Deconstructing learning inequality in Ghana's basic school system:

Shifting focus from macro indicators to rethink the role of local context in global education agendas

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Abstract

Ghana has expanded educational opportunities over the past three decades to reduce inequalities and scale up its efforts to achieving the Sustainable Development Goals on Education (SDG 4.1 and 4.5). Despite these efforts, research highlights historical disparities in educational opportunities and outcomes between the predominantly rural communities in the North and the largely urbanized South as one of the main challenges the country must tackle if it is to achieve its education goals. But the extensive body of research on educational inequality has yet to thoroughly address access to learning within the country's basic school system. Although the government has successfully implemented tuition-free policies to expand access to schooling for most children, there is a dearth of knowledge on access to learning skills while in school and on the context-specific challenges that reinforce learning inequality, particularly between the North-South divide.

Household surveys like the Demographic and Health Survey (DHS) and the Multiple Indicator Cluster Survey (MICS), have provided valuable macro-level estimates for monitoring educational inequality in areas on school enrollment, completion, and transition across regional and North-South divides. However, their estimates often fall short in capturing inequalities in learning outcomes, particularly from the perspective of internationally comparable learning assessment programs. Moreover, their reliance on macro-level data to track progress often underrepresents the true scope of educational inequality, as it overlooks the micro-level experiences and context-specific challenges that drive disparities in rural and underserved areas.

My dissertation addresses this critical knowledge gap at the center of the comprehensive understanding needed to develop evidence-driven policies to tackle learning disadvantages faced by Ghana's most marginalized children. I employed a concurrent mixed-methods research design,

to draw on secondary data from the MICS 6 foundational learning module, along with interviews and focus groups with key education stakeholders in rural Northern Ghana to address three overarching questions, presented here in three manuscripts. Together, these manuscripts offer comprehensive insight into children's access to learning skills and the context in which experiences in the local environment reinforce learning disadvantages, using rural Northern Ghana as a case study.

Given the limited knowledge on learning skills, in Manuscript 1 I analyzed international household surveys datasets, like the MICS 6, to examine what they reveal about learning inequality in Ghana's basic school system. The findings revealed low levels of learning skills in Ghana's basic school, with children from the Northern regions lagging further behind the rest of Ghana, particularly Greater Accra. Importantly, the study showed that local environment factors had varying impacts on learning skills based on geolocation, with more pronounced negative effect on learning skills acquisition for children in the Northern regions compared to Greater Accra. Manuscript 2 explored the unique livelihood and Micro-Level Experiences (MLEs) that reinforce schooling and learning disadvantages in rural Northern Ghana. The findings revealed children's exposure to diverse MLEs acting as pathways through which learning disadvantages are reinforced in rural Northern communities. More specifically, these MLEs arise from tensions that surround children's rural way of life and the formal school system.

In Manuscript 3, I examined the specific ways in which children's interaction with their micro-environment shape Educational Gender Inequality (EGI) in rural Northern contexts. Contrary to traditional narratives of systemic female disadvantage in educational opportunities, the findings revealed a more nuanced understanding of EGI in rural Northern context. The persistent reproduction of traditional gender roles in domestic work, especially at the adolescent

stage, reinforces educational disadvantages that impact the learning trajectories of boys and girls in distinct ways.

Collectively, the emphasis on the disconnect between formal schooling structures and traditional ways of life carry important implications for monitoring educational equity within global education agendas. Key aspects of the MLEs identified as driving educational disadvantages in underserved areas are often underrepresented in existing datasets that provide evidence on educational inequality in countries like Ghana. This study's findings can thus offer a foundational framework for developing locally relevant indicators based on MLEs, to more effectively monitor and measure schooling and learning inequalities, particularly in rural and underserved contexts.

Résumé

Au cours des trois dernières décennies, le Ghana a élargi les possibilités d'éducation afin de réduire les inégalités et d'intensifier ses efforts pour atteindre les objectifs de développement durable en matière d'éducation (ODD 4.1 et 4.5). Malgré ces efforts, la recherche met en évidence les disparités historiques en matière d'opportunités et de résultats en matière d'éducation entre les communautés principalement rurales du Nord et le Sud largement urbanisé, comme l'un des principaux défis auxquels le pays doit faire face s'il veut atteindre ses objectifs en matière d'éducation. Mais les nombreuses recherches sur les inégalités en matière d'éducation n'ont pas encore abordé en profondeur l'accès à l'apprentissage dans le système scolaire de base du pays. Bien que le gouvernement ait réussi à mettre en œuvre des politiques de gratuité scolaire pour élargir l'accès à l'école pour la plupart des enfants, il y a un manque de connaissances sur l'accès aux compétences d'apprentissage à l'école et sur les défis spécifiques au contexte qui renforcent les inégalités d'apprentissage, en particulier entre le clivage Nord-Sud.

Des enquêtes auprès des ménages, telles que l'Enquête démographique et de santé (EDS) et l'Enquête en grappes à indicateurs multiples (MICS), ont fourni de précieuses estimations au niveau macro pour surveiller les inégalités éducatives dans les domaines de la scolarisation, de l'achèvement des études et de la transition au-delà des clivages régionaux et Nord-Sud. Cependant, leurs estimations ne permettent souvent pas de saisir les inégalités dans les résultats d'apprentissage, en particulier du point de vue des programmes d'évaluation de l'apprentissage comparables à l'échelle internationale. De plus, leur dépendance à l'égard des données au niveau macro pour suivre les progrès sous-représente souvent l'ampleur réelle des inégalités en matière d'éducation, car elle néglige les expériences au niveau micro et les défis spécifiques au contexte qui entraînent des disparités dans les zones rurales et mal desservies.

Ma thèse aborde ce manque critique de connaissances au cœur de la compréhension globale nécessaire pour développer des politiques fondées sur des données probantes afin de s'attaquer aux désavantages d'apprentissage auxquels sont confrontés les enfants les plus marginalisés du Ghana. J'ai utilisé un modèle de recherche à méthodes mixtes pour m'appuyer sur des données secondaires du module d'apprentissage fondamental MICS 6, ainsi que sur des entretiens et des groupes de discussion avec des acteurs clés de l'éducation dans les zones rurales du nord du Ghana pour répondre à trois questions globales, présentées ici dans trois manuscrits. Ensemble, ces manuscrits offrent un aperçu complet de l'accès des enfants aux compétences d'apprentissage et du contexte dans lequel les expériences dans l'environnement local renforcent les désavantages d'apprentissage, en utilisant le nord rural du Ghana comme étude de cas.

Compte tenu des connaissances limitées sur les compétences d'apprentissage, j'ai analysé dans le cadre du Manuscrit 1 des ensembles de données d'enquêtes internationales sur les ménages, comme le MICS 6, pour examiner ce qu'ils révèlent sur l'inégalité de l'apprentissage dans le système scolaire de base du Ghana. Les résultats ont révélé de faibles niveaux de compétences d'apprentissage à l'école primaire du Ghana, les enfants des régions du nord étant encore plus à la traîne par rapport au reste du Ghana, en particulier dans le Grand Accra. Il est important de noter que l'étude a montré que les facteurs environnementaux locaux avaient des impacts variables sur les compétences d'apprentissage en fonction de la géolocalisation, avec un effet négatif plus prononcé sur l'acquisition des compétences d'apprentissage pour les enfants des régions du Nord par rapport au Grand Accra. Le Manuscrit 2 a exploré les moyens de subsistance uniques et les expériences au niveau microéconomique (ENM) qui renforcent les désavantages en matière de scolarisation et d'apprentissage dans les zones rurales du nord du Ghana. Les résultats ont révélé que les enfants étaient exposés à divers ENM qui constituaient des voies par lesquelles les

désavantages d'apprentissage étaient renforcés dans les communautés rurales du Nord. Plus précisément, ces ENM résultent des tensions qui entourent le mode de vie rural des enfants et le système scolaire formel.

Dans le cadre du Manuscrit 3, j'ai examiné les façons spécifiques dont l'interaction des enfants avec leur micro-environnement façonne l'inégalité entre les genres en matière d'éducation (IGE) dans les contextes ruraux du Nord. Contrairement aux récits traditionnels sur le désavantage systémique des filles en matière d'éducation, les résultats ont révélé une compréhension plus nuancée de l'IGE dans le contexte rural du Nord. La reproduction persistante des rôles traditionnels du genre dans le travail domestique, en particulier au stade de l'adolescence, renforce les désavantages éducatifs qui ont un impact distinct sur les trajectoires d'apprentissage des garçons et des filles.

Collectivement, l'accent mis sur le décalage entre les structures scolaires formelles et les modes de vie traditionnels a des implications importantes pour le suivi de l'équité en matière d'éducation dans les programmes mondiaux d'éducation. Les principaux aspects des ENM identifiés comme étant à l'origine de désavantages éducatifs dans les zones mal desservies sont souvent sous-représentés dans les ensembles de données existants qui fournissent des preuves sur les inégalités en matière d'éducation dans des pays comme le Ghana. Les résultats de cette étude peuvent donc offrir un cadre fondamental pour développer des indicateurs pertinents au niveau local basés sur les ENM, afin de suivre et de mesurer plus efficacement les inégalités de scolarisation et d'apprentissage, en particulier dans les contextes ruraux et mal desservis.

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The experience of a PhD has been a lifelong dream, that began as a basic school pupil in a subsistence rural community in the Western coast of Ghana, often listening to the BBC's "Focus on Africa" program with my father on his cherished radio. It is a journey that has taken time to come to fruition and I am fortunate to have had diverse and incredible support system that have guided, encouraged, and inspired me throughout this academic journey.

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Preface

Statement of originality

This dissertation is submitted in partial fulfillment of the requirements of the degree of Doctor of Philosophy in Social Work. It comprises three separate but interrelated manuscripts that addresses this critical knowledge gap at the center of a comprehensive understanding needed to develop evidence-driven policies to tackle learning disadvantages faced by the most marginalized children. Together, the findings offer a comprehensive insight into children's access to learning skills and the context through which Micro-level experiences (MLEs) at the local environment reinforce learning disadvantages, that sustains inequalities in educational opportunities and access to learning between Ghana's Northern and Southern divide. To my knowledge this is the first study to critically engage with the subject of learning inequality in Ghana's basic school system, drawing on the strengths from both internationally comparative educational assessment survey data and qualitative insight from rural and underserved contexts.

Contribution of authors

As the lead author of the three manuscripts, I, Rodney Buadi Nkrumah, conceptualized and designed the study. I conducted the data collection, analysis, literature review, and developed the manuscripts. My doctoral supervisors, Drs. Vandna Sinha and Jill Hanley extensively reviewed all three manuscripts and provided critical feedback at every stage of their development.

My internal doctoral committee member, Dr. Myriam Denov, provided constructive feedback and reviews for manuscripts two and three. My external doctoral committee member, Dr. Micheal Baffoe, also provided constructive feedback and reviews for manuscripts three.

Table of contents

Table of Contents

List of tables

List of figures

Chapter one

1.0 Introduction

The launch of the Millennium Development Goals (MDGs), and subsequently the Sustainable Development Goals (SDGs) in 2000 and 2016, respectively, signalled the birth of a new paradigm for global development. At the core of these development agendas lies the establishment of indicator frameworks and measurable targets, essential for translating development aspirations into tangible actions both nationally and globally (Unterhalter, 2014; Fukuda-Parr and McNeill, 2019; Grek, 2022). A central focus of these global frameworks revolves around advancing educational opportunities for children and positioning universal education as a foundational aspiration for global development, in which rich countries and their developing partners needed to prioritize and work towards its attainment by 2030 (Unterhalter, 2014). In the international development community, this education component of the SDG global framework is popularly referred to as the Global Education Goals (GEG) or the Global Education Framework (GEF)[1]. Key within the education agenda (notably SDG 4.1 and 4.5) is ensuring access to quality and equitable education and learning skills for all children, and removing gender-based disparity by 2030, especially in the developing world regions and notably in Sub-Saharan Africa (SSA), where access to formal education has been the most challenging (Kalindi, 2015; Evans and Mendez Acosta, 2021; UNESCO, 2022a).

In SSA, global support for universalizing basic education has driven more national governments and their development partners to increase investments in educational infrastructure and commit more resources to enhancing schooling and learning opportunities (Majgaard

[1] The two terms will be used interchangeably throughout this dissertation to refer to SDG indicators 4.1 and 4.5.

and Mingat, 2012; Kalindi, 2015; Bashir et al., 2018). This significant investment in expanding basic education has emerged as one of the most pronounced features of the region's development over the past three decades. Studies show that, since these investments, countries in SSA have made impressive gains in expanding access to schooling opportunities for most children, leading to significant progress in meeting their global education goals. (Bashir et al., 2018; UNESCO, 2022a). For instance, more children are enrolling in school and completing school today than any other period in the region's history. The rate of children enrolling in primary school with appropriate age has moved from 60% in the 2000s to 78% in 2020, while primary completion rates have also surged from 52% in 2000 to 67% in 2020 (UNESCO 2022a; UIS, 2022). However, despite the historic rise in school participation, countries in SSA still face the highest rates of schooling and learning exclusion among the developing world regions (Evans and Mendez Acosta., 2021; UNESCO, 2022a; Klapper and Panchamia, 2023). About 20% and 33% respectively, of primary and lower-secondary school-age children are out of school, compared to the global average 9% and 13% (UIS, 2022), and one out four pupils never complete primary school (UNESCO, 2022a).

As more and more countries improve their macro indicators on school participation, especially in enrolment at the basic level, global attention, and research in particular, is increasingly shifting from measures that focus on the quantity of school participation towards measures of quality of that engagement and how much children learn in formal school settings. Studies by Lewin (2009), Pritchett (2013, 2015), Spaull and Taylor (2012, 2015), and Taylor and Spaull (2015) count among earlier scholarship in both the policy and research landscape to critically engage with the subject of educational access and quality. More recently, Spaull et al. (2016), Evans and Acosta Mendes (2021), Lilienstein (2020), Oketch (2021a, 2021b), as well as

international education organizations (i.e., UNICEF, UNESCO)[2] have also shifted the discourse of universal education towards access to quality learning skills and its equity dimensions. This shift involves facilitating cross-national assessments of cognitive abilities and leveraging existing learning assessment programs to explore learning achievements and disparities across different dimensions (UNESCO, 2022a).

The available evidence indicates that in SSA, as in other parts of the developing world, the successes in schooling access (quantity) have yet to translate into improvements in learning outcomes (quality) (Gruijters and Behrman, 2020; Oketch, 2021b). In fact, countries in the region have the lowest learning outcomes globally, with more than half of pupils who complete basic education unable to acquire the basic proficiency skills expected from the formal education system (Spaull and Lilenstein, 2019). Estimates from UNESCO's spotlight reports reveal that only 10% and 15% of children in Sub-Saharan Africa (SSA) who complete primary education on time acquire basic literacy and numeracy skills, compared to 53% and 52% at the global level. (UNESCO, 2022a). With the timeline for achieving benchmark targets for the global education goals getting ever closer, the general question remains as to whether countries in the region will meet their respective objectives (SDG 4.1 and 4.5) by 2030. So far, evidence from recent studies and reports within the development and academic communities, as emphasized above, reveal concerning trends regarding the universal attainment of schooling and learning benchmarks in many SSA contexts, owing to inequalities that still characterise access to educational opportunities in the majority of countries (UNESCO, 2022a; Bennell, 2021).

[2] UNICEF is improving data availability on learning outcomes through the implementation of foundational learning skills in its Multiple Indicator Cluster Surveys. The UNESCO's Global Education Monitoring (GEM) report is leading the agenda-setting process for improved learning skills with national governments through its spotlight reports on Africa (UNESCO, 2022a).

Ghana is often lauded as a success story in Sub-Saharan Africa for its significant strides in providing free, universal access to basic education (Akyeampong, 2009; Bashir et al., 2018); still, its basic school system grapples with enormous challenges. Like many countries in the SSA region, Ghana faces significant disparities in education and broader socio-economic development across several fronts, including regional divides, geolocation (i.e., rural/urban), wealth status, and gender imbalances (Senadza, 2012; Abdulai et al., 2018). Persistent disparities in schooling and learning opportunities between the predominantly rural communities in the North and the largely urbanized South represent a key dimension of learning inequality (Abdulai and Hickey, 2016; UNDP, 2018; Carter et al., 2020), and one of the critical challenges the country must tackle if it is to achieve its global education goals.

Historically, regions in the North have lacked the needed investment, not only in critical socio-economic infrastructure but also in educational resources (Abdulai and Hickey, 2016; Aboagye, 2021) essential for providing access to quality schooling and achieving the learning outcomes expected by global education goals and indicators, compared to the rest of Ghana. While schooling opportunities have expanded to many rural communities in Northern Ghana, compared to the South, regions in the North still have the lowest completion rates in Junior High School (JHS) and the highest profile of children out-of-school at the JHS level (UNICEF, 2021). Estimates from the national population census report also shows that regions in the North have the lowest literacy rates (42%) of persons 6 years and older compared to the South (76%) and the national average (70%) (GSS, 2021). Yet, little attempt has gone into deconstructing the concept of schooling and learning inequality beyond those typically derived from quantitative metrics used by the global education agenda, and far less is also known about the specific pathways underlying the formation of learning inequality, especially in rural and underserved contexts.

1.1 The current dissertation

My dissertation explores these dynamics of learning inequality in Ghana's basic education system with a critical focus on rural and underserved communities in Northern Ghana[3]. While my research focuses on understanding the concept of learning inequality, I use the term loosely as 'schooling and learning inequality' throughout this dissertation to acknowledge the fact that the learning disadvantages documented in the educational literature are often closely interrelated with schooling disadvantages (Zhang, 2006; Lewin, 2009). The emphasis on learning outcomes has become even more important in the context of the current global development discourse, where the development of learning skills is recognized as the building blocks for developing one's capabilities and securing future wellbeing (Sen, 2005; Nussbaum, 2009). To make sense of the context of learning inequality in Ghana within the general framework of the global education agenda, I first examined available datasets that play a key role in monitoring Ghana's global education goals and its equity dimensions. Specifically, I relied on the foundational learning assessment module implemented by the Multiple Indicator Cluster Survey (MICS), which provides nationally representative data on cognitive learning skills within Ghana's basic school system at both national and regional levels. The MICS dataset also includes some contextual information on children's home environment, allowing me to explore the factors driving schooling-and learning-related inequality in Ghana. Additionally, I examined the value that insights into the livelihood contexts of children in underserved areas could offer to the understanding of learning inequality as a second step. Undertaking such investigation, however, required, among other things, immersing myself qualitatively in the socio-economic and cultural fabric of rural Northern communities, through extensive field work.

[3] Northern Ghana (also used interchangeably with the Northern regions) refers to the five administrative (Northern, Savannah, Upper West, Upper East, and North East) regions that make up Northern Ghana.

I spent 5 months doing field work in rural Northern Ghana, travelling across several remote communities in three different regions, some of which were only accessible by the motor-bicycle. These communities, both large and small, had diverse yet similar characteristics regarding schooling and learning conditions, as well as day-to-day livelihood experiences[4] - which reinforce my emphasis on context as a critical approach to understanding how schooling- and learning-related disadvantages operate in rural Northern Ghana. The majority of people in these communities engaged in subsistence agriculture as their primary source of livelihood and economic activity, growing crops such as yam, maize, millet, and sorghum, as well as practicing animal husbandry. The pervasiveness of farming and its reliance on seasonal rainfall became evident midway through the fieldwork. One of the research assistants expressed concerns that he would not be able to continue if the rains began. Indeed, the clouds were beginning to gather on that day, given signs of imminent rainfall. While traveling, I often saw female children carrying pans and gallons of different sizes on their heads in search of water, particularly after school hours. At other times, I encountered students walking long distances to school. Those from Community 5, for example, would walk for about 15 km to Junior High School (JHS) in the district capital. The school conditions in these areas were markedly different from those in urban regions. Some schools had weak physical structures, with rusty sheets and porous straw roofing – the type that would bring schooling activities to halt at the slightest sign of rain or strong winds. Many schools, especially in smaller communities, had few teaching staff on site, often including senior high school graduates and other non-professional teachers serving as volunteers. Another point worth

[4] I used livelihood here in a broader sense to capture the day-to-day experiences and/or conditions of sustaining one's basic needs in rural Northern Ghana.

noting is the presence of schools serving communities with different linguistic backgrounds, which sometimes created instructional challenges between teachers and students.

During this period, one of the things that continued to preoccupy my thoughts was the question of 'context', especially on how to reconcile global indicators for monitoring educational progress and its equity with the traditional lifestyles of the Northern communities I visited. I also thought about the need for deconstructing the definitions of educational access and learning skills, as applied by the international education agenda, if one is to better understand the nature of inequality, and to envision what genuine progress in learning should look like. Through these moments of reflection, I felt the importance examining how definitions of educational access and learning skills, as indicated by macro-indicators, align with the realities of learning disadvantages in rural Northern communities. Do our current understandings of learning inequalities adequately inform the policy solutions required to ensure access to quality and equitable educational opportunities for children in rural and underserved regions?

The opportunity to visit different schools, observe what children do in their communities, and interact with various stakeholders provided profoundly enriching experiences for critical reflection. Notably, it offered insights into what is important in understanding schooling and learning access within the context of traditional life patterns and limited educational resources in underserved areas. The main takeaway from this critical reflection is that using macro indicator frameworks to measure and understand educational access and its equity dimensions in these contexts presents significant challenges, with potentially adverse equity implications for underserved children. For instance, it tends to frame access to schooling and learning from a position of deficit, largely due to the inability of designing the formal school system to complement the traditional patterns of life in rural northern contexts. Moreso, understanding learning

inequalities solely from macro indicators is likely to frame this deficit without a critical engagement of the socio-cultural context where children school and learn.

My goal in this dissertation is to establish a comprehensive framework that elucidates the context-specific factors underlying schooling and learning inequalities in rural Northern Ghana, in a way that supports future policy designs and reforms necessary for bridging learning gaps in Ghana's basic school system, particularly those between the rural north and the rest of the country. However, in understanding the context-specific factors that shape learning inequality for school children in rural Northern Ghana, this study also addresses the broader domain of areas that need to be understood and given the requisite attention by policymakers in similar underserved areas in SSA and beyond. To do this, I draw on a mixed methods research design that employs secondary data from international household surveys on cognitive assessment of basic school students, as well as interviews and focus groups with key education stakeholders, including schoolchildren and their caregivers, in rural Northern Ghana. More specifically, I draw on the quantitative and qualitative data sources above, to explore the subject of learning inequality by addressing three overarching research questions, structured in three separate manuscripts.

Question 1: ***What do international household surveys datasets tell us about learning inequality in Ghana's basic school system?*** In this manuscript, I explored the evidence base of learning inequality in Ghana's basic school system from the perspective of internationally comparable, foundational learning assessment data, used in monitoring national- and regional-level progress towards the global education goals. I employed descriptive statistics to examine children's access to learning skills, and the extent of inequalities are distributed across national and regional lines, notably between the northern regions and Ghana as a whole. Using logistic regression analysis, I also explored local

conditions in children's environment that are associated with learning disparity at both national and sub-national levels, to understand what household surveys do and do not tell us about learning inequalities in Ghana.

Question 2: ***What are the unique livelihood experiences that shape children's access to schooling and learning inequality in rural Northern Ghana?*** The second manuscript addressed research question 2, whereby the quantitative descriptions were supported with qualitative characterization of schooling and learning experiences of children in rural Northern Ghana, notably by exploring how the household and broader ecological factors shape schooling and learning conditions. I draw on qualitative data, comprising interviews and focus group discussions with key stakeholders[5] of the basic school system in rural Northern Ghana.

Question 3: ***What specific gender dimensions are embedded in children's out-of-school experiences? And how do these shape Educational Gender Inequality (EGI) in rural Northern Ghana?*** Manuscript 3 also draws on a case study of rural Northern Ghana, using qualitative interview and focus group methods to examine the gender dimensions of schooling and learning inequality in underserved. Specifically, I focused on the broader context of experience outside the school system that shape learning inequality within the school system but are unfortunately unaccounted for in gender-parity indicators that monitor gender-based disparity in accessing learning opportunities.

The rest of the dissertation will be organized as follows: In chapter 2 provides a brief background and review of literature on the context and emergence of formal education and access

[5] Key stakeholders comprised school children, school teachers and principals, parents/caregivers, local education officials, and representatives of community-based organizations.

conditions in Ghana as a whole and the Northern context in particular. The chapter also outlines the research gaps and questions that predicates this dissertation. In chapter 3, I present the conceptual tools and frameworks relied upon in addressing gaps in the existing literature. In chapter 4, I delve into the methodological approach employed in this study, highlighting its strengths in addressing the central research questions. Chapters 5, 6, and 7 present the three independent manuscripts that make up, whereas chapter 8 presents the summary and conclusion, alongside the policy implications.

Chapter 2: Literature review

2.0 Background and context to formal basic education expansion in SSA and Ghana

Though formal education in Ghana and the SSA context is often traced to colonialism, the concept of education and learning in traditional African societies predates the arrival of Europeans. In pre-colonial and traditional societies, access to learning skills was engrained in the socialization process, which is expected of children as they grow and develop (Omolewa, 2007), a phenomenon that is still prevalent in today's traditional communities. The idea of children's education is largely structured around the transfer of knowledge through informal social settings (i.e., the family, tribal networks, the village community, etc.), mainly to equip younger members of the community and households with practical skills that align with the broader needs of society (Nyerere, 1967; Nukunya, 2003).

With the arrival of European Christian missionaries and subsequent colonial rule, attention shifted to formal education, emphasising the ability to read and write (Nyerere, 1967; White, 1996). Especially in British colonial Africa (i.e., SSA), where colonial administration followed similar patterns, the granting of free entry to missionaries sparked intense competition among various denominations. Missionaries competed among themselves in the provision of Christian education and missionary schools were a way of drawing indigenous Africans to the Christian faith, and thereby increasing their church membership. This competition created receptivity to and demand for western education, especially as locals realized the prospect of engaging in 'white collar' jobs associated with working for European missionaries. The missionary activities led to more primary school enrolment by traditional Africans, especially in British colonial Africa (Frankema, 2012; Gallego & Woodberry, 2010). However, existing literature indicates that, from the onset of formal colonial rule in the early 1900s and extending through the inter-war periods,

British and other European governments showed little interest in providing educational investment in colonial Africa (Frankema, 2012). This situation changed in most parts of colonial Africa, however, in the aftermath of the Second World War. Immense agitation by local elites for improved social services led to the development of key policy initiatives in the education sector. For instance, post world-war Africa saw the establishment of more primary and secondary schools; higher institutions of learning became a common pattern of development in many urban centers of colonial Africa - a process that laid the groundwork for a colonial education blueprint that persisted across many of the colonies (Frankema, 2012). Beyond the narratives on missionary activities and colonial government policies, recent scholarship emphasizes the role of micro-level decisions by indigenous populations as a significant driver in formal education expansion in colonial Africa, especially in the final two decades of colonial rule (De Haas and Frankema, 2018; Aboagye, 2021). Aboagye (2021) for instance, noted that the African demand for formal education was not uniform but rather the outcome of cost benefit analysis by families, whereby demand was only high in areas where the economic benefits were most visible to families.

During earlier stages of the post-independence era, nationalists who fought for independence pursued both political and educational agendas deeply rooted in what Gandhi (2019) and Loomba (1998) have termed the 'post-colonial notion of ambivalence'. This state of ambivalence captures the complex mix of attraction and aversion that post-colonial leaders harbored towards their former Western colonizers. In SSA for instance, this ambivalence was evident in the retention of legal, political, and educational systems modelled after the colonial master, as well as the acceptance and collaboration with Western partners (e.g., the World Bank) to 'modernize' the African educational system. On the other hand, however, attempts by leaders of newly independent states, such as Ghana and Tanzania, to indigenize their educational curriculum

by employing indigenous languages and developing new reading materials, also underscored their rejection of the colonial status-quo (Loomba, 1998; Gandhi, 2019). Even as these actions symbolized a desire to forge distinct African identities detached from former colonizers (Kuyini, 2013), the colonial legacy of education has persisted in most countries across SSA region, spanning from the post-independence era to the new millennium, amidst several unsuccessful reforms (Brock-Utne, 2002; Akyeampong et al., 2007; Kuyini, 2013).

In the Ghanaian context, the trajectory of educational reforms that gave shape to the current educational system began in 1951, a period of internal self-rule in the then Gold Coast. An Accelerated Development Plan (ADP) for education was introduced, which aimed to achieve Universal Primary Education (UPE) for all. During this period until independence in 1957, Ghana maintained a colonial education structure comprising six years of primary education, four years of middle school, five years of secondary school, and two years of 'sixth form'[6] (best represented as the 6-4-5-2 system), for qualification into university. The colonial education structure, however, continued after independence, where the new government prioritized basic education, and introduced a new Education Act in 1961 to expand access to existing educational opportunities (Akyeampong, 2010; Foster, 1965).

During the 1980s, a period of Structural Adjustment Programs (SAP)[7] regimes in Africa, educational reforms mirrored market-oriented policies, which were supervised by the World Bank (Heyneman, 2003). For instance, 1987 reforms introduced a 3-year Junior Secondary School (JSS, now JHS) to replace the 4-year middle school, with a 3-year Senior Secondary School (SSS now

[6] The 'sixth-form' was an additional 2 years of "Ordinary level" and "Advance level" certificates.
[7] The 1980s witnessed an era of economic down-turns in several African countries. Structural Adjustment Programs were market-based policies enrolled to achieve medium term economic growth and price stability. See Stein and Nissanke (1999).

SHS) also replacing the 7-year secondary system (Adu-Gyamfi, et al., 2016; Kuyini, 2013). The aim of these reforms was to equip students to participate in the emerging labour market. Existing literature shows, however, that this system has been largely ineffective in adequately preparing the large number of JHS and SHS graduates to meet existing labor-market needs (Akyeampong, 2010; Nudzor, 2013). Subsequent reforms were introduced in 1996, 2007, and 2010, with key highlights including the 1996 introduction of the Free Compulsory Universal Basic Education (FCUBE) policy, to guarantee access to basic education for all children of school-going, to guarantee access to basic education for all children of school-going age (Akyeampong, 2009; Nudzor, 2012). As observed in table 1, the pre-tertiary educational structure throughout these reforms remained a 2 – 6 – 3 – 3 system, comprising 2-year pre-school, 6- year Primary, 3-year JHS and 3-year SHS (Kuyini, 2013).

Though Ghana's educational history documents several reforms from the colonial to post-independence era, these reforms have yet to fully achieve the goal of 'free' and 'universal access' at the basic level promised guaranteed under the country's constitution and national policy (Kuyini, 2013; Zame et al., 2008). Currently, these reforms have been, and continue to be, criticized for their failure to adequately address key issues relating to access, quality, and equity. More importantly, there is also immense critique on the relevance of the current education to local needs, which were once at the heart of the informal and traditional learning systems offered to children through the socialization process (Akyeampong et al., 2007; Kuyini, 2013; Adzahlie-Mensah and Dunne, 2018; Bonney, 2022).

Table 1: Educational reforms and changes to pre-tertiary educational system

Reform periods	Associated years of schooling			
Colonial era until 1974 →	6 years of primary school	4 years of middle school	5 years secondary school	2 years of O-level/ A-level
Reforms in the 1980's →	6 years primary school	3 years of Junior High School (JHS)	3 years of Senior High School (SHS)	
Reforms in 2007 →	2 years Kindergarten (pre-primary school)	3 years of Junior High School (JHS)	3 years of Senior High School (SHS)	4 Years SHS
Post 2010 changes →	2 years Kindergarten (pre-primary school)	6 years of primary school	3 years JHS	3 Years SHS/ Technical/vocational Education (TVET)

2.2 The evolving definitions of educational access

Educational access in SSA remains a developing concept that keeps evolving and changing over time. Over the past three decades, access to schooling or basic education has become one of the most studied areas in educational research in SSA (Kuépié et al., 2015; Lewin, 2009; Lewin & Sabates, 2012). Yet, no consensus exist on how the concept of access is defined and utilised in educational research. In SSA, and the developing world in general, research on schooling, and Basic Education Access (BEA) in particular, have intensified since the launch of the global development frameworks, namely the MDGs and SDGs (Lewin, 2009; Lewin and Sabates, 2012; Rose et al., 2019). Yet, no consensus exists on how the concept of access is defined and utilised in educational research and policy frameworks. Much of the literature on schooling, as framed by the international development community in the early 2000s, for instance, looks at educational access

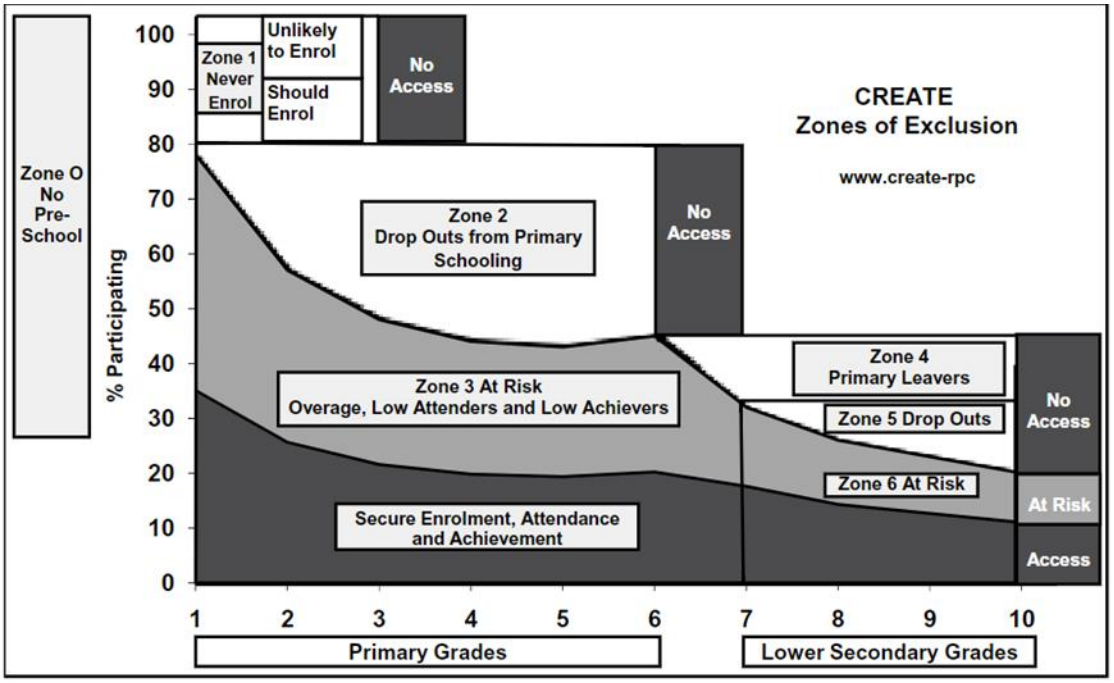
from an enrolment and supply-side perspective (Bruns et al., 2003; White, 2004; Nielsen, 2006). The focus on access from this perspective centres on gross and net enrolment and completion rates as well as government's ability to provide the necessary physical, material, and infrastructural services conducive for learning (Lloyd & Hewett, 2009; White, 2004)). This characterization of access, which centers on the ability to increase enrolment and physical infrastructure, reflects a global push to universalize basic education in the 1990s and 2000s (Lewin, 2007, Lewin and Sabatees, 2011; Little, 2008).

In the late 2000s, the Consortium for Research on Educational Access, Transitions and Equity (CREATE), a research program funded by the Department for International Development (DFID) also adopted what they call an "expanded vision of access" (Lewin, 2007, 2009). This vision of access identified six main conditions that must be inextricably tied to full access, including:

(1) local access to safe schools with acceptable levels of staffing, learning materials, and other facilities;
(2) Admission and progression through primary school at appropriate age for grade;
(3) Consistent and continuous attendance throughout school year;
(4) Achieving learning outcomes consistent with national norms for successful completion of basic school;
(5) Opportunities to enter and complete post-primary education and training;
(6) Consideration of equity and equal opportunity to learn.

Lewin (2009) described these six conditions in the model "zones of exclusion" (seen in figure 2.0), which could be used as a reference point in tracing those who are either 'losing or have already lost access to conventional education system' as shown in figure 1.

Figure 1:Access and zones of exclusion from primary and secondary schooling



Source: Lewin (2009).

In recent times, however, definitions of educational access have shifted towards the idea of learning outcomes. Spaull and Taylor (2015), Taylor and Spaull (2015), Van der Berg (2018), and Lilenstein (2020) are among a growing list of scholars that emphasize the quality of learning as a yardstick for determining educational access and successful educational systems. Taylor and Spaull (2015), for instance, introduced a composite measure of 'access to learning', taking into account educational quantity (i.e., enrolment) and educational quality (learning), as a realistic measure of educational quality[8], whereby children enrolled in school also have the opportunity to access, at a minimum, functional learning skills expected by the school system. At the basic level in particular, the goal of formal education, as outlined by the global education agenda, is to provide the necessary environment for the acquisition of learning skills in literacy and numeracy essential

[8] In their paper, access to quality education is the ability to obtain basic skills in literacy and numeracy through cognitive assessments (See Spaull and Taylor, 2015).

for active participation in the modern economic life (World Bank, 2018; Okech, 2021b). While this emphasis on learning skills, as measured through cognitive assessments, addresses an important challenge of ensuring that the global education goals promote access to quality education for all children, this can potentially promote a concept of learning that relies heavily on macro-indicator approaches focusing on quantitative measures. Such an approach, however, risks overlooking the contextual factors that significantly influence learning outcomes (Mau, 2019).

2.3 Equity in access to schooling and learning in Ghana

Ghana has achieved immense successes in expanding educational opportunities for throughout the country through different policy interventions and programs. Several scholars have highlighted the critical role of interventions – such as the FCUBE policy (Akyeampong, 2009), the Educational Capitation Grant (Gaddah et al., 2016), the Ghana School Feeding Program (GSF), and the Livelihood Empowerment Against Poverty (LEAP), along with other initiatives like providing free uniforms and exercise books – in expanding access to education for most children in the 2000s. Following the implementation of the FCUBE, the Capitation Grant was introduced in 2005, to provide schools with a grant of $3.00 per child enrolled, to absorb subsidiary fees[9] charged to families (Gaddah et al., 2016). The GSF followed up in 2007, to support the provision of one free meal a day in school, especially in food-insecure areas to increase enrolment and retention (Osei et al., 2009). Subsequently, LEAP was introduced in 2008 as a pro-poor, conditional cash-transfer program to provide income supplement to low-income households in deprived areas. The receipt of LEAP was conditional on enrolment and retention of children in school (Jones et al., 2009; Oduro, 2015). Other initiatives including free uniforms and exercise

[9] This often entails costs related to organizing internal examinations, printing, parent-teach association (PTA) fees, volunteer teacher fees among others.

books also followed in subsequent years to reduce the cost of schooling to poor households (Gaddah et al., 2016).

The successes of these interventions have significantly improved Ghana's performance on macro-indicators on schooling access, bringing the country closer to achieving global education goals (UNESCO 2022a). Yet, the educational access literature highlights significant inequalities that continue to challenge Ghana's progress in meeting its global education targets, and in fulfilling the constitutional mandate of ensuring access to quality basic education for all children (Nudzor, 2012). Studies covering equity dimensions in schooling and learning access occupy a significant part of the educational access literature in Ghana. The majority of these studies, however, focus on the broader sense of access to schooling, emphasizing where more work is needed to accelerate progress towards the Global Education Goals (GEG) and guaranteeing the constitutional rights to quality (Akyeampong, 2009; Djagmah, 2011, Senadza, 2012; Akyeampong and Rollstone, 2013; Gaddah et al., 2016). Empirical evidence over the past two decades of research in Ghana highlights four core dimensions of equity that continue to characterize children's access to schooling and learning, and their progression within the basic educational system: inequalities along socio-economic wealth, gender, spatial and geolocations, and regional dimensions.

2.3.1 Household wealth/socio-economic dimensions of inequality

Most studies on educational inequality in Ghana emphasize household wealth and socio-economic status as key variables in explaining children's access to and progression through the school system. Akyeampong (2009) and Gaddah et al. (2016) have provided evidence of socio-economic disparities in schooling access during the early implementation phase of the FCUBE policy, whereby children from the poorest households often faced the greatest challenges in benefiting from educational opportunities and progressing through the school system. Earlier

evaluation of the FCUBE policy also showed that even though the introduction of fee-free schooling increased basic school enrolment at the national level, the policy's inability to significantly reduce informal schooling costs[10] resulted in lower participation and progression rates for children from the poorest households. For instance, mean attendance for the poorest household quantile declined over two survey periods (GLSS[11] 1998/199 and 2005) while all other groups appreciated within the same period (Akyeampong, 2009).

Gaddah et al. (2016) investigated the effects of school subsidies on public school enrollment and found that, although children from the poorest households benefited the most from subsidies at the primary level, the greatest benefits at the secondary level were enjoyed by children from the wealthiest households (26%) compared to benefits to the poorest (15.5%). This disparity was attributed to higher dropout rates and lower progression beyond primary and JHS levels among poorer households, likely due to the increased costs associated with secondary education (Gaddah et al. 2015; 2016). The wealth inequality difference in educational access against children from the poorest households is further underscored by the recent Ghana multiple indicator household survey (MICS 6). These findings show that over half of the children in Ghana's two poorest wealth quintiles do not complete lower and upper secondary education. Additionally, the out-of-school rate for children in the poorest wealth quintile is double the national average. (Mizunoya et al., 2020).

2.3.2 Gender dimensions of educational inequality.

Gender differences in educational opportunities and access at the basic level have been a central focus of educational research and policy interventions in Ghana since the inception of the

[10] Informal schooling costs refer to subsidiary/supplemental costs as provided in footnote[9].
[11] Ghana Living Standard Survey is a nationally representative household survey that provides information for understanding and monitoring living conditions in Ghana. See The Ghana Statistical Service (GSS 2019).

