation or system-level monitoring (Dubeck & Gove, 2015). In sub-Saharan Africa, the two measures have been used in large scale national projects in Liberia (2012), Kenya (2012), Nigeria (2013), and Tanzania (2013). In this study, they were modified slightly to reflect the rural contexts and objectives of the study. Items varying in difficulty were developed from, but not limited to, the Tanzania curriculum for early grades (2014), and the following international and local numeracy and/or literacy research projects: (i) EGRA/EGMA Kenya project, (2012); (ii) RTI international-Tanzania project (2014); and, (iii) the Uwezo (2014) project.

The rationale for developing instruments based on measures that have been developed and used in both local and international contexts is to allow researchers to link the findings with research done in other parts of the world, hence contributing to global knowledge (Burchinal &

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Cryer, 2003). In administering the tests, a stopping rule was applied when a child could not correctly respond to two consecutive items, or when time had run out. The details of how the measures were modified and developed are discussed in the following sections.

2.2.1. Early Grades Reading Assessment (EGRA) test

Children were required to identify letters of the alphabet, read simple words, and demonstrate comprehension of sentences and paragraphs. For this study, the measure was modified to be more suitable for its participants. For example, as this study involved pupils from Grade 1 and Grade 2, double consonants sounds (e.g., dh, gh and ny) and double-lettered sounds (e.g., nzi-ki, ngi-so, and ndi-se) were dropped, as such consonants and words are taught in the last term of Grade 2, and data for this study were collected around the middle of the academic year. X and Q alphabets were also dropped, because they do not exist in Kiswahili alphabets. The maximum possible EGRA raw score was 70.

2.2.2. Early Grades Mathematic Assessment (EGMA) test

This measure focuses on pupils' assessment of foundational numeracy skills in the first two primary education grades. Number identification, quantity discrimination, missing-number identification, word-problem solving, addition and subtraction, shape recognition, and pattern extension are assessed (USAID, 2014). In this study, addition and subtraction items were changed to proceed from simple to complex, while multiplication items were dropped, as multiplication and division exercises are not taught until the end of the last term of Grade 2. Further, word problems were changed to reflect a typical Tanzania rural context. For example, the picture of children sitting in a mini-bus (something hardly ever seen in rural Tanzania) was replaced with one of children sitting in a church. The maximum raw score possible on EGMA was 60.

2.2.3. Home and school environments

Information on home and school environments was obtained through individual interviews with parents and principals of the three primary schools.

2.2.3.1. Parent interviews

A modified version of a parent survey developed for parents in low- and middle- income countries in the East Asia Pacific (Rao et al., 2013) was used to garner information about family background and assets and the home learning environment. Individual semi-structured interviews were conducted at the pupils' home, to facilitate rapport as most parents had had limited interaction with researchers before this study.

2.2.3. 2. School principals' interviews

The principals of the three schools were interviewed by the first author to shed light on the overall school contexts in which the children learned. The interview focused on how the school facilitated a multicultural learning environment, its admission criteria, issues related to the language of instruction, and the challenges of managing a school with children from diverse backgrounds.

2.3. Procedure

Two enumerators with Bachelor of Education (B.Ed.) degrees in pre-primary and primary education were trained to administer the tests by the first author, over a 10-day period. Practical training was done in a nearby primary school with urban non-refugee pupils. Children's assessments were independently conducted by the first author and research assistants. Inter-rater reliabilities assessed before starting data collection was between the first author (0.88) and each

of the two assistants were (0.90) and (0.89). The calculated internal consistency (Cronbach's alpha value) for EGRA was $\alpha = 0.86$; and for EGMA $\alpha = 0.87$.

The EGRA and EGMA were individually administered in a room in their respective schools. The order of the assessments was counterbalanced. Each pupil was given a question booklet, while the assessor kept the scoring booklet. The assessor read the item out loud and gave the child sufficient time to respond. Given that naturalized refugees and rural majority lived side-by-side, the last phase of data collection was spent shuttling between the two groups. The first author visited and spent several hours with each family to interview parents and observed the home environment.

Conducting research in rural Tanzania is complex, when it involves collecting sensitive citizenship information and documentation, especially in peripheral areas where even national identification cards do not exist. Thus, it was necessary to spend time with pupils' families to become familiar with the local environment, control social desirability bias, and establish mutual trust and rapport prior to data collection. One-to-one interviews with schools principals were conducted in their offices, with each session lasting about two hours.