Global Education Framework (GEF) in the early 2000s. Given that a key component of the education goals and targets is dedicated to ensuring gender parity outcomes within the classroom and school settings, research and policy have increasingly focused on supporting long-term measures to bridge the historical gender gaps in educational access and opportunities (Gelli et al., 2019; Psaki et al., 2022; Unterhalter et al., 2022; Evans, et al., 2024). Like many other countries in the SSA context, girls in Ghana face substantial barriers in accessing educational opportunities compared to boys, with girls typically lagging in educational access outcomes such as enrollment, completion, and progression through the basic educational system (Koissy-Kpein, 2020). Educational indicators in Ghana during earlier stages of the GEG, showed immense female disadvantages in school enrollment at both primary and JHS levels. Female gross enrollment at the JHS level in the 2004/2005 assessment was 68%, compared to 77.3% for males (MoE, 2012; Shesie, 2019). A longitudinal investigation into the scale and trajectories of lower secondary completion over a five-year period (2009-2013) also found evidence of female disadvantage in successful completion rates. The mean completion rates for females were also consistently lower than those of their male counterparts, showing a gap of 10.44% in 2009 and 10.94% in 2013 between the two groups over the five-year period (Ansong and Alhassan, 2016). These indicators, however, only capture the extent of disparities in schooling that existing data could reveal, given the scarcity of educational outcomes data in the early 2000s (Omoeva et al., 2013). Over time, however, scholarly discourse on educational gender disparity has shifted from a focus on consistent barriers for girls to addressing challenges that affect both boys and girls (Buhl-Wiggers et al., 2021; Welmond and Gregory, 2021).

In Ghana's context, evidence from the past one and a half decades of active policy implementation and gender-specific interventions in the basic school system indicates a gradual

reduction in the gender gaps against girls. The introduction of fee-free schooling policies and the establishment of the Girls' Education Unit (GEU) have not only increased access to basic education for most school-aged children but also significantly promoted the participation of girls in school (Akyeampong, 2009; Casely-Hayford and Akabzaa, 2009). Recent reports and analyses of educational gender gaps indicate significant progress in bridging these disparities since the 2000s, with instances of achieving gender parity in favor of girls at both primary and lower secondary levels. Completion rates[12] for girls are now higher at both the primary (95%) and junior high school (JHS) (74%) levels compared to 93% and 75%, respectively, for boys (UNESCO, 2024). Although Ghana is one of the few countries in Sub-Saharan Africa to have achieved gender parity in primary enrollment in favor of girls, gender disparities against girls persist in the basic education system and broader educational context (Koissy-Kpein, 2020). Disparities in favor of boys emerge as children progress to higher levels of schooling, with girls in rural and underserved communities often described in the literature as the most disadvantaged (Senadza, 2012; Ansong and Alhassan, 2016; Ansong et al., 2018; Koissy-Kpein, 2020). The evidence as shown in these studies therefore suggest that improving on Ghana's gains to achieve gender parity outcomes would require measures that effectively address the critical educational challenges girls and boys face in rural and underserved communities, which contribute to widening the educational gender gaps in rural settings. This potentially requires research and policy directions to focus more on local environment conditions outside the school system that reinforce educational gender inequality within the school contexts, rather than on interventions that primarily address disparities within the school system.

[12] Completion rates are based on the UIS estimations that largely rely on EMIS data. These figures are quite different from recent UNICEF estimations based on household survey, showing primary completion rates of 73% for girls and 69% for boys. JHS completion rates 55% for girls and 45% for boys. See the MICS-EAGLE Ghana report (UNICEF, 2021).

2.3.3 Spatiality, geolocation, and regional dynamics of inequality.

Existing literature on economic history, political economy, international development, and education shows a significant association between geolocation, regional dynamics, and the incidence of poverty, socio-economic inequality, and children's access to schooling and learning opportunities in Ghana. Studies exploring these intricate connections emphasize the role of geographic region and area of residence (i.e., rural or urban) as crucial factors in determining children's access to education as well as the quality of educational opportunities available to them (Ansong et al., 2015; Ansong and Alhassan, 2016; Abdulai et al., 2018). Significant sections of the evidence base in these studies highlight the extent of inequities faced by children and schools in rural settings, even after the universalization of basic education. Notable examples include Senadza's (2012) work on the spatial dimensions of educational inequality and Ansong and Alhassan's (2016) analysis of educational progression among boys and girls in JHS.

Collectively, these studies reveal significant rural disadvantages in measures such as average years of schooling and JHS completion rates across gender groups. For instance, Ansong and Alhassan (2016) found that rural districts had significantly lower completion rates for both boys and girls compared to urban districts. These are findings that align with earlier evidence on the equity dimensions of access – whereby students from rural and underserved contexts, did not receive the required quality of education needed to progress beyond post-basic levels (Akyeampong, 2009; Senadza, 2012). This was attributed to poorer learning conditions in rural schools and the presence of informal costs that hindered school participation in rural and underserved areas (Acheampong, 2009; Djagmah, 2011; Darvas and Balwanz, 2013). From a learning perspective, Ansong et al.'s (2015) longitudinal analysis of district-level performance of basic education certificate examination (BECE) results also showed rural-urban status of districts as a significant predictor of the initial BECE pass rates, explaining 31% of the inter-district

variations in pass rates between 2009 and 2013. Their findings showed only 5% of rural compared to 24% of urban districts showed signs of improvement during the study period, and therefore recommended a localized approach to measures seeking to improve equity (Ansong et al., 2015).

This rural-urban focus of educational disparities in Ghana can also be situated within the broader context of North-South disparities in educational and socio-economic development. Due to the predominantly rural and resource-disadvantaged nature of regions in the North, spatial analyses of educational inequality consistently show a significant disadvantage in several educational outcomes in the North compared to the Southern regions. (Senadza, 2012; Ansong et al., 2015; Ansong and Alhassan, 2016; Abdulai and Hickey, 2016; Aboagye, 2021). For instance, Senadza's (2012) work on disparities in average years of schooling showed that the Northern regions had an average of 5.6 years of schooling, compared to 8.9 years in Greater Accra, the capital region. This pattern of disparity is also evident in JHS completion rates (Ansong and Alhassan, 2016) and BECE pass rates (Ansong et al., 2015), whereby regions and districts in the North consistently fell below the national average and lagged behind the South in four- and five-year longitudinal assessments.

Since regions in the North are predominantly rural, with higher poverty rates and limited educational resources (Abdulai et al., 2018), experiences of educational disadvantages in these regions also overlap with household wealth status, gender, and rural-urban dimensions, making school-aged children in these regions more vulnerable to the intersectionality of these experiences. This collective disadvantage of rurality, poverty, underdevelopment, and limited investment in educational resources in these areas stand to create a hostile ecosystem with the potential of limiting the schooling and learning prospect of children, especially those in the rural northern subsistence communities that often struggle to meet livelihood needs. While these spatial

dimensions, and particularly the northern factor, are a dominant theme in the literature on educational inequality in Ghana, there is, however, limited insight into the specific case of learning inequality within the northern context. More specifically, in understanding the pathways through which the ecosystems surrounding children's schooling and learning reinforce learning disadvantages in the North, particularly in rural areas.

2.4 Researching and understanding educational inequalities

The past two decades of educational literature in Ghana, and SSA more broadly, underscores two primary approaches to understanding educational inequality and how such inequalities are addressed from a policy perspective: a quantitative approach that highlights macro-level indicators, and a qualitative approach that focuses on children's micro-level experiences.

The former is grounded in macro-level quantitative approaches of monitoring progress in schooling- and learning-related outcomes, which are based on measurable indicators and targets of the GEG (Spaull and Taylor, 2012, 2015; Unterhalter, 2014; Mau, 2020; UNESCO, 2022b). To understand inequalities, researchers and international organizations leverage datasets from household surveys (i.e., MICS[13], DHS[14], GLSS[15]) and Educational Assessment Programs (EAPs) to monitor progress towards achieving the universal education target and the Global Education Goal (GEG) across regional, national, and sub-national levels (UNESCO, 2022a; 2022b). Since these datasets often contain contextual information about individual-level attributes, alongside the social and policy environment of households (Hattori et al., 2017), they help identify key markers and dimensions—such as gender, language, and household resources—connected to children's

[13] Multiple Indicator Cluster Survey (MICS 6 data) is implemented by UNICEF. See https://mics.unicef.org/about.
[14] Demographic and Health Survey (DHS) is implemented by the USAID. See https://dhsprogram.com/
[15] Ghana Living Standard Survey (GLSS). See https://www2.statsghana.gov.gh/nada/index.php/catalog/97/study-description

education, providing entry points for understanding sources of inequality. In addition, the international comparability of household surveys and EAPs used in research on educational inequality also allows evidence of successful educational systems and outcomes in one jurisdiction to inform important policy and peer learning mechanisms in other jurisdictions. This facilitates the sharing of effective strategies and practices across different regions, enhancing the potential for addressing educational disparities globally (van der Berg, 2018; UNESCO, 2022b).

Despite the benefits associated with macro-level indicators in understanding educational inequalities, several challenges also constrain their effectiveness. The application of uniform indicators, such as measures of cognitive skills, to assess learning disparities can lead to mistakenly attribute learning problems to specific groups of children or geographical areas rather than addressing structural issues that shape children's learning experiences (Gillborn, 2010). Furthermore, quantitative indicators do not provide the comprehensive understanding needed to guide effective policy responses to the multiple layers of educational disadvantages faced by children in Sub-Saharan Africa (SSA). Even though existing household surveys and EAP datasets often identify who and where learning disadvantages are prevalent (e.g., rural girls or orphaned boys), they often lack the depth to suggest concrete actions to reverse these trends due to their limited insight into children's experiences (Nkrumah, 2023). This lack of nuanced understanding underscores the need for more context-specific insights to inform effective interventions.

The latter approach to researching and understanding educational inequality is grounded in qualitative methodologies, which often explore micro details of children’s experiences within the context of the school system, the home, and the broader contextual environment, to appreciate the factors that account for inequality (Ananga, 2011; 2012; Dunne et al., 2021). By design, these qualitative methods make it possible to unpack complex background issues such as children’s

work, linguistic differences, and life-style patterns that are crucial to understanding why certain disparities prevail in specific sub-national contexts. Importantly, in-depth qualitative exploration of these background issues can support the work of developing indicators that provide a more comprehensive understanding of schooling- and learning-related disparities. However, qualitative approaches alone may not produce the quantified measures needed for comparative analysis on global or regional scales. Moreover, qualitative approaches also do not explore all levels of children's environments, thus limiting their ability to generate a comprehensive insight into the nature of educational inequality (Nkrumah, 2023).

In the Ghanaian context, empirical research on educational inequality employs both quantitative approaches, focusing on macro-level indicators (Senadza, 2012; Wolf et al., 2016; Ansong et al., 2018), and qualitative approaches that examine the micro interactions and mechanisms through which inequalities impact children's educational trajectories (Ananga, 2011; Wilson and Somhlaba, 2017; Takyi et al., 2019). However, what is largely missing from this discourse is an integrated framework that combines these approaches, in a way that support more effective policy design and reforms, required to address structural inequities in schooling and learning, particularly for children in rural and underserved areas.

2.5 Research gaps

The extensive body of work on access to educational opportunities and the development of international frameworks to accelerate educational attainment for all children reflects a strong belief by governments and the international development community in the potential of universalizing basic education (Annan-Diab and Molinari, 2017; World Bank, 2023). Basic education, in this sense, is seen as a tool for creating sustainable pathways to addressing poverty and broader social inequalities in today's globalized knowledge economy (Patrinos, 2016;

Pritchett, 2024). In the Ghanaian context, educational literature highlights two key aspects of the journey toward ensuring educational inclusion. On one hand, there is recognition of the substantial progress made over the past three decades in providing fee-free schooling opportunities to all children, making Ghana a success story in the provision of universal basic education in Sub-Saharan Africa (Koissy-Kpein, 2020). On the other hand, there is acknowledgment of persistent inequalities across gender, household wealth status, rural-urban lines, and the notable North-South structural divide, which continues to undermine this progress (Abdulai and Hickey, 2016; Ansong et al., 2018). However, the current literature offers a limited understanding of the context surrounding schooling and learning inequality based on the bifurcation of quantitative or qualitative approaches employed in most studies. The approach in this study addresses three critical gaps in the understanding necessary to develop evidence-based policies to impact children in the most excluded and marginalized communities and regions.

First, there is inadequate emphasis on children's access to learning as opposed to schooling, and even more so, on understanding inequities in learning outcomes across Ghana's geographical regional contexts. While there is a significant evidence base on how much Ghana's universal policy regime has expanded access to schooling for school-aged children (Akyeampong, 2009; Ansong and Alhassan, 2016), there is limited knowledge of how much children learn across the basic school system and whether the north-south regional disparities in learning have been reduced (Nkrumah, 2023). This is particularly the case for studies relying on internationally comparable learning assessment datasets from Educational Assessment Programs (EAPs) and household surveys that inform educational policy. Apart from NEA reports on EGRA and EGMA and individual studies that draw on results from the BECE (Ansong et al., 2015) and self-reported learning abilities (Blunch, 2011), there is a notable lack of significant empirical work evaluating

learning across the basic school system in Ghana. EGRA and EGMA assessments address some gaps by providing data to explore trends in access to learning within Ghana's basic school system (IIEP-UNESCO, 2021). However, they lack the regularity and international comparability that regional assessments like SACMEQ[16] and PASEC[17] offer, which are implemented in Southern and Eastern Africa and French-speaking African countries, respectively (Spaull and Taylor, 2012; 2015; Gruijters and Behrman, 2020). Drawing on internationally comparable learning assessments from household surveys can be crucial for key reasons. Foremost, it helps to pull the evidence base to understand the scale of learning and its equity dimensions. Importantly, it allows for the international comparison of system-level analyses of educational quality, which are vital for guiding policy designs and reforms to address learning-related inequities (van der Berg, 2018; UNESCO, 2022b).

Second, national education indicators in Ghana largely rely on enrolment and completion statistics, rather than on measures of access to learning, as benchmarks for monitoring educational access and successes associated with the basic school system (Spaull and Taylor, 2015). This reliance on macro-level indicators can obscure the day-to-day experiences of schooling that shape the learning trajectories of children, particularly in rural and underserved regions. Consequently, macro-level indicators may underrepresent the layers of schooling- and learning-related inequalities in the national outlook. Both development and economic literature show that social and economic life in many rural and subsistence agricultural communities in Ghana revolves around daily struggles to meet basic livelihood needs (Yaro, 2006; Aasoglenang et al., 2013).

[16] The Southern and Eastern African Consortium for Monitoring Educational quality (SACMEQ) is a regional educational assessment conducted every 4 years to test cognitive outcomes in literacy and numeracy among grade 6 pupils (Spaull and Taylor, 2012; 2014).
[17] Program for the Analysis of Confemen Educational Systems (PASEC) is a large-scale educational assessment conducted every 4 years at the beginning and end stages of grades 3 and 6 in French-speaking SSA.

Exploring how these day-to-day livelihood experiences intersect with schooling can provide broader insights into the factors underlying learning inequality in Ghana. Understanding this interplay is crucial for addressing the systemic issues that contribute to educational disparities, especially in underserved contexts in Ghana.

Finally, the research and policy direction to addressing gender-specific inequalities in education are also grounded in macro-level qualitative indicator metrics, which largely focus on how to scale up gender parity within the classroom and school settings (Unterhalter et al., 2022). However, this approach often overlooks experiences outside the school system that impact educational gender gaps and, consequently, limits a comprehensive understanding of the contextual factors in children's environments that predispose them to gender-related inequalities. This is particularly the case in rural and underserved areas where gender gaps remain high and disproportionately affect girls (Senadza, 2012; Ansong and Alhassan, 2016; Wilson and Somhlaba, 2017). This study focuses on experiences outside the school system by examining the life-course trajectories and the ecosystems surrounding their learning that reinforce gender-based educational inequalities within school settings.

The overarching theme in the gaps addressed above is the reliance on globally accepted quantitative indicators and metrics to understand educational equity, particularly in learning, with limited application of context (Unterhalter, 2019, Unterhalter et al., 2021). This need for context becomes even more important given that, although no universally accepted conceptualization of educational equity in learning exists, there are globally defined indicators and metrics for monitoring and evaluating educational equity in access to learning (Montjourides, 2022). This study highlights the important areas of context by providing a deeper understanding of the systemic factors contributing to schooling and learning inequalities in Ghana's basic school system.

2.6 Study objective and research questions

My dissertation aims to achieve a comprehensive understanding of the context of schooling and learning inequality in Ghana's basic school system needed to inform evidence-based policies that promote educational inclusion and learning equity, notably in rural Northern Ghana. More specifically, it seeks to examine what monitoring data show as inequality and the factors that drive it and what contextual information from the local environment also show as inequality.

To address gaps in existing research and the objectives outlined above, I focus on three fundamental questions:

1. What do international household survey datasets tell us about learning inequality in Ghana's basic school system?
2. What are the unique livelihood experiences that shape children's access to schooling and learning inequality in rural Northern Ghana?
3. What specific gender dimensions are embedded in children's out-of-school experiences? And how do these shape Educational Gender Inequality (EGI) in rural Northern Ghana?

Chapter 3: Theoretical frameworks

3.0 Addressing research gaps through ecological and life course theory

One of the key characteristics of the existing global education framework (i.e., SDG 4) in addressing equity and social justice is its strong focus on macro-level quantitative indicators (Unterhalter, 2014; Unterhalter et al., 2022). The SDG's education framework has a broader vision of leaving 'no child behind' in opportunities for schooling and learning (Tickly, 2017; UNESCO, 2020b). Championing this goal creates a need for macro-indicators to monitor who is being left behind, particularly in the developing world and SSA, where this vision of educational equity faces the most significant challenges (UNESCO, 2022b).

To situate this study in a framework that expands beyond the numbers indicating equity to the qualitative experiences that shape equity in educational opportunities, I draw on the ecological framework (Bronfenbrenner,1995) and life-course theory (Elder et al., 2003; Landes and Settersten Jr., 2019) to build a deeper understanding of how livelihood experiences embedded in the ecosystems of rural communities and life-course stages shape the course of educational inequality. The two theoretical approaches help to explain the complexities of life that shape educational disadvantage in rural Northern Ghana. This section thus highlights the specific ways in which the use of the ecological framework and life-course theory addresses the gaps and shortcomings in the existing literature as well as the overarching question set out in the study.

3.1 Ecological perspective

The ecological framework as developed by Bronfenbrenner in the 1970s emphasized the impact of context on human development. According to this framework, the immediate and broader environments in which children live offer a context-specific lens through which to view

each child's developmental outcomes (Bronfenbrenner, 1995; Dickson and Darcy, 2021). This influence of the broader ecosystem on developmental outcomes operates in three key areas of the environment, including:

1. The micro/personal environment – highlights influence from the immediate environment where a child resides, such as the family and household proximal to a child's development.
2. The meso/community environment – also highlights influence from the relationships that ensue between the micro setting and other environments, such as the relationship between a child's family and the school system or between the church and family.
3. The macro/policy -environment - shows influence from the policy-level, involving the broader political environment that shape children's experiences in school and at home.

This framework provides a lens for viewing children's schooling and learning outcomes, and overall educational opportunities, as a direct consequence of the experiences they have within the critical levels of their local environment (Dickson and Darcy, 2021; Iruka et al., 2020).

3.1.1 Ecological perspectives on educational inequality

To shape a comprehensive understanding of livelihood experiences that reinforce schooling and learning inequality, I draw on later extensions of Bronfenbrenner's ecological framework (1995) and revisions by Weisner (2009) and Vélez-Agosto et al. (2017). These extensions highlight the importance of some key elements of the framework, notably, the impact of the chronosystem (temporal environment) and cultural dimensions of the ecosystem in shaping experiences of educational inequality.

3.1.2 The temporal environment: assessing the impact of time and change on micro-interactions

The 1990s brought significant additions to Bronfenbrenner's ecological framework from the 1970s, culminating in the development of the bioecological paradigm (Bronfenbrenner, 1999). These revisions, known as the general ecological model or bioecological paradigm, introduced an additional dimension; the ‘chronosystem' or the 'temporal environment', to the ecological model. The temporal environment emphasized the role of time in the multiple systems that influence children's developmental processes. It considered the changes occurring over time, not only within an individual child’s life trajectory, but also in the environments that surround the child, to investigate how such changes also affect developmental outcomes (Erikson et al., 2018).

In the context of educational equity, the addition of the temporal layer in Bronfenbrenner's bioecological paradigm underscores the need for assessing yet another layer of influence on children's development. First, it highlights the importance of evaluating changes or individual transitions that occur within a child’s life trajectory and their potential effects on access to educational opportunities. Rosa and Tudge (2013) refer to these changes in individual life transitions as 'normative' transitions, which are expected events in a child’s life that may limit or affect schooling and learning opportunities, such as starting school or beginning puberty. Alternatively, 'nonnormative' transitions are unexpected events, such as unplanned pregnancy or the sudden loss of a breadwinning family member, which may pose significant risks to continued schooling (Rosa & Tudge, 2013).

Secondly, the concept of change can be extended beyond the individual child to encompass the broader ecosystem and physical environment where children live. Subsequently, unexpected transitions and shifts in events occurring within the broader context, such as rise in ethnic tensions or expected seasonality of traditional life patterns, can both significantly

influence children's schooling and learning trajectories. This suggests that a comprehensive understanding of the nature and context of temporal interactions, including major transitions and counter-transitions, can inform a more effective assessment of educational inequalities.

3.1.3 'Cultural microsystem': taking account of culture in micro-interactions

The cultural dimensions of everyday interactions within the broader ecosystem represent a significant revision to the ecological framework proposed by scholars such as Weisner (2009), Markus and Kitayama (2010), and more recently, Vélez-Agosto et al. (2017). This emphasis on culture addresses what Vélez-Agosto et al. (2017) refer to as the 'conceptual confusion' in past studies, particularly in the limited exploration of the role of culture and its influence on micro-interactions. These scholars argue that the ecological model traditionally confines the influence of culture to the macrosystem, and therefore neglecting its impact on other systems, including the microsystem. Revisions to the framework by Vélez-Agosto et al. (2017) proposed a shift from viewing culture as a distant macro-system influence to understanding it as a process embedded in every level of the ecological model and affecting everyday interactions and development. In this revision, culture is seen as a product of human activity, which permeates all levels of the ecological model, and therefore influences the direct environments of children such as family, school, and peer interactions. This interplay between culture and the different micro-interactions, distal or proximal to the child is labelled as 'cultural micro-systems' – to reinforce the idea that culture exists within different settings of the ecological model (Markus and Kitayama, 2010; Vélez-Agosto et al., 2017).

Another key aspect of this revision is recognizing culture as a dynamic process that evolves through daily activities and interactions. This perspective suggests that cultural influence on development, like all other micro-interactions, is also shaped by the ever-changing temporal

(Chronos) context (Vélez-Agosto et al., 2017). Therefore, emphasizing and integrating culture and the temporal dimension into all levels of ecological interactions can offer a deeper understanding of the various factors influencing the developmental process. This approach has broader implications for policy and research, especially in expanding the range of factors to consider when addressing developmental needs.

3.2 Life-course theory: examining MLEs through the life-course

The life course framework emphasizes the importance of the time and sequence of multiple events over the life course, such as progression from childhood to adolescence, adolescence to adulthood, marriage, or the start of a new career (Elder et al., 2003; Ecclestone et al., 2010; Lee et al., 2018). Life-course transitions are seen as the defining features of everyday life, which may yield positive experiences for some individuals while presenting unsettling and negative challenges for others (Ecclestone et al., 2010). Consequently, life-course theory underscores the variability in individual experiences and the impact of social and temporal contexts in shaping those life transitions - making it an ideal framework for understanding MLEs and their impact on children's educational trajectory.

There are two key conceptual elements in life-course theory that aligns its principles with the quest to understanding how MLEs are formed and shaped across different cultural settings and social systems, namely, the idea of life-course 'transitions and counter transitions' (Ecclestone et al., 2010; Lee et al., 2018) and the concept of 'linked lives' (Carr, 2018; Landes and Settersten Jr., 2019). I focus on these two theoretical elements to explore how they facilitate an understanding of how life transitions and counter-transitions unsettle the educational trajectory, particularly of adolescent girls and boys in underserved contexts in diverse ways to reinforce educational inequality.

3.2.1 Life course transitions and linked lives

Two of the central tenets of life-course theory relate to the idea of 'life transitions' and the principle of 'linked lives'. Life transitions are the individual events or personal milestones across the life trajectory that are embedded in the social setting in which people reside (Lee et al., 2018). In many social contexts, life transitions are accompanied with significant adjustments in roles, responsibilities, and social relationships (Elder and Shanahan, 2007). For children in particular, individual transitions and counter transitional events could come from losing an income-earning parent or becoming an adolescent or young parent – which are life-course events with immense implications for altering one's continued educational opportunities (Akugri, 2017; Baafi, 2020). In traditional societies in particular, life course transitions stand to provide the needed theoretical framing to identifying children's different life transitions and monitoring their impact on children's educational opportunities.

The concept of 'linked lives' refers to the interdependence of individual lives within the context of their social relationships (Elder et al., 2003; Landes and Settersten Jr., 2019). In the case of children, it underscores the principle that the life trajectory of children cannot be understood in isolation of those they share proximate relationship with, such as the immediate family or caregivers. This interconnectedness means that the life experiences and transitional events of children are also shaped, as within ecological theory, by the immediate family and those around them (Carr, 2018; Landes and Settersten Jr., 2019), providing a wider frame for analysing the interconnectedness of MLEs children face.

The conceptual elements of the principles of 'linked lives' and life transitions have been at the center of sociological research in education, where researchers often link the social background and life course transitions in adolescence to understand intergenerational reproduction of

educational inequalities (Blossfeld et al., 2016; Buchmann and Steinhoff, 2017; Kulic et al., 2019). However, the role of children as actors endowed with 'agentic capacities' to influence the course of their own development and educational trajectory is often under-emphasized in research. The conceptual elements of individual transitions in the life-course and the reality of linked lives, in this case, provides a fitting analytical frame to explore how transitional stages such as adolescence and the agentic role of children in their own well-being also drive exposure to MLEs that reinforce schooling and learning exclusion.

3.3 Micro-Level Experiences: Towards a comprehensive understanding of ecological factors shaping educational inequalities

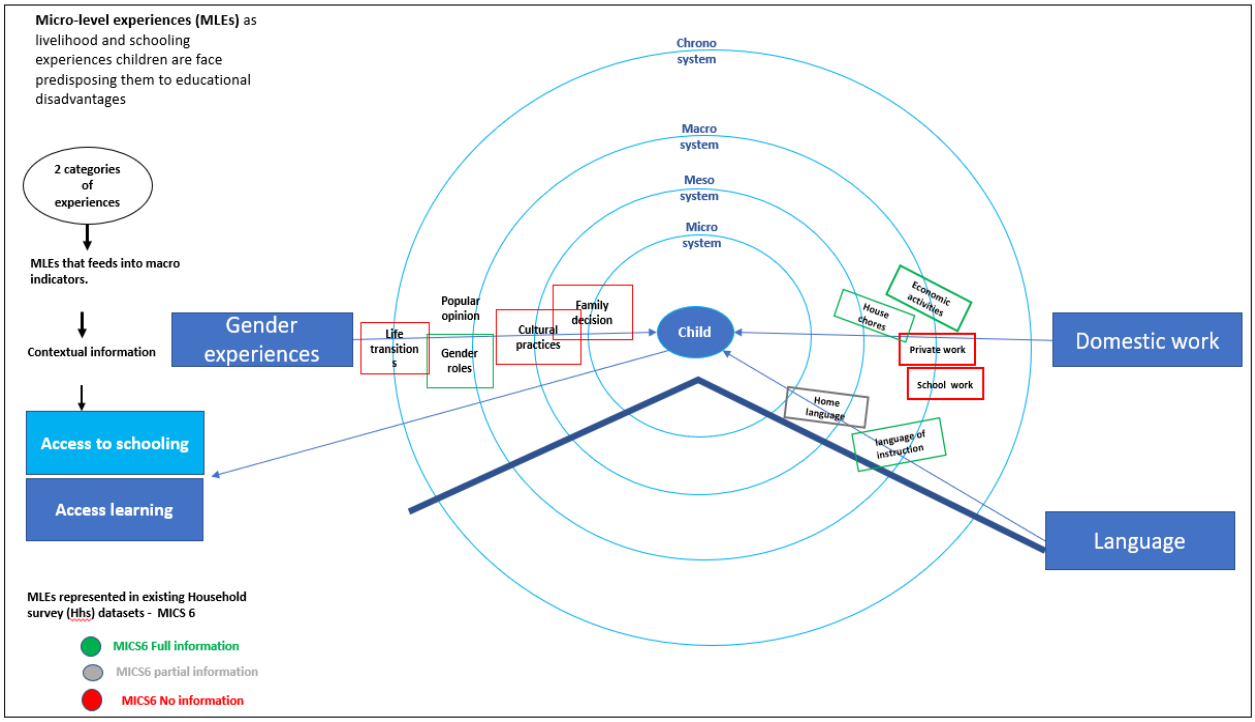
One of the key theoretical implications of the temporal and cultural revisions of the ecological framework is the idea that changes and major transitions occurring in the lives of children, and that of their social and physical environments, can significantly influence their developmental process and educational trajectory (Vélez-Agosto et al; 2017; Iruka et al., 2020). Understanding this interplay of culture, time, and change, particularly in the context of experiences of normative and nonnormative transitions (Rosa and Tudge, 2013), is crucial for reimagining how experiences at the micro-level are shaped across different cultural settings and social systems. This perspective positions Micro-level Experiences (MLEs) at the center of understanding the local context of experiences that shapes children's developmental trajectories, including their educational opportunities, and how they differ from one another.

I employ the MLEs in this context, to represent the everyday micro-interactions of children with the broader ecosystem as shaped by culture and major life transitions and counter-transitions. In the context of educational equity, especially in underserved regions, MLEs can offer a conceptual lens to examine how the day-to-day livelihood and schooling experiences shape quality

outcomes in schooling and learning. This is even more critical in cultural settings like rural Northern Ghana, which show signs of complex interactions between the physical environment, subsistence farming culture, and historical socio-economic difficulties (Abdulai and Hickey, 2016; Abdulai et al., 2018; Aboagye, 2021).

Since micro-interactions are shaped by different layers of influence, application of the ecological framework, and notably the temporal and cultural dimensions of the every-day life experiences can be effective in unpacking the different layers of local experiences that are detrimental to schooling and learning, but not necessarily captured by datasets that inform educational inequality. Datasets from major international household surveys like MICS may capture indicators of certain experiences that suggest inequality (Hattori et al., 2017) yet may fail to fully represent the diversity of experiences children are exposed to at the local level. For instance, while datasets may identify specific indicators on gender, language of instruction, and domestic work, these indicators often do not account for the full diversity of experiences, such as life transitions and gender roles that drive disadvantages in education, as illustrated in Figure 2. Since existing indicators for measurement and monitoring often do not account for all experiences, insight into the pathways underlying distinct inequalities remain incomplete and are often overlooked in policy considerations. This is where drawing on the ecological framework and the distinct MLEs can address the missing gap in providing a more comprehensive understanding of the factors driving educational inequalities.

Figure 2: Ecological pathways to understanding educational disadvantages



Note: Figure 2 presents examples of MLEs that shape schooling and learning outcomes in rural and underserved contexts and the extent to which contextual information around MLEs are captured in existing international household survey datasets like MICS 6.

3.4 Chapter conclusion

The conceptual elements proposed by the ecological framework and life-course theory expand our analytical scope to cover contextual information from different arenas of children's environment, beyond what macro-level indicators on education provide. In other words, they offer the opportunity to expand and explore the depth and breadth of diverse MLEs beyond what international household surveys focus on to understand educational equity. For instance, from an ecological perspective, the influence of time (Chronos) and culture on micro-interactions suggests that the ability to analyse MLEs, to understand how culture is woven into children's daily lives and how they engage with other systems, can be critical to understanding educational inequalities.

Similarly, life-course transitions provide a lens through which to observe the experiences children go through in underserved contexts, during critical life transitions, how they navigate such transitions, and its implications on educational equity. The adoption of ecological and life-course frameworks therefore enables us to pay close attention to diverse experiences around children's local environment, which are often not the focus of indicators. So far as addressing educational equity is concerned, putting the spotlight on these experiences remains essential to bridging the research gaps between macro-indicators and the qualitative insights needed for a comprehensive understanding of educational inequalities in Ghana's basic school system.

Chapter 4: Methodology

4.0 Chapter introduction

The present chapter discusses the overall strategy employed to address the central questions of the dissertation. Beginning with the literature, I employed both structured and unstructured search strategies to compile academic and grey literature from multidisciplinary databases. These included traditional databases such as ScienceDirect, Scopus, Education Resources Information Centre (ERIC), EBSCO, and Web of Science, as well as less common sources like the African Education Research Database (AERD), the World Bank eLibrary, and the UNESCO Databases on Resources on Education. The remainder of the strategy outlines the overarching research design, the processes involved in gathering and selecting primary and secondary data sources, and the analytical methods used to interpret the data. Finally, I describe the critical reflection process, ethical considerations, and the data management procedures applied throughout the research.

4.1 Research design

In this dissertation, I adopted a mixed-method design, relying on an iterative concurrent (**quant + Qual**) exploratory approach (Johnson and Onwuegbuzie, 2004; Schoonenboom & Johnson, 2017), to explore the context of schooling and learning inequality in Ghana's basic school system. In the initial independent component, I relied on quantitative methods, using a large-scale secondary dataset from the Multiple Indicator Cluster Surveys (MICS) to understand the scale of learning inequality in foundational literacy skills across Ghana and the factors that determine it. The second core component drew on a community-engaged qualitative research design (London et al., 2020; Han et al., 2021), to engage key education stakeholders in rural Northern Ghana on the local level experiences that shape schooling and learning. However, following the emerging

themes from the qualitative exploration, the results were linked back to the quantitative data, to reconstruct variables, that overlap with the contextual local environment experiences identified in the emerging qual themes – shifting the design into a partially sequential and a partially concurrent iterative process (Guest, 2013; Schoonenbaum and Johnson, 2017).

The use of the sequential-concurrent mixed-method approach was particularly beneficial for the broader outcome of this study. It provided an avenue for combining largely independent macro-indicator quantitative and qualitative insight data sources to fully understand the context of inequality in foundational learning skills – thereby providing the benefits of complementarity of the two data-sources (Schoonenboom & Johnson, 2017). Secondly, the iterative processes offered an opportunity for both the qualitative and quantitative processes to shape each other, in terms of theme-building and variable construction. For instance, the emerging themes from qualitative coding informed the construction of variables and measures used in quantitative dataset in testing the correlates of learning inequality. This offered opportunities for validating and triangulating results of the two independent components (Bryman, 2006; Hesse-Biber, 2010). In this case, the research design allowed a means for finding out whether the qualitive findings on local environment experiences of schooling and learning experiences have any convergence with survey findings on learning outcomes.

4.2 Research setting and national context

This dissertation is situated in the Ghanaian context. Ghana is a Sub-Saharan African country of about population of about 30,832,019 million (GSS, 2021). Politically, Ghana is a centralized state with 16 administrative regions. Political and administrative power is thus vested in the national capital, Accra, which is the seat of government and center of resource allocation.

Geographically, studies often categorize Ghana into a pronounced North-South regional divide, based on colonial history[18] and the stark socio-economic and developmental disparities between the current five Northern regions and the eleven Southern regions (Abduali and Hickey, 2016; Abdulai et al., 2018). Regions in the North are characterized by large, dispersed rural settlements, which are shaped by common historical patterns, but also home to people who speak different languages (Awedoba, 2006; 2009). The majority of the population across the Northern regions reside in rural areas (64.1%), compared to regions in the South (38.4%) and the national average (43.2), which have lesser (47%) rural populations (GSS, 2021). Figure 3 shows the map of Ghana, identifying regions in Northern Ghana[19] and Figure 4 shows the percentage of the population living rural and urban areas across the North-South divide.

[18] The colonial government of the then Gold Coast classified the present regions of Northern Ghana as the 'Northern Territories'.
[19] Regions in Northern Ghana comprises Upper West, Upper East, North East, Northern, and Savannah

Figure 3: Regional map of Ghana highlighting regions in the North

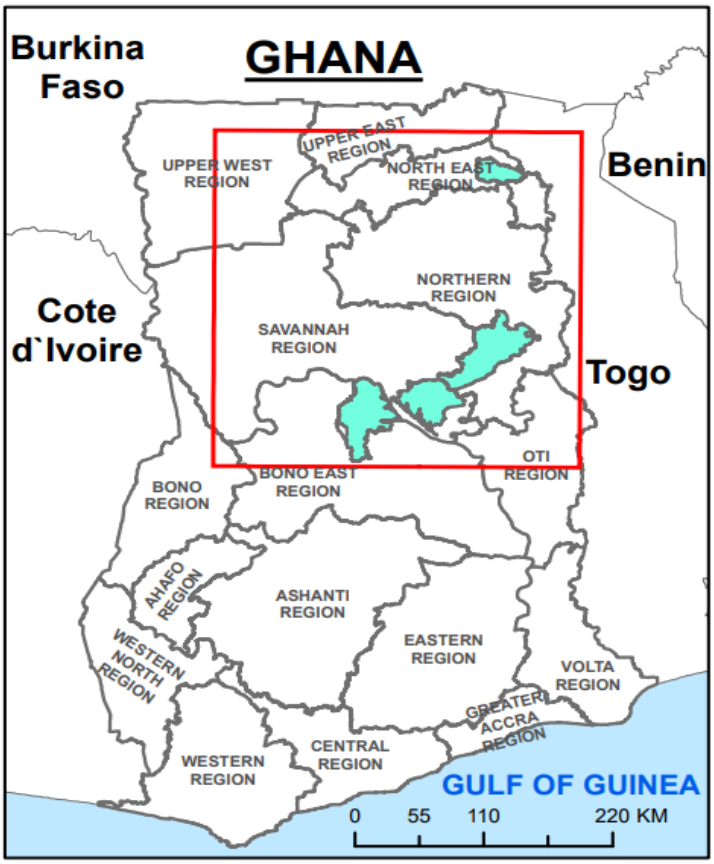
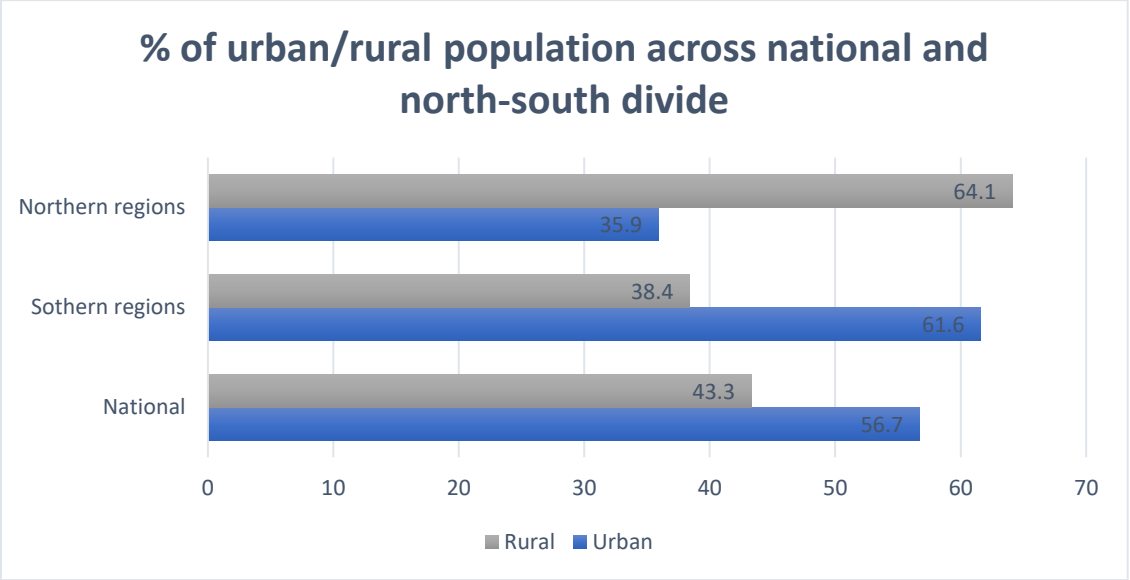


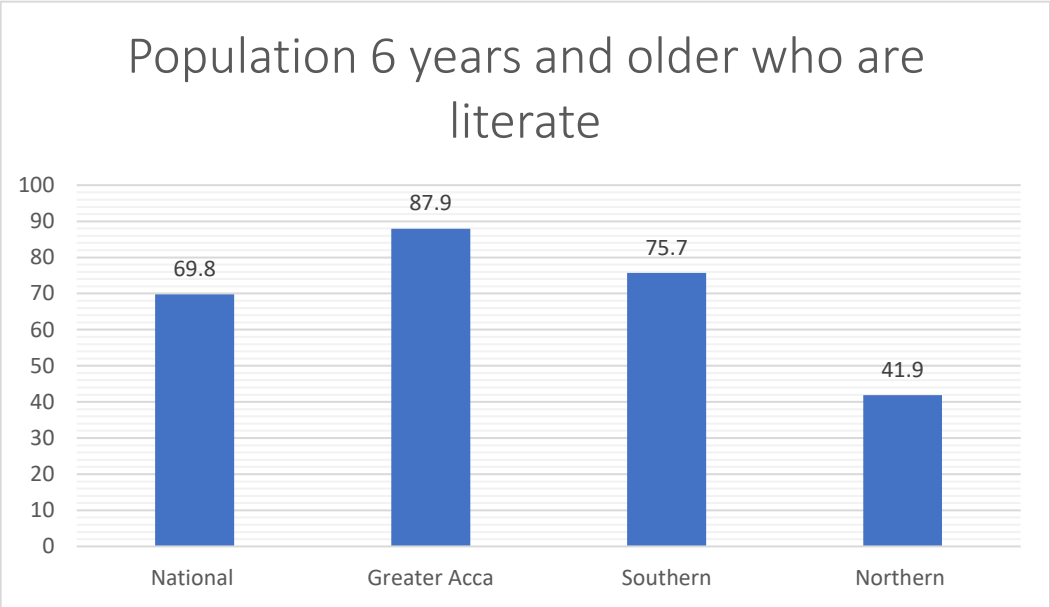
Figure 4: Population living in rural and urban areas across the North-South divide



Source: calculated based on the 2021 Ghana national population census figures (GSS, 2021).