2.4. Ethical issues and parental consent

Ethical clearance was obtained from Human Research Ethics Committee of the University of Hong Kong where the authors were attached. Further, the first author had to request for an introductory letter from Tanzania's Ministry of Education, and permission from district, wards and village executive officers. Finally, the authors had to consult school authorities to obtain parents' consent to include their children in the study. Confidentiality was observed and unauthorized person had no access to the collected data.

2.5. Method of analyses

Preliminary tests related to demographic information (Gender, Grade, and Age) and learning attainment were conducted to determine differences among the groups of pupils from naturalized refugee, urban majority, and rural majority. Group frequencies, means, and correlations among variables were used to identify covariates for the final analyses. Major analyses examined the differences in EGRA and EGMA mean scores among naturalized refugees, in comparison with urban and rural majorities, using a two-way ANOVA. Further, it included a separate regression analysis for a sub-group of 45 children whose parents were interviewed to grasp their home environments.

Hierarchical linear regression analyses were conducted, with controls for age, gender, and home environment (family wealth and parental education), to determine the relationships between pupils' social group and their mean literacy and numeracy scores. Analyses of interview data followed the Miles and Huberman (1994) qualitative data analysis approach, in which data were reduced, coded, and described to develop themes and sub-themes.

3.0. Results

3.1. Summary of findings

ANOVA results with Grade as the between subject variable showed there were no significant differences in age across Grades. Hence, the data for children in Grade 1 and 2 were collapsed together for analyses. Preliminary findings show that, in terms of learning outcomes, there were differences across social groups and gender. Naturalized refugee pupils had the highest literacy attainment, while urban majority group pupils demonstrated the highest numeracy attainment. The rural majority pupils lagged behind both groups in both tests. In

literacy tests, girls outperformed boys, while boys significantly outscored girls across groups on numeracy attainment. Urban majority boys demonstrated the highest numeracy attainment, while naturalized refugee girls had the highest literacy attainment. Social status (refugee or not) did not predict mathematics achievement but did predict literacy attainment.

3.2. Literacy attainment (n = 150)

A two-way ANOVA, with Social Groups (*naturalized refugees, rural majority, urban majority*) and Gender (*male* and *female*) as between-subject variables, indicated that the main effects of Gender (F $(1, 144)$ = 22.688, p = 0.023, d = 0.17) was significant for literacy attainment. Follow-up tests indicated mean literacy scores for naturalized refugee children (M = 20.50, SD = 9.75) were comparable to those from urban local majority group pupils (M = 18.56, SD = 9.45). However, there was a significant difference between the mean scores for pupils from the naturalized refugees group and those of the rural majority group (M = 15.58, SD = 6.78). Across groups, girls (M = 21.04,) did significantly better than boys (M = 15.39), with naturalized refugee girls demonstrating the highest literacy attainment (M = 27.45, SD = 9.14).

Table 2: Literacy raw scores across groups and gender

	Naturalized refugees		Rural majority		Urban majority	
Gender	Mean	SD	Mean	SD	Mean	SD
Boys	15.40	5.67	12.51	4.34	17.27	6.11
Girls	27.45	9.14	18.2	6.72	19.50	7.14

3.3. Social group and literacy attainment (n = 45)

A three block hierarchical multiple regressions was conducted with EGRA mean raw score as dependent variable to examine the factors that would predict children's literacy

attainment across the three social groups. Age and Gender were entered at block one as control variables. Family SES variables (Parental Education and Family Wealth) were entered at block 2. The SES variables were entered because available literature suggests that parental education is the best predictor, with maternal education being most potent in the early years. Social Group was entered in the final block of the regression model. Findings are reported in Table 4.

The hierarchical multiple regression found that age and gender significantly contributed to prediction (F (2, 43) = 81.56, p = 0.0013) and accounted for 27.4 percent of the variance in literacy attainment. Family SES explained an additional 33.1 percent of the variance (F (4, 41) = 74.501, p = 0.0011). Finally, the addition of Social group explained additional 10.1 percent of the variance, F (5, 40) = 70.641, p = 0.0014, and the change of R^2 was also significant. The most important predictors of children literacy attainment were Age (β 0.085, p = 0.05), Gender (β 0.137, p = 0.026), and Parental Education (β 0.191, p = 0.023), followed by Family Wealth (β 0.225, p = 0.036). Social Group (being of refugee or non-refugee background) was found to be a significant predictor (β 0.072, p = 0.018). In the final model the five variables together accounted for 71 percent of the variance in literacy attainment.