In terms of educational outcomes, estimates from the 2021 national population census shows that only 42% of the population 6 years and older in the 5 Northern regions are literate, which is far below the national average of 69.8%. The contrast is even greater in comparison with Greater Accra (87.9%) and the South (75.9) (GSS, 2021). Figure 5 shows the proportion of the population 6year and older who are literate[20] across national and the North-South divide.

Figure 5: Proportion of the population 6 years and older who are literate



Source: Calculated based on the 2021 Ghana national population census figures (GSS, 2021).

4.3 Quantitative design and choice of data

The design of the quantitative component was shaped by a central overarching objective: to explore what we know about learning inequality in Ghana's basic school system within the framework of Ghana's commitment to achieving the global education goals (i.e., SDG 4.2). This

[20] The calculation only presents a weighted average of literacy rates in the case of the Northern and Sothern values. See the Ghana Statistical Service (GSS, 2024). https://census2021.statsghana.gov.gh/subreport.php?readreport=MTMxOTU3MTAxLjg4MjU=&Ghana-2021-Population-and-Housing-Census-General-Report-Volume-3D

informed the use of secondary data on cognitive learning assessments to address the study objective. Unlike many peer countries in French-speaking SSA and Southern and Eastern Africa, which regularly participate in regional Educational Assessment Programs (EAPs) like PASEC[21] and SACMEQ[22], Ghana does not engage in any regional or international EAPs, except for TIMSS[23] in 2003, 2007, and 2011 (Buabeng et al., 2014). Consequently, there is limited data available for exploring learning outcomes from an internationally comparable educational assessment perspective in Ghana.

For this quantitative component, I therefore relied on the international household survey, the Multiple Indicator Cluster Survey (MICS 6). MICS is among the largest global sources of statistically sound and internationally comparable data on children and women; it is implemented in about 121 countries, including Ghana (Hattori et al., 2017). The survey has been implemented in four-year intervals since 1995 by governmental organizations with technical support from UNICEF. Currently, it provides data on global indicators on health, education, and child protection.

In 2016, in the 6th round of the survey, MICS developed and administered a new 'Foundational Learning' module, specifically aimed at facilitating the global monitoring of progress towards children's educational goals as emphasized in SDGs 4.1 (Hattori et al., 2017). The sustainable development goals 4.1 emphasises a free, inclusive, and quality basic and secondary education for both boys and girls that leads to appropriate and effective learning

[21] Program for the Analysis of Confemen Educational Systems (PASEC) is a large-scale educational assessment conducted every 4 years at grades 3 and 6 in French-speaking countries (including those in SSA) (PASEC, 2014).
[22] The Southern and Eastern African Consortium for Monitoring Educational quality (SACMEQ) is a regional educational assessment conducted every 4 years to test cognitive outcomes in literacy and numeracy among grade 6 pupils (Spaull and Taylor, 2012; 2015).
[23] TIMSS is the Trends in Mathematics and Science Study (TIMSS), an international educational assessment program organized in four-year cycles to monitor learning achievements in mathematics and science (Mollis et al., 2021).

outcomes by 2030 (UNESCO, 2017). The implementation of MICS 6 in Ghana (2017/2018) therefore provided a better data alternative for assessing learning outcomes in the Ghanaian context, in that it offers a larger pool for selecting school-aged children at the household level compared to the Early Grade Reading and Mathematics Assessment (i.e., EGRA and EGMA). EGRA and EGMA are oral assessment tools designed to measure basic reading and writing and mathematics skills among early grade children. The module was developed in 2007 and has since been implemented in over 70 countries, including Ghana (RTI, 2015; MoE, 2016). However, since individual implementing countries adapt their designs to suit different local contexts (RTI, 2015), EGRA and EGMA results lack international comparability. Using MICS for this study thus presents several advantages. Being a global program means that MICS provides nationally representative and internationally comparable data on foundational learning skills at regular intervals, unlike EGRA and EGMA, which lack such frequency and regularity (IIEP-UNESCO, 2021). Additionally, the MICS foundational learning assessment covers all grade levels in Ghana's basic school system (i.e., grades 1-9), enabling the assessment of learning skills across all grades, whereas EGRA and EGMA focus on specific grades. Importantly, MICS assessments also include extensive demographic and contextual information on children (Hattori et al., 2017; UNICEF, 2020), which aligns with the ecological perspective informing my dissertation.

4.3.1 Sample selection

The analysis in this thesis focused on the children's questionnaire, which surveyed children ages 5-17 (n = 8965). However, the MICS 6 foundational learning module was administered only to children aged 7 - 14 years (n =5671). Even though this module comprised both foundational literacy and numeracy assessments, the analysis for this study only focused on the literacy assessment, due to its immense importance and impact on children's overall learning ability in later stages (UNESCO, 2024b; Jasińska, 2019). Finally, the sample was further scaled down to

meet the following inclusion criteria for in-school children aged 7-14 years who: (1) agreed to participate in the assessment (n = 5,559), (2) were in school Grades 2-9 (n = 4,471), and (3) completed the interview (n = 4,467). This effectively excluded children in school Grade 1 since the MICS 6 foundational learning assessment was designed to capture reading and numeracy skills expected at Grade 2 level (UNICEF, 2020). The expectation was that children in Grade 1 may lack the necessary skill level to complete the assessment tasks, hence the focus on children from Grade 2 upwards.

4.3.2 Measures

Outcome measure: I used Foundational Literacy (FL) skills as a measure of children's access to learning. In the MICS 6 foundational learning module, FL skills were measured using three different assessment tasks, including: (1) reading aloud a short story of 69 words, (2) answering three literal comprehension questions, and (3) Answering 2 inferential comprehension questions. Children are considered to have attained FL skills if they successfully complete all three tasks, as described in Table 2.

Table 2: Summary of indicators measuring foundational Learning (FL) skills

Task	Activities	Coding of item
A.	Story Reading – reading 90% of words	0 = [No]; 1 = [Yes]
B.	**Answering 3 literal questions correctly**	
B_1.	What class is Moses in?	0 = [No]; 1 = [Yes]
B_2.	What did Moses see on the way home	0 = [No]; 1 = [Yes]
B_3.	Where did Moses fall (down)?	0 = [No]; 1 = [Yes]
C	**Answering 2 inferential questions correctly**	
C_1.	Why did Moses start crying?	0 = [No]; 1 = [Yes]
C_2.	Why was Moses happy?	0 = [No]; 1 = [Yes]
FL Skills	# Children achieve FL skills if they successfully complete tasks (A+B+C)	0 = [No]; 1 = [Yes]

Independent variables: The independent measures covered five broader constructs, including:

i. *Demographic and family characteristics* - this included gender, area of residence, household wealth, and mother's education.

ii. *Home learning resources and support* – measuring if children have (1) access to books at home (2) received help with homework

iii. *Parental school involvement* – measuring if parents (1) discuss their children's school budget (2) checked report card (3) discuss child's progress in school with teacher.

iv. *Children's domestic work* – measuring the number of hours in a week children participated in (1) household chores (2) household economic work.

v. *School conditions* – measuring if children experienced (1) school or class disruption events (2) whether a child's home language matches with language used for instruction.

The above constructs and individual items were developed based on review of relevant literature on the factors that influence children's learning in Ghana and the SSA context (Zhang,

2006; Akyeampong et al., 2018; Gruijters and Behrman, 2020; Sabates et al., 2021) as well as emerging themes from qualitative coding (see chapter 5 for full description and coding of items).

4.3.3 Quantitative analysis

Data analysis for this quantitative component was conducted using Stata v.14. I used descriptive statistics to explore learning inequality gaps from the context of household surveys, by examining the distribution of FL skills at national and sub-national levels to understand equity dimensions. Binary logistic regressions analysis was employed to explore the predictors of children's access to learning skills across the five local environment constructs at national and sub-national levels.

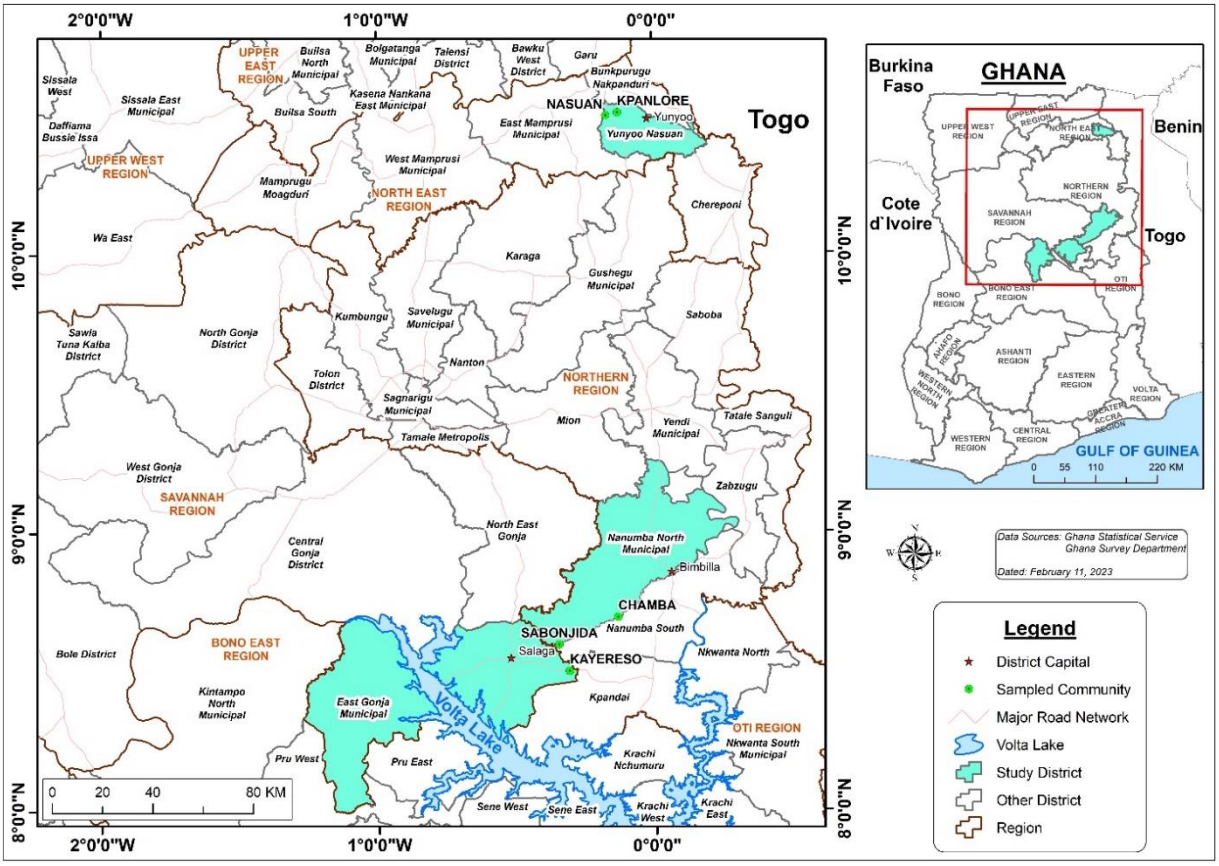
While my primary interest in the analysis is on outcomes in Northern Ghana, the results from both the descriptive and regression analyses were also compared at the national level, the Greater Accra region, and across the north-south regional divide. Whereas the Greater Accra region is geographically part of Southern Ghana, it was treated as a separate region in the analysis. By presenting the results in this format, I show how access to learning skills in basic school systems in Northern Ghana compares to the national average, the Southern regions, and specifically the Greater Accra region, which is the national capital and the center of resource allocation. This makes children in Greater Accra more likely to have access to better school systems and educational resources, compared to other regions.

The quantitative analysis of this dissertation builds on an initial data analysis conducted for a fellowship report (Nkrumah, 2023) and supported by the UNESCO Global Education Monitoring (GEM) Report Fellowship program, 2023.

4.4 The qualitative research process - study communities.

Six rural communities in the Northern regions were the focus of this study. The communities were selected from three of the five administrative regions: the Savannah, Northern, and North East regions. In each of these regions, one district was selected, and from each district, two rural communities were chosen based on their remoteness, deprivation of educational resources, and geographical proximity to each other, within the district. Figure 6 shows the map of selected districts and the study communities. One of the communities was eventually dropped during the data collection process due to language barriers. The pupils had insufficient knowledge of English to participate in interviews and focus group discussions, while the research team also lacked proficiency required in the local language used in that community - reducing the sampled research communities to five. Except for one of the communities which had two Junior High Schools (JHS), the rest had one JHS each, and in several instances, served as the only school for neighbouring communities. In all five communities, subsistence agriculture was the predominant economic activity for the majority of the population. Communities in the Northern and Savannah regions were largely involved in yam and cereal crop production. For communities in the North East region, however, the rocky landscape meant that farming activities were primarily limited to cereal crops such as millet, guinea corn, and maize, as well as animal husbandry. In three of the communities, the existing schools also served neighboring areas with different language backgrounds, resulting in linguistically diverse classroom settings.

Figure 6: Map of selected districts and sampled communities



4.4.1 Community engagement and stakeholder consultation

The qualitative research component was informed by a community-engaged approach to draw on perspectives from key stakeholders, including children, schoolteachers and principals, parents/caregivers, local education officials, and representatives of grass-root organizations working in rural communities. The field work, which took place in spring/summer 2021, built on a pilot-study conducted using a remote data-collection approach (i.e., Skype) in 2018. During the pilot-project, I interacted with schoolteachers and community-based organizations, providing the initial grounds for a continued working relationship with some local communities and basic schools in the Nanumba-North District in the Northern region. This working relationship became a key resource I relied on during my community engagement to recruit research participants.

The qualitative process began with the recruitment and orientation of 2 male research assistants on the main goal and objectives of the research. A third male assistant was later recruited based on recommendations from the district education office, to satisfy the specific language demands (i.e., dialect) required to facilitate interviews in communities in the North East region[24]. I had prior working relationship with one of the assistants during the pilot-study. All three assistants were university graduates in Development Studies, who hail from the three districts identified for the data collection and were conversant with the dominant languages (Dagbani and Likpapaln) used in the research communities. Two had already worked as research officers on similar research on complimentary basic education in Northern Ghana. Throughout the field work process, communication among the research team was largely in English and on some occasions in the Twi language.

My research assistants and I began our community engagement by first writing to the District (local) Education Officials (DEOs) in the study districts to seek permission and approval to work with the basic schools under their jurisdiction. DEOs are responsible for the implementation and monitoring of national-level educational policies at the local level. This was followed by an initial consultation phase. First, we consulted with the DEOs to identify deprived communities with regards to educational infrastructure and resources in each district to include in our sample. Next, we visited all identified communities to pay courtesy visits to the community chiefs and elders and to introduce the research team and announce our presence in their communities. We then visited each school to engage with students and school authorities about our research mission and to agree on potential dates for data collection.

[24] Although the majority of respondents in these communities also use the Likpapaln Language, the specific dialect spoken in these areas required a native to facilitate the interview and focus groups in that language.

We followed purposive and snow-ball sampling techniques to select a total of 60 (n = 60) research participants. Among them were:

i. Children/adolescents (n = 37), including 25 JHS students and 12 JHS graduates aged 14+
ii. Parents and caregivers (n = 9)
iii. School teachers and principals (n = 9)
iv. Local education officials/DEOs (n = 3)
v. Representatives of community-based organizations (n = 2)

To explore information on local environment experiences of schooling and learning that reinforce educational disadvantages in rural northern communities, we used interview and focus group methods to gather information from children/adolescent participants. For adult participants, we relied on key informant interviews in soliciting information.

4.4.2 Interviews with children/adolescent participants

We employed a semi-structured, face-to-face interview method in gathering information from children/adolescent participants. In each school, we targeted JHS 3 students (i.e., Grade 9), who are usually in the final year of basic school education. The reason for selecting JHS 3 students was to maximise our chances of recruiting children who have longer years of schooling and livelihood experiences within their local community, and therefore are better placed to share the collective implication of their experiences on their schooling and learning opportunities, compared to children at the primary level. In each school, we generated a list of students who expressed interest in participating in the study during recruitment visitations to the selected schools. Out of this list, a total of 4-5 pupils were selected by principals from each school to participate in the study. The children/adolescent participants were between the ages of 14 and 18 years, and two 20-

and 21-year-olds. Most of them lived with their biological parents, except a few who lived with members of their extended family.

The interviews sessions for this category were between 40 minutes and 60 minutes. We allowed participants to choose the language they were most comfortable with during the interview, which were mostly completed in English and Likpapaln. Two interviews were completed in different local languages: one in Twi and the other in Dagbani. The questions for the interviews focused on 4 broader thematic areas, including: (1) demographic information, (2) experiences in school and at the household, (3) the learning environment at home and in school, and (4) the meaning and conceptualization of childhood in rural communities. The thematic areas and interview guides are available in Appendix 1b. The interviews were audio-recorded along with taking handwritten notes.

4.4.3 Focus groups with children

We organized three focus group discussions, involving a subset of JHS 3 students from the two communities in each district to discuss their experiences of accessing schooling and learning opportunities within their local environments. Using a simple random procedure, we selected three students from each community who had participated in the initial face-to-face constitute a 6-member focus group in each district. The sample included equal numbers of girls and boys. The research assistants facilitated all three focus groups in the local language to promote active participation from all participants. However, the discussions alternated between the local language and English. Each focus group lasted two hours and followed the same pattern of themes covered in the face-to-face interview phase (See Appendix 2).

4.4.4 Key informant interviews with adult participants.

Key informant interviews were used to gather information from adult participants. Interviews with teachers, DEOs, and members of grassroot organizations were conducted in English and lasted between 60 and 90 minutes, except for those with grassroots organizations, which lasted only 40 minutes. Table 3 outlines the sample profile and data collection methods.

We began with school teachers, by selecting three teaching staff from each district who reflected the three main groups of teaching staff in rural schools. These include school principals (who are professional teachers with administrative responsibilities), trained teachers, and volunteer teachers (typically SHS graduates or individuals with diploma certificates). The 3 District Education Officials (DEOs) were selected, one from each district, and based on their years of service in the districts. This ensured that we gained valuable insights from key informants with extensive knowledge and experience in the implementation of educational policies at the sub-national levels. The interviews focused on the context of educational opportunities in the districts and DEOs perspectives on the broader impact of educational policies on schooling and learning situations in the respective districts.

Parents/caregivers were selected based on their availability at the time, focusing on those whose wards had participated in the interviews. Interviews with parents and caregivers were conducted in the local languages. For grassroots organizations, we identified two representatives from organizations that had either previously or were undertaking initiatives to promote educational participation in rural northern communities. Interviews with parents focused on experiences at the household and the community at large, and parental involvement in their children's schooling. See Appendix (3-5) for interview guides for adult participants.

Table 3: Sample profile and data collection method

Category of respondents	Data collection method	Profile	Sex		Sample (*n*)
			male	female	
Basic school students	Semi-structured, face-to-face interviews, Focus group (*n*=18)	School-going adolescents in Junior High School (grade 9) between the ages 14 and 20 years	11	13	24
JHS graduates	Semi-structured, face-to-face interviews	JHS graduates who had completed the previous year	6	6	12
Caregivers	Semi-structured, face-to-face interviews	Comprised mostly biological parents and a few extended family members	3	6	9
School teachers & principals	Key informant interviews	Comprised 1 principal, 1 trained professional teacher, and 1volunteer teachers who were often Senior High School (SHS) graduates or people with diploma certificates	9	-	9
DOEs	Key informant interviews	Officials with longer years of service	3	-	3
Grassroot org.	Key informant interviews	One representative	2	-	2
Total sample					**60**

4.5 Qualitative data management and analysis

After completing the data collection process, the research team remained for an additional week to complete the translation work for interviews and focus groups conducted in the local languages. The research assistants carried out a back-translation from the local language to English, for all the interviews and focus groups in Likpapaln and Dagbani. I carried out the same process for three of the interviews conducted in the Twi language. The translated versions were then reviewed by different team members to compare for accuracy, reduce translation errors, and

ensure coherence and trustworthiness in the participants' information (Sutrisno et al., 2013; Santos et al., 2014). The audio recordings were transcribed from verbal data to text for analysis.

I relied on thematic analysis (Nowel et al., 2017), with the aid of the MAXQDA 2022 (VERBI Software, 2021), a qualitative software program for coding and data analysis. Both the coding and analytical process were guided by the ecological framework (Bronfenbrenner, 1995) and Vélez-Agosto et al's. (2017) revisions of the framework, where they emphasize critical experiences borne out of micro-interactions with critical areas of children's proximate and distal environment that shape the developmental and educational trajectory of children. Consequently, the texts were coded to align with the schooling and day-to-day livelihood experiences that reflect children's interaction with their local ecosystem: personal, community, policy, temporal, cultural, and physical environment (Weisner, 2009; Vélez-Agosto et al., 2017; Dickson and Darcy, 2021).

Next, I organized the thematic analysis into two main steps. First, I organized emerging themes from the generated codes into broader profiles of local environmental experiences that shape schooling and learning opportunities. I labeled these as Micro-Level Experiences (MLEs) of educational disadvantage, as they reflect children's interactions with both proximate and distal environments. Second, I further reorganized the broader thematic areas of the MLEs into sub-themes or categories that explain the specific pathways through which MLEs manifest in children's lives to reinforce inequalities in schooling and learning. Using the MLE and sub-MLE categorization as my analytical frame, I identified experiences that thematically fit into 10 broader profiles of MLEs and 20 sub-MLEs prevalent among children in rural Northern communities. This list is not exhaustive, as it is based on the thematic areas focused on in this study.

The final stage of the analytical process involved defining the boundaries of my analysis, specific to this dissertation. Although the ecological framework emphasizes micro-interactions

within different layers of children's environments, in my dissertation analysis, and notably in the second manuscript, I focused on the ways in which children's micro-interactions with the policy and temporal sphere put them on the edges of schooling and learning exclusion. In the third manuscript, my analysis focused on the competing responsibilities children take on, in the micro-context of the home and the school, and how such interactions also shape gender-based access to schooling and learning opportunities. Importantly, I also looked at the ways in such micro-interactions are underpinned by the cultural context (Vélez-Agosto et al., 2017). I focused my analysis on MLEs that capture the complexity of children's micro-interactions with their policy and temporal environments, and how these are interconnected with the cultural and physical environments that shape these interactions. In terms of achieving the overarching goal and objectives of this dissertation, this approach has the benefit of helping unpack the broader contextual factors that drive schooling and learning inequality in rural and underserved communities, beyond what macro-indicators and quantitative datasets reveal. Moreover, it identifies specific experiences around gender, economic work, and insecurity that predispose children to educational disadvantages, which may need to be incorporated into existing indicators of educational equity.

4.6 Critical reflection and researcher positionality

There the is a vast body of literature to show that conducting research, notably the field work, changes researchers in many ways, especially in how they make meaning throughout the research process (Berger, 2015; Palaganas et al., 2017; Olmos-Vega et al., 2023). This was no different in my case, where the fieldwork process in rural Northern Ghana brought me to a position of having to deeply reflect on my engagements and whatever surrounded me at the time, and how that continuously shaped my understanding of educational inequality in rural Northern context.

Olmos-Vega et al. (2023) have emphasised this type of practice of reflexivity as encompassing “a set of continuous, collaborative, and multifaceted practices through which researchers self-consciously critique, appraise, and evaluate how their subjectivity and context influence the research processes” (p. 242). This form of critical reflection and researcher positionality has been widely recognized as an important practice for enhancing internal rigor and trustworthiness in qualitative research (Olmos-Vega et al., 2023). In practicalizing how to incorporate perspectives in reflexive practice, Finefter-Rosenbluh (2017) also emphasized the need for researchers to also acknowledge the impact bias, beliefs, and personal experiences in qualitative studies to "maintain a balance between the personal and the universal" (Berger, 2015, p. 220).

My goal in this section is to draw on the above set of literature to account for my own journey of learning about my positionality and critical reflection with my dissertation research. My positionality as a researcher in rural Northern Ghana was shaped by a complex interplay of insider and outsider identities. I began this research considering myself as an insider, on the grounds of not only my positionality as a Ghanaian, but also as someone who has experienced the basic school system in the context of a subsistence agricultural rural setting, and later within a metropolitan urban setting in Ghana’s third largest city in the South. How in

As someone who has navigated the educational terrain of both the rural and urban school settings, I had on the one hand, my own lived experiences of the profound inadequacies of rural schooling, where schools often lacked essential resources such as textbooks and trained teachers to support effective learning. And on the other hand, the shortcomings of urban public basic schools, commonly referred to as "Syto," which was perceived as inferior in quality compared to private schools. My dual experience in both rural and urban educational contexts provided me with an insider’s appreciation of the public basic school system I encountered in rural Northern Ghana

– particularly, the learning challenges faced by children growing up in such rural subsistence farming communities. At the same time, it allowed me to recognize what these children were missing, when comparing their situation to those schooling in major urban settings in the South. It is this background, as shaped by my own firsthand experience of Ghana's school system that informed my initial sense of positionality as an insider in this research context.

However, I quickly realized from the start of the field work process that my perceived educational experiences in the rural South, was not enough to qualify me to be seen as an insider. The fact that I was conducting doctoral research and coming from Accra, alone, changed the dynamics in how I was seen and received by the communities and the individual schools. My associated identity as a Ghanaian studying abroad at a higher educational institution in Canada, for some locals, especially the teachers, also marked me as an outsider with access to resources and opportunities that were largely inaccessible to the people in my study communities.

To make sure that I was continuously aware of this "outsider" positionality, I integrated a critical reflexive practice throughout the fieldwork, analysis, and writing process. This approach provided essential context and deepened my understanding of the basic school system in rural Northern Ghana, while also shaping how I interpreted and constructed meaning from the qualitative data. Below, I outline the key activities incorporated into this reflexive practice during the research process, while I also share some of the results of this critical reflection in the discussion segment (See section 8.2).

1. Although initially uncomfortable, the decision to travel through the communities by motorbike also allowed me to engage with the local culture in a way that felt more integrated with the local culture as well as practically aligning myself with the daily experiences of community members.

2. I held debriefing sessions with my research team at the end of each interview day to discuss key highlights—both directly and indirectly related to the research theme—that emerged throughout the day, as well as their potential implications for the study.
3. Along with my research team, we had the opportunity to engage in informal conversations with some school principals and education officials in all three districts – which focused on the state of education in their rural communities and the day-to-day experiences of living and working in such rural contexts.
4. I discussed my day-to-day experiences on the field with scholars who hail from rural Northern contexts and have lived and experienced their entire basic education in rural Northern communities.
5. I undertook a critical reflection of my basic education experiences living in a typical subsistence rural community in the South, by juxtaposing my experiences to those of my participants in the rural Northern contexts.
6. I drew on discussions with academic supervisors on critical perspectives in settler colonial educational reforms in indigenous contexts in North America, as well as the decolonial educational literature in Sub-Saharan Africa.

4.7 Ethical considerations and data handling

Studies focusing on children are largely considered ethically sensitive, which require researchers to followed ethical principles that not only protect the safety of participants, but also ensure sensitive data be handled in way that does not reveal their identity (Kruger & Mokgatla, 2014). To safeguard all ethical principles, the research team sought to obtain informed consent from all participants selected for the interviews and focus group, and also provide clear information regarding the purpose of the study and the broader issues to be covered during interviews. For all

children participants, we sought initial consent from both the parents/givers as well as school authorities. Participants were informed about the voluntary nature of the exercise and the fact that they could withdraw from participating at any point they desire to do so. We followed all ethical guidelines approved by Research and Ethics Board (REB) of McGill University (REB File #: 20-09-029).

Manuscript 1 is premised on the dearth of knowledge on children's access to learning and its inequality in Ghana's basic school system. By utilizing the best available foundational learning assessment data from the Multiple Indicator Cluster Survey (MICS 6), this study examined children's foundational learning skills and the disparities across Ghana's North-South divide, using regions in Northern Ghana and the Greater Accra as a comparative reference point. A binary logistic regression analysis was then conducted to investigate the local environment around children that determine access to foundational learning skills across this regional divide.

Overall, the findings revealed low levels of access to foundational learning skills within Ghana's basic school system, with high levels of learning inequalities between regions in the North and the rest of Ghana, and particularly Greater Accra. Such data on children's learning skills and its inequality within the basic school system is hard to find in present literature on educational inequality in Ghana. Importantly, the study's analytical model showed that a significant portion (over 74%) of the variance in children's foundational learning skills was unexplained by the household survey data. This outcome highlights the need for further and a closer examination of the factors that drive learning inequalities at micro-levels, particularly in the Northern regions, where learning disadvantages were most pronounced compared to Greater Accra. I conceptualized and designed the study, conducted the literature review and study analysis, and developed the manuscript. My supervisors, Drs. Vandna Sinha and Jill Hanley, provided substantial feedback during the study design, analysis, and manuscript development stages. Dr. Patrick Montjouridès, my mentor during my fellowship (2022 -2023) with the UNESCO Global Education Monitoring (GEM) Report team, provided invaluable feedback on both the study design and analysis. My doctoral committee member, Dr. Myrian Denov, also contributed important feedback. The manuscript will be submitted to the International Journal of Educational Development

Chapter 5: Manuscript 1

Landscapes of learning inequality: What household surveys do and do not tell us about educational inequality in Ghana's basic schools system.

5.0 Abstract

Access to schooling in Ghana has considerably expanded under the free universal basic education policy regime in the past three decades. Yet, there is little account of how much children access learning skills while in school. Existing literature suggest that educational quality and opportunities are shaped by broader inequalities along regional lines and the North-South divide within Ghana. Yet to date there is limited understanding of how these inequalities relate to children's access to learning skills and its regional dynamics, especially in the Northern regions, with their deep historical educational disadvantages. To address this research gap, this study utilizes the best available data on foundational learning achievement in Ghana's basic schools and a binary logistic regression analysis to explore what we know about learning inequality, and the factors that determine it, to understand the nature of learning inequality in Northern Ghana. The findings reveal deeper disparities in access to learning skills between the Northern regions and the rest of Ghana and Greater Accra in particular. Implications on the potential for household surveys to provide a fuller and comprehensive understanding of learning inequality and its dynamics in the Northern regions are discussed, to facilitate future policy recommendations aimed at increasing learning equity, especially in rural Northern Ghana.

Key words**:** basic education, learning inequality, household surveys, Northern regions, Ghana.

5.1 Introduction

Children's access to schooling has considerably expanded in Sub-Saharan Africa (SSA) over the past two decades, with net primary enrolment increasing from 60% in 2000 to 82% in 2022 – though this has resulted in very little increase in access to learning (UNICEF, 2022; 2022a; 2022b). Recent UNESCO reports, for instance, suggest that learning has stalled in many SSA countries, with only 16 % of primary school leavers achieving basic reading competency compared to 61% globally (UNESCO, 2022a). Like the rest of SSA, Ghana faces learning challenges, with only 19% and 25% of school children in 2016 and 2017 respectively having achieved expected basic literacy skills. Yet, this comes against the backdrop of a substantial increase in access through net enrolment – from 58% in 2003/2004 to 80.3% in 2020 (Darvas and Balwanz, 2013; UNESCO, 2022b).

Despite the substantial progress in bridging access gaps, the schooling and learning trajectory of many Ghanaian children in the basic school system continues to be defined by disparities in educational opportunities between the predominantly rural communities in the north and the largely urbanized south. This remains one of the key challenges the country must tackle if it is to achieve its global education goals and ensure equity in access to learning for all children. Yet, there is a dearth of research on children's access to learning and, even more so, on understanding inequities in learning outcomes across regional and geographical contexts. This is particularly true for studies relying on internationally comparable, educational assessment datasets from household survey that inform educational policy. The few insights on learning-related inequality are mostly drawn from studies on student achievements using data from the Education Management Information System' (EMIS)[25], the Basic Education Certificate Examination

[25] Education Management Information Systems (EMIS) data

(BECE)[26], and children's self-assessment of learning (Blunch, 2014; Ansong et al., 2015; Azigwe, et al., 2016). Due to their largely administrative nature and/or reliance on self-assessment measurements, these datasets may often lack national representativeness or international comparability, compared to household survey datasets like the MICS 6[27]. Subsequently, unlike many countries in the sub-region, Ghana seldom participates in regional and international educational assessments programs that provide effective data on how much children learn in school (Spaul and Taylor, 2012; van der Berg, 2018; Kadio, 2023). This also presents a data challenge regarding attempts to bridging gaps in understanding learning disparity and its driving factors. International household surveys like the MICS 6 fill in the necessary gap of providing evidence of foundational learning skills that are internationally comparable (UNESCO, 2022a) – mainly because it provides learning assessment and background information on children's local environment.

To understand the context of learning inequality, addressing two research gaps is central to developing the kind of comprehensive understanding required to advance evidence-based policies that reach the most marginalized children in Ghana's basic school system. First, national education indicators largely treat enrolment and completion, rather than access to learning, as benchmarks of quality and success in the basic school system (Spaull and Taylor, 2012; 2015). Second, there is inadequate emphasis on whether regional disparities in learning have been reduced, or any in-depth understanding of the determinants behind deficits in learning outcomes distributed across regional lines.

[26] Refers to the certificate examination written in the final year of basic education (i.e., at the end of Grade 9) for qualification to second cycle institutions.
[27] The MICS 6 household survey is implemented by UNICEF, with specially designed foundational learning module to assess sustainable development goals related education.

In the context of this limited data availability on learning achievement, I draw on the MICS 6 foundational learning assessment to understand the situation of learning disparity in Ghana, with specific focus on Northern Ghana, which has predominantly rural populations (64%) compared to the national average (43.3%) and Greater Accra (8.3%) (GSS, 2021). Table 4, below, presents the share of urban-rural population composition of the four main regional/geographical zones based on Ghana's 2020 population census data. I pursue this task by addressing two key questions situated in the existing research gaps: (1) What do we know about children's access to learning (literacy) skills in Ghana's basic school system? (2) And what known predictors are associated with children's access to learning and its disparity across regional lines? I addressed these questions, first, by employing descriptive statistics to understand the situation of access to learning skills and the scale of inequities associated with learning skills across regional lines. Second, I also used logistic regression to explore the correlates of children's access to learning skills across region/ geographical lines. The goal, here, is to draw attention to where more work is needed to make schooling and learning opportunities more inclusive, in order to draw Ghana closer to meeting its global education goals (i.e., SDG 4.1.1).

Table 4: Share of urban-rural population by region/zone

Region/zone	Population	% share of	
		Urban	Rural
National	30,832,019	56.7	43.3
Greater Accra	5,455,692	91.7	8.3
Coastal	8,207,616	47.8	52.2
Middle Belt	11,342,833	57.1	42.9
Northern	5,852,879	35.9	64.1

Source: Calculated based on 2021 Ghana national population census report (GSS, 2021).

5.2 Literature

5.2.1 Background and context to structural inequality in Northern Ghana

Educational literature in Ghana points to a long-standing regional disparity in educational opportunities and outcomes which disadvantages regions in the North compared to those in the South (Darvas and Balwanz, 2013; Abdulai and Hickey, 2016; Afoakwah and Koomson, 2021). Educational disadvantages in the North are linked to broader disparities in socioeconomic and infrastructural development, which have deep rooted structural and political origins (Plange, 1979; Brukum, 2005; Abdulai, Bawole, and Kojo Sakyi, 2018). At the structural level, arguments have been advanced by scholars such as Harsch (2008), and Lall et al. (2009), regarding natural environment conditions like soil and climate to explain the north-south development divide. The combined effect of environmental conditions relating to reduced rainfall patterns, water scarcity, and increased desertification of the area has resulted in declines in subsistence agriculture, which is the main economic activity of the population in Northern Ghana. This is cited as a key factor that puts regions in the North among the poorest and most food insecure, compared to regions in the South. For instance, reports in 2016 suggest that about 40 percent of Ghana's poor lived in the three Northern regions, which had only 17 percent of the national population (Molini and Pierella, 2015), and the North also has the highest rate of people living below the poverty line (Cook, Hague, and McKay, 2016). These constitute livelihood conditions that constrain effective schooling and learning participation.

From a political perspective, formal education was introduced by Christian missionaries and the British colonial government 100 years later in Northern Ghana[28] than in the South. Subsequent colonial governments, as a political decision, placed lesser emphasis on socio-

[28] Northern Ghana geographically refers to the landmark covering the northern part of the Republic of Ghana.

economic development in Northern Ghana, which was seen as less profitable than the South (Thomas, 1974; Abdulai, Bawole, and Kojo Sakyi, 2018). For instance, by 1912, only 3 schools were operational in Northern Ghana, then known as the Northern Territories (NT).[29] In 1919, the British Gold Coast governor introduced broader educational reforms and a special educational scheme, which, in principle, proposed to expand education in the NT. In practice, however, the new scheme expanded educational opportunities to the university level in the South whereas education in the North was controlled and maintained at the basic level to produce handymen and clerks (Thomas, 1974) – a policy that further widened the north-south education gap.

In recent literature, Abdulai and Hickey (2016) provide evidence of education policy decisions that continue to disadvantage the North, compounding the immense vulnerabilities created by the colonial approach. In the educational expenditure literature, for instance, they raised issues of political targeting and skewed redistribution of basic education expenditures[30], showing vast inequalities in per-child spending for basic schools that favours regions in the South compared to those in the North. In 2008 for example, per pupil spending in primary schools in the more affluent regions like Greater Accra and Eastern Ghana was 34 percent higher than the national average. However, compared to poorer Northern regions like Upper East and Upper West Ghana in the same period, the difference was more than 100 percent lower than the national average. The combination of these colonial, structural, and political factors position regions in Northern Ghana

[29] Present day Northern Ghana was formerly the Northern Territories, which was a protectorate under the British Colony of the Gold Coast between 1902 and 1956 (See Plange, 1979). In 2019, Northern Ghana was reconstituted from 3 to now 5 administrative regions (i.e., Northern region, Savannah region, North East region, Upper East region, and Upper West region), (GoG, 2019).

[30] Abdulai and Hickey (2016) graphically showed differences in per child spending in basic education expenditure, which favored the Greater Accra, Ashanti, Eastern, and Central regions, with the three northern regions and the Volta region being significantly underfunded in the period between 2004 and 2008.

as the most disadvantaged in socio-economic development, which also reflects the lower educational investments, opportunities, and outcomes, compared to regions in the South.

5.2.2 Household surveys and factors associated with learning outcomes in rural/remote regions.

Enhancing the learning skills of children, especially in foundational literacy, is acknowledged by recent international development frameworks[31] as one of the most powerful and sustainable tools for reducing poverty and driving sustainable development in underdeveloped regions (UNESCO and UNICEF, 2024; Jasińska et al., 2019). As more SSA countries achieve universal enrolment in basic education, assessment of educational outcomes at the basic level is increasingly shifting from quantity metrics on enrolment to quality metrics on how much children learn in school (Spaull and Taylor, 2015). The recent expansion of household surveys to covering some areas on educational assessment helps to provide expansive data infrastructure for monitoring the development of learning skills across several educational systems (UNESCO, 2022a). These household surveys also provide a means to exploring some of the unique characteristics of rurality to unpack their association with schooling- and learning-related disparities.

However, the relatively large amount of time and resources required to administer test items to individual households limit most household surveys to rely more on items/instruments that capture children's self-assessment of learning as opposed to cognitive assessments/evaluations (Blunch, 2011; UNESCO, 2022a). With implementation of the maiden foundational learning (FL) assessment by the MICS 6, this dynamic changed, with MICS 6 offering a more standardized module for evaluating the state of foundational learning skills in basic school systems while

[31] Referring to the Millennium Development Goal (MDG) of 2000 and the Sustainable Development Goal (SDG) of 2016 (Sachs, 2012; Fukuda-Paar, 2016; UNESCO, 2017).

providing complementary sources of information at the personal and community levels to trace factors that affect learning (Hattori et al., 2017). For instance, available information on individuals' micro experiences of schooling and livelihood offers potential insights into the unique context of rural and underserved regions that reinforce schooling and learning disparities. Despite this data availability, there is limited attempt in the existing literature in combining the FL module with available information on children's home environment to explore what we know about children's access to learning, especially in rural and underserved areas.

5.2.3 Understanding learning outcomes and associated factors in rural and remote communities.

Generally, research on children's access to learning is gaining continued prominence across several SSA contexts (Spaull and Taylor, 2015; Spaull and Lilienstein, 2019; Ahmed et al., 2019; UNESCO, 2022 a), but only a few studies that explore learning skills and its determinants focus on rurality as a unique context that needs to be understood. Rural dimensions are, at best, addressed as explanatory factors associated with learning loss and disparity. Already, recent evidence of learning achievements in Ghana's Complimentary Basic Education (CBE)[32] programs have shed light on some of the factors that contribute to learning loss among student groups from remote and disadvantaged areas. Acheampong et al. (2018) for instance, explored learning achievements of CBE students from communities in Northern Ghana who transitioned from the CBE level into public schools. Their results showed that though CBE students who transitioned showed comparable progress to their public-school counterparts in English literacy assessments, their inability to access instruction in mother-tongue language in the transitioned (public) schools

[32] Complementary Basic Education Programs in the Ghanaian context are alternative educational services provided to out-of-school children (i.e., those who have never been to school or dropped out of school), mostly in rural communities. The program provides mother-tongue education in literacy and numeracy for two years, after which children can transition to public schools. See Casely-Hayford and Hartwell (2013) and Carter, Hinton, Rose, and Sabates (2023).

was associated with lower achievement in both literacy (i.e., in official Ghanaian Local languages of Instruction - GLOI) and numeracy assessments. This is a unique situation that occurs in the Ghanaian context, as not all mother-tongue languages fall within official GLOI used alongside English for instruction in some regions (USAID, 2018).

Similar studies by Carter et al. (2020) also showed that changes in language of instruction from mother-tongue language to official GLOI was significantly associated with learning loss, when children transition from CBE programs to public schools. They indicated 33 and 37 percentage points loss in letter sound identification and reading comprehension for children who transitioned to public schools with different GLOI compared to those whose mother-tongue language remained the same as the GLOI in transitioned school (Carter et al., 2020). Within the home environment, Sabates et al. (2021) also show results of learning losses for marginalized students in Northern Ghana, during a 3-month transitional period from CBEs to public schools. The findings showed that the estimated extent of learning loss during this transitional phase was however, depended on availability of home learning support (i.e., having enough time at home to study or receiving support at home with schoolwork), and home learning resources (i.e., television, radio, mobile phone). Consequently, students who lacked home learning support and access to learning resources at home experienced the greatest learning losses compared to those who had such support and resources. For instance, it was estimated that students without both home learning support and resources experienced average learning losses of 20% to 30%, respectively, during the transition period, compared to their peers who had these advantages (Sabates et al., 2021). Though these studies only focus on students with CBE backgrounds, they have much bigger implications for basic school students in rural Northern Ghana in general, and their likelihood to experience unique challenges with the official language of instruction, regular attendance to school, and home

and school resources that support their learning process (Akyeampong et al., 2018; Carter et al., 2020; Sabates et al., 2021). While these studies do not necessarily have a rural focus, most of their samples are drawn from districts in Northern Ghana with predominantly rural characteristics (Sabates et al., 2021).

Results from these Ghanaian studies share some overlaps with the existing literature at the SSA level. For instance, Sumaida and Kawata (2021) built on earlier attempts in explaining rural underperformance of literacy skills using four rounds of PASEC and SACMEQ assessment to explore four key learning characteristics. These included (1) *student level factors* such as over-age students, repeating students, gender, and home language usage (2) *family level* factors such as socio-economic status, mother's education and father's education (3) *teacher level factors* comprising teacher's education level, age, sex, and classroom resources and (4) *school level factors* that investigated school principal's sex and education, the school's resources, and the school type (i.e., public, private). While rural-urban differences in literacy test scores were statistically significant in all four learning characteristics across all study countries (except Seychelles), they showed that the difference in gaps were largely due to family level characteristics (15% - 55%) as compared to students level factors, and more by school level resources (33% - 71%) as against teacher level characteristics (Sumaida and Kawata, 2021).

Other recent studies, however, point more towards school resources than family and home characteristics in driving unequal learning outcomes (Gruijters and Behrman, 2020; Kadio, 2023). For instance, in studying 10 francophone educational systems[33] in West and Central Africa using PASEC assessment, Gruijters and Behrman (2020) observed that differences in learning

[33] Refers to educational systems in 10 francophone countries in West and Central Africa including: Benin, Burkina Faso, Burundi, Cameroon, Chad, Congo, the Ivory Coast, Niger, Senegal, and Togo.

achievement in most of the sampled countries were mostly related to differences in school quality (i.e., teacher characteristics, school resources and school type) than family characteristics. Though rural/urban effect on learning achievements were not explored in this study, assumptions can be made about the likelihood for rural schools to account for bigger parts of the school quality effect, given previous evidence in many SSA school systems, where rural schools tend to be resource poor (Zhang, 2006; Darvas & Balwanz, 2013).

Again, though a majority of these studies do not have a central focus on rurality, put together, they emphasize a key outcome in literature: where unique characteristics around children's livelihood and local environment shape family and school dynamics to support effective schooling and learning. These dynamics need to be understood in Ghanaian policy settings, to generate evidence-driven recommendations, especially in rural and underserved areas, where schooling and learning disparities tend to be high (Darvas & Balwanz 2013). In this study, I explore these local (i.e., individual, family, and school) environment dynamics and their association with access to learning skills and learning inequality in general, by addressing questions relating to (1) what we know about learning inequality in Ghana's basic school system and (2) understanding predictors associated with access to learning and its disparity across region. Understanding what local characteristics in children's environment impede learning skills is a necessary precondition to any policy solution that aims to reduce disparities but also improve learning levels for all children. Fortunately, the existence of household survey datasets like the MICS 6 provide both standardized foundational learning assessment models as well as family, community, and policy level information on children's environments that can be employed to aid such analysis.

5.3 Research method and design

5.3.1 Data choice

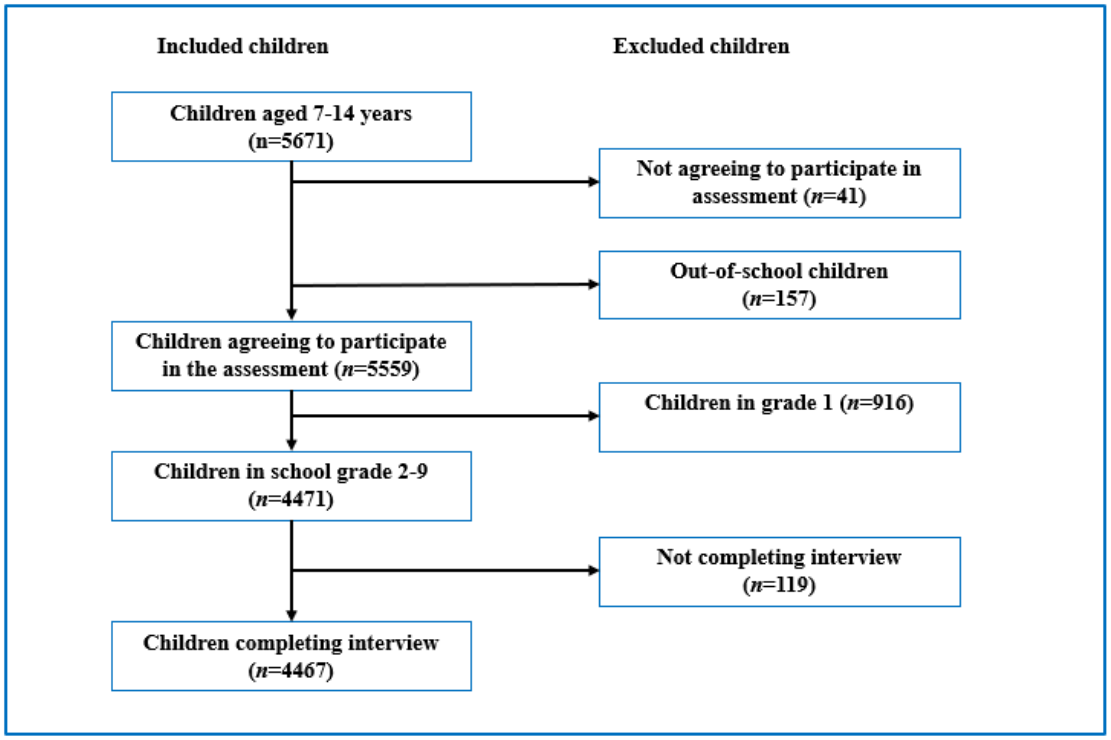
To address the main questions of this research, I analyzed the foundational learning assessment data from the Ghana Multiple Indicator Cluster Survey (MICS) 6, conducted in 2017/2018. The MICS is a large-scale cross-sectional survey conducted in over 120 countries worldwide, designed to provide internationally comparable data on the status of women and children. The MICS 6, for the first time, included a foundational learning (FL) assessment model, which explores foundational learning skills in all basic school grades relevant for monitoring global education goals (Hattori et al., 2017). The availability of individual, family, and policy level information provides opportunities to explore local conditions in children's environment associated with learning disparity at the national and sub-national levels. The FL module from the MICS 6 provides recent, nationally representative learning assessment for all school grade levels in Ghana's basic school system (i.e., grades 1 – 9). This allows for analysis of gaps in learning outcomes across higher grade levels. In contrast, other commonly used data sets like EGRA and EGMA focus on grade-specific assessments, relying on single grade cohorts in lower (grades 1 to 3) and upper primary (grades 4 to 6).

5.3.2 Sample design

The MICS 6 foundational learning assessment questionnaires comprised reading and numbering tasks administered to children aged 7-14 years (n= 5671). The assessment includes an initial practice test administered to children whose parents or care takers agreed to the interview, based on which children either completed both reading and numbering assessments or skipped the reading and completed the numbering assessment. For purposes of this paper, I selected only in-school children 7-14 years who: (1) agreed to participate in the assessment (2) fell within school-Grade 2-9, and (3) are identified as having 'completed' interview, effectively excluding children

in school Grade 1. Because the FL assessment is designed to capture reading and numbering skills at Grade 2 level (UNICEF, 2020), Grade 1 children may lack the needed skills level to complete all assessment tasks - hence, the focus on children from grade 2 upwards. Figure 7, below, presents the processes followed to arrive at the final sample.

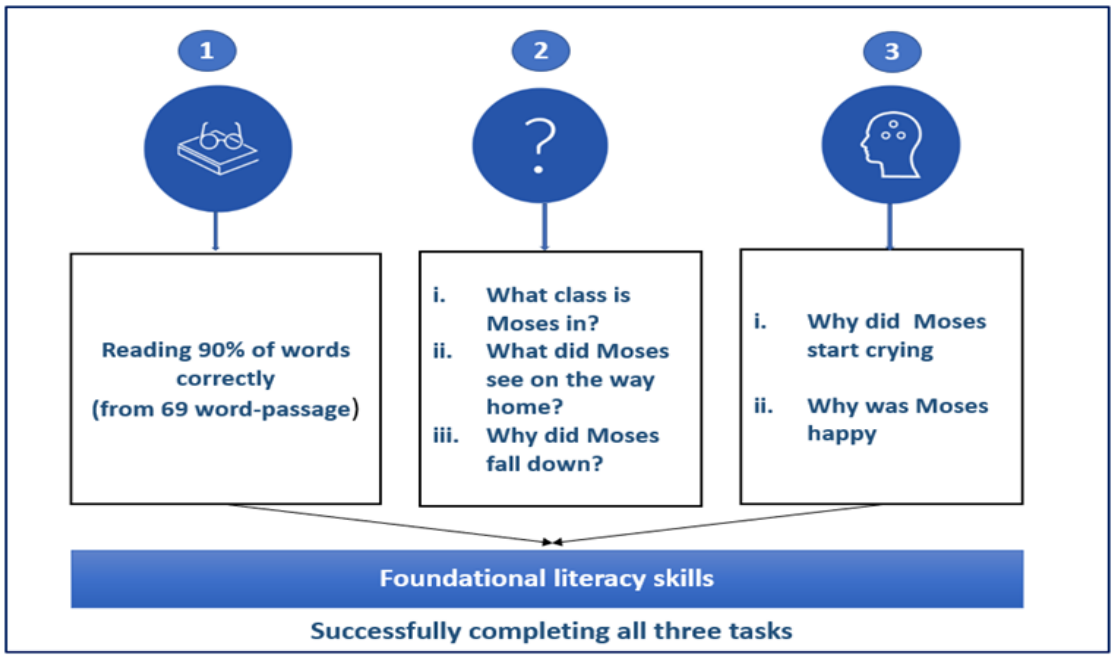
Figure 7: Quantitative sample selection procedure



5.3.3 Variables and measures

Outcome variable: The outcome measure is access to learning skills, measured through children's foundational literacy achievements. In the MICS 6 assessment, attainment of foundational literacy (FL) skills is a binary variable (1= correct; 0 = incorrect), which measures access to FL skills among pupils in grades 2 - 9. The measurement of FL skills required children to complete three tasks: reading aloud a short story comprising 69 words and completing three literal and two inferential comprehension questions. Children were considered to have attained FL skills if they successfully completed all three tasks under the reading assessment. The MICS6 methodology for assessing FL skills is explained below in figure 8.

Figure 8: MICS indicators for measuring Foundational Literacy (FL) skills



Source: Adapted based on MICS 6 indicators for foundational literacy (UNICEF, 2020).

Explanatory variables: Predictor variables were drawn from information on individual children and their families, specifically around livelihood and schooling experiences prevalent within the local environments. These were categorized into five groups: (1) demographic and family characteristics, (2) home learning resources and support, (3) parental school involvement, (4) children's domestic work, and (5) school conditions. Group 1 variables were control variables and groups 2 to 5 variable were predictors of interest.

The selection of variables is based on research evidence of their relationships with children's learning outcomes in SSA and the global South (Spaull and Taylor, 2012; UNESCO, 2022a). School level factors, such as language of instruction, and household activities, such as children's domestic chores, have been shown to be correlated with literacy skills development, though many studies in this domain come from non-SSA contexts (Hottori et al., 2017). Based on the North-South regional focus, the analysis is structured to compare outcomes between the Northern regions and the Southern regions, with particular emphasis on Greater Accra. Consequently, the 10 political and administrative regions of Ghana, at the time of the survey were grouped into four main regions/geographical zones[34]. Whereas Greater Accra is geographically part of the Southern regions, for this analysis, it is treated as a separate region to avoid biasing the analysis. Greater Accra is Ghana's national capital and the center of resources allocation and is therefore likely to have schools with better learning infrastructure and resources compared to schools in other regions (Abdulai and Hickey, 2016). Summary statistics of the main variables used in this analysis are presented in Table 5.

[34] Greater Accra, Coastal, Middle Belt, and Northern

Table 5: Summary statistics of variables

Read	National	Region/Geographical zones		
		National	G. Accra	Northern
	N	Percentages		
Demographic & family characteristics*				
Area	**10980**			
Urban	4937	45.0	87.5	29.4
Rural	6043	55.0	12.5	70.6
Gender	**10980**			
Male	5497	50.1	55.3	51.1
Female	5483	49.9	44.7	48.9
Mothers' education	**10980**			
Pre-primary/no education	3378	30.8	17.5	72.4
Primary	2420	22.1	18.7	11.4
Secondary	4795	43.7	58.3	11.8
Higher education	380	3.5	5.5	4.4
Household wealth status	**10980**			
Poorest	1999	18.2	1.5	49.8
Second	2391	21.8	7.5	24.7
Middle	2234	20.3	14.7	11.6
Fourth	2295	20.9	27.2	7.9
Richest	2061	18.8	49.1	6.0
Home learning resources & support*				
Have access to books at home	**10980**			
Yes	5200	47.4	68.5	30.9
No	5780	52.6	31.5	69.1
Receives help with homework	**10980**			
Yes	6760	64.1	70.4	70.7
No	3783	35.9	29.6	39.3
Parental school involvement *				
Discussing school budget	**10980**			
Yes	7780	90.8	88.9	87.1
No	789	9.2	11.1	12.9
Receiving report card	**10980**			
Yes	1964	82.1	87.9	50.8
No	9015	17.9	12.1	49.2
Discussing child's progress with teacher	**10980**			
Yes	6127	55.8	67.5	67.7
No	4853	44.2	32.5	32.3
Children's domestic work*				
No. of hours engaged in household chores	**10980**			
No engagement	1695	15.4	26.7	12.2
Up to 20 hours	8680	79.1	69.9	70.5
21 hours or more	605	5.5	3.4	17.3
No. of hours engaged in economic work	**10980**			
No engagement	7040	64.1	89.0	42.3
Up to 20 hours	3720	33.9	10.5	52.2
21 hours or more	219	2.0	.05	5.5
School conditions*				
Experience of school/class disruption	**10980**			
Experienced no disruption	9122	83.1	89.7	75.7

Experienced at least a disruption	1858	16.9	10.3	24.3
Student/teacher language match	**10980**			
No match	9625	87.3	90.6	84.5
Language match	1355	12.3	9.4	15.5

Source: Author's calculation based on MICS 6 data. Children's sampling weight applied.

5.3.4 Analytical approach

The analytical plan for this paper followed four stages. First, I generated descriptive statistics to understand the sample characteristics and to explore the distribution of learning skills across regions, so as to understand the nature of learning inequalities in Ghana. Second, I conducted binary logistic regression analysis to ascertain the predictive relationship between our selected individual, family, and policy-level factors in children's local environment and learning disparity at the national level in Ghana's basic school system. I repeated this analysis at the regional level. In both the national and regional analyses, I conducted two models. The first model included control variables only while the second included both control variables and predictor variables of interest. To understand how learning skills in Northern Ghana differ from the average and the highest categories, I compared results for Northern Ghana and, respectively, Ghana overall and Greater Accra.

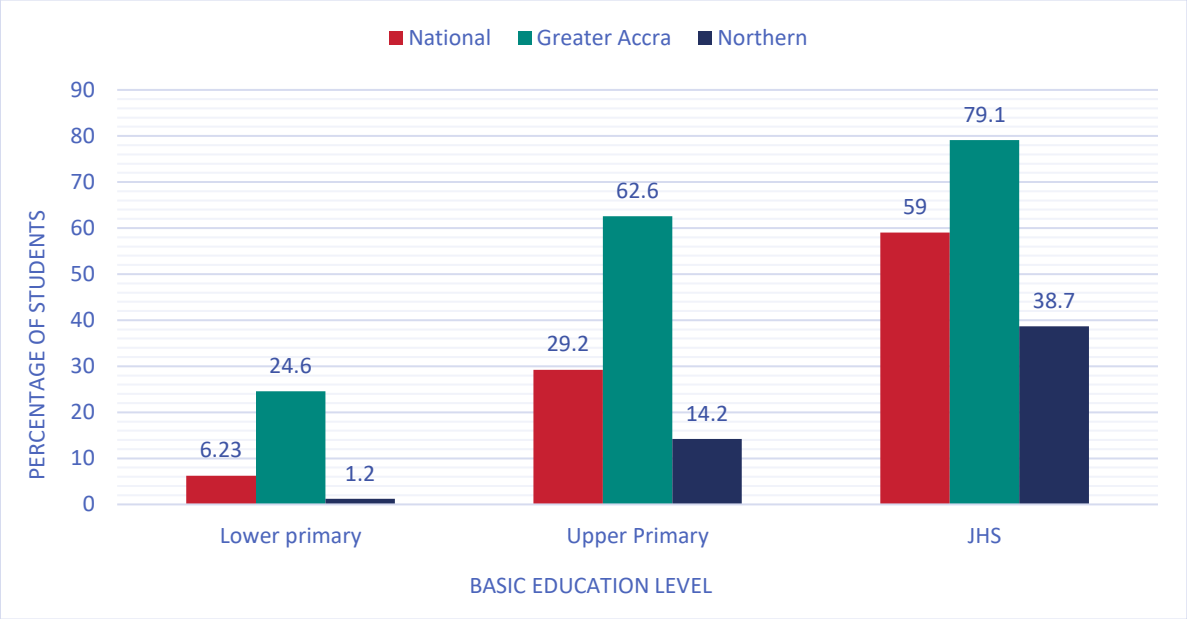
5.4 Descriptive results

5.4.1 Learning disparity in Ghana's basic school system.

The descriptive findings show low levels of foundational literacy (FL) skills in Ghana's basic school system. However, children's access to FL skills follows broader socio-economic disparities that characterize the north-south divide. FL skills in the Northern regions is lower than the national average and even more behind when compared to Greater Accra. For instance, as observed in figure 9, only 1% of lower-primary pupils in the Northern regions attained FL skills expected at Grade 2 level, compared to 6% at the national level and 25% in Greater Accra. At the

Junior High School (JHS)[35] level, only 39% achieved FL skills expected at Grade 2 in the Northern regions, a rate that is 5 percentage points lower than the national result and 20 percentage points lower compared to Greater Accra.

Figure 9: Percentage of students attaining FL skills across region/zone



Source: Author's calculation based on MICS 6 data, 2017/2018. Children's sampling weight applied.

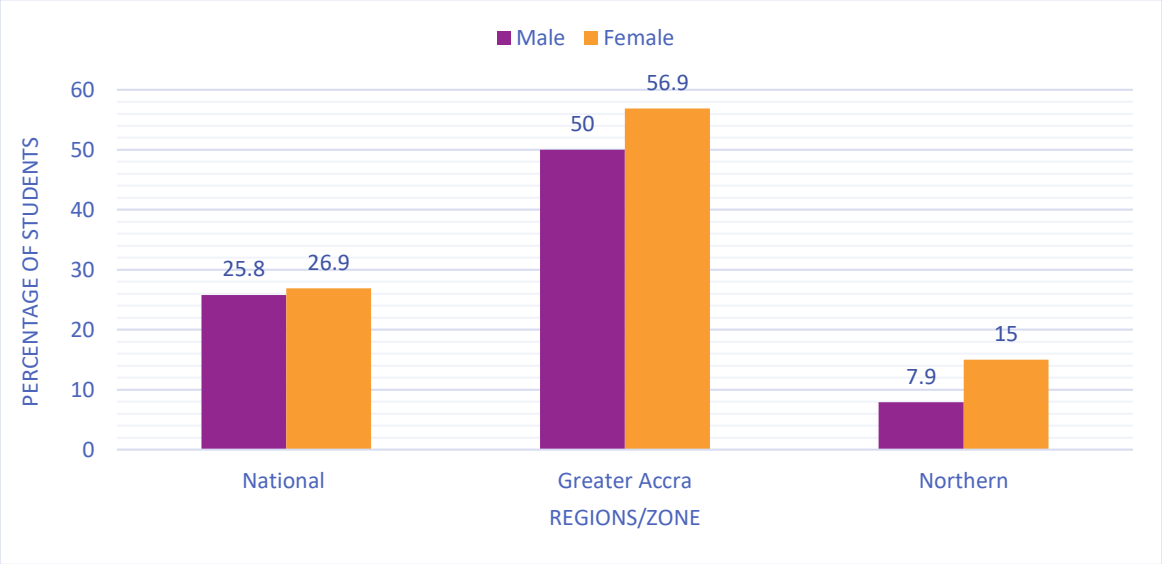
5.4.2 Gender and rural /urban differences in access to literacy skills

The descriptive findings also point to female advantage over males in terms of the proportion of students achieving FL skills across all samples. While these gender differences are marginal in both the national and Greater Accra samples, in the Northern regions, however, the percentage of females attaining FL skills (15%) is about twice the percentage of males (7.8%). For rural urban differences, the descriptive results show rural disadvantage in literacy skills across all samples. However, rural children in the national sample and Greater Accra region respectively

[35] Junior High School (JHS) refers to the final stages of the Basic education system, comprising grades 7, 8, and 9.

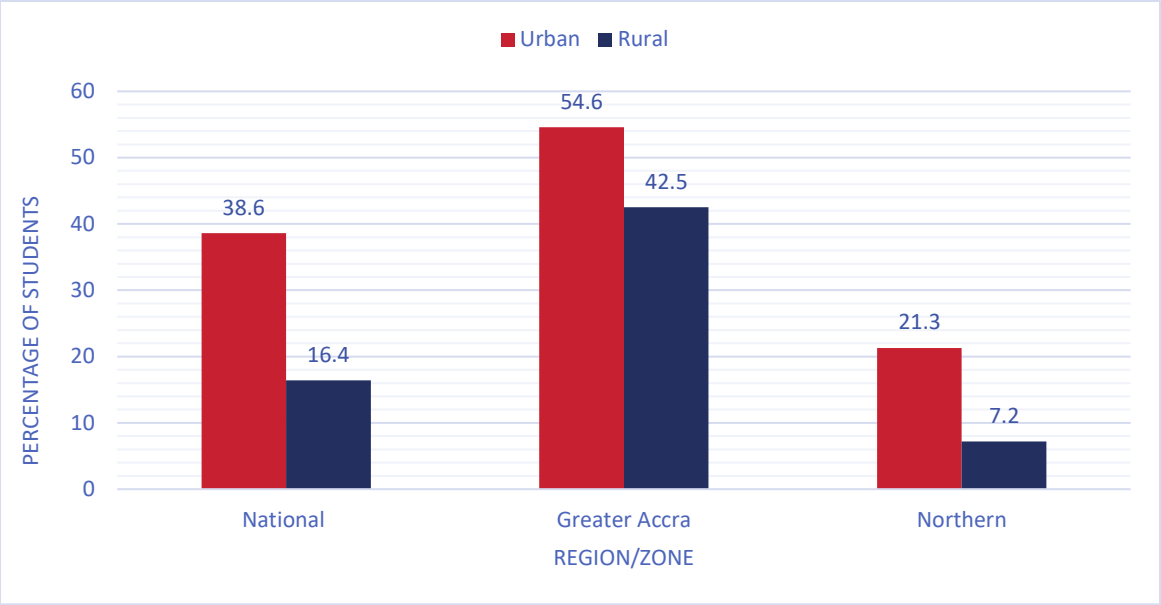
achieved literacy skills at a level two times higher (16.4) and six times higher (42.4) than those in the Northern regions (7.2%) - indicating immense learning disadvantages for rural children in the Northern regions. Figures 10 and 11 show the percentage of male and female, and urban and rural children attaining FL skills foundational literacy skills across national and regional samples.

Figure 10: Percentage of male and female students attaining FL skills across region/zone



Source: Author's calculation based on MICS 6 data 2017/2018. Children's sampling weight applied.

Figure 11: Percentage of students in rural and urban areas attaining FL skills across region/zone



Source: Author's calculation based on MICS 6 data 2017/2018. Children's sampling weight applied.

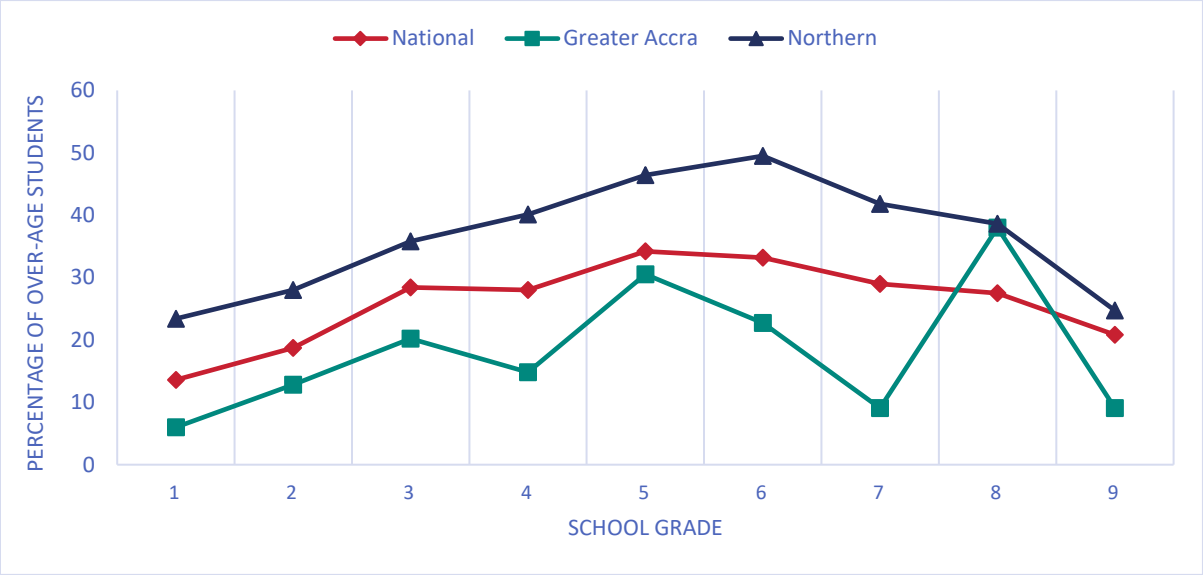
5.4.3 Over-age for grade enrolment and learning achievement.

Given the prevalence of over-age enrolment in SSA and its association with learning disparity (Lewin and Sabates, 2012; UNESCO, 2022a), a descriptive analysis was performed to understand the proportion of students over-age for their school grade[36] in the Ghanaian context, and the differences in learning skills between those over-age for their grade and those with official age for grade. Figure 6 compares the proportion of students over-age for their grade across regions or geographical zones. The proportion of over-age students was higher in the Northern regions, compared to those in the national and Greater Accra samples. Whereas over-age students in the national sample increased gradually from 18% by grade 2 and peaked at 34% by grade 5, in the Northern regions, over-age students constituted 28% by grade 2 and peaked at 50% by grade 5.

[36] Children over-age for grade is defined as the percentage of students in each grade of a given level of education of education who are at least two years older than the official age expected for that grade (UNICEF, 2020).

Moreover, students with official age for their grades were significantly better in achieving FL skills, compared to those over-age for their grade. For instance, 62% of official age students in Grade 2 and 29% in Grade 3 achieved FL skills compared to only 8% of over-age students in Grade 2 and 13.3% in Grade 6. Figure 12 presents the percentage of over-age students across the national level and regions of interest. Figure 13 shows the disparity in learning skills between students of official age and those over-age for grade at the national level.

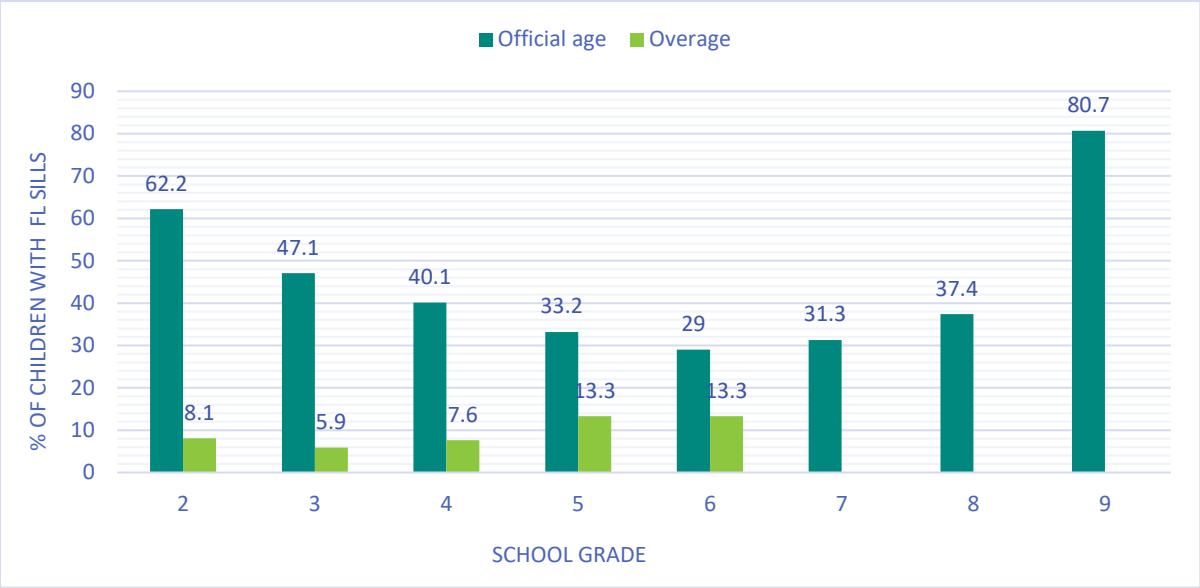
Figure 12: Percentage of children over-age for grade across region/zone



*Note: While the sample for this study focused on children between 7–14 years old, the proportions for over-age for grade children were calculated based on the sample of children 5-17 years in the children's dataset, to provide a wholistic picture of over-age for grade students within the basic school system.

Source: Author's calculation based on MICS 6 data. Children's sampling weight applied.

Figure 13: Percentage of children within official age for grade an over-age for grade attaining FL skills



*Note: Given that over-age for grade is defined as children with at least two or more years above the official age for a grade, it was impossible using the current dataset to calculate for FL skills for over-age students in grades 7, 8, and 9, as FL assessment questions were only administered to children 7-14 years.

Source: Author's calculation based on MICS 6 data. Children's sampling weight applied.

5.5.0 Regression results

5.5.1 National level analysis

Table 6 presents the results from the national level regression analysis. The results show that residential area, maternal education, and household wealth status significantly predicted children's access to FL skills in both the first and second models. After controlling for demographic and family characteristics, the odds for accessing literacy skills were 48% less for children in rural areas compared to those in urban areas. Children whose mothers had higher education had 151% higher odds of accessing literacy skills than those with pre-school or no education after accounting for control variables. However, the same odds significantly declined to 94% in Model 1, without controlling for the variables of interest. In the first model, children in the second highest wealth quintile had 97% odds of accessing literacy skills compared to children in the lowest wealth quintile. However, these odds were non-significant in the second model. Meanwhile, considering demographic and family factors only, children from the highest wealth quintile had 693% higher odds of accessing literacy skills compared to those in the lowest wealth quintile. However, after controlling for these factors, the odds declined by 87%.

In Model 2, I introduced the variables of interest, including two items on *home learning resources and support* (i.e., access to books at home and receiving help with homework), three *parental school involvement* items (i.e., discussing school budget, receiving report card, and discussing child's progress with teacher), two items on *children's domestic work* (i.e., hours per week engaged in household chores, and hours per week engaged in household economic work), and two items on *school conditions*.(i.e., experience of school/class disruption and language match between students and teachers). Table 6 further indicates that having access to books at home and receiving help with homework significantly predicted the odds of accessing FI skills, albeit in

different directions. More specifically, children who had access to books at home had 52% higher odds of accessing FL skills compared to children with no books. Conversely, the odds for accessing FL skills reduced by 60% among children who received help with homework relative to those who received no help.

Regarding *parental school involvement*, the analysis revealed that only one factor (receiving report card) significantly predicted FL skills. Children whose parents received their school report cards had 162% higher odds of accessing FL skills than children whose parents did not receive their report cards. Children's domestic work factors also significantly predicted access to FL skills, but the type of domestic work was more important in understanding the nature of the effect. Children who performed up to 20 hours of chores had 10% higher odds of accessing FL skills compared to children who performed no chores. The odds of acquiring FL skills were 68% lower among children who performed 21 hours or more of economic work, relative to children who did no economic work. Finally, the analysis demonstrated that both items on school conditions in the model had significant predictive effects on accessing FL skills. Children who experienced at least a school/class disruption had 32% lower odds of accessing FL skills compared to children who experienced no disruption. Meanwhile, children whose home language matched the instruction language used by teachers (i.e., language match) at school had 40% lower odds of accessing FL skills compared to children with no home-school language match.

Table 6: Logistic regression (national sample) results for FL skills (Odds ratio)

Variables	National sample	
Demographic & family characteristics	Model 1	Model 2
Sex[1]		
Female	1.02 (.815-1.277)	1.05 (.813-1.355)
Rural[2]	0.56*** (.430-.730)	0.52*** (.380-.708)
Maternal education level[3]		
Primary school	0.90 (.626-1.288)	0.91 (.621-1.329)
Secondary		
Higher education	1.94* (1.093-3.460)	2.51** (1.292-4.878)
Household wealth status[4]		
Second	1.97** (1.209-3.227)	1.52 (.863-2.679)
Richest	7.93*** (4.832-13.008)	7.06*** (3.770-13.238)
Home learning support & resources		
Access to books athome[5]		1.52*** (1.161-2.001)
Receives help with homework[6]		0.40*** (.304-.513)
Parental school involvement		
Discussing school budget[7]		0.72 (.467-1.118)
Receiving report card[8]		2.62*** (1.675-4.090)
Discussing child's progress with teacher[9]		0.98 (.741-1.303)
Children's domestic work		
Hours engaged in hh chores[10]		
Up to 20 hours		1.10*** (1.440-2.755)
21 or more hours		1.57 (.837-2.961)
Hours engaged in economic work[11]		
Up to 20 hours		0.84 (.628-1.130)
21 or more hours		0.32* (.110-.956)
School conditions		
School/class disruption[12]		
Experienced at least a disruption[13]		0.68* (.474-.988)
Language match		0.60** (.3.97-.898)
Key statistics		
Observation	4,464	3,404
Pseudo R^2	0.1195	0.1908

Note: Reference categories were male (1), urban (2), no education (3), poorest (4), no (5 – 9), no engagement (10 - 12), and language match (13). Confident intervals in parenthesis. Significance levels are * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Source: Author's calculation based on MICS 6 data. Children's sampling weight applied.

5.5.2 Regional level analysis

Table 7 also presents the results from the regional level regression analysis. Our analysis revealed variations in the predictive effects of demographic and family characteristics on access to FL skills between the regional samples. Due to the study's focus on the Northern regions, I compared results in the Northern context with Greater Accra because they showed the widest gap in literacy skills. Unlike in Greater Accra, sex significantly predicted access to FL literacy skills in the Northern regions. In model 1, the odds of accessing FL skills in the Northern regions were 111% higher among girls children compared to boys. However, the odds declined substantially to 95% in the second model containing both control and predictor variables of interest. Area of residence did not significantly predict access to FL skills in Greater Accra in both models 1 and 2, but did in the Northern regions in model 1 only. After accounting for children's demographic and family factors only, children residing in rural areas in the Northern regions had 49% lower odds of accessing FL skills compared to their urban counterparts.

Finally, the predictive effect of household wealth status on children's access to FL skills varied between both household wealth quintiles and regions. Unlike in Greater Accra, household wealth status was a significant predictor of access to literacy skills among children in the second wealth quintile in the Northern region. In the first model with control variables only, I found that children in the second lowest wealth quintile, relative to children in the lowest quintile, had 108% higher odds of accessing FL skills in the Northern region. These odds increased to 144% after accounting for both control and predictor variables of interest (model 2). Meanwhile, in Greater Accra, children in the richest wealth quintile had 1651% higher odds of attaining FL skills compared to children in the lowest wealth quintile, accounting only for children's demographic and family factors (model 1). After inputting control and predictor variables in model 2, the predictive effect of household wealth status for children in the richest quintile, compared to those

in the lowest quintile in Greater Accra, was found to be non-significant. In the Northern regions, however, this relationship was statistically significant in both our first and second models. In the first model, the odds of accessing FL literacy skills among children in the richest wealth quantile were 392% higher compared to children in the poorest wealth quintile in the Northern regions. In the second model, these odds declined to 265%. While results in Model 1 showed a statistically significant effect in both Greater Accra and the Northern regions, the odds for children in the richest quintile was six times higher (odds = 17.51, $p < .011$) in Greater Accra than the Northern regions (odd = 4.92, $p < .001$) compared to the poorest wealth quintile in both regions.

There were mixed results, regarding the predictive effects of home learning support and resources on children's attainment of FL skills. On one hand, access to books at home had a significant predictive effect on access to FL literacy skills among children in the Northern regions but not in Greater Accra. After accounting for both control and predictor variables in the model, the analysis demonstrated that children who had access to books at home in the Northern regions had 172% higher odds of accessing FL skills than children with no access to books. Meanwhile, relative to children who did not, children who received help with homework had 69% and 50% lower odds of accessing FL literacy skills in Greater Accra and the Northern Regions, respectively. Except for discussing school budget in Greater Accra, no other variables depicting parental school involvement significantly predicted access to FL skills in both Greater Accra and the Northern regions. In Greater Accra, children whose caregivers discussed school budget had 57% lower odds of accessing FL skills compared to children whose parents did not discuss school budget.

In terms of the predictive effects of children's domestic work on access to FL skills, I again observed mixed results across regions. Only children in the Northern regions who conducted house chores for 21 or more hours per week had significantly higher odds (410%) of accessing FL literacy

skills compared to children who did not do household chores at all. Meanwhile, children who spent up to 20 hours doing household economic work had 71% lower odds of attaining FL skills compared to children who did not do any household economic work in the Northern regions. The comparative odds in Greater Accra were non-significant. In both Greater Accra and the Northern regions, children who spent 21 or more hours doing household economic work had 95% lower odds of accessing FL skills compared to children who did not do household economic work at all.

Finally, except for language match in the Northern regions, all factors depicting school conditions were non-significantly associated with access to FL skills in the analysis. The analysis also showed that in the Northern region, children whose home language matched the language of instruction used by teachers at school had 64% lower odds of accessing FL skills compared to children who reported a language match.

Table 7: Logistic regression (regional sample) results for FL skills (Odds ratio)

	REGION/ZONE			
	Greater Accra		**Northern**	
Demographic & family characteristics	Model 1	Model 2	Mode 1	Model 2
Sex[1]				
Female	1.47 (.902-2.402)	1.60 (.812-1.355)	2.11*** (1.245-3.578)	1.95** (1.127-3.385)
Area[2]				
Rural	0.79 (.324-1.926)	0.48 (.180-1.281)	0.51** (.292-.897)	0.50 (.252-1.004)
Maternal education level[3]				
Primary	0.65 (.283-1.480)	0.82 (.322-2.091)	1.18 (.605-2.289)	0.96 (.447-2.064)
Higher education	3.12 (.903-10.970)	3.29 (.778-13.888)	1.57 (.544-4.541)	0.83 (.270-2.571)
Household wealth status[4]				
Second	7.90 (.727-85.8900)	2.51 (.172-36.548)	2.08* (1.107-3.903)	2.44** (1.182-5.035)
Richest	17.51** (1.947-157.574)	6.36 (.570-70.943)	4.92*** (1.874-12.909)	3.65** 1.131-10.16)
Home learning resources & support				

Access to books at home[5]		1.39 (.737-2.369)		2.72*** (1.498-4.933)
Receives help with homework[6]		0.31*** (.159-591)		0.50** (.277-.899)
Parental school involvement				
Discussing school budget[7]		0.43* (.191-.953)		1.51 (.506-4.503)
Receiving report card[8]		1.25 (.504-3.056)		1.78 (.864-3.685)
Discussing child's progress[9]		0.96 (.517-1.794)		1.42 (.834-2.431)
Children's domestic work				
Hours doing house chores[10]				
Up to 20 hours		1.56 (.777-3.118)		2.24 (.760-.6.614)
21 or more hours		0.34 (0.086- 1.375)		5.10** (1.506-17.252)
Hours doing economic work[11]				
Up to 20 hours		1.27 (.609-2.665)		0.29*** (.159-.514)
21 or more hours		0.05*** (.007-.410)		0.05*** (.009-.280)
School conditions				
Experienced a disruption[12]		0.91 (.295-2.779)		0.92 (.479-1.748)
Language match[13]		2.97 (.893-9.898)		0.36** (.1555-.843)
Key statistics				
Observation	513	412	1,253	880
Pseudo r^2	0.0665	0.1582	0.1099	0.2573

Note: Reference categories were male (1), urban (2), no education (3), poorest (4), no (5 – 9), no engagement (10 - 12), and language match (13). Confident intervals in parenthesis. Significance levels are * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Source: Author's calculation based on MICS 6 data. Children's sampling weight applied.