3.4. Numeracy learning attainment (n=150)

On this measure, the hypothesis was that early graders from urban and rural majority groups would demonstrate higher numeracy attainments than naturalized refugees. A two-way ANOVA, with Social Groups (*naturalized refugees, rural majority,* and *urban majority*); and Gender (*male* and *female*) as between-subject variables, indicated the main effects of Gender (F (1, 144) = 19.395, p = 0.042, d = 0.657) were significant. Follow-up tests indicated the mean scores for children from naturalized refugees background (M = 18.74, SD = 5.73) was not significantly different from that of urban local majority children (M = 20.34, SD = 5.14), and

significantly higher than that of rural majority children (M = 13.26, SD = 6.18). Boys (M = 19.39, SD = 6.41) outperformed girls (M = 15.51, SD = 5.87) across groups, and boys from the urban local majority (M = 22.48, SD = 4.73) had the highest mean scores than boys across other social groups.

Table 3: Numeracy raw scores across social groups and gender (n = 150)

	Naturalized refugees		Rural majority		Urban majority	
Gender	Mean	SD	Mean	SD	Mean	SD
Boys	20.88	5.33	14.80	5.04	22.48	4.73
Girls	16.60	5.11	11.72	4.22	18.20	5.86

There were differences among boys' and girls' strategies for mathematics problem-solving. Specifically (i) about half of the boys (47%) and 17 percent of girls solved the problem in their heads; (ii) 12 percent of boys and 34 percent of girls used their fingers; (iii) 19 percent of boys and 32 percent of girls used counters; (iv) 17 percent of boys and 11 percent of girls used tick marks on paper with a pencil; and, (v) five percent of boys and six percent of girls used other means.

3.5. Social group and numeracy attainment (n = 45)

Again, a three block hierarchical multiple regressions was conducted with EGMA mean raw score as dependent variable to examine the factors that would predict children's numeracy attainment across the three social groups. Age and Gender were entered at block one as control variables. The determining family SES variables (Parental Education and Family Wealth) were entered at block 2. The family SES variables were chronologically entered because available literature suggests that parental education is the best predictor, with maternal education being

most potent in the early years. Social Group was entered in the final block of the regression model.

Table 4: Hierarchical regression analyses for EGRA and EGMA attainments

Predictor	Predictor data			Model data		
	B	**ß**	**R²**	**ΔR²**	**ΔF**	**t**
EGRA predictive scores						
Block 1: Demographic variables						
Age	2.68	0.39**	0.274	0.274	7.79	2.76
Gender	0.525	0.02**				2.16
Block 2: Family SES						
Parental education	-4.20	20.43*	60.5	0.331	14.58	2.97
Family wealth	2.388	0.88**	5.40			5.40
Block 3: Final model						
Social group	9.471	0.649**	0.706	0.101	25.13	4.89
EGMA predictive scores						
Block 1: Demographic variables						
Age	4.142	0.538**	0.289	0.289	8.54	4.12
Gender	-0.039	-0.001**				2.01
Block 2: Family SES						
Parental edu	2.597	0.239*	0.583	0.294	11.08	1.64
Family wealth	1.429	0.47**				2.94
Block 3: Final model						
Social group	1.33	0.081**	0.586	0.003	0.261	0.53

*$p<0.05$, **$p<0.01$

On numeracy attainment, the hierarchical multiple regression found that at block one, age and gender significantly contributed to the regression model (F (2, 43) = 111.113, p = 0.0013) accounted for 28.9 percent of the variance. At block two, introducing family SES variables was quite significant for it explained an additional 29.4 percent of the variance F (4, 41) = 81.325, p = 0.000. Finally, at block three the addition of Social group explained additional 0.3 percent of the variance, F (5, 40) = 66.694, p = 0.0012, and this change in R^2 was also significant. The most important predictors of children's numeracy attainments were Age (β 0.053, p = 0.037), Gender (β 0.081, p = 0.044), and Parental Education (β 0.113, p = 0.034), followed by Family Wealth (β 0.133, p = 0.021). Social Group (being of refugee or non-refugee background) was found to insignificant predictor (β 0.0002, p = 0.0087). In the final model the five variables together accounted for 59 percent of the variance in numeracy attainment.

3.6. Family socio-economic status

Naturalized refugee households were predominantly dual-income, with mothers working in small/petty business (54 percent). Among rural non-refugee mothers, subsistence farming was the main activity (73 percent). The most common occupation among urban parents was subsistence farming for mothers (33 percent) and small/petty business for fathers (33 percent). Only 20 percent of naturalized refugees and 14 percent of rural non-refugee fathers were either associate professionals or professionals.

Table 5: Parents' occupation across social groups

	Naturalized Refugees(*n=15*)		Rural majority(*n=15*)		Urban majority(*n=15*)	
	Mothers(*15*)	Fathers(*15*)	Mothers(*15*)	Fathers(*15*)	Mothers(*15*)	Fathers(*15*)
1. Peasants	33%	40%	73%	60%	33%	13%
2. Petty trader	53%	27%	13%	13%	07%	33%
3. Serv. Worker	07%	13%	07%	13%	20%	20%
4. Assoc. prof.	07%	13%	07%	07%	27%	13%
5. Professional	00%	07%	00%	07%	03%	27%

Note: Some columns do not add to 100, due to rounding-up

About 33 percent of fathers from urban majority group, and 27 percent of naturalized refugee fathers reported owning a small shop or small business. On average, naturalized refugee households had seven inhabitants, rural majority households had 10, and urban majority households had about five. In terms of asset ownership, naturalized refugees seemed to have considerable amount of wealth compared to the rural majority, even more so in relation to the number of years they had lived in the country; 93 percent owned houses and/or 10-15 hectares of land, and about 60 percent had a bank account.

Table 6: Family wealth (asset ownership)

	Naturalized refugee (*n=15*)		Rural majority(*n=15*)		Urban majority(*n=15*)	
1. Own house	14	93.3%	14	93.3%	06	40%
2. Own land	15	100%	15	100%	09	60%
3. Own livestock	15	100%	11	73%	12	80%
4. Have electricity	01	07%	00	0%	12	80%
5. Own B/account	09	60%	03	20%	10	67%

On average, about 20 percent naturalized mothers and 33 percent of rural majority mothers had no formal schooling of any kind; there were no urban mothers without formal education, and over half (53%) had education ranging from secondary to graduate levels. While about 80 percent of rural majority fathers had formal schooling, only 33 percent had educational qualifications raging from secondary to graduate levels. Parents' lack of formal education may have impacted the quality of parent-child interactions.

Table 7: Parental education across social groups

	Naturalized refugee(n=15)		**Rural majority**(n=*15)*		**Urban majority**(n=*15*)	
	Mothers	**Fathers**	**Mothers**	**Fathers**	**Mothers**	**Fathers**
1. None	03 (20%)	03 (20%)	05 (33%)	03 (20%)	0 (0%)	0 (0%)
2. Primary	10 (67%)	07 (47%)	10 (67%)	07 (47%)	07 (47%)	01(07%)
3. Secondary	02 (13%)	05(33%)	00 (0%)	03 (20%)	05 (33%)	07(47%)
4. Dip/grad	00 (0%)	00 (0%)	00 (0%)	02 (13%)	03 (20%)	07 (47%)

Note: Some columns do not add to 100, due to rounding-up

3.7. Home learning environments and language issues

The average family size in Kigoma varied across groups and urbanicity. Among naturalized refugees, the average family size was about 7 people (2 parents, 4 children and 1 senior member). In urban area, the average family size was 5 members (2 parents and 3 children). Among rural majority it was 9 members (2 parents, 5 children and 2 senior members). Parents were asked whether any adult (mother, father, other family member above 15-years of age) had been involved in learning activities with either or both of the participating school children in the past three days. The selected learning activities were those considered culturally-

relevant and essential for learning in a rural context. These activities included storytelling, singing, reading children's books, playing games, taking the child outside the home, naming, drawing, and counting. The scoring were 1 for Yes, mother; 2 for Yes, father; 3 for Yes, other; and 4 for No. Data were coded and entered into software for analysis. For each group, the author calculated the mean, standard deviation, median and range for each of family member involved in children's learning activities.

As indicated on Table 8.0, findings show that naturalized refugee parents; especially mothers were more involved in supervising their children's learning than rural majority parents. Among rural majority, children were supervised mostly by "other family members". However, given the nature of relationship among extended families where this study was conducted, these findings were not unexpected. Among urban families, both parents were almost always involved in supervision of their children's learning.

Table 8.0: Family support of children's learning across social groups

	Naturalized Refugees	**Rural majority**	**Urban majority**
Father			
Mean	3.20	2.53	2.87
SD	0.86	0.92	1.38
Median	3.00	3.00	3.00
Range	3.5-4.2	2.2-3.0	2.6-3.1
Mother			
Mean	4.87	2.62	3.67
SD	0.56	0.63	0.72
Median	4.00	2.00	3.00
Range	3.7-4.4	2.3-3.0	2.3-3.0
Other			
Mean	2.11	3.43	2.99
SD	0.23	0.67	0.53
Median	2.00	2.00	2.00
Range	2.8-3.2	2.6-3.0	2.8-3.0

Children's first language across social groups

In Tanzania, Kiswahili is a medium of instruction in all public pre-primary and primary schools. Though widely spoken, not every Tanzania speaks Kiswahili as a first language. This study found that most of the naturalized refugee children (67%) were either bilingual. They reported to use Kiswahili during class sessions, and another vernacular language at home. However, a significant number of them (34%) were multilingual - using Kiswahili and two other vernacular languages.