5.6.0 Discussion

Ghana has successfully implemented a free universal basic education policy to address inequities in educational participation for all children, expanding access to schooling (i.e., enrolment) from 58% in 2003 to 89% since 2017/2018 (UNESCO, 2022b). Yet, there is limited account and research on how much children access learning skills while in school. Though studies suggest that the broader social and developmental inequalities that divide Ghana along regional/geographical lines and the North-South divide also reinforce educational inequalities (Abdulai and Hickey, 2016; Afoakwah, et al., 2023), there is little understanding of how these inequities relate to children's access to learning skills and its regional dynamics, especially across the basic school grade levels in Ghana. This study addressed this research gap by using the best available data on foundational learning achievement in Ghana's basic schools to explore what we know about learning inequality and the factors that are associated with it within Ghana's basic school system.

Results from the descriptive and logistic regression analysis have highlighted three important areas in which learning assessment data from household surveys can help in understanding the dynamics of learning inequality in Ghana's basic school system. First, the study shows disproportionate levels of learning disparity between the Northern regions and the rest of Ghana, and Greater Accra in particular. For instance, access to foundational learning skills for school children in the Northern regions was essentially 20 percentage points lower than their counterparts in Greater Accra at the lower primary level and between 41- 48 percentage points lower at the upper primary and JHS levels, respectively. This disparity is also reflected in other measures such as the percentage of over-age children, where school children were at least twice as over-aged in Northern regions than in Greater Accra. These findings point to a concerning situation

of learning outcomes in Ghana's basic schools, similar to several SSA contexts, where only a small proportion of school-going children achieve foundational learning skills expected at their grade level (Mizunoya, 2019; Spaul and Lilienstein, 2019; Spaul and Pretorius, 2019; UNICEF, 2022). Educational inequality between the broader North-South divide has been highlighted by previous studies and reports that looked at differences in infrastructural resources and quality of service delivery (Darvas and Balwanz, 2014; Abdulau and Hickey, 2016), enrolment and completion (Senadza, 2012; Iddrisu et al., 2017), and adult literacy levels (Abdulai and Hickey, 2016). Results from this study compliments these findings, specifically in terms of foundational literacy skills.

Second, the results further point to a pattern whereby some of the local environment factors that impact children's learning either show varied statistical effect on literacy skills across regions or point to a more negative outlook on literacy skills in the Northern regions than in Greater Accra. For example, even though findings from the Northern regions and Greater Accra both align with international reports and guidelines indicating that children who spend more than 20 hours per week on household economic work tend to experience limited learning outcomes (ILO, 2021), there was still a notable difference between the two samples. In the Northern regions, even children who spent less than 20 hours per week on economic work experienced significant negative outcomes in literacy skills, in contrast to Greater Accra, where no significant statistical effect was observed for children performing below 20 hours per week of economic work. Similarly, demographic factors such as being a female or home resources, such as having access to books at home, improved literacy skills for children in the Northern regions but were not significant factors in Greater Accra. These results in the Northern regions align with other studies with SSA focus (Buhl-Wiggers et al, 2021; UNICEF, 2022), which show female advantage over males in literacy skills, and the fact that children who have books at home tend to have better literacy skills than

those without books. However, the varied effect of these factors on both regions implies a necessity to not only understand how children in different settings, and the Northern in particular, interact with environmental factors that surround them, but also to understanding the pathways through which such interactions drive disparity in learning skills. This understanding that similar factors and experiences in the local environment can have different effect on children's learning ability based on geolocation is one in which household surveys like MICS draw attention to, for further exploration.

Besides, there were instances where variations in the statistical effects of local environmental factors on learning skills appear to be more indicative of problems of context in the application of survey instruments, rather than true regional or geolocation variability. For instance, while MICS uses indicators such as discussing school budgets, checking children's report cards, and talking to teachers about their progress to measure parental involvement in schooling, this study's findings did not reveal a significant effect of these factors on foundational literacy—except for parents 'involved in discussing school budgets' in Accra. Yet, even among children whose parents discussed school budget, the results showed a significant negative effect on learning outcomes. First, the non-significance of these items, particularly in the Northern regions, may suggest that they do not have a direct theoretical correlation with learning achievements in those contexts, or in Ghana more generally. This assumption is supported by Chowa et al. (2013), who found that parental involvement in schooling had a negative effect on children's mathematics and literacy skills in Ghana. Secondly, the negative effect of 'discussion of school budget' on learning skills might also point to the broader issue of context – whereby constructs used in assessing parental involvement in school, as employed by surveys like MICS, may not serve as suitable indicators for measuring learning achievements in contexts like Ghana and SSA. This proposition

becomes even more plausible when considering that parental engagement in school activities, such as those commonly measured by MICS and in studies like Chowa et al. (2013) - is generally not emphasized in the literature as historically normative practices across SSA. In fact, studies by Nyarko (2011), Ghanney, 2017, Amadu et al. (2018), and Bartoli (2022) have all pointed towards low levels of parental involvement and interest in children's schooling within the Ghanaian setting, and notably in rural contexts. The results highlighted by this study through household surveys like MICSs thus open pathways for future studies explore locally-relevant parental involvement constructs that explain learning achievement than items such S discussion of school budget.

Finally, the findings of this study highlight confusion around some of the factors that drive learning disparity, particularly in the Northern context. Children whose home language is similar/same as the language teachers used in teaching (i.e., language match) had lower literacy skills compared to those whose home language is different from the language teachers used in teaching (i.e., language mismatch). This 'mismatch language' advantage in learning skills in Northern Ghana generally defies conventional knowledge around children's exposure to mother tongue instruction and its positive outcomes for literacy skills development (Jasińska et al., 2019). However, the results in Northern Ghana are still consistent with recent studies and reports at the SSA level, which also show evidence of mismatch language advantage in literacy skills (UNICEF, 2022; van Pinxteren, 2022). The complexity of language[37], especially in Northern Ghana, and the practical difficulties in capturing these complexities in existing household datasets, suggest that there are deeper issues related to the role of language in understanding learning inequality in the Ghanaian context, which cannot be adequately addressed, merely by exploring the existing

[37] While Ghana has more than 70 indigenous languages and dialects, linguistic diversity becomes more complex in the North compared to the South, especially regarding official Ghanaian languages of instruction (GLOI) used alongside English in schools. See USAID (2018).

language categories in the MICS datasets as is. For instance, the mere fact of observing mismatch language advantage in literacy skills in Northern Ghana and not in Greater Accra.

5.7.0 Implications for data gathering and research on learning inequalities

The results, thus far, highlight several factors around children's environment that determine access to literacy skills and the lack thereof – such as gender, the number of hours children perform household chores or economic work, having books at home, and language match or mismatch with teachers among others – but, at the same time, show significant variations in how these different factors affect learning skills in Northern Ghana and Greater Accra respectively. Each of the three areas highlighted in the discussion collectively suggest that a comprehensive understanding of the factors that drive schooling- and learning-related inequalities in Ghana, and the Northern regions in particular, would require additional insight into local environment factors that surround children's lives and how that shape their learning trajectory.

Currently, international household surveys like the MICS 6 provide the best available, nationally representative, and internationally comparable learning assessment data that covers Ghana's basic school system and information on key areas of children's environment (Hattori et al., 2017). Yet, they still fall short of what is needed to explore the totality of local environment factors which cumulatively limit or enhance schooling and learning opportunities available to children in rural settings in Northern Ghana. This assumption is further strengthened by regression results at the regional level. Whereas demographic and family characteristic variables in Model 1 explained only 11% of the variance in children's literacy skills, the inclusion of variables on home resources, parental school involvement, domestic work, and school conditions in Model 2 explained 25% of the variance in accessing literacy skills, which were statistically significant at each level. These results pre-suggests that a significant proportion of the factors that explain

learning skills and its deficits still lie elsewhere, and that accounting for a majority of these factors would require improved data gathering in existing household surveys like MICS. For instance, whereas there is substantial information on individual/home environment, there is information deficit on other areas of children's ecological environment, especially the policy and transitional environment (Bronfenbrenner, 1995) that surrounds them. This presents challenges in identifying schooling and livelihood experiences rooted in policy experiences and structural experiences that drive learning inequalities.

The implications outlined here require future surveys to endeavor to implement an ecological approach to data gathering, where livelihood and schooling experiences in the principal areas of children's local environment are targeted for data gathering. The confusion in understanding the language effect on learning skills in Northern Ghana also requires future MICS surveys to strive to collect information on all local languages, to ensure that country-level linguistic complexities are fairly represented in learning assessment datasets. The stark learning disparity between children in Northern Ghana and those in Greater Accra also require policy makers to think about different models and strategies of creating equitable schooling and learning opportunities beyond the current universalist approach – one that begins prioritizing the relevant socio-economic and livelihood challenges in children face in their local environment that threaten their educational trajectory.

5.8.0 Limitations

A key limitation of this study lies with the cross-sectional nature of the MICS6 data. Given that the foundational learning module represents a maiden addition to the MICS survey, learning outcomes recorded at the point of the survey may not reflect individual-level cognitive learning capacities that may have accumulated through the years of schooling. Additionally, assessment of learning only highlights the acquisition of formal school learning skills through cognitive assessment at the expense of the diversity of life-long learning skills acquired through nonformal schooling to effectively function in their local context (Yasunaga, 2014). Finally, whereas the results show statistically significant association between predictor variables highlighted in this study and children's access to learning skills, there were large confidence intervals associated with some of the results, especially from the regional level analysis. This has implication on the level of precision for some of the results and makes it difficult to draw accurate conclusions. But this is likely a data-level challenge associated with household surveys such as MICS, where sample estimates tend to be more robust at the national level than sub-level samples. Consequently, it is difficult for sub-sample cases to approximate population level parameters.

Important takeaways from manuscript 1 are that access to learning skills for children in the Northern regions were much further behind the rest of Ghana and the Greater Accra in particular. Moreover, the effect of local environment factors on access to learning skills also tend to show varied outcomes based on geolocation, with a more pronounced negative effect for learning skills acquisition for children in the Northern regions compared to Greater Accra.

In this second manuscript, I expanded my analysis beyond national education indicators and quantitative exploration of household survey data to closely examine micro-level experiences (MLEs) within children's local environments that reinforce schooling and learning disadvantages. By relying on interviews and focus groups with key stakeholders at the local level, Manuscript 2 revealed children's exposure to micro-level experiences (MLEs) arising from interactions with home, the school, and broader community, act as pathways to reinforce schooling and learning disadvantages in rural Northern communities. Specifically, these are MLEs largely stemming from tensions that surround their way of life and the formal school system. What this means is that efforts to address learning disadvantages in this context would also require restructuring the relationship between the school system and traditional patterns of life in rural communities to better align and support each other.

I was responsible for conceptualizing the study, designing the study instrument, conducting data collection and literature review, performing all analysis, and developing the manuscript. My supervisors, Drs. Vandna Sinha and Jill Hanley extensively reviewed and provided feedback throughout the process. My committee member, Dr. Myriam Denov also provided critical feedback during writing process. My research team members, Shadrach Yipiin and Enoch Kumah facilitated data collection, translation, and transcription. The manuscript will be submitted to Compare: A Journal of Comparative & International Education

Chapter 6: Manuscript 2

Beyond macro-indicators: exploring micro-level educational experiences (MLEs) reinforcing learning inequality in rural Northern Ghana.

6.0 Abstract

Educational interventions in Ghana and SSA in recent decades have mostly focused on improving macro-indicators around enrolment, attendance, completion, and learning outcomes, with very little attention to the structural and socio-economic disadvantages in different geolocations that shape children's schooling and learning. Premised on empirical accounts of historical disadvantages in Northern Ghana, our study explores the layers of local environment experiences that constrain children's access to schooling and learning in rural Northern Ghana, through the lens of ecological theory. We rely on qualitative interviews and focus groups to draw perspectives from basic school students, teachers and principals, and district education officials to provide insight into micro-level educational experiences (MLEs), arising from children's interactions with the temporal and policy environments that foster schooling and learning exclusion unique to rural northern communities – MLEs which potentially widen the inequality gap between rural Northern schools and the rest of Ghana. Specifically, Specifically, tensions between the formal school system and the temporal lifestyle of rural communities, exposure to insecurity from tribal and ethnic conflicts, complications with language-of-instruction policy, and the absence of absence of teaching and learning materials (TLMs), were highlighted as some of the experiences that create learning alienation. Following these findings, we argue that Ghana's commitment to ensuring access to quality and equitable basic education and learning skills by 2030 can yield major gains if educational policy interventions target MLEs embedded within the broader structural and socio-economic disadvantages in rural Northern Ghana.

Key words: Micro-level educational experiences; Basic education access; Rural Northern Ghana

6.1 Background

Educational systems in Ghana and several others in Sub-Saharan Africa (SSA) are largely grounded in international approaches to assessment, which conventionally rely on macro-level quantitative metrics on school enrolment, transition, and completion as benchmarks for determining Basic Education Access (BEA) and equitable distribution of schooling and learning opportunities (Spaull and Taylor, 12; 2015; Unterhalter, 2019; Filmer, 2023).

In the Ghanaian context, as in many SSA countries, macro education indicators show significant improvements in access at all levels of schooling. Gross enrolment at the Junior High School (JHS)[38] level for instance, has increased from 64% (2001/2002) to 84.6% (2020/2021) (MOE, 2001; 2021), representing the highest participation in JHS today compared to any other period. These quantitative metrics highlight how far Ghana has come in improving children's educational opportunities. Yet a significant component of the BEA debate appears either missing or unexplored in both literature and policy conversations around achieving inclusive, equitable, and quality basic education for all children. The micro-level experiences (MLEs) of schooling and livelihood in underserved geographical contexts are often overshadowed by macro-level quantitative indicators that rely on enrolment and completion statistics – an approach that frames access with little regard to understanding the layers of inequities that shape schooling and learning experiences in children's local environment. There are indications to suggest that educational disparities in many SSA extend beyond the observable outcomes captured by macro-indicators (Lewin, 2011; Nkrumah and Sinha, 2020) to complex systems that surround children's local

[38] JHS comprises grades 7-9 in Ghana's basic school system, which is the cohort on which this study focuses. GER rates are provided is based on administrative data (See

environment, which are not only challenging for measurement, but also due to inadequate regime of data infrastructure (ESSA, 2020). Since social and economic life in many rural and subsistence agricultural communities in Ghana revolves around daily struggles to meet basic livelihood needs (Yaro, 2006; Aasoglenang et al., 2013), exploration of livelihood experiences along with schooling stand to offer a broader insight into factors that underline learning inequality in Ghana.

Already, literature on international development and political economy on Ghana show evidence of climatic and colonial-induced development and socio-economic disparities that follow Ghana's North-South[39] regional divide – a situation that means that access to, and the quality of educational opportunities are also heavily influenced by region and geography (Abddulai and Hickey, 2016). Consequently, macro-level statistics capturing access to schooling and learning opportunities at the national level are more likely to render vulnerable and excluded children in underserved rural Northern contexts invisible.

My approach to BEA in this study addresses two critical gaps in the understanding necessary to develop evidence-based policies to improve the educational experiences of children in the most excluded and marginalized communities and regions. First, reliance on macro-level indicators potentially overshadows qualitative exploration of children's unique experiences and socio-cultural interactions at the individual, household, and broader contextual factors that create layers of inequities and injustices shaping unequal schooling and learning access at local levels (Lewin, 2011; Nkrumah and Sinha, 2020). Second, existing research and policy discussions rarely link educational inequities in disadvantaged regions/settings to the broader structural questions

[39] The North-South regional divide in Ghana references preexisting socio-economic disparities that disproportionally favors regions in the South compared to those in the North (See Abdulai and Hickey, 2016; Abdulai et al., 2018).

around socio-economic and developmental disparities outside of the educational system (Abdulai and Hickey, 2016).

To address these gaps, there is the need for a deeper understanding of the ecosystems surrounding children's livelihood and influencing their educational trajectory, especially in areas where educational disadvantages abound. This includes, for instance, family and school connections, societal norms, and national strategies in distributing fairer educational opportunities for children, as well as the broader historical and structural dynamics and transitional moments that influence an individual child's educational path (Iruka et al., 2020).

6.2. The current study

Compared to the country's South, regions in Northern Ghana are identified in the empirical literature as the most disadvantaged geolocation, with broad socio-economic and educational inequalities (Abdulai and Hickey, 2016; Salifu et al., 2018). The present study therefore explores the ecosystem surrounding children's schooling and learning in rural northern communities to unpack the context around livelihood experiences that drive educational inequality but often remain unaccounted for in the existing metrics on BEA at the national level. I conceptualize BEA to encompass all the schooling and day-to-day livelihood experiences in children's local environment that combine to shape their schooling and learning outcomes and the overall educational opportunities available to them. I draw on community-engaged qualitative research design (London et al., 2020; Han et al., 2021) and ecological theories to account for the key markers around children's local environment that drive educational inequalities. In doing so, I address a central research question immersed in the existing gaps: What unique livelihood experiences in rural Northern Ghana shape children's schooling and learning access and unequal

learning outcomes? And what mechanisms do these experiences drive learning inequality in the basic school system?

6.3 Literature

6.3.1 Ecological perspective to studying educational inequalities.

Specific to Ghana and SSA generally, the application of ecological approaches to understanding vulnerabilities and inequalities have featured widely in different research fields, including literature on orphanhood (Yendork, 2020), mental health (Atilola, 2014), health promotion (Scott et al., 2), and environmental justice (Amuzu, 2018). But ecological approaches are seemingly limited in areas on children's schooling and learning access in Ghana. Outside the SSA context, however, a growing body of educational research has employed ecological perspectives to highlight the multi-layered effects of surrounding environment contexts on children's learning achievement and educational outcomes (Manca and Delfino, 2021). A majority of these studies emphasize the unique role that different contextual factors around the home and broader socio-cultural environment play in children's schooling and learning trajectory - thereby echoing the need for policy strategies to pay special attention to these unique interconnections when promoting equity in schooling and learning access (Bishop and Noguera, 2019; Nation et al., 2020; Manca and Delfino, 2021).

In the United States, for instance, housing instability, homelessness, and criminal justice experiences were found to be part of a multi-layered urban dynamic that constrains learning achievement in schools serving large urban neighborhoods (Nation et al., 2020). In Tennessee, specifically, Voight et al. (2012) studied the longitudinal effect of residential mobility on academic achievements in urban schools. The study found children with early residential mobility experiences (in Grades K -2) were associated with both reading and mathematics achievement

gaps in Grade 3, with these disparities persisting during later elementary and middle school years in terms of negative outcomes in mathematics achievements (Voight et al., 2012). In a recent study by Iruka et al. (2020), the prevalence of higher poverty rates and limited school and community resources and partnerships were emphasized by educators as limiting early learning opportunities for children in rural Nebraska.

There is also a significant emphasis in existing literature on the usefulness of ecological approaches in illuminating why recent educational policy solutions rarely address persistent disparities in learning achievement and educational outcomes. Nation et al. (2020) attributes this tendency to the fact that policy interventions addressing disparities often target singular aspects of the environment (i.e., the school or classroom) that reproduce inequality – and therefore lack a multi-sectoral approach targeting the broader ecological environment. Similar conclusions were also reached by Joseph and Noguera (2019), who emphasized underperformance as one of the epic challenges facing schools that serve the most disadvantaged students in the US context, even after several policy reforms. To ensure that educational policy achieves the most equitable outcomes possible in children's learning, Joseph and Noguera (2019) call for interventions that first challenge structural inequalities both within and outside of the school system that impact academic performance and wellbeing. Studies with a more rural focus have also highlighted challenges around familial poverty, pre-school access, and local community resources as part of the layers of local environment experiences that constrain early learning opportunities in rural settings (Iruka, et al., 2020).

Whereas these studies overlap in their presentation of vulnerabilities and inequalities as multisystemic risks embedded within the broader socio-cultural environment (Yendork, 2020), they do not reflect the centrality of subsistence activities in the rural context of the global South

and its extended impact on educational inequality. Importantly, these studies remain silent on the effect of temporality within the broader ecosystem in driving educational inequality in rural and underserved contexts. Application of ecological approaches would be useful to understanding how specific local environment interactions underpin learning inequalities in rural contexts in Northern Ghana.

6.3.2 Structural and socio-economic disadvantages in Northern Ghana

Rural settings across the global South, and SSA specifically, have unique challenges with the availability of social services, including education, compared to their urban counterparts (Zhang, 2006; Anlimachie and Avoada, 2020; Anlimachie et al., 2022). This challenge is not uncommon in the Ghanaian context, where rural communities and districts often record the worse educational outcomes in enrolment, attendance, transitions, learning skills, and educational resources (Ansong et al., 2015; Opoku-Asare and Siaw, 2015; Anlimachie, 2015, 2019; Anlimachie and Avoada; 2020). In the Ghanaian context, however, rural-urban gaps in education are further widened by broader socio-economic and developmental disparities across the North-South divide, to the disadvantage of regions in the North (Abdulai and Hickey, 2016). Regions and districts[40] of the North, which account for about 40% of Ghana's poor, have predominantly rural and deprived settlements and low-performing schools, compared to the South (Abduali et al., 2018; Anlimachie and Avoada, 2020).

Literature from different scholarly disciplines (i.e., environmental science, international development, political economy) highlights a diversity of structural, political, and environmental factors that compound socio-economic disadvantages in the North. Foremost, colonial policies of

[40] Districts represent the 3rd tier of governance structure of the Republic of Ghana, coming after the national and the regional levels, in order of importance.

exploiting the resource-rich forest-belts of the South deprioritized the development of the North, which was seen as less profitable. Educational opportunities in the then Northern Territories (NT)[41] were therefore limited to the basic level and organized to produce the manual-workers needed to further colonial policy (Thomans, 1974). Harsh (2008) and Lall et al. (2009) have also advanced arguments around the natural/physical environment, especially the poor soils and long dry seasons of the North, which rarely supports year-long farming activities. Such conditions are known to foster food insecurity, under-employment, and poverty, as well as fuelling regular north-south labour migration of young people (Abdulai et al., 2018; Anlimachie et al., 2022). The combined effect of colonial policies and environmental conditions have adverse implications for the educational trajectory of young people in rural Northern Ghana.

From the political economy perspective, Abdulai et al. (2018) also underscored the primacy of local politics and agro-policy decisions over geography and environmental factors in compounding the poverty and socio-economic vulnerability of the north. They emphasize political neglect – reflected on one hand, in the underinvestment in staple crop production in the north, upon which the livelihood of the poor depends on. On the other hand, political neglect is seen in the concentration of productive economic investments in cash crops in the more affluent southern regions for foreign exchange, with expectations that economic growth trickle down to poorer north through redistributive mechanisms. Accordingly, these highlighted policy decisions create high concentrations of poverty in the north (Abdulai et al., 2018). In the educational expenditure literature, Abdulai and Hickey (2016) further demonstrate how national level policy decisions continue to disadvantage the north in the area of basic education. For instance, they point to per-

[41] The Northern Territories in colonial times refer to modern day Northern Ghana, which has five administrative (i.e., Northern, Savannah, North East, Upper East and Upper West) regions.

child spending for primary schools in affluent regions like Greater Accra and Eastern, which was estimated to be 34 percent higher than the national average, compared to poorer Northern regions like Upper East and Upper West, which were shown to be 100 percent below the national average (Abdulai and Hickey, 2016). These compounding disadvantages in Northern Ghana mean that rural children often need to deal with unique intersectional experiences of structural socio-economic vulnerabilities as well as vulnerabilities related to their geolocation (rurality) – experiences that have adverse implications for their educational trajectory.

6.3.3 Conceptualizing learning inequality as a function of the local environment

To aid a comprehensive understanding of the current dynamics surrounding learning disparities in Northern Ghana, I situate the current study in ecological perspectives, as advanced by Bronfenbrenner (1995) and Joseph and Noguera (2019). Ecological theories situate the child at the center of multiple levels of interactions within their local environment. They emphasize the importance of considering context and the dynamic interactions that individual children have with their environment in explaining individual behaviour and outcomes (Johnson, 1994; Foster et al., 2022). Ecological interpretation of learning disparities therefore requires consideration of multisystemic risks and vulnerabilities associated with individual children, which are embedded in interactions at the family, the school, and neighbourhood contexts that are, in turn, shaped by interactions at the national-level and the broader socio-economic, political, historical, and cultural structures (Nation et al., 2020; Foster et al., 2022).

In Bronfenbrenner's ecological theory, these multiple interactions occur in four main environment types and/or systems, involving the *micro-environment*, the *meso-environment* (community or organizational), the *macro environment* (i.e., policy level environment), and the *chrono-environment* (i.e., temporal level). The *micro-environment* refers to interactions at the

individual/personal level, which often are the most proximal to a child's development. They represent the relationships children have with their immediate surroundings such as the family, friends, teachers, school, etc. that influence their schooling and learning ability. The *Meso-environment* highlights interactions at the community/organizational level, which is best reflected in the spaces where different individual-level actors within the *micro-* and *meso-environment* interact. This for instance, could relate to how interconnections between a child's family and the school system or between the church and family impact the child's schooling and learning ability. The macro-environment includes interactions at the policy-level, involving the broader political environment that shapes children's experience with the school system and overall educational opportunities. The final system represents the *chrono environment*, which in Bronfenbrenner's work (1995) revolves around children's interactions with temporal events, or the dimension of time, including major historical, social, and political transitions, as well as individual transitions and counter-transitional events that impact children's developmental process (Kruger et al., 2016; Fish and Syed, 2018), including the development of learning skills.

While the main objective in using this framework is to understand how children's interaction with each of the four environment contexts manifests in rural Northern Ghana and shapes children's educational and learning trajectory, we are specifically interested in how micro interactions are respectively underpinned by the policy (macro-system) and temporal context (chrono system) of rural Northern Ghana. Whereas empirical explication of the first three environment contexts in Bronfenbrenner's ecological theory has received enormous attention in education literature (Lee, 2008; Joseph and Noguera., 2019; Iruka et al., 2020), there is little understanding of how the temporal context, with its multi-faceted and complex formations shape individual cognitive outcomes, especially in deprived rural settings. I hope to explore the nature

and manifestation of temporal interactions in rural Northern Ghana and how such interactions drive inequality in schooling- and learning-opportunities.

Since existing literature shows educational quality and outcomes as being shaped by the region and neighbourhood where children attend school (Senadza, 2012; Abdulai and Hickey; 2016; Anlimachie and Avoada, 2020), drawing on ecological theories can aid our understanding of the mechanisms through which geolocation dynamics shape schooling- and learning-related inequalities in Ghana's basic school system.

6.4. Methods

6.4.1 Research design

For this study, I relied on a community-engaged qualitative research design (London et al., 2020; Han et al., 2021). I began with an initial consultation phase, first with district education officers to identify deprived communities in each district to include in our sample, and second, engagement with identified community chiefs and elders to welcome the research team in their communities. The field data collection, involving interviews and focus group discussions with teachers, school children, and local education officials who implement national policies at the district level, took place in rural Northern Ghana and spanned five months.

6.4.2 Study communities in rural Northern Ghana

Northern Ghana currently comprises five administrative regions (i.e., Northern, Savannah, North East, Upper East, and Upper West). Compared to the south, regions in north are sparsely populated, with dispersed rural settlements being home to 64% of the population compared to the national 43.3% rural population (GSS, 2021). Whereas regions in Northern Ghana are characterized by immense linguistic diversity, they are nonetheless homogeneous along cultural

and historical lines, sharing previous experiences of intermittent chieftaincy and tribal conflicts in some parts (Bogner, 2000; Awedoba, 2009; Tonah, 2012).

The current study focused on three (Northern, Savannah, and North East) of the five regions. Five rural communities were selected from three districts, one each from the three regions, based on their remoteness from regional towns and deprivation of educational needs. The Nanumba North district, which mostly comprises Likpapaln- (Konkomba) and Nanumba-speaking[42] communities, was selected from the Northern region. The East-Gonja district, selected from the Savannah region, is predominantly Gonja-speaking, with pockets of Likpapaln-speaking communities scattered across the district. In the Yunyoo-Nasuan district (North East Region), the communities are multi-ethnic, with Likpapaln-, Dagani-, Kusasi-, Mamprusi-, and Chokosi-speaking communities among the dominant ones. School pupils visited in this district had different mother-tongue languages, with English serving as the common language of instruction. In all five communities, subsistence agriculture was pervasive, serving as the most important economic activity for a majority of the population. The Northern and Savannah regions are mostly known for their yam and cereal-crop production. However, the rocky landscape surrounding selected communities in the North East region meant that farming activities in the area are largely restricted to cereal crops such as millet, guinea corn, maize, as well as animal husbandry.

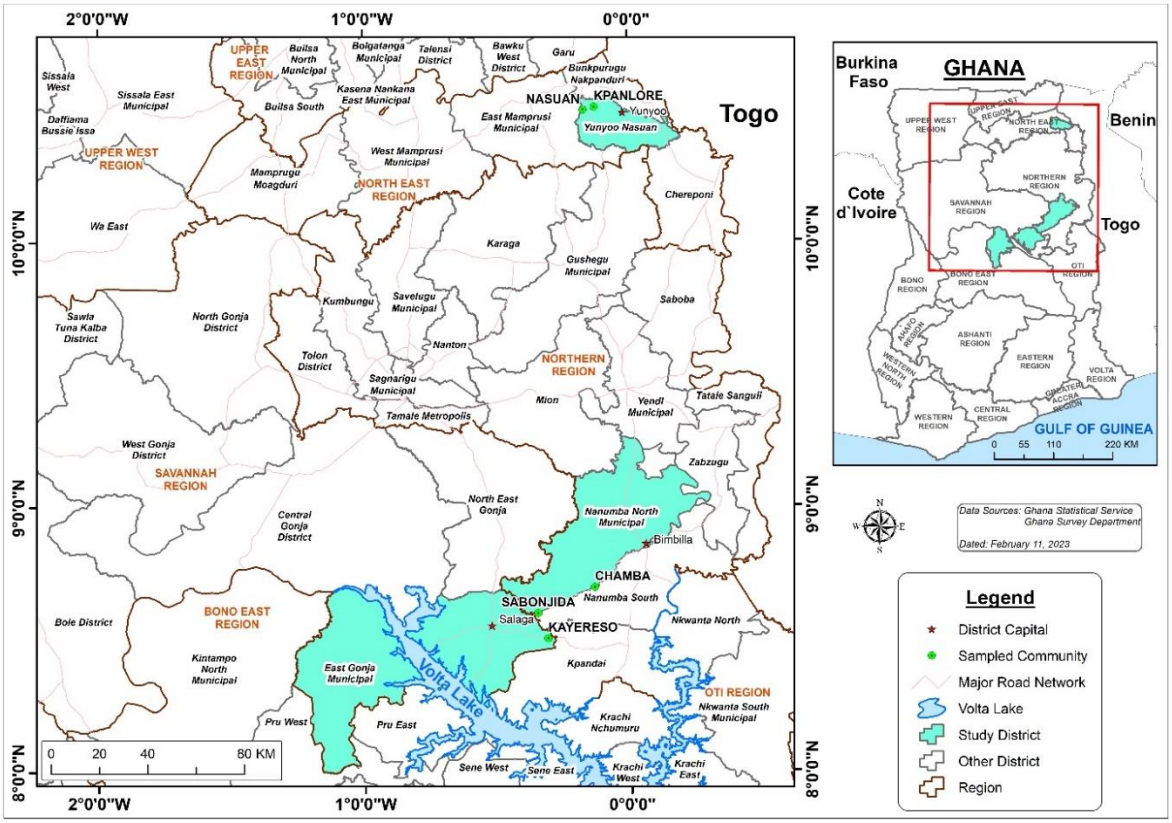
Three of the study communities are situated along a 138-km road network connecting the Northern region to the Savannah region, making them accessible by vehicle or motorcycle. However, these are mainly untarred roads, bursting with red-earth dust. Most schools in these communities are situated along the main road network, making them particularly exposed to the

[42] Likpapaln is the language spoken by the Konkomba people who are regarded as native in norther Ghana; The Nanumba people speak Nanum, which is classified as a dialect od Dagbani, the official Ghanaian language of the Northern region.

intense thick cloud of red dust which hover around the school compound and classrooms, whenever a big truck passes through. Schools in the two communities in the North East region are quite remote and only accessible by motorbike on difficult rocky paths. Across the five communities, children who live in surrounding villages with no JHS[43] would often walk between five to fifteen kilometers to attend school. Schools in all the communities differed in terms of their physical state, teaching and learning resources, such as availability of textbooks and professional teachers. Two had physical structures that were fairly new, with adequate furniture. The others, however, were in weak structures, some in worse conditions than others – mostly with porous and leaky roofs, such that learning activities would immediately come to a halt or be cancelled anytime it rained or experienced strong winds. Figure 14 highlights regions in Northern Ghana, and the districts and individual communities selected for data collection.

[43] Junior High Schools (JHS) in the Ghanaian basic school system is a 3-year school system comprises grades 7-9.

Figure 14: Map of the Northern regions, showing study districts and communities



6.4.3 Sample selection and interviews

After identifying the study communities, I followed a purposive and snow-ball sampling procedures to select 24 school children and 12 adults participants (*n*= 36) as shown in table 8. Adult participants comprised 9 caregivers, 9 school teachers and principals, and 3 District Education Officials (DEOs). In selecting school children, I focused on pupils in the final year of JHS (grade 9). This ensured the participation of children who are likely to have longer years of schooling and livelihood experiences, and therefore better placed to share the collective implication of these experiences on their schooling and learning outcomes, compared to children at the primary level. I relied on the semi-structured, face-to-face interview format for interviews with school children, as well as with key informant school teachers, principals, and DEOs. After

interviews with school children in each community, a total of 5-6 pupils were identified for a focus group discussion in each of the three districts. Questions for the interviews and focus groups were based on seven major thematic areas (i.e., demographic information; household and schooling experiences; gender perceptions about schooling; learning environment at home and in school; teachers and teaching conditions; preparations for national examination; conceptualization of childhood and schooling) followed up by clusters of probing questions during in each interview and focus group phase.[44] Interviews with adult participants were conducted in English, whereas those with children were conducted in English and other local languages[45], based on the preferences of individual children. In the focus groups however, participants often switched between English and Likpapaln languages. The interview process was supported by two competent research assistants, who both hail from the research communities and were responsible for facilitating interviews in the local languages as well as the focus groups. All interviews and focus groups were electronically recorded alongside handwritten notes. Back translation (Chen and Boore, 2010) from local language into English and back to the local language was carried out separately by the research assistants for all interviews and focus groups conducted in the local languages. Translations were later verified by the research team to reduce errors and ensure coherence and trustworthiness participants information (Santos et al., 2015). The data collection process and its management were approved by the McGill University Research Ethics Board (REB 20-09-029).

[44] Details of the thematic areas are highlighted in the Appendix 2 - 5.
[45] Local languages used in data collection were primarily Likpapaln (used in both interviews & focus groups) and a few in Dagomba (only for interviews)

Table 8: Profile of respondents and data collection approach

	Category of respondents	Sample (*n*)	Profile	Data collection method
1	Basic school student	24	Students in Junior High School (JHS 3) between the ages 14 and 20 years	Demographic sheet. Semi-structured, face-to-face interview guide, Focus group guide.
2	School teachers & principals	9	Trained professional teachers and Volunteer teachers who were often Senior High School (SHS) graduates or people with diploma certificates	Semi-structured, face-to-face interview guide
3	District education officials	3	2 deputy directors and 1 director responsible for supervision who had being at post for 5 or more years.	Semi-structured, face-to-face interview guide

6.4.4 Data analysis

All interview data were transcribed, coded, and analyzed using a thematic analysis (Nowel et al., 2017) and with the aid of the MAXQDA (Verbi Software, 2021) qualitative software program. The coding and analysis were guided by the ecological model (Bronfenbrenner, 1995; Joseph and Noguera., 2019), highlighting, for the purposes of this article, key livelihood experiences in four aspects of the children's local ecosystem: personal, community, policy, temporal. Thematic analysis was organized in two steps: (1) themes emerging from the different codes were organized into broader themes or profiles of local environment experiences, which I collectively refer to as Micro-Level Educational Experiences (MLEs); (2) within each theme of MLEs are sub-categories/themes that explain the specific ways in which MLES manifest in children's lives to reinforce learning inequality. MLEs in this study collectively refer to experiences of educational disadvantage, emanating from the day-to-day schooling and livelihood experiences children face in their local environment that directly or indirectly shape schooling and

learning outcomes, and the educational trajectory. Following this categorization, the analysis identified experiences which thematically fit into 10 major profiles MLEs and 20 direct MLEs prevalent among children in rural northern communities – which may not be exhaustive - due to the thematic areas we focused on in this study.

In this article, however, I limit the analysis to those MLEs traced to interactions around the policy and temporal environments. While all MLEs are worth attention, I focus on those underpinned by the policy and temporal environments for two reasons. First, the nature of temporal experiences of educational disadvantages are often immersed in political, colonial, and structural complexities, which make their effect on schooling rarely visible, and therefore not easily appreciated in policy circles. Second, due to the lack of visibility of their impact, experiences emerging from temporal interactions are in turn, unlikely to be captured by existing educational assessment and household survey datasets that inform macro-level indicators of BEA and educational inequalities.

6.5 Results

The findings show that school children in rural Northern Ghana face regular exposure to layers of MLEs unique to rural northern contexts, which do not support the kind of schooling and learning environment needed to develop and sustain equitable learning outcomes expected of the formal school system. I present four of these MLEs emerging from children's temporal and policy environments and the pathways through which they drive inequalities in accessing learning skills in rural northern schools. Table 9 provides a summary of the four MLEs highlighted by respondents and provides a summary of the themes highlighted by respondents.

Table 9: Temporal- and policy-related MLEs emphasized by respondents

	Theme (MLEs)	Description/Manifestation	Exemplar
1	Temporal environment interactions: There is tension between the temporal patterns of life in rural northern communities and the formal school calendar that create exclusion from learning	Temporal livelihood patterns manifest in seasonality of subsistence farming and participation in farmwork (during the rainy season) – which is the main source of livelihood. The incompatibility of the rainy season and the formal school calendar leads to exclusion from schooling and learning activities.	*…Basically, what normally keep children away from school is farming activities during the raining season. Sometimes some parents engage their children in farming for longer periods away from school. Even though the children are not school drop-outs, they can be away for weeks, to help their parents on the farm.* [School teacher].
2	Temporal environment interaction: Experiences of post-conflict tensions create insecure environment	Occasional rise of tensions and hostilities in communities that have already experienced violent ethnic conflicts creates insecurity and fear of the unknown, especially among prospective teachers. This disrupts teaching and learning activities in some communities.	*…when the conflict happened, a lot of these teachers were in the remote communities and most of them suffered from it. So even till date, this conflict is still on the minds of people. At a point in time, it seemed to be getting off the minds of people until a recent issue in one community happened. Then people saw that no, anything can happen at any point in time… I know a teacher from that community. Since the incident, he no longer stays there. Why? Because he doesn't know when something can happen again [DOE1].*
3	Policy/temporal environment interactions: Linguistic diversity and language-of-instruction policy create layers of instructional challenges for some children in rural northern schools.	Children's exposure to 3 unique forms of instructional challenges: (1) Children have limited competency in English, the official language of instruction; (2) Teachers lack competency in local/mother-tongue language of community; (3) Limitations to recognition of one official language in multi-ethnic communities. Such complex situations create leaning challenges and alienation for some children.	*They teach us in English… Ahh yes, I'm able to understand what they teach in English. But sometimes too, I don't understand… But for teachers who speak our Konkomba language (Likpakaln), they sometimes switch to Likpapaln if it happens that some of us don't [understand] in English? So, if three people notify a teacher that they don't understand some parts of the lesson, the teacher is able to explain in Likpapaln, if he understands it* [Child 1].
4	Policy environment interactions: Experiences of deficits in educational policy implementation in rural northern context	Manifests through children's lack of access to textbooks, inadequate teaching staff, and other learning materials required to facilitate the development of learning skills.	*We don't have teachers for Basic Design and Technology (BDT), Dangbani [Ghanaian language], and ICT and yet we will write these subjects during the BECE… there is pressure on the few teachers that are here to help us [Child 10, community 5]*

6.5.1 Temporal: seasonal livelihood in rural Northern communities.

Since most families in rural northern communities rely on traditional subsistence agriculture as their main source of livelihood, respondents emphasized the rainy season, where most farming activities take place as the single most important period of the year for families in rural communities. Interactions with participants signaled that the collective responsibility of the family as a unit requires individual members (both young and old) to participate in the planting of crops. During off-peak farming seasons, most children usually focused on their schooling and only helped with farm-work on weekends and after-school-hours. However, in the raining season, which also marked the beginning of the farming season, children's responsibilities tended to shift away from schooling to helping the family to plant for food. This obligation towards securing the collective livelihood and welfare needs of the family underscores a temporal livelihood style that not only coincide with the basic school calendar, but also essentially leading children to prioritize family responsibilities over schooling. Teachers noted that, as a consequence, children miss out on significant learning hours needed to complete the basic school curriculum, as noted in the response by Teacher 1:

> *When it rains, you won't find a boy here. At this time, we're even lucky, because they have finished harvesting the yams, so most of them are regular in school. Else, some of them can go and stay on the farms for a week to do harvesting work… So it varies. When the raining season starts, which is the time to prepare the yam mounts*[46] *for planting, most of the boys will be absent* [Teacher 3, Community 1].

[46] Refers to earth mounds prepared and used to plant yam suckers.

Other teachers also pointed out the gendered dynamics associated with this engagement, whereby the physical skills of male children were often needed to till the soil before planting – keeping male children away from school for longer periods:

> *Basically, what normally keep children away from school is farming activities during the raining season. Sometimes some parents engage their children in farming for longer periods away from school. Even though the children are not school drop-outs, they can be away for weeks, to help their parents on the farm. So that's what normally keep children away from school. [Teacher 1, community 5].*

6.5.2 Temporal: Post-conflict hostilities and disruptions to teaching and learning activities

Life experiences that capture the long-standing effect of inter-ethnic conflict on the educational system featured prominently in interviews with teachers and DEOs in some communities. They described occasional surges in tensions associated with previous violent conflicts as a reality they live with. This was specifically in reference to inter-ethnic conflicts between the Konkomba and Nanumba ethnic groups[47] (1994 – 2000) in present day Northern Region, leading to at least 1000-2000 deaths, 150,000 displacement, and destruction of several communities. These tensions often create a sense of insecurity and fear of the unknown in some schools[48] and among teachers who belong to opposing sides of the conflict and prospective teachers assigned to such communities. The DEO in district 1 for instance, stressed the absence of long-standing peace as a key challenge to creating a functioning school system and promoting equitable access to learning for all children, especially those in surrounding rural communities in

[47] Inter-ethnic conflict between the Konkomba and Nanumba ethnic groups in the Northern region of Ghana started in December 1994 over access to land and local political representation (Bonger, 2000; McGadney-Douglass and Ahadzie, 2008).
[48] Schools in research community 1 and 2 often cited the disruptive experiences of post-conflict tensions.

his district. Even though the main conflict may be long over, DEO 1 explained that there is a certain level of fear of the unknown that still lingers on in the minds of residents in many communities of a possible resurgence of hostilities. He explained how such insecurities create teacher shortage and disrupt schooling and learning access:

> *…if you look at our teacher ratio, majority of them are Nanumbas. And when the conflict happened, a lot of these teachers were in the remote communities and most of them suffered from it. So even till date, this conflict is still on the minds of people. At a point in time, it seemed to be getting off the minds of people until a recent issue in one community (Nyakpachie) happened. Then people saw that no, anything can happen at any point in time. I know a teacher who resided in that (Nyakpachie) community. Since then, he no longer stays there. Why? Because he doesn't know when something can happen again* [DEO in district 1].

Communities that experience regular tensions tend to have serious difficulty retaining teachers, which compounds an already difficult learning environment with the lack of teachers to facilitate teaching and learning activities. This long-term effect of previous conflict on children's schooling underscores how the temporal environment affects all interactions. Specifically, in understanding how the dimensionality of time, in a major socio-transitional event like ethnic conflict, lingers on years after to shape how children interact (i.e., temporal interaction) with the educational system.

6.5.3 Policy: Linguistic diversity and language of instruction challenges.

Instances of linguistic diversity were observed in classroom settings and from interactions with students and teachers in the research communities. This is largely the results of multi-ethnic

communities with different language profiles occupying the same geolocation and attending the same schools – a situation that creates complex scenarios of linguistic diversity in rural northern schools unlike in large parts of Southern Ghana. Interactions with respondents showed that these language complications challenge the effectiveness of the current Language of Instruction (LOI) policy[49] in creating equal access to learning opportunities for children in rural northern schools. Experiences discussed by children suggest three main instances in which this linguistic diversity in classroom settings complicate the learning process. First, some students discussed their limited competencies in English, the official LOI, which meant they sometimes required a switch to mother-tongue languages used in the locality. Second, there were also situations of lack of local language competency by out-of-region/community teachers[50], making it difficult for such teachers to switch to mother-tongue languages when students needed it. This was clarified by Child 1:

> *They teach us in English… Ahh yes, I'm able to understand what they teach in English. But sometimes too, I don't understand…But for teachers who speak our Konkomba language [Likpakaln], they sometimes switch to Likpapaln if they teach, and it happens that some of us don't [understand] in English. So, if three people notify a teacher that they don't understand some parts of the lesson, the teacher is able to explain in Likpapaln, if he understands it* [Child 1, a female student in community 5].

The third instance was observed in a cluster of communities where the language used was different from the official local language-of-instruction used in the administrative regions where

[49] LOI policy in Ghana's basic school system is prescribed at the national level and indicates English as the official LOI, and 11 other official local languages-of-instruction (LLOI) to be used alongside English. Consequently, even though some Northern regions have multiple dominant languages, only one is recognized as the official LLOI and often used alongside English in schools.

[50] Out-of-province teachers refers to those (i.e., mostly from Southern Ghana) who are posted rural communities in Northern Ghana and often do not share the same mother-tongue langue of their host community.

those communities are situated. This created a situation whereby students and teachers did not share any common local language - making teaching and learning activities difficult for children with limited competencies in English. In Community 3, which is a minority Likpapaln-speaking community in a region where the official local language-of-instruction is Gonja, some students described experiences that reflected instances 1 and 2, while others also spoke about frustrations in some classes, as described by a 16-year-old male student:

> *…if it is time for Gonja lessons, the Gonja master comes to teach and go… It's only three guys that understand Gonja in our class. If the teacher comes, we'll just be laughing and sometimes he gets angry and goes out* [Child 3].

The language and instructional challenges described by respondents show how the Ghanaian educational context and its LOI policies, as a macrosystem, also influence the learning dynamics and creates learning exclusion for some children in rural Northern Ghana

6.5.4 Policy: Deficits in educational policy implementation in rural northern communities

Interactions with all the key stakeholders (i.e., children, teachers, and DEOs) emphasized experiences of educational policy deficits, born out of implementation challenges of the basic school policy in rural northern contexts as well as inherent gaps in the existing policies. Students and teachers specifically described noticeable deficits relating to Teaching and Learning Materials (TLMs), professional teaching staff, and the supply/implementation of national curriculum required to facilitate learning activities. In all the schools visited, only 3-7 professional teaching staff were reported per school for handling a total of 8 subjects to a student population ranging from 76-150. A summary list of all trained and volunteer teaching staff is shown in Table 10. While the student/teacher ratio may not seem acute, it must be noted that basic Junior High Schools

(JHS) run a total of 8 subjects across 3 grade categories. This means that teachers must teach multiple grades, often with little or no teaching materials. Some schools did not have teachers for all the subjects, necessitating students and their caregivers to pay for the services of volunteer teachers[51] to fill in the gap, as indicated by teacher 7.

> *…I will say we have inadequate number of teachers as a matter of fact. Every subject/course need to have at least, one teacher. If every subject gets one teacher, at least we can mange it. But we don't have that here. We have volunteer teacher here, and the NABCO[52] teachers also here. But NABCO teachers are not under the supervision of the GES, so whether they come to school or not you cannot comment on what they do. As for volunteer teachers, as the name implies, they are volunteers. So if they come to school, it is for the better, if they don't come, you cannot force them* [Teacher 7, Community 3].

Stakeholders' description of TLMs such as textbooks and examination logistics was dire and seemed non-existent in almost all the schools visited. While Ghana's free universal basic school policy prescribes the distribution of government textbooks for each school grade, based on the existing curriculum, textbooks to facilitate teaching and learning were rare in most schools. A principal in community 1, for instance, cited a 7-year period as the last time his school received government supplied textbooks, which highlights the inherent failures in central government distribution of textbooks to underserved communities in the north, thereby requiring students and their caregivers to fill in such gaps at their own expense. These experiences collectively paint the daily struggles schools in rural northern communities face in meeting the barest minimum learning

[51] Volunteer teachers were in the schools visited were mostly instructors with only senior high school or diploma certificates, who had no professional teacher training experience.
[52] This was a national program aimed at sending graduates from tertiary institutions to teach relevant subjects in primary and secondary schools across the country as a stop-gap measure.

conditions required to develop expected learning outcomes, as emphasized by Child 2 and the principal in community 1:

> *That's what I'm saying! that government is supposed to provide the textbooks and syllabus for teachers to use in school, but these textbooks are not there. For example, they have changed the curriculum to a new one, but there is no syllabus for us and there is no single textbook…* [School Principal 3, Community1].

> *As I said, I go to do by-day during the weekends to get money… I raise yam mounds or harvest rice to get money. So that's where I get money to buy my books* [referring to textbooks] (Child 5, a male student in community 2].

Table 10: Presents reported number of teaching staff and student population in selected schools

	Community/school/Region	**Reported No. of teachers**	**Type of teachers**		**Reported Student population**
			Trained	Volunteer/Nabco	
1	Community 1 - NR	8	-	-	145
2	Community 2 – NR	4	3	1	85
3	Community 3 – S R	6	3	3	76
4	Community 4 – N.E R	10	7	3	150
5	Community 5 – N.E R	7	5	2	100

* NR = Northern region; SR = Savannah region; N.E R = North East region.

6.6 Discussion

The findings show that children's access to quality schooling and learning outcomes in rural northern communities are inherently embedded in the structural and socio-economic realities that surround their local ecosystem. Disadvantages driven by the local ecosystem are experienced by children. While schooling and learning disadvantages (MLEs) in rural Northern communities often emanate from how children interact with the four key areas of their local ecosystem (i.e., micro, meso, macro, and temporal), The results and discussions specifically focus on those MLEs that emanate from interactions with the policy and temporal environments.

6.6.1 Temporal-environment interactions

MLEs described by respondents in sections 5.1 and 5.2 respectively, empirically highlight the dimension of time in children's interaction with general seasonal, historical, or political events in their local communities create tendencies for learning exclusion in rural northern communities. This points to far deeper and broader understanding of schooling- and learning-related inequality beyond that on which existing educational equity policies focus. This is because tensions between the school system and farming responsibilities, which drive learning exclusion, are directly rooted in the failure of the school system to adapt to the temporal lifestyle of families in rural communities. These temporal MLEs show how the context of schooling- and farming-related tensions and insecurity, despite being critical aspects of experiences that drive inequality, are rarely targeted by policies that shape equity.

The findings on temporal livelihood experiences in rural norther communities corroborate the existing educational literature in pastoral communities in East Africa, where the mobile lifestyle of pastoralists often becomes a challenge for children in such communities to actively participate in the formal school system (Ng'asike, 2019). However, there are also examples of

educational systems either adjusting the school calendar or designing flexible curricular to respond to local conditions in jurisdictions across SSA and North America. Recent studies in Ethiopia and Tanzania (Alemu and Solomon, 2019; Ochieng and Waiswa, 2019) have, for instance, shown that restructuring the formal school system and designing flexible curricula to serve the needs of pastoral communities can expand the reach of the formal school system to cover otherwise excluded groups. There are examples of different rural contexts in northern Quebec, Canada, where schools close down seasonally to allow school children to participate in the Cree tradition of goose hunting (Scott, 1979). What these examples indicate is that embracing flexible school systems that allow for school breaks in peak farming seasons, would benefit students in rural Northern contexts to support the livelihood and welfare needs of their families.

6.6.2 Policy-environment interactions

Policy-level MLEs described by respondents reflect rural children's relationship with Ghana's educational system and its objective of ensuring access to quality and equitable basic education and learning skills for all children, as reflected in the Sustainable Development Goals (SDG 4.1.1). Even though Ghana is seen as a success case in SSA in universalizing BEA for its children, the findings reveal some failures in policy implementation and language-of-instruction policy as pathways through which the educational system itself creates systemic learning exclusion in rural northern communities. The promise of 'universality' and access to 'free' and 'quality' basic education for all, remains a critical tenet of Ghana's national education policy (Nudzor, 2012; Ministry of Education, 2012a, 2012b). The findings, however, reveal implementational deficits in the TLM distribution chain - leading to a failure to fully extend policy benefits to rural northern schools. There is limited scholarship on factors determining textbook availability and distribution to rural schools in Ghana. However, reports at the SSA have cited consistent underfinancing and

diversion of funds to local districts as key factors driving severe shortages in rural schools (Fredriksen and Brar, 2015; Read, 2015). These deficit experiences paint a policy reality where rural northern communities pay a higher cost (through the need for individual procurement of TLMs) for lower quality education compared to what their colleagues in most affluent urban centers would do. Shortcomings associated with extending the free and quality basic education promise to many Ghanaian children in underserved communities has been reported as far back as the late 2000s by Akyeampong (2009) and Nudzor (2012, 2013). This challenge of TLMs distribution reiterates the very process of educational policy implementation as an arena where the macro-environment reinforces inequalities and the need for a reconsideration of how universal policy interventions are implemented in underserved jurisdictions.

Findings on linguistic complications also show empirical manifestations of how the policy environment indirectly create learning exclusion for some children through the effect of language-of-instruction policy facilitating or impeding learning activities in school. In rural Northern contexts, this situation is characterized by some children's limited competencies in English, and the fact that teachers from many parts of the country are posted to rural northern communities, often with little to no knowledge of the official LLOI nor the local language of the community to which they are assigned. Such situations result in language mis-match between students and their teachers, subsequently serving as barriers to learning opportunities for some children. This lack of mother-tongue instruction in several educational systems in SSA has been echoed in different studies and reports (UNICEF, 2022; van Pinxteren, 2022) as a unique learning challenge SSA children – creating compounded learning exclusion especially for children of minority groups. This aligns with calls by several scholars (Brock-Utne, 2010; Lyytinen et al., 2019; Bonney, 2023) for a rethink of language-of-instruction policy to support the learning needs of SSA children

through mother-tongue instruction. The specific experiences of farming responsibilities, rise of ethnic tensions, language-of-instruction complications, and the lack of TLMs, as described by respondents, underscore the pertinence of the ecological approach, and specifically, the primacy of MLEs around children's temporal and policy environment over macro-level quantitative metrics in understanding the root causes of learning inequality in rural Northern schools. Though ecological perspectives on addressing educational challenges have huge policy presence in regions like North America, with advanced educational systems and complex histories of inequalities (Iruka et al., 2020; Nations et al., 2020), its application to understanding the ecosystem of learning inequality and tracing where policy interventions are most needed is limited in SSA, including the Ghanaian educational policy context. An understanding of the ecological pathways driving schooling and learning disadvantages in rural Northern Ghana offers key implications for educational policy interventions and research in Ghanaian and SSA at large.

6.7 Policy implications

Based on the temporal and policy-level MLEs, it is evident that critical aspects of the drivers of educational disadvantages in rural Northern communities stem from structural and socio-economic disparities. Interventions to create equitable educational opportunities and improve the quality of learning outcomes are therefore likely to be unsuccessful unless they address (1) the core structural and socio-economic constraints to decent livelihood (2) the disconnect between the rigid, colonial construction of schooling and the traditional and temporal life patterns in rural communities.

Improving learning quality in rural northern communities also requires a re-consideration of the existing language-of-instruction policy to prioritize mother-tongue instruction. Even though

the existing policy makes provision for official local languages for instruction, the over-reliance on English, in practice, continues to create barriers to effective comprehension and student engagement, effectively alienating some students from the learning process. Similarly, policy arrangements surrounding teacher postings to rural northern communities must prioritize (1) more natives to pursue teacher training programs, and (2) local language coherence between students and teachers – whereby only teachers with mother-tongue competencies in their prospective communities of service can be considered. Existing practices that oversee the posting of several teachers from southern regions to the rural north, often with no knowledge of the host community language, adds to the layers of instructional challenges in rural northern schools.

The lack of TLMs to support teaching and learning activities in rural Northern schools also highlight implementation deficits associated with Ghana's universal policy strategies for addressing educational inequality. Whereas basic education remains a free, universal service for all children, by making out-of-pocket payments for textbooks and volunteer teachers, school children from rural Northern communities essentially end up paying higher costs for a low-quality schooling, compared to their compatriots in urban schools, who often have access to qualified teachers and TLMs. This requires equity-based policy interventions that have targeted, long-term perspectives, and specifically tailored to the needs of rural Northern schools to address persistent schooling and learning disadvantages. A clear example here would be to consider community ownership models for rural school regarding TLM procurement and distribution process.

6.7.1 Research implications

Conceptually, my usage of the ecological approach highlights the temporal and policy environments as prime arenas for tracing experiences of educational inequality in rural northern Ghana. This underscores the need for constructing temporal- and policy-level MLEs as

fundamental component of BEA in rural Northern Ghana, and a focal point of policy discourses to promote educational equity.

From a data-gathering perspective, the identification MLEs within critical areas of children's local environment provide a working framework for developing locally appropriate indicators (Micro-level educational experiences) for monitoring and measuring schooling and learning inequalities, especially in rural and underserved jurisdictions. This provides a framework for household surveys like MICS and educational assessment datasets to expand their data-gathering systems to cover contextual information on MLEs – a process that ultimately helps to increase the visibility of contextual information/MLEs in existing macro-level indicators. For instance, time-frames children participate in farmwork and competencies in LOI and LLOIs

6.8 Conclusion

Educational interventions in Ghana and SSA, in recent decades, have focused on scaling up BEA enrollment and promoting quality learning outcomes for all children (Nkrumah and Sinha, 2020; Filmer, 2023). While this process has facilitated the development of macro-level quantitative indicators around enrolment, completion, and learning outcomes, for purposes of monitoring progress and addressing deficits, these indicators still fall short of capturing the diversity of local environment experiences, embedded in structural and socio-economic disparities that surround children's ecosystem of educational opportunities, and eventually drive poor learning outcomes and widen the learning inequality gap. Specific to the Ghanaian context, our present study explored the layers of local environment experiences embedded within the broader structural and socio-economic disadvantages in rural Northern Ghana that shape schooling and learning disparities, but

also remain less visible in the existing quantitative metrics used as benchmark for measuring success in BEA and the basic school system.

By relying on an ecological lens, the study's findings reconcile the empirical and conceptual connections between educational inequality and the local ecosystem surrounding schooling. Children's access to quality schooling and learning outcomes in rural northern communities is inherently tied to the structural and socio-economic disadvantages that surround their local environment, especially regarding how they interact with their temporal and policy environment. The broader implications are that Ghana's commitment to addressing educational inequalities and achieving its global education goals should be reflected in how it addresses structural and socio-economic disadvantage in its Northern Regions. A key starting point is ensuring that policy solutions and strategies to addressing inequalities extend beyond the current targets for macro-indicators (i.e., enrolment, attendance, completion, learning skills etc.) to MLEs prevalent in children's local environment. From a data perspective, international household surveys like MICS and educational assessments programs could increase the visibility of MLEs in existing macro-indicators by integrating contextual information on MLEs in their data collection systems.

Important takeaways from manuscripts 1 and 2 are that access to learning skills for children in the Northern regions were much further behind the rest of Ghana and the Greater Accra in particular. Moreover, the effect of local environment factors on access to learning skills also tend to show varied outcomes based on geolocation, with a more pronounced negative effect for learning skills acquisition for children in the Northern regions compared to Greater Accra.

In this third manuscript, I dig deeper to delve into the ways in which children's interaction with their micro-environment shape Educational Gender Inequality (EGI) within the rural Northern context. I focused specifically on the broader context of experiences outside the school system and how they drive EGI within the school system. The results show that the transition to adolescence in rural Northern communities come with competing responsibilities for boys and girls, which predispose them to micro-level experiences that affect the learning trajectory of boys and girls in different ways. The paper therefore puts a spotlight on the critical experiences around adolescence, which are often unaccounted for in gender-parity indicators that monitoring gender-based disparities in accessing learning opportunities.

I was responsible for conceptualizing the study, designing the study instrument, conducting data collection and literature review, performing all analysis, and developing the manuscript. My supervisors, Drs. Vandna Sinha and Jill Hanley extensively reviewed and provided feedback throughout the process. My committee members, Drs. Myriam Denov and Michael Baffoe also provided critical feedback during writing process. My research team members, Shadrach Yipiin and Enoch Kumah facilitated data collection, translation, and transcription. The manuscript will be submitted to Compare: A Journal of Comparative & International Education

Chapter 7: Manuscript 3

Micro-environment interactions and educational gender inequality in rural Northern Ghana: A life-course perspective on adolescent access to schooling and learning

Abstract

Educational Gender Inequality (EGI) remains a complex manifestation of social inequality, undermining access to schooling and learning opportunities for many children in Ghana and across Sub-Saharan Africa (SSA). However, policy responses to addressing this challenge have largely concentrated on how to scale-up gender parity within the classroom and less on how to address local conditions outside the school system that reinforce educational gender inequality. Although successful in reducing gender gaps, especially in urban centers, this school-focused, gender parity approach falls short of a supporting comprehensive understanding of the specific context and mechanisms though which gender-based inequalities operate in rural and underserved contexts. This paper draws on a case study of rural Northern Ghana using qualitative interview and focus group methods to unpack the broader context around micro-environment interactions and life-course transitions that reinforce EGI. We found that the transition to adolescence marked a critical stage in life where children in rural northern communities take on multiple and competing responsibilities, which predispose them to multiple experiences, often with adverse schooling and learning implications for boys and girls. Broader implications of this insight into how EGI operates in rural Northern Ghana are discussed, as well as appropriate policy interventions and reforms necessary for achieving gender-based educational equity within and outside of the school system.

Key words: Educational gender inequality, Adolescents, life-course transition, Sub-Saharan Africa

7.1 Introduction

This paper explores the complexities in discourses around Educational Gender Inequality relevant to the attainment of gender parity goals set out in the Global Education Agenda[53]. Gender differences in children's domestic work and interactions with the immediate family and social (micro) environment, are fundamental to experiences outside the school system that reinforce Educational Gender Inequality (EGI) across the Sub-Saharan African (SSA) region (Delprato et al., 2017; Dunne et al., 2022). Yet, a comprehensive understanding of how micro-environment experiences outside the school system influence gender-based schooling and learning inequality (for girls and boys) have received inadequate attention in both literature and policy conversations that seek to promote gender parity in school. Research and policy discourses on EGI in Sub-Saharan Africa have traditionally emphasized systemic disadvantages for girls in terms of educational opportunities and outcomes (Senadza, 2012; Delprado, 2024; Evans et al., 2024), evidence from recent studies paint a more nuanced outlook, whereby girls outperform boys on some measures and at certain stages of schooling (Buhl-Wiggers et al., 2021; Fonseca et al., 2023). Additionally, other studies also highlight a narrowing of gender gaps against girls in recent years, particularly in enrollment and completion rates at the primary and junior secondary levels (Bennel, 2023).

In the context of SSA, although the region has made steady progress in promoting educational gender parity over the past 25 years, with some accounts referring to a 'generational leap' in educational access for girls (UNESCO, 2020a; Bennel, 2023), recent reports suggest that

[53] Global Education Agenda here refers to the Sustainable Development Goals (SDGs 4) in education.

many countries in the region will struggle to achieve their gender parity commitment by 2030 (Koissy-Kpein, 2020; Friedman et al., 2020; UNESCO, 2023). Existing literature shows that girls in SSA are more predisposed to experiences of school-based learning disadvantages than boys (Bennell, 2023). For instance, of the 17 countries globally where girls are still behind boys in primary schooling, 12 are from the SSA region (Baten et al., 2021).

In the context of Ghana, existing literature identifies the country as one of the few in SSA with favorable gender outcomes in education, having achieved gender parity at the primary and lower secondary school levels, particularly in favor of girls (Koissy-Kpein, 2020). However, significant challenges remain, hindering a full understanding of the contextual factors in children's environments that contribute to gender-related disparities in schooling and learning. EGI is still among the most important challenges facing the basic school system and the country's ability to fulfill its constitutional mandate of providing equitable educational opportunities to all children (Ministry of Education, 2013; Wilson and Somhlaba, 2017). For instance, female children are known to experience unequal outcomes in school enrolment, retention, and transition as the educational level increases. They also tend to have higher out-of-school rates (29%) than boys (21%) at the upper secondary level, which drive a marked female disadvantage in terms of upper secondary school completion (Takyi et al., 2021).

In Ghana as in many other SSA contexts, policy interventions to achieve gender parity tend to focus on what happens in the classroom and the school system. Specifically, efforts focus on gender gaps associated with macro-indicators around enrolment, attendance, transition, completion, and learning outcomes (Unterhalter et al., 2022), to the detriment of experiences outside of the school system that impact children's learning. Consequently, insight into the day-to-

day experiences of meeting basic livelihood needs and how interactions with the local environment shape schooling- and learning-related gender gaps receive little attention in educational literature and policy interventions.

This paper draws on ecological and life-course theoretical lenses, and a case study of rural Northern Ghana, to examine how children's interactions within their micro-environments and life-course transitions impact the schooling and learning trajectory of girls and boys differently. By exploring these dynamics, the paper aims to deepen our understanding of how experiences outside the school system contribute to gender gaps in schooling and learning in Ghana. Additionally, it addresses the complex and contextual issues that are often overlooked by the gender parity indicator approach in evaluating educational gender inequality (EGI) in Ghana's basic education system.

7.2.0 Context and framing - educational gender inequality in SSA and Ghana

7.2.1 SSA context

Countries in SSA and beyond are striving to achieve gender parity in accessing educational opportunities and outcomes as a key Sustainable Development Goal (SDG 4.1 and 4.5)[54] (UNESCO, 2020b). This quest for gender parity is, in part, rooted in historical disadvantages that girls face in accessing educational opportunities in many world regions. In Sub-Saharan Africa, women and girls are known to be the primary contributors to domestic labor, yet they continue to face significant limitations in achieving economic security (Koissy-Kpein, 2020; Bennel, 2023). In many developing regions such as SSA, women and girls spend at least three more hours daily than men on unpaid domestic work such as fetching water or fuel for cooking and caring for

[54] SDG targets 4.1 & 4.5 focuses on eliminating gender disparities in accessing quality schooling and learning opportunities at all levels of education by 2030.

children and elderly relatives (United Nations, 2020). The majority of women and girls in SSA also engage in subsistence farming practices, where they grow about 70% of the region's food (Abbas, 2018; Koissy-Kpein, 2020). The prevalence of these experiences among women and girls reduces not only their availability to participate in paid work, but also restricts equality of access to educational opportunities - a situation that continues to reflect in evidence of female disadvantage in several educational indicators at the SSA context (Wodon et al., 2018; Delprato et al., 2023; Bennel, 2023; Evans, et al., 2024).

Recent studies and reports, however, show signs of progress in reducing gender differences in educational participation. For example, primary Gross Enrollment (GER) for girls increased from 76% in 2000 to 99% in 2015, compared to an increase for boys' from 89% to 102%[55] in the same period (Koissy-Kpein, 2020). There is also evidence of some reversal of the systemic female disadvantage in outcome indicators pertaining to numeracy, literacy, and science subjects in some countries (Spaull and Makaluza, 2019; Hofmeyr, 2022). For instance, recent evidence from East Africa, based on the Uwezo dataset initiative[56] found females to outperform their male counterparts (by 0.03 Standard Deviation (SDs) in Uganda and by 0.05 SDs in Kenya and Tanzania) in numeracy. In literacy, the margins were higher, from 0.06 SDs in Uganda and Tanzania to 0.09 SDs in Kenya (Buhl-Wiggers et al., 2021). In this study, a sizable part of the differences was attributed to the fact that boys on average spend less time in school than girls (Buhl-Wiggers et al., 2021). Despite the positive signs, countries in SSA still have the highest EGI among developing world regions (Baten et al., 2021; Bennell, 2023) and are unlikely to achieve

[55] GER here refers to the total enrolment in primary education, regardless of age, expressed as a percentage of the eligible official primary school-age population in a given schoolyear. Due to the inclusion of over-aged and under-aged pupils and repeaters GER can sometimes exceed 100% (See UIS, 2024).

[56] Uwezo means "capability" in Kiswahili. It is a household-based initiative that aims to improve literacy and numeracy competencies among children aged 6/76 years old in Kenya, Tanzania and Uganda.

the educational gender parity targets by the 2030 deadline nor in the nearest future, following three main intersecting outcomes.

First, most quantitative metrics for monitoring EGI in SSA still point to significant gender differences in favor of boys, particularly in enrolment and transitions, and dropouts and completion (Koissy-Kpein's, 2020; Delprado, 2021; UIS, 2022). Recent analysis of educational gender gaps for instance, show incidence of female disadvantage, especially for indicators at the upper secondary school levels with secondary GER enrolment for girls (39%) falling behind boys (45%) in 2015 (Koissy-Kpein; 2020; Delprato, 2021). Girls also have lower (27.1%) completion rates than boys (29.9%) in upper secondary (UIS, 2024) and have more chances of being out-of-school (UIS, 2022).

The second outcome rests on the fact that policy interventions to accelerate parity attainments are often designed to respond to gaps observed along the existing quantitative metrics (Unterhalter, 2022), leaving several layers of local environment interactions that create unequal gender gaps unattended to. Since the mid-2000s, policy interventions such as school fees abolition, school feeding, and cash transfers have featured regularly under broader social protection programs in many SSA countries to specifically address school enrolment, retention, and transition challenges (Salifu et al., 2018; Bashir et al., 2018; Asante, 2022; Nguyen and King, 2022). While evidence across different country contexts point to key successes with most of these interventions (Evans et al., 2024), there is also not much known on how interventions impacted girls and boys differently in terms of the specific gender outcomes in schooling and learning opportunities.

The final challenge relates to the relatively higher vulnerability of rural girls to educational disadvantages compared to their urban equals (IIEP-UNESCO, 2021; Bennell, 2023), which

represents a significant part of the EGI problem at the SSA level. Bennell's (2023) assessment of gender inequality based on lower and upper secondary school completion rates showed significantly higher disadvantages among rural than urban girls. For instance, in countries where female completion rate was below 20%, almost half (48%) were rural compared to just 1% of urban females completing lower secondary. At the senior secondary level, this proportion was almost 70% of rural compared to 14% of urban girls. These accounts position rural communities both as prime settings for exploring mechanisms driving gender-related educational disparities as well as key targets for promoting gender-based educational equity interventions.

7.2.2 Ghana and the rural northern context

Ghana's progress in reducing EGI has been widely acknowledged in the education literature and is often cited among SSA countries to have achieved gender parity in favor of girls in primary schooling. Girls complete primary schooling at a higher rate (73%) than boys (69%) (UNICEF, 2021; Koissy-Kpein, 2020). Yet, widespread gender disparities persist at the secondary level, where gaps occur in enrolment, drop-out, completion, and learning outcomes. Reports often show a decline in female completion and a widening gender parity gap[57] as the educational level increases (Koissy-Kpein, 2020), consequently reversing gains made at the primary level.

Though Ghana continues to make investment through various social protection programs to reduce gender parity deficits observed in school settings (Gaddah et al., 2016; Mahama, 2018; Handa et al., 2021), there is still little assurance that girls and boys will receive equal measure of opportunities to access schooling and learning skills. In fact, the educational gender literature

[57] Gender parity gap is measured using the Gender Parity Index (GPI). This measures the ratio of female to male completion or a given indicator (i.e., enrolment, learning outcomes, etc.). A GPI between 0.97 and 1.03 indicates parity between the genders. A GPI below 0.97 indicates a disparity in favour of males. A GPI above 1.03 indicates a disparity in favour of females.

accounts for diverse contextual, socio-economic, and socio-cultural factors that predispose girls and boys to differing schooling and learning disadvantages across different socio-political settings in Ghana. Notably, the specific roles of domestic work and household school expenditure have featured prominently in this regard. Wolf et al. (2018) found girls to be twice as likely to miss school than boys due to domestic responsibilities such as taking care of a sick family member, whereas boys were more likely than girls to report missing school to participate in family-related economic work. Iddrisu et al. (2018) also showed evidence of uneven allocation of household schooling expenditure, which showed pro-male bias for enrolment at the senior secondary level, but also a pro-female bias at the junior secondary level. Donkor et al. (2019) attributed this bias to expectations held by many parents that male children are more likely to gain higher economic returns from education than their female counterparts. This creates unequal educational opportunities for girls and boys at different stages of schooling.

The existing literature also highlights the connections between spatial patterns in educational resources and the distribution of educational gender parity in Ghana. Anson et al. (2018) found that there were more districts in Northern Ghana with the highest gender parity values in lower secondary enrolment but as the lowest compared to the South. This suggests that the North has mor districts with the most gender equal outcomes and, at the same time, has the most gender unequal areas in terms of lower secondary enrolment. Other studies on gender and spatial dimensions of educational inequality in Ghana (Senadza, 2012; Ansong and Alhassan, 2016) have also reported similar findings, whereby the Northern regions, and particularly girls and rural areas were seen to have the lowest educational attainment and the highest educational inequality in the country. Although EGI in Ghana is not confined to the Northern regions, several key factors make the North particularly relevant when examining educational inequalities and their gendered

dimensions. First, rural areas are generally more prone to EGI across many developing regions (Koissy-Kpein, 2020; Baten et al., 2021; Bennel, 2023), suggesting that gender disparities in educational opportunities are more likely to be found in the North, which has a higher concentration of rural settlements compared to the South (Ansong et al., 2018; Anlimachie et al., 2020). Secondly, the historical neglect of the North in terms of resource distribution - from colonial times to the present political era - has left the region not only the poorest and least developed compared to the South, but also severely underinvested in educational resources (Abdulai and Hicky, 2016; Abdulai et al., 2018; Salifu et al., 2018). Scholars trace this historical neglect to colonial isolationist policies in the then Northern Territories[58], which treated the area as a labour reserve for the cocoa growing southern regions (Plange, 1979; Aboagye, 2021). This collective disadvantage of rurality, poverty, underdevelopment, and limited educational investment create a hostile ecosystem that limits formal educational prospect for both males and females, especially in the rural northern subsistence communities that often struggle to meet livelihood needs.

Overall, the majority of studies investigating gender-related educational inequalities in the Ghanaian context have focused on spatial dimensions and resource effects (Senedza, 2012; Ansong and Alhassan, 2016; Ansong et al., 2018), barriers to attendance (Wolf et al., 2016; Salifu et al., 2018), household expenditures (Iddrisu et al., 2018; Donkor et al., 2019), or discourse analysis (Akkufo, 2023). While these studies provide useful indications about what and where educational resources and investments are needed to reduce gender disparities in educational opportunities, this overrides a comprehensive understanding of the specific mechanisms through which gender interactions with the local environment predispose both boys and girls to schooling and learning-

[58] The Northern Territories in colonial times refer to modern day Northern Ghana, which has five administrative (i.e., Northern, Savannah, North East, Upper East and Upper West) regions

related vulnerabilities. This remains essential to informing what policy interventions can be considered. In this paper, I attempt an unpacking of this context in rural Northern Ghana, to inform appropriate policy interventions capable of eliminating local-level barriers to effective schooling and learning participation for both boys and girls.

7.3.0 Conceptual framework

7.3.1 Understanding how local environment and life-course contexts drive EGI

I situate this study through the lens of ecological framework and life-course theory to understand the socio-cultural mechanisms through which children's interactions with their environment, as well as livelihood transitions and relationships predispose boys and girls in rural Northern Ghana to schooling- and learning-related disadvantages.

The ecological framework emphasizes the ways in which children's interaction with multiple, inter-related systems in the environment influence their individual development and behavioural outcomes. Bronfenbrenner's ecological model (1995) situates the child in the centre of multiple interactions. This comprises: (1) *micro interactions,* involving individual's relationships with their immediate environment (i.e., family members, friends, teachers, etc., (2) *meso interactions* involving interactions between actors from different micro-environments, such as connections between family members and school teachers (or church leaders and school teachers (3) *macro interactions* involving the influence of the broader socio-cultural and political system on children's development, and finally (4) *chrono/temporal-interaction*s, which emphasize the importance of time and transitional events in defining the trajectory of children's life (Bishop and Noguera, 2019; Iruka et al., 2021).

Applying this model to situations of EGI shows the different ways in which inter-personal relationships (micro-environment interactions), processes (meso-environment interactions), systems (macro-environment interactions), and time and events (temporal environment interactions) interact to influence children's relationship with the school system and their cognitive development (Bronfenbrenner, 1995; Bishop and Noguera, 2019). These processes provide a fitting framework for understanding children's exposure to schooling-and learning-related gender disparities, partly as a function of the multiple interactions with different settings of the environment, where each setting is also subject to the influence of other settings in reciprocal ways (Bishop and Noguera, 2019, Iruka, 2020). Though each level of interaction is subjected to the influence of different systems, we limit our analysis of EGI to interactions revolving around the micro- and temporal-environments. This is specifically to understand how children's relationship with the immediate surroundings are underpinned by the concept of time and individual life transitions, to shape schooling and learning opportunities for boys and girls in rural Northern Ghana.

Life-course theory adds a temporal dimension to the understanding of educational experiences in rural communities that create different educational pathways for boys and girls over the life-course. Specifically, it emphasizes the conceptual relevance of time in relation to individual *transitional events*, *counter-transitions*, and *linked lives*, which provide the needed context in explaining how formations of EGI are linked to individual's unique experiences over the life-course (Settersten et al., 2024). We focus on the ideas of *linked lives* and individual *transitions*, which are among the central tenets of life-course perspective. On one hand, the idea of *linked lives* underscores the principle that the life trajectory of children cannot be understood in isolation of those they share proximate relationship with, such as the immediate family or caregiver.

Consequently, educational opportunities and/or disadvantages associated with children are also likely shaped by the lives of those on whom they depend – their caregivers (Carr, 2018; Settersten, 2018; Landes and Settersten, 2019). *Individual transitions*, on the other hand, refer to life-course events that alter an individual's life trajectory across different domains, such as the family or work. In the case of children, individual transitions and counter transitional events could come from losing an income-earning parent or becoming a young parent – which are life-course events with immense implications for altering one's continued educational opportunities (Akugri, 2017; Baafi, 2020).

Framing EGI from the joint perspectives of ecological theory and life-course transitions offers a broader insight into the diversity of local environment experiences that interact to drive gender-based educational disparity - beyond the reliance on quantitative gender parity metrics observed in classroom settings (Unterhalter et al., 2022). The expanded insights from ecological and life-course perspectives can inform evidence-based policy recommendations needed in addressing the underdevelopment and educational disadvantages of rural Northern communities (Corna, 2013). Consequently, ecological and life-course approaches could offer a more sustainable method for tackling the structural conditions that create unequal educational pathways for boys and girls.

The analysis of life-course transitions offers the needed conceptual framing to understanding the unique effect of '*time'* and '*change'* in shaping differential educational pathways for girls and boys in underserved areas. Temporal analysis of life-course transitions therefore suggests competing tensions between events in the lives of children at key transitions. At the micro-level, there is the goal of educational success, defined on the one hand by one's ability

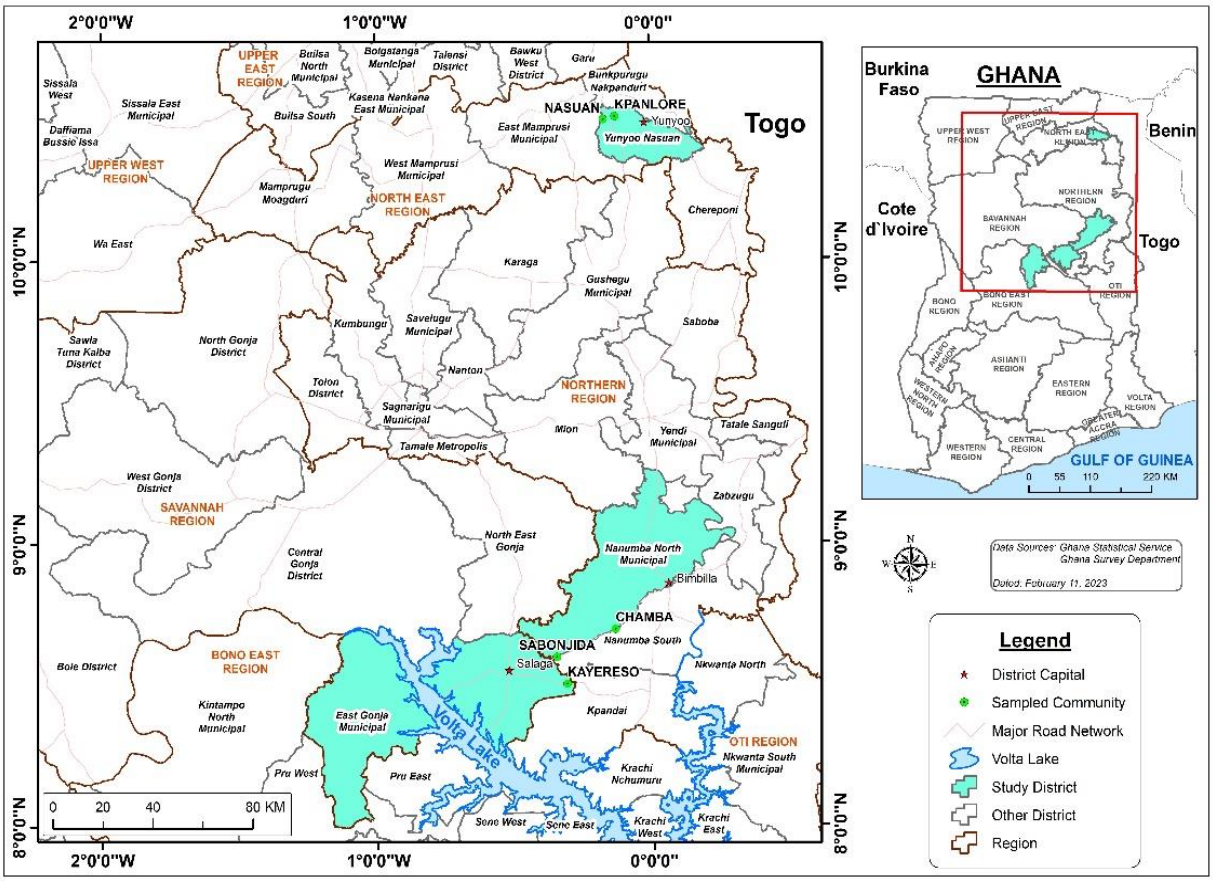
to complete and graduate from school to participate in the job market, and on the other hand, by specific events and transitions such as pregnancy, and gender roles, which apportion longer hours of household work for girls. At the macro-level, there is a Northern context in which schooling experiences are shaped by broader structural and developmental deficits associates with northern communities. This understanding of the temporal context in Bronfenbrenner's bioecological model is often limited in the existing educational literature, especially in explaining the competing tensions around livelihood transitions that shape educational trajectory of children.