A huge segment of the urban and rural majority (86%) was either monolingual or bilingual by speaking a vernacular and/or Kiswahili. About 71 percent of all children spoke non-Kiswahili languages at home. About 11 percent of all children in the study were native Kiswahili speakers. And 18 percent of all children were multi-lingual (spoke Kiswahili and two vernacular languages). The other findings are presented in Figure 1.0.

Figure 1.0: Languages spoken at home across social groups
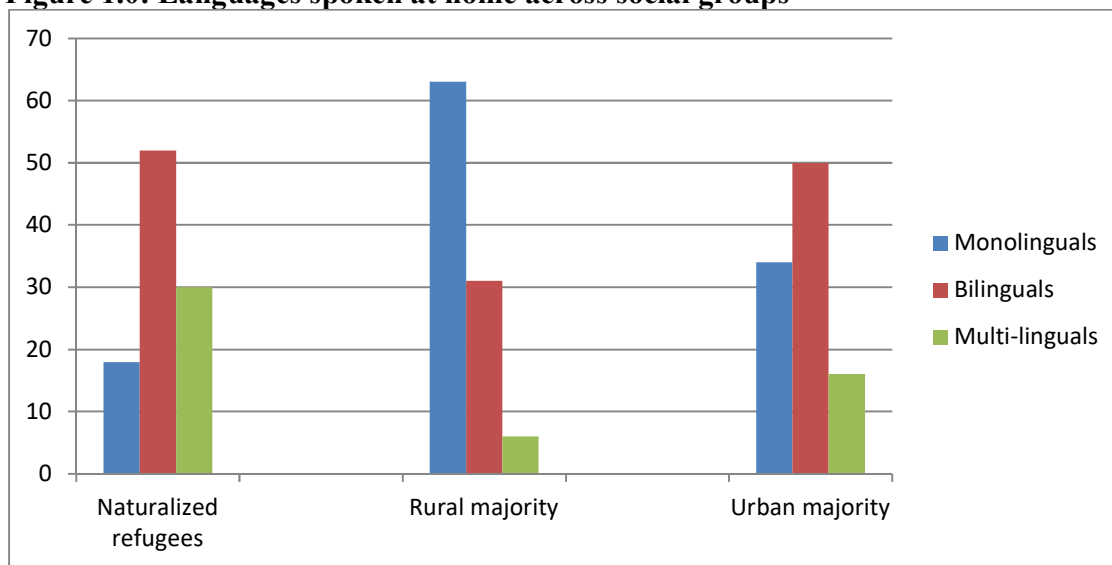
3.8. Follow-up interview

Parents and school heads were interviewed in individual sessions to clarify issues related to home learning environment and family SES (for parents) and school learning environments – school principals. Themes and sub-themes were left to naturally unfold in their own.

3.8.1. Parents' interview

From this cohort, the following themes were developed: (a) language of instruction, and (b) parents' belief on education.

(a) Kiswahili as a medium of instruction

In Tanzania, Kiswahili is the official language of instruction in all public primary schools. Most parents in rural areas (both naturalized refugees and non-refugees) revealed that the single largest obstacle to their children's learning was their lack of mastery of Kiswahili. Urban parents did not report concerns about the language of instruction, perhaps because Kiswahili is the *lingua franca* in all urban centers of Tanzania. Naturalized refugee parents revealed different strategies for ensuring their children learned Kiswahili. Some sent their children to nearby churches to listen to sermons, while others, especially younger parents, taught their children to speak and write Kiswahili, themselves.

One naturalized refugee family reported using the unique strategy of speaking Kiswahili at home from Monday to Thursday, both Kiswahili and Kirundi on Friday, and leaving Sunday as a free day. Findings from the parents' interviews revealed that about 71 percent of children spoke other non-Kiswahili languages at home, while only 11 percent spoke Kiswahili as their first language at home, and 18 percent were multi-lingual (spoke Kiswahili and two other vernacular languages at home).