7.4.0 Methods

7.4.1 Research area and selected communities

Data for this paper was based on field research conducted in rural communities in Northern Ghana over a period of 5 months in 2021. Compared to the south, regions and districts in Northern Ghana are sparsely populated, and have the highest concentration of rural settlements, making up 64% compared to the national average of 43.3% of rural population (GSS, 2021). They also have more of the poorly equipped and low performing schools, and the less educated and literate population (Abdulai and Hickey, 2016; Amoako-Mensah et al., 2019). The data collection focused on three districts, one each from three (Northern, Savannah, and North East) of the five regions that make up Northern Ghana. Five rural communities were then selected, with at least one from each of the three districts based on remoteness, educational deprivation, and geographical proximity to each other. Figure 15 shows the districts and individual communities identified for data collection.

Figure 15: Selected district and research communities



7.4.2 Sampling, data collection, and organization

The data collection process followed a purposive and snow-ball sampling technique to identify 24 school-going children[59] for interviews and focus groups (sub-sample of 18) and 16 adult participants for interviews using open-ended interview and focus group formats. Adult participants comprised 7 caregivers and 9 school teachers and principals. The selection of children participants focused on final year lower secondary school cohorts, who were in their final grade (9) of basic school before transitioning to upper secondary school (i.e., high school). Students at this level are mostly adolescents with an appreciable degree of household responsibility and longer

[59] School-going children participating in this study were all adolescents, mostly between 14 and 18 years, with 2 participants between 19 and 20 years

years of schooling and livelihood experiences. They were therefore better placed to share the collective implication of their day-to-day livelihood experiences in shaping schooling and learning participation. Students selected in this category were between the ages of 14 and 20 years. By including caregivers, schoolteachers, and principals to the perspectives offered by school children, we broadened the scope of covering the diversity of children's local environment interactions as well as established relationships that shape differential schooling and learning outcomes, in line with ecological and life-course perspectives (Carr, 2018; Landes and Settersten, 2019; Iruka, 2020). Table 11 presents a breakdown of the sample and profile of respondents.

Table 11: Respondent's profile and data collection method

	Category of respondents	Data collection method	Profile	Sex		Sample (n)
				M	F	
1	Basic-school students	Semi-structured, face-to-face interviews Focus groups (*n* =18).	School-going adolescents in Junior High School (grade 9) between the ages 14 and 20 years	9	11	24
2	Caregivers	Semi-structured, face-to-face interviews	Comprised mostly biological parents and a few extended family members	6	1	7
3	School teachers & principals	Key informant interviews	Comprised trained professional teachers and Volunteer teachers who were often Senior High School (SHS) graduates or people with diploma certificates.	9	-	9
Total sample						**36**

A total of 24 child interviews, 16 adult interviews, and 3 separate focus group discussions with children (sub sample, *n* =18) were conducted, mostly in English and the Likpapaln language[60], except on few occasions, where Twi and the Dagomba were used. Each focus group comprised 6 participants, selected from children who had participated in the interview process Questions for the interviews and focus groups were based on 4 major thematic areas[61], which were followed up by clusters of probing questions during in each interview and focus group phase. This process was supported by two competent research assistants, who both hail from the research communities and were responsible for facilitating interviews and focus groups in Likpapaln and Dagomba, while those in English and Twi were conducted by the principal researcher. All interviews lasted between 45 minutes and 1 hour, while focus groups lasted 2 hours, with breaks in-between. We audio-recorded each interview and focus group alongside hand-written notes, whereafter a double translation into English was carried out separately by the research assistants for all interviews and focus groups conducted in the local languages. The research team later compared this data to minimize translation errors and ensure the coherence and reliability of the participants' information. (Sutrisno et al., 2013; Santos et al., 2015). Ethical clearance for the data collection and its management was obtained from the McGill University Research Ethics Board.

[60] Likpapaln is the dominant language spoken in majority of the research communities. See Tait, D. (2018). The Konkomba of northern Ghana: Edited from His published and unpublished writings by Jack Goody. Routledge.
[61] Comprised broader thematic areas, including: (1) demographic information, (2) experiences in school and at the household, (3) the learning environment at home and in school, (4) the meaning and conceptualization of childhood in rural communities

7.5.0 Analytical approach

I analysed the data using thematic analytical approach (Nowel et al., 2017). First, all data were transcribed and coded with the aid of the MAXQDA (VERBI Software, 2021) qualitative software program and guided by the ecological and life course perspectives. This ensured that codes were first organized based on experiences that reflect children's interaction with critical areas of their local ecosystem: that is, micro-interactions, meso-interactions, policy-interactions, and temporal interactions. Next, codes were further re-organized into three emerging categories, reflecting experiences borne out of children's immediate family/household relations, relationship with the broader socio-cultural system and its policies, and those borne out of individual transitions over the life-course. This ensured that we identified those codes that specifically relate to gender-based experiences with the potentially of altering schooling and learning trajectory of boys and girls. Finally, emerging themes from each category were identified and developed into four main themes for interpretation and meaning making, including: the adolescent experience, household chores and economic activities, sociocultural norms, and life-course transitions.

7.6.0 Results

The study results show that EGI in rural Northern Ghana can be best understood through micro-interactions that characterize children's transition into adolescence – a stage of life that is characterized by multiple expectations and competing responsibilities, which expose children to experiences of systematic schooling and learning alienation. I found that although the transition to adolescence and its associated expectations applied to all children, the individual profiles of children also served as additional mechanisms in determining layers of complex, intersectional experiences with adverse implications for EGI. I first present the case of competing responsibilities

during transition to adolescence and provide context to four separate profiles/identities associated with children, and how they reinforce EGI for boys and girls in rural Northern Ghana.

7.6.1 The adolescent experience and its competing responsibilities

The results show that Irrespective of the gender profile, the transition to adolescence marks a critical period in the lives of school-going children in rural Northern Ghana that define their educational trajectory, especially regarding effective school participation and the development of foundational learning skills required of the basic school system. The stage of adolescence comes with immense expectations of competing responsibilities towards the collective welfare of the family unit, but also towards one's own welfare and interests. The age or stage of life - whether one is considered a child or adolescence, significantly determines the nature and extent of responsibilities one has within the household, and the gender dimensions of such responsibilities. Unlike younger children with relatively less engagement in household activities, the volume of family responsibilities for adolescent children set them up for exposure to adverse educational experiences with differential impact on boys' and girls' schooling trajectory.

Both male and female children shared similar accounts of expectations to engage in time- and labour-intensive responsibilities within and outside of the household. Girls, in particular, talked about expectations of caring for their younger siblings, searching for water for both home and school use, gathering firewood and cooking family meals, helping with farmwork, among other responsibilities. Boys also gave account of working on family farms, especially in preparing farmlands for planting and harvesting, while others cited taking care of animals and searching for water as additional responsibilities. In Focus Group 3 (FG 3) for instance, a male student shared this note on the expectations that await students at his level (JHS) compared to younger children in primary school.

If you are a child and you are in the primary school, you... put all your concentration in the schooling alone because at that time, you can't do any meaningful job at home. But if you are in JHS or SHS and you don't work, they [parents] will base on that and say they won't also pay your school fees. [FG_3]

The broader influence of culture as a macro-system effect was also visible in how children viewed their social responsibilities. For a majority of these children, the ability to support the family and contribute towards the collective livelihood of the household was not only a cultural responsibility associated with the status of the child, but also an inherent moral obligation – one that positions them morally as a 'good child' within the rural Northern social context.

If you are a child in this community, you have to respect anyone who is older than you. When your parents tell you to do something, you have to do it for them, obey and listen their instructions! You also have to be good and hardworking as a child [17-year-old male student in community 3].

Beyond the fulfilment of family responsibilities were students' own expectations of being responsible towards their own welfare and educational interest, due to poverty situations in their household. Both boys and girls emphasized the need for individual agency towards their own education, by engaging in private economic activities to earn income and cater for their own schooling and livelihood needs. This was justified by a female student during FG 2.

... Already, it is not easy for our parents to cater for all our needs; So, what more can they do if our fees are increased? So it is good we have extra work to do to support ourselves to avoid over depending on our parents. [FG 2, Community 3].

Another female student in FG1 provided similar justifications on why she needed to pursue an income generating activity.

> *…It is better we have our own farms… sometimes, when they tell us to pay school fees, …my father will tell me he doesn't have [money], and if I have, I should go and pay. So, I will also sell my groundnut and pay. And then pamphlets and Aki Ola [Maths textbook] and mathematical set, I will buy myself. You know, our parents are illiterate, they don't understand so they won't agree to buy all those things for you. So I can use my money to buy them.* [FGD 1, Community 1].

This insight into how micro-interactions at the home shape the adolescent stage and its implications on how children experience schooling and learning is needed in any analysis that highlight gender dimensions of achieving educational equity/parity in rural Northern Ghana. Specifically, ensuring effective participation in schooling and development of learning skills largely depended on children's ability of being financially responsible towards their own education. While most school-going children in rural Northern Ghana enter adolescence with similar experiences, the responses however indicate that the adolescent transition is not a uniform experience for all children in how it influences their educational trajectories. Rather, the nature of experience during adolescence is one that is fundamentally influenced by multiple factors around the identities of individual children - such as the type of responsibilities performed at the household, gender profile of children, family or household predisposition to socio-cultural norms, the number of siblings one has, parental access to land, and importantly, the migration profile of parents and/or caregivers. While these are in no way exhaustive, we explore 4 of these factors in detail and how they reinforce EGI.

7.6.2 Household responsibilities and gender profile of children

Household responsibilities was a major exposure to experiences that reinforced educational disadvantage for both girls and boys. However, the form of disadvantage differed based on the types of responsibilities assigned to girls and boys. This was reflected in respondents' accounts of domestic responsibilities relating to household chores and household economic work.

7.6.2.1 Female disadvantage in performance of household chores

Teachers and children both described the performance of household chores in rural northern communities as an inherently gender-driven domain, whereby female children often undertake the largest share of house chores with adverse implications for long term schooling and learning access. Whereas house chores for girls comprised multiple responsibilities (see section 5.1), activities such as cooking family meals and fetching water for home and school usage were largely described as the most time and labour-intensive among all other household chores. Girls, in particular, described the performance of these responsibilities as overbearing, leaving them not only exhausted and fatigued, but often with limited or no time at all to complete school assignments and individual learning - a situation that pushes many female students on a path towards learning alienation. A female student shared her experience of juggling between completing her household chores and learning at home.

> *Let me say this! Especially we the girls, we don't have time. Like, if we just close from school, we have to go and look for water, sweep the yard, and then cook. Again, you have to wash your siblings' clothing. So, if you are not a fast person, by the time you complete your tasks and begin to learn, your study time will be over… So, you realize that you'll be tired and be feeling sleepy. And it will be a problem to sit down to learn* [FG_2].

There was also a general consensus across all respondent groups that one's gender profile was a dominating factor in determining who gets more time to learn at home. This position was underscored by both male and female participants during individual interviews and FG discussions. For instance, when asked about who gets more time at home to learn, the majority of boys perceived the status of their female siblings in the household as one that positions them at a disadvantage of doing well in school, compared to boys.

> *It's the boy that gets more time to learn because in the evening, when the girl gets home from school, she has to go to the river to fetch water. After that, she goes to find firewood and then come back and cook evening meal. After everything she will be tired and have to sleep. But boys don't do anything after school and can learn at any time you want* [16-year-old female student, community 5].

The extent to which the performance of house chores reinforces female learning disadvantage for girls in rural Northern communities also depended on the availability and ease of access to water sources and firewood. In many of the communities visited, the further a community is from these resources, as was often the case, the more time-consuming it became for girls, who were typically tasked with the responsibility of fetching water, as indicated by a female student in community 5.

> *We have only one tap [constructed borehole] and the distance is far from where we live. It takes us 40 minutes to get to where the tap is…* [17-year-old female, community 5].

This intersection of gender and household responsibilities consequently highlight micro-interactions within children's proximate environment as consequential for EGI. Household chores

in this context serve a as key mechanisms through which the adolescence experience alter the educational trajectory of female children towards schooling and learning disadvantages.

7.6.2.2. Male disadvantage in performance of household economic work

Unlike household chores, respondents reported several instances of male disadvantage in schooling and learning participation during the performance of household economic work. Household economic work in rural northern communities refers to all activities children perform on behalf of the family or household, which contributes to the general household economy, such as working on family farms, selling of farm produce, and other commercial activities. Due to the centrality of farming to livelihood, children's participation in farming activities was seen as practically inseparable from the childhood experience itself. However, male children's participation in the agricultural economy was emphasized as critical, especially in the preparation of land and construction of earth mounds used for yam cultivation. Teachers referred to such farming activities as physical and labour-intensive, requiring the energy of male students to often work on farms for weeks or months during the peak farming seasons. Even though farming responsibilities were not exclusively reserved for adolescent males, most teachers believed that boys were more likely to be absent from school for longer periods than girls, especially during the raining season – when more labour is needed for planting.

> *When it rains, you won't find a boy here. At this time, we're even lucky, because they have finished harvesting the yams, so most of them are regular in school. Else, some of them can go and stay on the farms for a week to do harvesting work… So, it varies. When the raining*

season starts, which is the time to prepare the yam mounts[62] *for planting, most of the boys will be absent.* [Teacher 3, in community 1].

Longer engagement in household economic work, therefore, became a mechanism for explaining school abstention and learning exclusion for many boys as indicated by Teacher 3.

…for all the time spent on the farm, their colleagues are in school and the teaching and learning is going on so… whatever you teach, they will miss that aspect… [Teacher 4, Community 5].

7.6.3 Socio-cultural norms constrain parental support for girls' schooling

Respondents, especially among teachers and students, believed that some socio-cultural norms and customary practices come with adverse implications to the disadvantage of girls. The effect of such socio-cultural norms and belief systems on the educational status of the girl-child dominated discussions around parental decisions in supporting their children's schooling, as well as reasons forcing female adolescents out of school. Different cultural and traditional belief systems that specifically undermine educational opportunities for girls-child compared to boys were discussed by respondents. In one of the communities [5] for instance, practices of *marriage exchange* were perceived by teachers to be commonplace – where a female family member is given-out in marriage to another family, to reciprocate the marriage by a male-figure from that family – which in many instances forces female students to drop out.

Here, we have exchange marriage… So, if your son gets married to somebody daughter, meaning one of the sisters will also be given to the family, even if she is in school. So, it was like that. And then at times they get notified that if they allow the child to further her

[62] Refers to earth mounts prepared and used to plant yam suckers.

school, she will become enlightened. So if they are trying to exchange her that way, she will refuse, and it will bring problems… So sometimes they will allow the child to drop out of school, where they can easily have control over that child. So that's another factor that is making some of them to drop out of school… [Teacher 4, Community 5].

Cultural assumptions surrounding the status of the woman, especially during matrimony, were also quite pronounced in all the research communities to have adverse implications for girls' education. In traditional, patriarchal settings like in many rural Northern communities, women are no longer recognized as member of their father's family upon marriage. Family allegiance and responsibilities therefore switch to their husband's family – a status which many respondents believe drives a pro-male bias regarding parental decisions in support children's schooling, especially for parents with little or no educational background. A female student in FG 2 for instance, believed that girls were more disadvantaged compared to their male counterparts in receive parental support for their schooling needs.

What I also think is that sometimes when our parents sit together, they discuss among themselves that if you are caring for the educational needs of a girl, you are wasting your money. So those who were trying will even get discouraged. So, for us girls it is difficult for them [parents] to give us money for our schooling [Female, FG_2, Community 3].

This assumption was also corroborated by another female student.

The reason why the education of girls here don't go far is that… your parents can say if the girl is educated and gets a job, she won't stay with them to also benefit, she will leave. So, they should rather concentrate on the boy who will be with them to benefit, unlike the girl that will go elsewhere afterwards [Focus group 2, Community 3].

Some caregivers, however, shared opposing narratives – by contending that girls receive more support at home than boys due to the multiple needs of adolescent girls compared to boys. This not withstanding, what remains clear is that the adolescent experience in rural northern communities is one that is further shaped by socio-cultural norms, and one's own family or household predisposition to such norms. This aspect of children's interaction with their ecosystem is a reflection of culture as an essential part of micro-interactions that limits girls' continued participation in schooling and learning, with risks of dropping out or receiving less support to excel in school.

7.6.4 Impact of life-course transitions tied to family roles

Life-course transitions that are tied to family roles also appeared to fundamentally alter the adolescent experience and its impact on children's continued school participation. One such transition addressed during the interviews and focus groups with children was the migration of bread-winning family members or caregivers to perform menial jobs in cities further south, for extra income, especially in the dry seasons where there was limited agricultural work in many rural communities. School-going children left behind in such circumstances often had to fend for themselves by engaging in more economic activities to fulfill both basic livelihood and school needs – a situation that puts additional strain on their time to invest in learning at home or the desire to stay in school. Child 5, a male student, for instance, shared his experience of schooling as a left-behind child.

> *It's not easy being in school… Because you know, you have to go to school and learn hard. And your progress in school depends on your performance as a student, but the difficulty is when you don't have anyone to take care of you in school* [Child 5, community 2].

After the passing away of his father and eventual migration of his mother to the South, this boy now lives with an uncle in community 2, a situation that requires him to work and fend for his own schooling needs.

> *I buy books myself… As I said, I go to do 'by-day' [labour work] during the weekends. So that's where I get the money to buy my books* [Child 5, a male student in community 2].

While both boys and girls navigate similar challenges in cases of being a left-behind child, there were perceptions that left-behind boys children face more difficulties in the process and are therefore more at-risk of discontinuing school, compared to their girls. Child 5, again, used his own life situation and that of his sister to advance this perception.

> *Using my sister an example, she is 21 years. At her age, she is already matured so when she is walking around and she's fortunate, she might meet someone, a man who likes her. And if she likes the person, the man will marry her and take care of her. It is also possible the man will take care of her schooling needs also. And that is different from my situation. I'll not have anyone to do that for me, so I have to struggle and do that myself* [Child 5, Community 2].

Beyond parental migration, respondents also shared other transitional experiences and counter transitions related to the loss of a breadwinning parent, expectations of pregnancy and its associated changes in school and family relations – all of which alter the adolescent experience and predispose some children to gender-related educational inequality.

7.7.0 Discussions

7.7.1 EGI in rural and underserved contexts – newer perspectives and policy implications

One of the contributions this paper offers to discussions on EGI, specifically in Ghana's underserved, rural Northern context, and similar others in SSA generally, is to highlight the centrality of the adolescence experience as a defining life-course stage for children's educational development. This transition to adolescence in many rural, subsistence farming communities is one that comes with multiple and competing responsibilities on the shoulders of school-going adolescents to strike the right balance, but often with different weight of adverse implications for boys' versus girls' education. This process of navigating through competing expectations, such as helping to secure the collective livelihood of the family alongside one's own welfare and educational interest is both a skill and a difficult task that not every adolescent takes on in the context of basic schools across Ghana. Yet, this insight into the adolescent stage, and the different ways in which interactions between the local environment and the adolescent experience reinforce EGI for boys and girls, is rarely emphasized in the education literature and discourses around achieving gender parity.

I emphasis on these dynamics in the formation of EGI in rural and underserved regions largely supports findings in recent reports. For instance, existing reports show that gender parity attainment in basic education is most unequal at the lower and upper secondary level, where the majority of school-going children remain adolescents, compared to the primary level, which has the highest parity levels in most SSA contexts (Koissy-Kpein; 2020; Bennell, 2023). Similarly, Bennell's (2023) analysis of the SSA context showed females in lower and upper secondary levels to have exceptionally low completion rates in rural areas where, as shown in our study, the adolescent experience is intertwined with intersecting layers of local environment factors that

predispose females to schooling and learning disadvantage. This speaks to the need for potential policy solutions addressing EGI to target not only the ecosystem surrounding schools, but also the specific experiences of the adolescent stage prevalent in rural Northern communities.

Even though our findings show that traditional belief systems play an important role in shaping the prevailing pro-male culture micro context of household decisions to support children's schooling, this must be understood from a macro-system perspective, in terms of the availability of educational resources and socio-economic investments required to offer decent livelihood in underserved communities. This context is important, given that the adolescent experience in rural northern communities often revolves around activities that either: (a) contribute to basic livelihood needs, such as fetching water for household usage; or (b) engaging in private economic work to raise money for supplemental educational costs, including buying textbooks or paying volunteer teachers.

This appreciation of the inherent connections between deficits in the micro and policy environments—such as insufficient investment in critical infrastructure and educational resources—and the persistence of educational gender inequality (EGI) in underserved regions aligns with recent evidence from the SSA context. For instance, Baten et al. (2021), in analyzing whether educational expansion in SSA benefited boys and girls equally during the twentieth century, found no evidence of association between participation in agricultural economy and educational gender gaps. Importantly, they also found that local areas and districts that were the subject of educational investment and urbanization were more gender equal than remote areas. Reconciling this outcome with our findings, therefore, suggests occurrences of EGI in rural and underserved contexts to be more a function of under-development and inadequate investment

into critical infrastructural than the prevailing force of the agriculture economy and socio-cultural norms (Baten et al., 2021). This is consequently an indication of the critical areas to prioritize, specifically for policy strategies seeking to offer effective, long-term solutions to educational gender gaps in rural and underserved communities. The positive impact of investing in rural infrastructure such as electrification, road networks, and water on the educational participation and outcomes for boys and girls in SSA and other developing world contexts have strong roots in the literature on critical infrastructure and development in rural regions (Daka and Ballet, 2011; Baten et al., 2021; Faisal et al., 2024).

The findings also unpack the multiple, intersectional experiences embedded in the process of EGI formation in rural Northern contexts. While boys and girls are generally exposed to educational disadvantages through the combined experiences of household responsibilities at adolescence, our findings also draw attention to certain profiles and micro-environment characteristics of children, such having adolescent siblings or being a 'left-behind' child redefines the nature of the adolescent experience, and the extent of exposure to schooling and learning exclusion. For girls, for instance, having adolescent female siblings could lessen one's responsibilities at home and create more time to invest in learning, since additional adolescent siblings are more likely to participate in house chores than having younger siblings who have lesser responsibilities at home. Similarly, being the only child in the household, or only adolescent male child is likely to come with more farming responsibilities and the tendency to spend more time away from school during the raining season. In cases of internal migration and other forms of 'left-behind'[63] children, it is important to note that although such children may often be in the care of

[63] Used here to refer to children left behind by parents or caregivers due of internal migration or deceased.

extended family relative, we envisage that these children would be more likely to commit additional time towards economic work, to cater for other critical basic needs around their education that would also compromise effective school participation, as emphasized in the case of child 5. What these experiences suggest is that individual profiles and identities such as gender, number of siblings, parental migration, and transitional events like pregnancy, present additional layers of complexities to the adolescent experience, which compounds the extent of EGI problems in rural northern communities.

This intersectional perspective on the adolescent experience in rural and underserved contexts is often neglected in current understanding of EGI through the dominant gender indicator parity indicator (GPI)[64] metrics (UNESCO, 2020a; Unterhalter et al., 2022). Discourses around EGI and related policy responses essentially concentrate on how to bridge existing parity gaps in quantitative metrics observed within the classroom and the school system. Although these metrics are important for educational policy and planning, they are nonetheless likely to fall short of picking several important details (Unterhalter et al., 2022), such the nuances around experiences outside the school system that shape parity levels within the school system. Our emphasis on understanding the intersectional experiences of the adolescent stage from both ecological and life-course lenses also allows for a much broader framework, both in terms of understanding the dynamics of how EGI operates in rural contexts, but also drawing from empirical accounts of different livelihood experiences to support appropriate policy design and reforms necessary for

[64] The Gender Parity Index (GPI) in this context, measures the ratio of male to female performance (i.e., enrolment, completion, learning outcomes) primary and secondary levels. A value less than 1 indicates disparity in favor of males, a value greater than 1 indicates disparity in favor of females

achieving educational gender equity beyond the differences in quantitative metrics observed in the school system.

7.8.0 Conclusions and policy pathways

Discourses around EGI and related policy responses over the past three decades have largely concentrated on how to address gender differences in within the school system (Unterhalter et al., 2022) - specifically, on how to address female disadvantages in quantitative metrics. Although successful in reducing gender gaps in Ghana and the SSA generally, this approach falls short of a comprehensive understanding of how gender-specific mechanisms operate in rural and underserved contexts, to inform policy design and reforms necessary for driving educational and learning equity for the most marginalized children.

By drawing on ecological and life-course frameworks, and interviews and focus groups with school children, caregivers, and schoolteachers in rural Northern Ghana, I unpack the broader context around which micro-environment interactions and life-course transitions reinforce EGI for boys and girls alike. More generally, I have shown that the educational trajectory of school-going adolescents in rural Northern Ghana is, for the most part, shaped by the ecological context they occupy and the life course experience that characterizes their adolescent transition. Based on the findings, it became obvious that the identity and individual profile of children, as shaped by their family dynamics, gender, parental migration history, and life-course transitions also serve as additional mechanisms in building multiple layers of disadvantages into one's experiences of schooling and learning inequality.

It is important to note here that exposure to these forms of experiences fundamentally alter the nature of education available to both girls boys in rural northern communities. However, the

extent of schooling and learning disadvantages experienced by boys and girls and boys is largely determined by the nature of the adolescent experience – making EGI in rural northern communities complex, and largely dependent on the adolescent experience. Addressing these forms of EGI requires policy interventions that can mitigate the adverse impact of such experiences on children's schooling and learning opportunities. Addressing EGI therefore requires policies that mitigate the adverse impact of these disparities on children's schooling and learning opportunities. In Ghana, gender disparity in basic education is particularly prevalent at the lower and upper secondary levels, where many school-going children are adolescents with multiple responsibilities towards the welfare of their families and their own educational needs. This requires policies aiming to achieve gender parity in underserved areas, such as rural Northern Ghana, to focus on the unique adolescent experiences and invest in the specific needs and demands at that stage/cycle of life. I consider the following interventions to hold much promise in mitigating the impact of the adolescent experience in creating schooling and learning alienation for boys and girls.

- Since a key aspect of the house chores experience revolve around the search for water, investments in appropriate technologies of making water not only available, but also easily accessible to rural communities and children is likely to increase the time children have at home to invest in learning, especially for females.

- A critical part of the adolescent experience also relates to children's commitment towards their own basic livelihood and educational needs, including being responsible for textbooks and other school materials unavailable through the school system. This points to the need for more investment in educational infrastructure and the provision of textbooks and basic learning materials. Specifically in the rural communities with limited educational

resources, such investments have been shown to advance educational opportunities for children and girls in particular, (Senadza, 2012; Ansong et al., 2018).

- Ethical tensions that ensue between moral commitments to supporting the family and maintaining a good student profile are largely the outcome of colonial school systems, which are less adapted to the patterns of life in rural northern communities. Policies promoting inclusive schooling and learning opportunities may consider decolonizing school systems in rural settings in the north to make them more flexible. This could involve reimagining school formats that provide breaks during peak farming seasons or reducing school hours and having longer school periods to accommodate the needs of both girls and boys to perform their domestic work.

Given the enormous socio-economic disadvantages of most rural communities, efforts to improve educational attainment and opportunities for boys and girls respectively, will first require investments in critical infrastructure and economic development as a vital component of the education policy agenda in the area.

Chapter 8: Summary, discussion, and conclusion

8.0 Chapter overview

This section presents the overall summary, results of critical reflection, and discussion of the dissertation's key findings. Additionally, I examine the implications of my research for both policy and research on educational inequality in Ghana's basic school system. I end the chapter by offering recommendations for future research directions and conclusion remarks.

8.1 Summary

International campaigns aimed at achieving equity in schooling and learning outcomes have, so far, focused more on the measurement of equity to report on progress towards an 'education for all' agenda (UIS, 2018, 2020b), than on identifying and addressing the full dimensions of factors that shape inequality. Even under the current international education agenda (SDG 2), which serves as the global blueprint for addressing education-related injustices and inequalities, we still seem to know more about the measurement of equity than the conceptualization of what equity in schooling or learning entails and how they operate (Levinson et al., 2022; Montjourides, 2022). This attention to measurement in educational equity becomes worrying in developing settings like Ghana, and SSA in general, where the measurement of equity in schooling and learning often do not account for contextual experiences in underserved communities, to uncover the full extent of inequality. This renders many marginalised groups in underserved areas invisible in statistics at national and global levels (UNESCO, 2018), effectively hindering effective policy response and redress. My dissertation aims to provide at comprehensive understanding of the local environment factors that shape educational inequality in rural and underserved contexts. I sought to explore the context of schooling and learning inequality in

Ghana's basic education system within the framework of Ghana's international commitments to achieving the global education goals, and notably, SDGs 4.1 & 4.5.

Methodologically, I relied on international household survey datasets used to monitor country-level progress as well as qualitative insight from underserved communities to go beyond national education indicators and unpack local environment conditions that shape schooling and learning inequality. In doing so, I addressed three critical questions at the center of a comprehensive understanding needed to inform evidenced-based policies that can mitigate the negative learning experiences of children from marginalized and underserved regions and communities.

Conceptually, I drew on the ecological framework and life-course theory which enabled me to examine different layers of children's interaction with their local environment that reinforce schooling and learning disadvantages. Importantly, I examined the ways in which children's micro-interactions with the policy and temporal layers of their local environment expose them to experiences that reproduce schooling and learning exclusion in rural and underserved contexts. Following this process, I organized my dissertation's output into three stand-alone manuscripts that contribute to the overall objectives of the dissertation.

In manuscript one, I relied on international household survey datasets used in monitoring country- and regional-level progress towards the GEG, to explore the state of learning inequality in Ghana's basic education system. Using descriptive statistics and a binary logistic regression analytical method, I explored children's foundational learning skills, and the disparities associated with these skills across Ghana's North-South divide, highlighting the Northern Regions and Greater Accra in particular. I also explored the local-environment factors (i.e., demographic and

family information, household wealth status, parental involvement, children's domestic work, and school conditions) that served as determinants of learning disparity at both national and sub-national levels. The exploration of household survey data showed that foundational learning skills are low in Ghana's basic school system and are unequal between regions in the North and those of the South, to the disadvantage of the North. However, a many of the factors that drive this inequality, especially in the underserved regions, remain largely unexplained by the household survey dataset - highlighting the need for further examination at micro-levels.

In the second manuscript, I extended my analysis beyond national education indicators and quantitative exploration of household survey datasets to explore qualitative insights into children's schooling and learning experiences in rural Northern Ghana. Drawing on interviews and focus groups with significant stakeholders at the local level, I provided context as to how children's interaction with different layers of their local environment exposes them to distinct micro-level experiences that drive educational disadvantages. The overarching goal of this qualitative dive into the local environment where children live and attend school is to underscore the multiple pathways through which layers of MLEs in children's own local environment reinforce schooling and learning disadvantages in rural Northern communities.

In the third and final manuscript, I focused on how children's micro-environment interactions shape Educational Gender Inequality (EGI) within school contexts in rural Northern Ghana. Using qualitative interviews and focus group methods, I examined the gender dimensions of schooling and learning inequality from ecological and life-course perspectives. Specifically, I explored the broader context of experiences outside the school system that drive learning inequality within the school system but are not accounted for in gender-parity indicators

monitoring gender-based disparities in accessing learning opportunities. This section revealed a more nuanced and complex reality of EGI in rural Northern Ghana than the traditional narrative of systemic female disadvantage. Children's interactions with their immediate environment, as influenced by gender-specific roles and gender division of labor, affect both boys' and girls' education, disadvantaging their schooling and learning trajectories in different ways.

8.2 Reflexive discussion

During the course of my dissertation, particularly throughout the fieldwork, consultations, and analytical process—I had ample opportunities to engage with diverse groups and critical perspectives. These included my research team, study participants, academic supervisors, and scholars from rural Northern contexts. Their insights, alongside my own experiences, significantly shaped my understanding of the formal school system in rural Northern communities and informed my interpretations of the qualitative data. The varied interactions enriched the research process by fostering deeper engagement and reflection on how the formal school system intersects with the day-to-day experiences of rural and underserved contexts, and ultimately reinforce inequalities in schooling and learning within the system.

Entering into the rural Northern context as an academic with no lived experiences of livelihood situations in those rural communities, my understanding of the educational system in the rural North had been largely shaped by what is available in the extant literature, media reports, and anecdotal accounts – all of which aggregate towards the idea of educational systems and outcomes in rural Northern contexts being the poorest in quality within the Ghanaian educational system. During the field work, some of these popular assumptions were reiterated in conversations with research participants, especially with teachers/principals and with some District Education

Officials (DEOs), who portrayed parents as uninterested in education or, as some would put it: 'don't care about their children's schooling'. Others even highlighted several examples of situations where parents felt justified to walk to school premises and demand that their wards be released to go to the farms to help with farming - as a testament to the nature of parental attitudes in the rural North, which they considered unfavorable for children's learning.

However, my engagement with parents repositioned my views on these popular assumptions; I came to see them as constituting a simplistic understanding of parental attitudes towards children's education in rural Northern communities. During a debriefing session in Community 2, one of the fathers we interviewed, who seemed to be in his mid-50s, had returned to share his thoughts on how he felt about the questions we (I and my team) asked during his interview. His reaction centered on the societal pressures and expectations to send all his children to school. He expressed genuine concern about his declining physical ability to manage farm work on his own. As he put it: *"The government tells us to send our children to school, but if I do that with all my children, who will help me on the farm to provide for them?"* [Field notes, 2021]. This conversation turned out to be one of the most impactful moments of the research, which not only challenged my understanding of parental involvement in rural Northern school contexts, but also questioning common assumptions that portray parents as uninterested in their children's education rather than as heads of households juggling competing needs.

The experience of data collection in the Savannah region, where we (me and my research team) ultimately selected one community instead of two, drew me back to my formative years in the basic school system, prompting me to reflect on my own experiences vis-à-vis the realities I observed in the area. In our initial attempt to collect data in the first community of the second study

district, the teachers drew our attention to the limited English proficiency levels of their students, which made conducting interviews in English impractical. Since the research team also lacked fluency in the local language, we decided to recruit all participants from the second community in the district. The key lesson from this experience was that, despite the students' limited understanding of English, teaching in the region—like in many Ghanaian school settings, was largely conducted in English – a situation that creates potential language barriers to support students' learning.

Though I expected language barriers, especially the use of English as a medium of instruction, to be a key challenge to children's learning potential in rural contexts—based on my own experiences in the rural South, I however, did not appreciate the layered complexity of the issue in rural Northern contexts. During my basic school years, I recall my mathematics teacher would often use the phrase "*mu' abon dodo*" to describe our class, which loosely translates to "shockingly unintelligent," simply because we (my class) struggled to grasp mathematics concepts taught in English. Fortunately for us, it was always a given that she would switch to the local language to ensure everyone understood the lessons. Consequently, her frequent switch to the local Fante language, which everyone understood, made learning more accessible. However, the more I moved across rural communities within my study area, the sooner I realized that my experience of expecting a teacher to easily switch to the local language was not a normative pedagogical experience to expect everywhere, especially in many rural Northern contexts. The linguistic diversity of the North compared to the South (USAID, 2018), combines with other factors, such as the practice of posting of teachers from different regions of the South to teach in rural Northern communities, seem to combine with other factors to contribute to linguistically diverse classrooms. Such an environment creates the likelihood of having teachers who may not share a common local

language with their students – and thereby presenting potential instructional challenges in the classroom. While my own basic school experiences in the rural South were markedly different from what I later encountered in urban settings, my observations in rural Northern schools lead me to a point of viewing educational quality in Ghana's basic schools as a layered hierarchy of educational experiences, which are largely shaped by geolocation.

Perhaps, the most significant experience that led me to critically engage with issues of equity and quality outcomes in Ghana's basic school system was the recurring conversations around the seasonality of subsistence farming and its crucial role in the livelihoods of rural Northern communities. Even though subsistence farming may initially seem disconnected from discussions on educational quality, informal field conversations with the research team and scholars from the region highlighted its profound influence on nearly every aspect of rural life, including children's schooling and learning. I became particularly aware of this connection during the data collection process, when one of my assistants informed us (the research team) about his decision to abruptly end his participation in field work and return home to plant his yams. The cloud formations, after over two months of seeing no rain, eventually signaled the arrival of an imminent rainfall. The important lesson for me in this case was that even though he was contracted to work until the completion of the field research, the urgency of planting his yams at that precise moment seemed to outweigh his obligation to the project. His family's long-term livelihood and food security took precedence over the research, which, in his view, could be delayed. This was a decision that brought me to terms with the pervasive culture of farming and the centrality of the raining season to planting for food and safeguarding the food security of families. Almost everyone seems to have a farm they depend on, including teachers, who would also want to prioritize cultivating their lands during the raining period at the expense of the classroom. As some of my

discussants pointed out, "If teachers are leaving school to focus on planting, why wouldn't parents also take their children out of school to help on the farms?" These conversations made me realize how the tensions between the formal school calendar and farming activities inherently raises concerns about educational quality and underscores the need to reform educational structures to better align with local realities and community needs.

As someone who has gone through the same educational system and listened to the personal anecdotes of friends who experienced schooling in the rural Northern system, I realize that many of the success stories I have encountered share a common theme of resilience – like that of Mathew, who now teaches at the University of Melbourne. After completing my fieldwork, I visited the village of Bolni, which is a small community about 30 minutes away from the district capital of Nanumba North, to distribute the remaining learning materials to students.[65] This visit was not entirely spontaneous; I was also eager to see the community where Mathew grew up and experienced basic education, someone I had consulted at large, to better understand the rural Northern context.

Being a product of the same educational system that has been shaped by rigid colonial models of schooling, I am often tempted to view such narratives of resilience as a normative requirement for success—where enduring hardships is simply what it takes to succeed. Or having a narrow view of schooling as an activity confined to a physical structure, where one goes to learn how to speak and write English within strictly defined schedules. What my recent interactions and engagement with multiple groups have done is to prompt a deeper reflection on these assumptions and enable me to magnify individual experiences of educational disadvantage in underserved areas

[65] As part of the research project, learning accessories (i.e., exercise book, pens, pencils, mathematical sets were procured to be distributed to all community schools that participated in the survey.

like the rural North, which I and others within the system may have unintentionally accepted as normal or necessary sacrifices for success, especially in the broader context of educational inequality.

8.2 What we know about learning inequality in Ghana's basic schools – important highlights from MICS 6

This study has shown low levels of learning in Ghana's basic school system, where just over a quarter (29%) of upper primary school and half (59%) of JHS pupils obtained foundational learning skills expected at grade 2 level. While exiting studies on learning achievements in the Ghanaian context also paint challenging outcomes, yet such studies largely draw on results from the national level Basic Education Certificate Examination (BECE) and other self-assessment measures, which are not comparable with the MICS 6 foundational learning assessment module (Blunch, 2011; Ansong et al., 2015). However, learning achievements presented by the quantitative manuscript are consistent with learning results from many countries in SSA and the West African context, where outcomes have been labelled as being at a crisis level (Spaull and Lilenstein, 2019). Beyond the overall low learning outcomes, the study also revealed high levels of learning inequalities between the Northern regions and the rest of Ghana, and particularly Greater Accra. Foundational learning skills of school-going children in the Northern regions were 20 percentage points lower than their counterparts in Greater Accra at the lower primary level and 41- 48 percentage points lower at the upper primary and JHS levels, respectively. The scale of this deficit reflects two critical challenges that confront the basic school system in Northern Ghana. The first can be seen as a policy challenge: school systems, especially those in rural communities, are often deprived of basic and critical resources, such as qualified teachers and teaching materials (i.e., textbooks) essential to facilitating effective teaching and learning. These disadvantages were

reiterated by participants in the qualitative interviews and focus groups, where school children often needed to purchase their own learning materials, like textbooks, and pay for the services of volunteer teachers. These are experiences of educational policy failures in rural Northern schools that limit children's access to learning and widens the learning inequality gap between the North - South divide. In paying for the cost of textbooks and volunteer teachers, basic school children in rural Northern communities and their families essentially pay more to receive lower quality education than their counterparts in resource-rich school in urban centers in the Greater Accra.

The second challenge arises from long-standing structural disadvantages that also give rise to two distinct forms of educational inequalities. First, the incompatibility of the formal school system with seasonal farming and domestic work responsibilities perennially forces many children to miss school. Boys, in particular, are on one hand, reported to be regularly absent from school during the rainy season for farm work, while girls, on the other hand, lose substantial learning time to household chores like fetching water. Second, intermittent tensions arising from ethnic, political, and tribal hostilities, which occasionally lead to school closures, effectively hinder schooling and learning opportunities for many children in some rural communities. Although the qualitive interviews and focus groups highlighted these experiences as key sources of educational exclusion in rural Northern communities, which potentially widen the North-South learning divide, they are nonetheless largely invisible in existing datasets and are rarely considered in current educational policy strategies.