(b) Parents' beliefs towards education

Parents from the three groups seemed to hold differing, sometimes contradictory beliefs and views towards education. While parents from the rural majority viewed schooling as an imposed government program, urban parents indicated a high regard for and commitment to education and learning, as their children's basic right. A mother from the urban majority group revealed that "*it is important that I send my children to school just as my own parents did for me. If I don't send my children to school, what else will they do? What will they think of me when they become adults*?" To naturalized refugee parents, children education was seen as: (i) a means

out of poverty; (ii) a path to social-economic success; and, (iii) a way of protecting children from being recruited as child-soldiers. A father from this group reported, "*I'm prepared to spend all of my money to ensure that our children will get good education. I want them to study up to university so that they get good jobs, make huge money, and move me and my wife from the village to those big cities, where they will be working*"

3.9.2. School principals' interview

Two main themes emerged from the interview with school principals – the importance of mastering the language of instruction, and the importance of having qualified teachers who are trained to teach at early grades levels. The latter was further developed into two sub-themes.

(a) Language of instruction

All rural children and 75 percent of urban children had mastered and spoke non-Kiswahili languages at home, which led to early grades teachers using both vernacular languages and Kiswahili to facilitate classroom communication. Principals from naturalized refugee and rural majority schools reported allowing their teachers to use Kiha or Kirundi (two commonly-spoken vernacular languages in the area) together with Kiswahili for the first three months of Grade 1. In addition, strict rules and (sometimes) corporal punishment were strategies used to facilitate children's learning and mastery of Kiswahili as a medium of instruction.

(b) Teacher qualification

In a context of acute shortages of print-materials, having competent, skilled, and highly-qualified teachers is particularly critical for pupils' literacy and numeracy development. In this study, statements made by school principals regarding teacher qualifications focused on two sub-

themes: (i) Teacher experience that qualified them to teach in early grades; and (ii) the urgent need to train early grades teachers.

Only one early grades teacher in this study had received training related to teaching Grade 1 and 2 students. The findings show that schools' most senior teachers were sent to teach at the early grades level as a "break" from the hectic schedule of teaching examinations and upper grades. One urban teacher reported that, "*After teaching for more than 20 years, some of my experienced senior teachers get tired. Under such circumstances they choose to teach early grades to rest and gain energy.*" There were no seminars, workshops, or in-service training reported to have been given to such teachers before they were assigned to teach early graders.

School principals reported that they had information from the Ministry of Education that new teachers were undergoing training in various teachers' collages, specifically for teaching early grades. However, given the large number of primary schools across Tanzania and the demand for such teachers, the school principals were not sure whether or not a sufficient number of teachers would be qualified to meet the needs of all primary schools. Doubts were more profound among rural principals, who reported 1:70 teacher-pupil ratios across all grades.

4.0. Discussion

The current study investigated differences in literacy and numeracy learning outcomes among pupils from naturalized refugee and urban and rural local majority backgrounds in the mainstream Tanzanian education system. It also explored how differences in home learning environments influenced children's attainments in mathematics and language across the three groups.

4.1. Differences in literacy and numeracy learning attainments

4.1.1. Attainment gap by social groups

Naturalized refugees demonstrated significantly higher literacy and comparable numeracy attainment to that of urban majority children who came from higher SES and more supportive home environments. While these results support the importance of home learning environment and family SES, they also suggest that, apart from HLE and SES, there are other factors which influence children's attainments. This interpretation is supported by other studies (Fortuny, et al., 2009; Joshi, et al., 1999; Melhush, et al, 2008; Reese & Gallimore, 2000) that focused on home and school related factors influencing immigrant children's learning attainments and found other family factors such as parent styles, parental beliefs and expectations.

4.1.2. The gap in learning attainments by gender

Contrary to our hypothesis, but consistent with other studies (Duncan & Magnuson, 2005; Ip, et al., 2015; Koury & Votruba-Drzal, 2014; Mensah & Kiernan, 2009; Methews, Ponitz & Morrison, 2009), the findings showed a statistically significant divide in numeracy and literacy attainments across gender and social groups. Girls in all three groups significantly performed better in literacy tests, while boys outperformed girls in numeracy tests. Rural Tanzania faces a shortage of children's books (the official ratio is 1 book per 30 children), large class sizes, almost unmanageable teacher-child ratios of over one teacher to seventy children (MoEVT, 2015), and cultural biases in favor of boys (Zuze & Reddy, 2016).Itis good to find that girls are not only attending school, but are also learning even better than boys.

Measuring literacy and numeracy learning outcomes in Tanzania, RTI International (2014) and Uwezo (2015) found girls outperformed boys in literacy-related skills, while boys performed better in numeracy tests. However, such early differences in learning outcomes, if not redressed, may lead girls to develop negative attitudes and expectations towards mathematics, engineering, and science-related disciplines. And may cement existing popular beliefs among Tanzanian pupils that languages and arts are a "female disciplines" (Mensah & Kiernan, 2009; Sumra & Katabaro, 2015; Qorro, 2013).

The finding that scores for Grade 1 and 2 children did not differ seem to reflect the existing larger problem of Tanzania's children schooling but not acquiring grade level literacy and numeracy skills. In 2014, only 50 percent of Grade 4 pupils could read a Grade 2 Kiswahili story, or correctly solve a Grade 2 multiplication problem (EQUIP-Tanzania, 2014; Uwezo, 2015). The situation was much worse in schools in rural regions, like Kigoma, which have many immigrants and socially disadvantaged families (Uwezo, 2015). In Kigoma, fewer than one-third of Grade 4 pupils could read a Grade 2 level story in Kiswahili; while only 20 percent could read a Grade 2 level story in English and only 30 percent correctly answer a Grade 2 level multiplication quiz (RTI International, 2014; Uwezo, 2015).

4.1.3. Literacy and numeracy attainments in East and South African region

The findings are consistent with other studies in the East and South African region, such as Kassahun and Kedir's (2006) study on mathematics achievements, which found Ethiopian primary school boys out-performed girls. Findings from Southern and Eastern Africa Consortium for Monitoring Education Quality (SACMEQ) (2011) indicated that though Tanzania mainland scored above regional average, there was considerable gender divide in both literacy and

numeracy achievements in favour of boys (SACMEQ, 2011). Accordingly, the achievement gap between genders was attributed to limited number of female staff, school safety - such as school fences, and sanitation measures – such as separate toilets for boys and girls. Uwezo findings from 2010 to 2016 have consistently indicated gender gap in both literacy and numeracy tests in favour of girls and boys respectively.

4.2. Relationship between social group and learning attainments

4.2.1 Kiswahili: Medium of instruction

Regression analyses indicated that literacy learning attainment was significantly associated with pupils' social group/immigrant status, even though most pupils' first language was different from the official medium of instruction (Kiswahili). It is noteworthy that naturalized refugees outperformed majority groups in literacy. Majority groups, especially urban group are presumably Kiswahili native speakers.

Studies have consistently established that pupils acquire critically important literacy and numeracy skills when taught and tested in languages they understand (Roberts, Jurgens, & Burchinal, 2005; RTI International, 2014; Qorro, 2013). In this case, to ensure optimal learning, children should be taught in a language spoken at home. However, education policy in Tanzania mandates teaching all children in public schools in the official national language of Kiswahili (URT, 2014), which is predominantly used in urban areas (Sumra & Katabaro, 2015; Qorro, 2013). As such, almost every rural child begins to be bilingual, and sometimes multi-lingual, as soon as they start school.

However, teaching basic literacy and numeracy skills in a language other than that spoken at home is a common phenomenon in most linguistically-diverse LAMI sub-Saharan

African countries (Matafwali & Nunsaka, 2011; Nakiema, 2011; Sifuna, 2007; Qorro, 2013), particularly in rural areas where the predominant language is not the official national language of instruction (Komba & John, 2015; UNESCO, 2016). Such practices may have negative implications for pupils' learning outcomes. For example, in most Francophone countries, children continue to be taught in French despite their speaking vernacular languages at home; as a result, after almost four years of schooling, 50 percent have not mastered Grade 2 reading skills (Altinyelken, 2015; UNESCO, 2016). In Tanzania, as of 2014, only three of 10 rural Grade 5 pupils could correctly read a Grade 2 Kiswahili sentence (EQUIP-Tanzania, 2014; Uwezo, 2014), partly because Kiswahili is not a language most children speak at home, and the bilingual education system in the country is not well-structured or -managed (Brock-Utne, 2007; Qorro, 2013).

4.2.2. Parental beliefs and expectations

The reason for naturalized refugees to demonstrate higher literacy attainment than local majority children is parental beliefs and expectations. Follow-up interviews with naturalized refugee parents revealed that parental beliefs and expectations towards education shaped parents' perceptions of the returns associated with investing in their children's education. Naturalized refugee parents considered education an avenue to pull their children out of poverty, and raise their social status.

This finding concurs with other studies that immigrant children demonstrate higher academic achievements than children from majority ethnic and racial groups due to their parents' beliefs, attitudes, and practices toward education (Crosnoe & Fuligni, 2012; Han, 2008; Han, Lee, & Waldfogel, 2012; Koury & Votruba-Drzal, 2014). The findings of this study support the on-going debate that, in a context of limited school-related resources, parental beliefs and

expectations can complement the gap and greatly influence children's development and learning (Aboud & Hosain, 2010; Melhush, et al., 2008; Mensah & Kiernan, 2009; Siraj-Blatchford, et al., 2003).

4.3. Differences in home learning environments and family SES and its implications on learning attainments

4.3.1. Comparable attainments between urban majority and naturalize refugee children

Naturalized refugee children demonstrated learning attainments comparable to those of double-advantaged urban majority children who possibly have better home learning environments and attend high quality education programs than rural children. Children from the urban majority group had more-educated parents, and access to other home-related appliances, such as television. Empirical evidence has established a relationship between parental education (Ip, et al., 2015; Kiernan & Mensah 2011; Li & Rao, 2000), urbanicity (Galindo &Sonnenschein, 2015; Raag, et al., 2011) and children's learning attainments.

One possible reason for the observed comparable learning attainments may be that naturalized refugees had the highest number of working mothers; over 67% of naturalized refugee mothers were categorized as non-peasants – higher than among any other cohort across the three social groups. This finding extends the claim that having educated and working mothers, positively influences children's development and academic success (Malmberg, Mwaura & Sylva, 2010; Morrissey, 2010; Rose & Al-Samarrai, 2001; Yoshikawa, Aber & Beardslee, 2012). Further, it imply that getting more women involved in production and controlling resources may have positive implications on the learning of current and future generations (Kapinga, 2014).

Other studies have examined the relationship between family SES and children's learning attainments among immigrants (Crosnoe & Fuligni, 2012; Han, 2008; Han, Lee, & Waldfogel, 2012; Koury & Votruba-Drzal, 2014), and found that one reason for immigrant children's higher academic achievements was that immigrant parents were better educated and economically better-off than parents from local majority groups. In this study, naturalized refugee parents were slightly better educated and economically better-off than parents from the rural majority group, but were poorer and less educated than the urban majority. This finding suggests other factors than home learning environments, urbanicity and family SES, such as parental beliefs (Han, Lee, & Waldfogel, 2012; Koury & Votruba-Drzal, 2014), and teacher commitment/motivation (Darling-Hammond, 2000; Dembele & Lefoka, 2007), were critical to naturalized refugee children's higher learning attainments.

4.3.3. Role of teacher motivation and job satisfaction

Though naturalized refugee and majority rural groups had equal numbers of academically under-qualified early grades teachers, interview findings revealed that the former had considerably higher learning attainments than the later, due to strong community support and parental beliefs about education. This implies teacher quality is not only solely determined by academic qualification, but includes teachers' commitment and societal support (Darling-Hammond, 2000; Dembele & Lefoka, 2007). The findings in this study are consistent with those from other studies which assert that given limited resources, parental support and teachers' job satisfaction can greatly influence pupils' learning outcomes (Cadima, Leal, & Burchinal, 2010; Darling-Hammond, 2005; Rose & al-Samarrai, 2001).

Naturalized refugee parents were involved in school management, and supported teachers by rewarding them with simple gifts, such as chickens, eggs, maize, and beans during school events. Such practices raised teachers' morale and sense of recognition, and increased their job satisfaction. To ensure equity in the provision of early years' education, Tanzania should focus on improving teacher quality, especially among those teaching the early years (Mtahabwa, 2007; RTI International, 2014). When this study was conducted, qualified early grades teachers were in short supply, and those who were teaching at this level were allocated based on teaching experience and seniority.

5.0. Limitations and conclusion

Tanzania is a multi-ethnic and diverse country, and home to many other immigrants and disadvantaged minority groups apart from naturalized refugees. However, this study included only one minority social group as a representative sample. Future research on the subject may consider including more minority groups. The sample size of 15 families, though served the purpose of this study, is not large enough for generalization of findings. Future research may consider including large sample size. Urban naturalized refugees were not involved in this study, because they do not exist in Tanzania; normally, after legal naturalization, former refugees are settled in villages all over the country. This study used a cross-sectional design that tested both Grade 1 and Grade 2 pupils. Future studies may consider observing pupils from different social groups to identify differences in their literacy and numeracy attainments over time. A longitudinal design will permit a more nuanced understanding about when differences between the social groups develop.

Further, the current study included both numeracy and literacy skills; future studies may, separately but intensively, focus on one learning attainment. A final limitation is the information

collected from parents that might have helped to clearly explain why refugee children performed so well. The authors were unable to collect systematic quantitative and/or qualitative data on parental aspirations, education values, parental practices in support of early learning, and engagement in school activities. This information would have permitted a more confident explanation of the findings.

Access to educational opportunities means nothing, if pupils are not learning. To ensure children are not just wasting their time trotting between home and school, resources should be directed to key strategic areas, such as teacher education, choice of language of instruction, forging strong school-parent partnerships, and improving school management skills.

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