In the educational literature on Ghana, a plethora of studies have highlighted the significant North-South inequality gap, which disadvantages the Northern regions in terms of infrastructure and quality of service delivery (Darvas and Balwanz, 2013; Abdulai and Hulme, 2015; Abdulai

and Hickey, 2016), enrollment and completion rates (Senadza, 2012; Ansong, and Alhassan, 2016; Ansong et al., 2018), and self-reported adult literacy levels (Abdulai and Hickey, 2016; GSS, 2021). The results of my dissertation contribute to understanding these dimensions of North-South educational inequality, particularly in terms of foundational literacy skills. The results indicate that for Ghana to achieve its global education commitments by 2030, significant efforts and policy reforms are needed to address the learning gap between the educational systems in the Northern and Southern regions.

Using the MICS 6 dataset, this study also reveals some of the inherent limitations of the macro-level quantitative approaches in accounting for the multi-layered dimensions of factors that contribute to schooling and learning inequality in Ghana and the broader SSA context. The quantitative analysis, which considered eleven local environmental factors (e.g., parental involvement, children's domestic work, and school conditions), explained only 19% of the variation in foundational learning skills at the national level. The model also accounted for just 16% and 26% of the variation in the Southern and Northern regional analyses, respectively. In other words, as much as 74% of the variation in foundational learning skills in the Northern regions and its influencing factors are accounted for in the quantitative model. Studies that have explored learning skills in Sub-Saharan Africa (SSA) using large-scale international learning assessment datasets have reported similar explanatory power. For instance, recent investigations by Savolainen (2021) using the World Bank SDI data found that analytical models explained 29% and 36% of the variations in children's literacy skills in Kenya and Tanzania, respectively. Similarly, studies by Loye et al. (2022) and Buhl-Wiggers (2021) using PASEC and Uwezo datasets accounted for 10% and 16% of the variations in literacy learning, respectively. These findings collectively suggest the need for a closer examination of the critical factors around the

family, school, community, and the broader ecosystem around children's schooling, to fully understand how local-level factors influence learning opportunities.

8.2.1 Lessons about the context of learning inequality addressed by MICS6

Notwithstanding the inherent limitations of the quantitative indicator-based approach to issues of context, the use of the MICS dataset, however, shows some interesting facts about context issues in Ghana's basic school system that remains critical for educational equity policies in Ghana. The quantitative results showed that some of the critical local environment factors known to have adverse outcomes for children's schooling and learning not only have varied statistical effects based on geolocation, but also tend to have a more pronounced negative impact in the Northern regions compared to Greater Accra. There are two examples in the quantitative analysis that show how this context dynamic is manifested in the Northern regions. The first is seen in how children's participation in economic work shapes the likelihood of achieving FL skills in the North, relative to Greater Accra. For instance, children in the Northern regions who participated in household economic work, even below the threshold of 21 or more hours per week[66], were likely to experience negative learning outcomes, even though the same threshold of work did not have any statistically significant effect on children's learning in the Greater Accra. The negative impact of economic work on learning skills in the North as against Greater Accra can be explained by the nature of household economic activities in rural Northern communities, which often involve time- and labor-intensive tasks that are more likely to keep children away from school and negatively impact their learning outcomes, as reiterated in my qualitative sections and studies by Koomson and Asongu (2016). In Greater Accra, which Martey et al. (2022) found to have the lowest

[66] This threshold fits into ILO SDG reporting indicators for classifying child labour 5 to 11 years: At least 1 hour of economic work or 21 hours of unpaid household services per week. Age 12 to 14 years: At least 14 hours of economic work or 21 hours of unpaid household services per week.

incidence of child work among Ghana's regions, children who work are likely to engage in economic activities such as fishing, trading, or commerce, which are activities less likely to disrupt their schooling to the same extent as agricultural labor in the Northern regions.

Secondly, the context dynamic also plays out in the Northern regions in the case of language, whereby children whose home language matched the language of instruction used by teachers had lower learning outcomes than those who did not report a language match (i.e., mismatch language advantage in learning). Yet, no such statistical difference was observed in the Greater Accra. The situation of mismatch language advantage in foundational literacy skills in the Northern regions may be as a result of the complicated linguistic context of the North, which can present significant hurdles for household surveys to navigate such challenges. In the first place, the multi-ethnic characteristics of some of the regions in the North, lead to situations whereby some regions have multiple local languages, with only one designated as the official LLOI to be used along English for instruction (USAID, 2018). Due to the limited teacher availability in many rural Northern contexts, other reports have also highlighted the practices whereby educational authorities post teachers from Southern regions to rural communities in the North, often with no knowledge of the local languages used in the host communities (Blampied, 2018; Opoku-Asare et al., 2015) – a practice that further complicates the linguistic diversity in the classroom. As a result, some students may therefore have to contend with the experience of learning in second languages in which they have limited proficiency, as well as being taught by teachers who do not speak their local language. This scenario can be observed in the findings of the second manuscript, whereby students in some communities faced the dual challenge of not only learning in English - the official language of instruction, often unfamiliar to their local context, but also in designated LLOI (USAID, 2018), which may also differ from their mother tongue.

In SSA, such cases of linguistic complexity, including language mismatch advantage in children's learning have been reported across various country contexts. Scholars often attribute this phenomenon to the unique contexts in Africa and parts of Asia, where educational systems are predominantly structured around a second language, different from the one spoken at home by students (Lyytinen et al., 2019; UNICEF, 2022; van Pinxteren, 2022). While this explanation is likely to apply to the outcomes observed in Northern Ghana, it is equally important to revisit the broader issue of linguistic plurality and the language of instruction complexity in many SSA contexts, including Northern Ghana. These are challenges that are likely to make it difficult for international household surveys to accurately capture the nuanced relationship between home language and language of instruction in their datasets, as is currently the case. Understanding the linguistic complexity of the North and its effect on learning would therefore require further studies dedicated to language mapping, especially in rural Northern contexts.

The varied effects of these local environmental factors on children's learning highlight the importance of not only understanding the context of different geolocations, particularly the North, but also ensuring that context plays a critical role in implementing equity-driven educational policies. Importantly, my dissertation's quantitative findings indicate that a comprehensive understanding of how individual local factors drive schooling and learning inequalities in Ghana, especially in the Northern regions, is crucial for advancing Ghana's efforts toward achieving educational equity and its global education goals.

8.3 What do we know that is unexplained in existing household survey datasets?

One of the rationales behind my dissertation relates to the fact that the global education agenda, its indicators of educational equity, as well as international household surveys often do

not go deep enough to unpack the full dimension of schooling and learning inequality that children in rural and under-served contexts deal with on day-to-day basis. In effect, macro-level indicators of educational equity and the factors that drive inequality may underrepresent critical dimensions of the every-day experience of children that push them to the edge of schooling and learning exclusion in their communities. By integrating the three manuscripts and their respective analyses, my dissertation addresses three crucial themes that provide significant insights into the pathways to schooling and learning inequality in rural Northern Ghana— which are important context issues, often obscured by macro-level quantitative indicators.

8.3.1 The adolescent experience as a key context issue in understanding learning inequality

The first key theme that emerges as a critical aspect of the day-to-day experiences shaping children's schooling and learning disadvantages, is the transition to adolescence in rural and underserved areas. My work frames adolescence as a pivotal life-course stage, where children face growing tensions as they navigate and move between different micro-contexts within their local environment, such as the home, school, and the broader cultural surroundings. Even though the adolescent stage can be seen as a universal life-course transition experienced by all school-going children (Larson and Wilson, 2004), the nature of this experience, however, is far from uniform, particularly in rural Northern communities. As described Larson and Wilson (2004), adolescence manifests differently across social, cultural, and economic settings. In rural Northern contexts, the adolescent experience was fundamentally shaped by diverse socio-cultural factors and the unique identities of individual children that put them at the disadvantage of effective schooling and learning. My dissertation puts a spotlight on the nature of these experiences for school-going adolescents and how that shape their schooling and learning trajectory.

The engagement with school children showed adolescence as a period when they take on significant responsibilities at home, not only to support the collective welfare of their families but also to meet their own needs, including those related to their education, as emphasized in the third manuscript. Yet, the type and weight of responsibilities children take on is largely determined by a diversity of factors around the home, the school, the community, and the broader social setting they interact with. For instance, having multiple adolescent siblings to share home responsibilities and household duties can reduce the burden on each child's learning experience compared to those without such support. Similarly, living in areas where schools lack sufficient teaching staff and educational materials imposes additional responsibilities on school-going adolescents, such as engaging in paid work to afford learning materials or hire volunteer teachers, especially in situations where caregiver support is unavailable. Obligations that require children to be key players in securing basic needs like food or self-financing supplementary educational costs, as detailed above, often undermine successful schooling and learning trajectory. For many school-going adolescents, however, the responsibility of contributing to the welfare of the family was not merely seen from a position of disadvantage, in terms of its impact on their schooling and learning. More importantly, school children also viewed these household obligations positively. For the majority of participants, it was a process that provided cultural and ethical fulfillment, allowing them to earn social recognition and status as a 'good child.' This perspective reflects an adolescent experience that not only prepares children for the transition to adulthood but also positions them as coagents in shaping their own future and life experiences (Larson and Wilson, 2004).

Although scholars have explored educational barriers for young adolescents in rural school settings before (Wilson and Somhlaba, 2017, Devonald et al, 2021), there is limited analytical work on how they navigate the multiple intersections of individual, family, school, and

community-level experiences tied to their adolescent transition, from an educational equity perspective. Understanding the pathways to these experiences is critical to addressing the needs and demands that reinforces disadvantages for boys and girls. At the same time, it draws attention to what existing macro-indicators and datasets do not capture, when evaluating educational equity (Unterhalter et al. 2022).

8.3.2 Inequalities in underserved contexts impact boys and girls differently

Secondly, my dissertation's results update and complement the current understanding of educational gender inequality in the Ghana and SSA contexts. While there is a strong body of evidence in Ghana to show that girls continue to face educational disadvantages due to entrenched patriarchal social norms and gender-restrictive barriers (Senadza, 2012; Wilson and Somhlaba, 2017), my dissertation's findings revealed a more nuanced and complex reality of EGI in Northern Ghana than the traditional narrative of systemic female disadvantage in education. The findings showed indications of girls outperforming boys on measures of foundational literacy. For instance, the regression results from the first manuscript showed that girls had 95% likelihood of outperforming boys in foundational literacy achievements in Northern Ghana. This complex reality of EGI, where girls outperform boys in literacy and other schooling indicators, has been observed in different studies across SSA, including Fonseca et al. (2023), Hofmeyr (2022), and Buhl-Wiggers et al. (2021). The qualitative sections also provided more context in support of this finding. The second and third manuscripts for instance, revealed that even although girls continue to suffer educational exclusion from patriarchal norms that limit their learning opportunities, the persistent reproduction of traditional gender norms in domestic work, also reinforces educational disadvantages for boys as much as it does for girls.

The gender division of domestic work responsibilities tends to assign the heavier physical aspects of household economic work, such as farming, as male-dominated responsibilities. Activities performed in this category are therefore physically and labour-intensive, such as building earth mounds[67], which can draw boys away from the classroom for weeks or months during raining seasons - thereby limiting their learning opportunities. Females on the other hand, have greater responsibilities for household chores, which are also labour- and time-intensive, and often limits girls' learning time at home. Active engagement in both forms of domestic work creates tensions with the school system and initiates different pathways to schooling and learning exclusion for both girls and boys. However, the economic activities, such as farming, that male children engaged in, often caused greater disruption to regular school attendance, which suggests that being away from school may cause more harm to boys' foundational literacy development than the lack of time at home to study does for girls.

What this shows is that while female disadvantages in education may be entrenched in certain areas and levels of education, there are also realities of girls outperforming boys on different measures and at certain stages of schooling (Fonseca et al., 2023). My findings on girls' advantage over boys in foundational literacy in the Northern Ghana context underscores the complex gender dynamic in educational outcomes in Ghana, which is far from the traditional narrative of systemic female disadvantage in EGI. Recent literature shows evidence of these outcomes being common in Southern and Eastern African contexts, with several studies reporting a consistent pattern of girls outperforming boys, particularly in foundational literacy measures

[67] Mounds construction popularly known as 'yam mounds' refer to aspects of the physical work associated with yam cultivation, involving digging the soil to raise earth mounds for yam tubers. See https://www.intechopen.com/chapters/83160.

(Spaull and Makaluza, 2019; Buhl-Wiggers et al., 2021; Hofmeyr, 2022; Fonseca et al., 2023). More investigations are needed in identifying when and under what circumstance boys and girls do better in specific educational outcomes. However, the current finding points to the need for gender-related measures in promoting equity in schooling and learning outcomes at the basic level to focus on both boys and girls, than the current focus on girls (Evans et al., 2024).

8.3.2 Tensions between the formal school system and traditional patterns of life as key mechanisms driving learning inequality in underserved contexts.

Finally, by unpacking the inherent tensions between children's commitment to the welfare of their families and their need for maintaining effective schooling and learning participation, I draw attention to the colonial dynamics underlying the formation of educational gender inequality (EGI) in traditional subsistence settings like rural Northern Ghana. Tensions that develop in the process of navigating between moral obligations towards the home and maintaining a good student profile can be traced directly to the existence and practice of colonial school systems with little alignment to the seasonal patterns of life demanded of school children in rural Northern contexts. The operationalization of schooling as a structured arena in traditional settings where livelihood is organized along subsistence farming and rainfall patterns, reinforces experiences that lead to schooling and learning exclusion, especially for male children, who are often invested in farmwork during the peak farming seasons.

It is worth noting here that even though the need for children to participate in school remains a theme and a call that widely resonates with the majority of education stakeholders in rural communities (Anlimachie et al., 2022), yet my dissertation shows that rural Northern communities are often challenged by structural factors that are linked to the formal school system itself. Findings from the qualitative manuscripts suggest that the economic challenges of meeting

basic livelihood needs, along with the socialization process that equips children with skills to navigate economic challenges, are the very factor that often push children on the margins of schooling and learning exclusion. Thus, the core issue behind educational disadvantages in rural Northern communities are not the desire to meet basic needs, but the school system's inability to accommodate such traditional patterns of life to maintaining the welfare and wellbeing of household. This failure of the formal school structures to adapt to the learning needs and contextual realities surrounding children's lives forms a key structural barrier to achieving equitable schooling and learning participation, particularly for children in rural Northern Ghana.

Acknowledging the above colonial dynamics, including language barriers, as key factors underpinning learning disadvantages in rural school systems today is imperative for building successful and inclusive educational systems that are centered around the needs of those who utilize them. This perspective aligns with a growing scholarship on decolonizing African educational systems to better serve the needs of the African child (shizha, 2013; Adebisi, 2016; Brock-Utne, 2007; Afull-Broni et al., 2020). Even though the colonial masters are no longer in direct control since independence in the late 1950's and early 60s, educational systems in many SSA countries, including Ghana, still follow rigid colonial school pattens, where learning takes place in a confined physical structure at specific times of the year, irrespective of whether it meets the needs of those it serves (Bonney, 2022). Similarly, instructions in school are mostly taught in the language (English/French) of the colonial masters, that is neither known in the immediate environment of children who patronize the school system, nor is it sufficiently comprehensible by instructors who are to teach the children (Brock Utne, 2002; McKinney, 2016; van Pinxteren, 2022). The disconnect is particularly pronounced in rural areas, such as those in Northern Ghana, where the limited proficiency in the colonial language and the seasonality of traditional life

patterns places local communities at a direct disadvantage in developing learning skills. Prioritizing interventions that aim to decolonize the formal school structure is therefore likely to improve educational equity for rural and underserved children. Recent literature for instance, provides examples from sub-Saharan African countries where the restructuring of formal school systems and the design of flexible curricula have extended formal schooling opportunities to pastoral communities who were otherwise excluded (Alemu and Solomon, 2019; Ochieng and Waiswa, 2019).

8.4 Conceptual and methodological contributions

Conceptually, the study presents micro-interactions with the proximate and distal layers of the environment (Rosa and Tudge, 2013) as a process, characterized by significant conflicts and tensions, with adverse implications for schooling and learning opportunities. Within the micro-contexts of the home and school, these tensions are marked by competing demands, such as (1) the need to maintain effective school attendance during peak farming seasons versus supporting the family during critical planting times, and (2) the obligation to complete morning and evening household chores, which confer moral recognition as a 'good child,' versus using that time for studying and homework. At the intersection of the school and the temporal and cultural setting, tensions arise from the incompatibility between the formal school calendar and the cultural patterns of life centered around subsistence farming. Within the macro context of how the broader educational policy impacts the school and the child, there is also the issue of policy implementation failure, which displaces responsibility onto children and their families to address financing gaps in the free basic education policy. Each layer of interaction presents tensions that must be resolved to ensure a smooth and effective path to the successful schooling and learning outcomes expected of the educational system. Understanding schooling and learning inequalities from ecological

perspectives (Bronfenbrenner, 1999; Vélez-Agosto et al., 2017) thus highlight the key markers at the different levels of interaction around children's environment and how these interactions, in turn, reproduce distinct schooling and livelihood experiences, which either support or restrain schooling and learning ability.

Methodologically, my dissertation modestly contributes to the field of defining and monitoring educational equity in rural and underserved contexts by drawing on ecological and life-course theories. It accounts for a diversity of the every-day experiences at home and in school that impact children's schooling and learning trajectories. This approach to understanding educational equity and its monitoring is critical, as it ensures that locally relevant experiences of educational exclusion, often unrepresented in mainstream macro-indicators, are accounted for and brought to light for policy action.

8.5 Implications for policy and research

My dissertation's findings have key implications for educational policy and research in the Ghana and other Sub-Saharan African contexts with similar educational systems.

8.5.1 Ghana specific policy implications

Overall, the study showed significant disparities in learning outcomes within Ghana's basic school system with students in the Northern regions at a disadvantage. The extent of this learning disadvantage is such that Ghana's quest to achieving its global education targets, notably SDG 4.1.1 and 4.5, largely depends on its ability to closing the learning gaps between schools in the North and those in the South, and Greater Accra in particular. To tackle this inequality, Ghana needs to aggressively improve its learning infrastructure and resource deficits in school systems in

the Northern regions, especially in the provision of trained teachers and textbooks in schools in rural districts, where there is inadequate supply.

From my dissertation's second and third manuscripts, a key domain of basic education access in rural Northern communities revolved around essential household needs such as water, where children spend a significant amount of time on fetching water for home and school use. Consequently, policy solutions to improving educational quality and promoting effective access to schooling and learning in rural Northern communities must prioritize investment in programs and technologies that ensure water availability and accessibility for households and schools. A long term approach to closing equity gaps in schooling and learning between the North and the more developed Southern regions, particularly Greater Accra, must consider investments not only in critical education infrastructure in the rural Northern communities, but also implementing a national strategy that address the broader developmental and socio-economic deficits in these areas.

My findings, as reflected in several other reports, highlight experiences of intermittent conflicts and hostilities in Northern Ghana contexts that sometimes disorganizes communities and leads to the destruction of peace and human lives (Awedobah, 2009; Tonah, 2012; Debrah et al., 2016). Despite the frequent disruptions to livelihoods, including schooling and learning — as caused by ethnic, chieftaincy, and political conflicts in many rural Northern communities (Alhassan et al., 2017; Adonteng-Kissi et al., 2020), national education strategies have seldom addressed the long-term and specific impact of these intermittent conflicts on children's continued schooling and learning. To improve on access to quality and effective schooling and learning in these areas, Ghana must prioritize targeted interventions designed to specifically respond to

inequalities in schooling and learning opportunities brought about by such conflicts and tensions in an ongoing basis. More specifically, this also requires leveraging on the current growth in information technology to implement virtual learning modules in communities where schools are forced to close during periods of tension and conflict.

Linguistic diversity in many rural Northern communities, particularly between teachers and students in the classroom, has been identified in this research and other studies (Bonney, 2022) as a significant learning challenge. In my study, this language challenge was especially pronounced for students with limited proficiency in English, the official language of instruction, and for those who either did not know the official local language used alongside English or had teachers who lacked knowledge of these local languages. Although existing policy allows for the use of official local languages, the over-reliance on English in practice creates barriers to effective comprehension and student engagement, alienating some students from the learning process. A clear pathway forward is for the Ghana Education Service (GES) to consider (1) sponsoring or encouraging individuals from rural communities to pursue teacher training programs who could be posted back to teach in their local communities and (2) prioritizing language considerations when deploying of teachers to serve in rural schools. Assigning teachers to communities where they share a common language with students can help reduce language barriers that contribute to learning disadvantages, and thereby promoting more effective teaching and learning in rural schools. This approach addresses challenges arising from current practices, whereby teachers from Southern regions are posted to rural Northern communities, often without knowledge of the local language, and further complicating instruction and limiting quality learning outcomes.

Ecological approaches to understanding educational inequality take into account the different factors in the home, school, community, and the broader social environment, which directly or indirectly, limit or enhances children's ability to access educational opportunities. Designing policy solutions to achieving educational equity from ecological perspectives could therefore come with two-fold benefits: (1) the potential to enhance policy effectiveness, since proposed interventions are likely to pay close attention to the multiple layers of social environment factors that create inequality problems (2) the prospect of framing key MLEs embedded in the broader social environment as vital components in the conceptualization of schooling and learning access in discourses and debates around basic education access.

8.5.2 Implications for household survey data gathering

Drawing on the ecological and life-course frameworks, my dissertation highlights critical MLEs arising from children's life-course transition to adolescence and their interactions with key areas of their local environment, including the home, community, policy, and the temporal and cultural aspects of their surroundings. The results suggest that the cumulative effect of these experiences shapes children's schooling and learning trajectories, with significant implications for educational equity, particularly in rural and underserved communities. Recognizing the importance of these MLEs to children's education, future household surveys would benefit from enhanced information to explore educational outcomes and related inequalities. To improve the quality and comprehensiveness of datasets for monitoring educational equity, future MICS surveys should consider collecting detailed contextual information on children's exposure to such MLEs surrounding their local environment.

8.5.3 Implications on harnessing rural development to address educational disparities

Ghana's broader developmental agenda in the past two decades, has predominantly played out in urban spaces, reflecting a growing urban population and its significance in Ghana's electoral politics (Abdulai, 2023, 2024). This has seen the emergence and completion of several developmental initiatives in urban roads and transportation, health care delivery, information technology, trade and commerce, and many other services, to address livelihood needs and wellbeing of urban populations (Abdulai, 2024). However, this urban-centric development is coinciding with a demographic shift, where the once predominantly rural national population base in the 1980s and 2000s has now transitioned into an urban dominance (GSS, 2021). To a greater extent, this shift or transition can be argued as having deprioritized rural development, which in the 1980s and 2000s served as a key government strategy for reducing poverty, expanding educational opportunities, and narrowing rural-urban disparities (Akyeampong et al. 2007; Molini and Pierella, 2015).

The above example suggests that to promote equitable schooling and learning opportunities for all children, a renewed rural development agenda, that is reminiscent of the intensive rural development initiatives in the late 1980s and 1990s, should be an urgent government priority. Such an agenda should prioritize expanding critical infrastructure, including road networks, water supply, electrification, and the reconstruction of school facilities especially in Ghana's underserved rural communities, and the North in particular. Improvements in such infrastructure will not only reduce barriers to effective schooling and learning participation by the poor but also create enabling environments for families to prioritize schooling, especially in underserved areas like the North, with deep historical deprivations in socio-economic development (Abdulai and Hickey, 2016; Aboagye, 2021). This transformative role of socio-economic development in

promoting educational inclusion and reducing inequality has been underscored by Clemens (2004) and Baten et al. (2021) as being inherently pivotal to achieving educational equity, more than the reliance on educational policy. My dissertation therefore makes a strong case for addressing the foundational welfare needs of rural Northern communities through an expansive rural development strategy, as a pathway to foster equitable educational opportunities and bridging the persistent rural-urban and North-South divide in schooling and learning outcomes. This presents an avenue for future research to investigate the impact of recent developmental agendas on educational equity in both rural and urban contexts.

8.6 Study limitations

As noted in manuscript one, while the MICS dataset's regional-level disaggregation allowed for analysis on sub-national variations in foundational learning skills and their influencing factors, this however, did not extend to the district level, thereby limiting the scope for more localized analysis. This limitation restricts the ability to conduct more localized and granular analyses. This limitation made it difficult to break down foundational learning results at the district level for direct comparison with the individual districts identified in the qualitative sections.

The foundational learning estimates in the quantitative manuscript is also limited by the cross-sectional nature of the MICS6 dataset. Since the foundational learning assessment is a new addition to the MICS survey, the learning outcomes recorded at the time of the survey only provide a one-point measurement of learning achievement in foundational literacy, as against assessments over multiple time points from a longitudinal perspective (Kraemer et al., 2000; Cohen et al., 2017). As a result, the foundational learning skills may not accurately reflect the individual's cognitive learning capacities developed over years of schooling.

Besides, the cross-sectional limitation, the assessment of learning only highlights the acquisition of formal school learning skills through cognitive assessment at the expense of the diversity of life-long learning skills acquired through the process of socialization and nonformal schooling to effectively function in their local context (Omolewa, 2007; Yasunaga, 2014).

In the qualitative sections, I employed face-to-face interviews methods to collect data from JHS students. All interviews were carried out in both English and the local languages, which allowed participants to choose the language they were most comfortable with. However, some participants opted for English, which in some instances may have influenced or limited how they expressed certain experiences. To mitigate this issue, the field research team would either switch to the local language or follow up with probing questions in the local language during the interviews.

Finally, while the second and third manuscripts aimed to explore the local environmental experiences that expose children to schooling and learning disadvantages, labeled as Micro-Level Experiences (MLEs), the MLEs presented are however not exhaustive. This is due to the focus on specific core themes during the interviews and focus group processes. Consequently, the MLEs identified do not account for all the local factors shaping schooling- and learning-related inequalities in rural Northern communities. Future research could explore additional themes and expand the current MLEs for a more comprehensive understanding of all locally relevant factors indicating educational disadvantage.

8.7 Future research

Overall, there are few studies that have explored the concept of educational equity as applied by the international education agenda and examined the legitimacy and process guiding

this global approach to pursing educational equity (Huynh, 2020; Montjourides, 2022). In my dissertation, I have explored this global approach to pursuing educational equity in terms of access to foundational learning and examined its empirical manifestations in rural and underserved contexts, using rural Northern Ghana as a case study. By so doing, I provide a comprehensive understanding of educational equity and how it should be approached in rural and underserved areas such those in Northern Ghana. To my knowledge, this is the first study in the Ghanaian context to draw on macro-indicators of learning achievements from household surveys and qualitative insights from underserved communities to understand not only the context of learning inequalities in Ghana's basic school system, but also the pathways through which the local environment and its relationship with the school system reinforces both schooling and learning-related inequality. Even though prior studies by Ansong et al. (2015) have explored learning achievements, these have mostly focused on results from the BECE and other self-assessment measures and not form internationally comparable educational assessment measures relied upon in monitoring the attainment of global education goals. Based on the findings and discussions, there are three key research areas that hold prospect for immediate and future research.

First, the qualitative findings lay the groundworks for future research to build on and expand on the extent of knowledge of local environment factors that drive schooling and learning inequalities in rural and underserved communities in Ghana. Having emphasized the primacy of MLEs over macro-indicators in understanding the context of schooling- and learning-related inequalities in Ghana's basic school system, my future research will aim at drawing on the MLEs as a framework for developing locally relevant indicators of educational disadvantages that can be relied upon in the measurement and monitoring of schooling and learning inequalities, particularly in rural and underserved areas. To my knowledge, there are no existing studies in the Ghanaian

context that have explored such locally relevant indicators of schooling and learning and their measurement.

Second, the qualitative findings also revealed several instances of linguistic diversity in class-room settings across different communities, which according to some children, undermined effective teaching and learning process. These experiences are often characteristic of school systems in rural Northern communities due to a complex mix of factors, including: (1) the presence of multi-ethnic communities often served by a single school; (2) language differences between pupils and teachers, as teachers are frequently assigned to rural communities in the Northern regions with no prior knowledge of those languages; and (3) the limited competency in the official lang of instruction by student. This linguistic complexity, whether it pertains to the mother-tongue languages used at home by children or the official languages of instruction used by teachers, underscores the need for a study that effectively maps out the pupil-teacher language profile of schools in rural Northern communities. Such a study could help inform national strategies regarding teacher postings to rural Northern communities, ensuring that knowledge of host community's language become a key criterion in assigning teachers.

Third, during my engagement with rural communities in rural Northern communities, I became aware of two competing realities around the educational system in underserved areas, which also present opportunities for further research. This relates to the inadequacies of existing basic education policies in extending universal education benefits to rural communities, often shifting policy responsibilities onto caregivers and local communities, but also the significant power and agency rural communities possess in mobilizing local support systems to address schooling- and learning-related disadvantages. My future research will seek to build on this

knowledge base, to employ qualitative narrative methods to identify and explore how local community support systems mitigate experiences of schooling and learning exclusion in underserved contexts. And more importantly, explore the extent to which such informal support systems, which are often underrecognized in the Ghanaian literature, can be supported and integrated into the formal education system.

8.8 Conclusion

In this dissertation, I have explored the idea of educational equity as applies to children's access to schooling and learning as one of the critical challenges facing Ghana's basic school system. It also threatens the country's potential to achieving its global education goals and nurture the development of its next generation of human resource. Specifically in rural and underserved communities in Northern Ghana, I have shown that schooling learning inequalities are largely context and geolocation specific, and shaped by a diversity of local environment factors, both proximate and distal to individual children, that come together to predispose them to various levels Furthermore, I have emphasized that these inequalities are complex and multi-dimensional, extending beyond what can be captured by existing macro-level indicators.

Overall, the findings provide empirical attestation to this idea of a context and geolocation variability of schooling and learning inequality in Ghana and its complex and multi-dimensional nature in rural Northern Ghana, as demonstrated by the quantitative and qualitative manuscripts. For instance, the quantitative results revealed that most of the local environmental factors and measures known to influence learning impacted children's learning achievement differently based on geolocation and the North-South regional divide. Additionally, the analytical model accounted for only 16% and 26% of the variance in children's learning achievement in the national and

regional analysis respectively, indicating that a substantial majority of the influencing factors were still unexplained by the household survey dataset. On the qualitative side, the findings illustrated multiple layers of experiences arising from children's interactions with their homes, communities, policy settings, and broader contextual environments, which cumulatively, expose them to schooling and learning disadvantages.

The contextual and geolocation variability of educational equity in Ghana, along with its complex and multi-dimensional manifestations, suggests that the pursuit of social justice and equity within the school system cannot solely rely on a universalist approach to educational policy. Even though such universal approaches offer significant benefits for disadvantaged children, they often prove one-dimensional and may reinforce existing inequalities rather than mitigate them (Schmutz, 2023). Educational equity must therefor be understood through its practical, on-the-ground experience – specifically, as a complex, multi-dimensional concept that not only demands ongoing reassessment across multiple contexts, but also requires its policy proposals to be diverse and context-specific, to effectively address the full dimensionality of equity challenges. For instance, based on the qualitative findings and discussions in rural Northern Ghana, the study showed the need to fetch and transport water was a dominant concern in the educational experiences of girls, which underscore the idea that pursuing a broader developmental agenda such as providing access to safe and clean water is a primary concern for educational policy in underserved areas. Similarly, other dominant experiences around language complexities and tensions between the formal school system (i.e., calendar) and farming obligations, which limit children’s effective schooling and learning participation also highlight the school system itself as a major obstacle to learning inclusion in rural Northern communities. These two experiences underscore the fact that addressing leaning disadvantages in rural and underserved contexts like

Northern Ghana would require requires multi-dimensional interventions that integrate different policy areas.

8.9 Final thoughts

What remains clear from my dissertation's findings is that the majority of experiences of educational disadvantages (MLEs) children face are closely tied to broader narratives of socio-economic development and the misalignment between the formal school system and the cultural patterns of livelihood in rural Northern communities. This suggests the need for interventions that reconcile calls to decolonize educational systems with broader socio-economic development strategies, especially in rural Northern contexts. Pursuing such an integrative approach that combines a comprehensive developmental agenda with the decolonization of educational systems in underserved areas could provide sustainable and practical pathways to overcoming schooling and learning disadvantages in rural Northern communities. Such an approach has the potential of narrowing broader educational disparities between the North and South of the country.

A genuine attempt to decolonizing educational systems, particularly in underserved contexts, would enable the creation of flexible educational structures that are tailored to the learning needs and cultural patterns of life of children in their local environments, as opposed to expecting children to adapt to the rigid demands of the formal school system. Decolonizing education could also provide the opportunity to reflect on and strengthen important aspects of traditional lifestyles, by incorporating them into existing educational frameworks to better align with the learning needs and demands of the formal school system (Omoleva, 2007). Even though such reforms are likely to help children in rural contexts to effectively balance schooling with household responsibilities, in ways that support both their education and family well-being without

compromising either task, decolonizing the school system alone, however, is unlikely to address all the systemic factors driving educational inequality. In fact, a missing element in both previous and current scholarship on the decolonizing agenda (Brock-Utne, 2002, 2007; Omoleva; 2007; Shizha, 2013; Bonney, 2022) has been the integration of development. Particularly in the context of educational inequality, there is a pressing need to scale up critical development efforts, notably in rural and underserved areas, to accelerate equity outcomes.

As noted in the works of Clemens (2004) and Baten et al. (2021), there is growing evidence to suggests that accelerated development, improved economic conditions, and gradual increases in parental education levels have had significantly more impact on children's school enrollment and the reduction of educational inequality than reliance on educational policy interventions alone. Even though local and international educational policies over the past three decades have aggressively supported the expansion of educational opportunities in many SSA countries to reach historic levels, the reality is that many of the countries that have achieved such successes, like Ghana, have done so by allowing 'dramatic declines in schooling quality' (Clemens, 2004). In the process, systemic inequalities that fail large numbers of children, especially those from rural and underserved contexts from accessing quality schooling and learning outcomes, have been created. In effect, a "country's broader development strategy outside the classroom matters much more than education policy", as suggests in *The Long Walk to School: International Education Goals in Historical Perspective* (Clemens, 2004, p. 1).

My interactions with children from rural Northern communities showed a group of dedicated and resilient young adolescents who are yearning for quality education, but also the opportunity to contribute to their families' basic livelihood needs. What stood out from my

engagement with these children was the fact that they had a clear judgement of what constitutes quality education, and they were even more convinced that whatever they were receiving in their respective communities certainty did not meet that standard. In fact, most of them seemed convinced that the primary barrier to accessing the quality schooling and learning they desired was their geolocation (i.e., local environment). Some children emphasized the poverty context of their households as providing limited support to their learning ambitions. Others shared the immense learning vulnerabilities within their respective school contexts, which often did not offer the most basic teaching and learning materials (TLMs) required to facilitate quality teaching learning. Yet, in the face of these challenges, most of these children demonstrated remarkable dedication and resilience, taking considerable responsibility for their own educational needs. Many of them engaged in menial jobs and other commercial activities to raise money to purchase their own textbooks and, in some cases, pay for volunteer teachers who will teach them — responsibilities that should ultimately lie in government's hands. If these children can take up such responsibility in limiting the learning disadvantages they face, the state can and must do more to ensure access to quality schooling and learning opportunities, as promised by the national constitution and existing educational policies.

9.0 References

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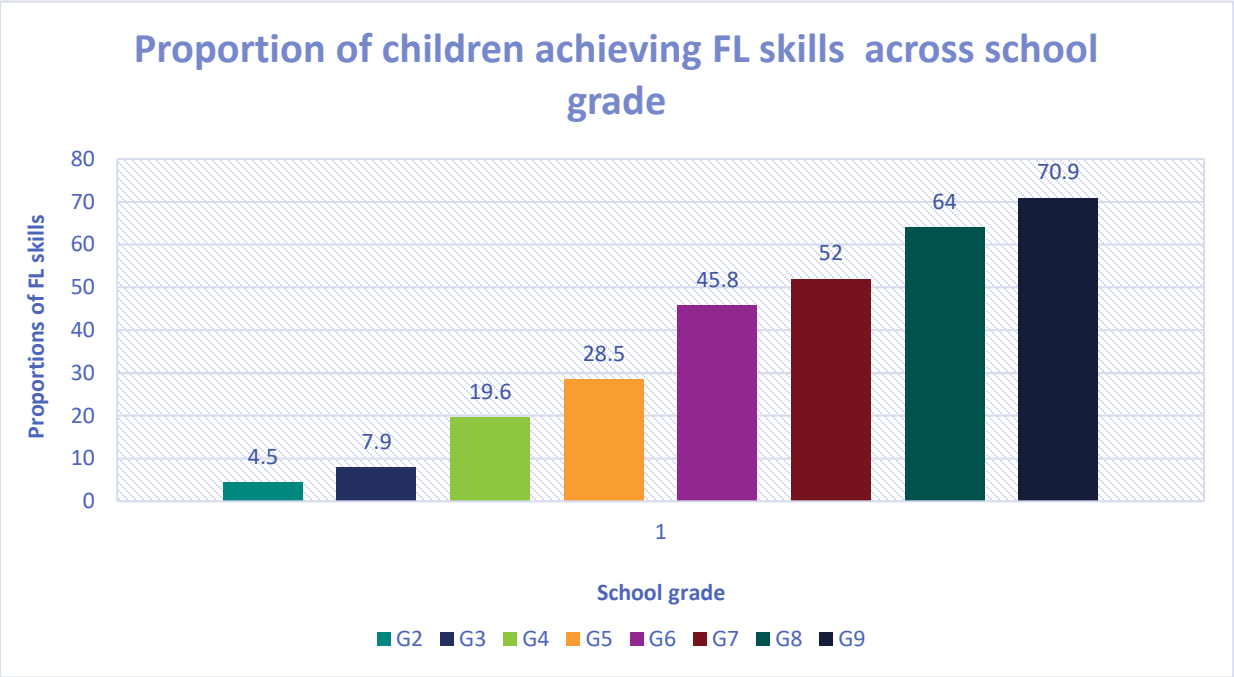
Appendices

Appendix 1a: Proportion of children across basic school grades achieving FL skills expected at grade 2 level



Source: Author's calculation based on MICS 6 data 2017/2018. Children's sampling weight applied.

Appendix 1b: Thematic areas covered in qualitative data collection.

Thematic areas covered in qualitative interviews.			
Children's Interview	**Focus Group**	**School Teacher/Principal**	**Education Oficiales**
1.Demographic information	✓	✓	✓
2. Household & schooling experiences (e.g., account of daily routine before during, and after school)	**2**. Perspectives about childhood & children's work in rural Northern communities	**2.** Impressions about education & schooling access in community	**2** Basic Education Access (BEA) – understanding the policy intent
2a. Gendered perceptions and experiences about schooling in rural communities	**2a.** Farming and commercial activities of children	**2a**. Community's role in education/schooling	**2a**. State of access at the local
3. Learning environment at home & in school	**3.** Schooling & learning conditions in community		**3.** Emerging themes from interaction with children
3a. Teaching academic activities in school	**3a.** Availability of teachers & teaching in community	**3a.** Learning environment and conditions in school	**3a.** Professional reaching personnel in rural communities
3b. Awareness and preparations for National Basic Education Exams	**4.** Parental/caregiver Support for education & schooling	School's participation and preparations for national basic education exams (BECE)	**3b**. Supervision in **3c**. Teaching & learning materials
4. Understanding of schooling and		**4.** Knowledge of existing basic education policy interventions in community	**4**. Policy interventions & impact at local levels
4a. The concept of childhood in rural communities – children's perspectives from	**4a**. Insight and experiences of gender roles, gendered work, & schooling & education	**4a** – Policy effectiveness **4b** – Policy challenges	**4a**. Implementation challenges **4b**. Suggested areas for improvement

Appendix 2: Interview guide for in-school children

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Instrument 1a_interview guide for in-school children 😊

Basic Education Access (BEA) Research

Thank you for agreeing to take part in this work on "Basic Education Access in rural communities". I want to talk to you and other kids who are in JHS about your experiences with schooling access. I'm trying to learn more about what shapes people's experiences with school, and how they think about education. I'd like to start by asking you a few questions about who you are – like your age and the language you speak. Then I'd like to hear about the work you do at home and in school, and also what you think about going to school and who a child is. I'll start by asking a big/open question and then follow up with some more specific questions. Thank you for wanting to do this interview.

Section 1: Demographic information

1. Demographic information on school-aged children
   i. Sex of child/respondent
   - Male [ ] Female [ ]

i. Age of child, please indicate your age [ ]

ii. School status: In school [ ] Dropped out of school [ ] In school but dropped out b4 [ ]
iii. What school do you attend? [ ]
iv. Grade in school child
- JSS1/Grade 7 [ ]; JSS2/Grade 8 [ ] ; JSS3/Grade 8 [ ]

v. Who are you living with?
- Biological parents [ ]; Foster parents [ ]
- External family member [ ]; By myself [ ] Other [ ]

vi. What language do you speak in the following settings?
- At school [_____]; At home [_____]; With friends [_____]

Section 2: Your experiences/accounts of schooling access

2. Can you share with me what you do on a regular day before going to school, during school, and after school?

List of areas for further probing – the interviewer may ask questions about these areas if they are not covered in the child's answer to question 2. Some examples of the types of questions that might be asked are provided.

i. **Learning at home** – Do you have homework? What other work do you do at home? How do you manage homework and other work?
ii. **Attendance** – Tell me about your school attendance! Do you always attend school and or stay in school until you close? why? What kinds of things make it hard to regularly attend/stay in school?
iii. **Transit** – So how do you go to school? And how long does it take?
iv. **School fees** - Do you pay for school fees? Exams fees or PTA dues? who pays?
v. **Learning environment & support at home** - Do your parents often ask you about your school activities? What do they ask? Do they Attend PTA meetings

and check your results/report cards? Do you read at home? Do you have reading books at home? Does someone help you to learn at home?

vi. **Gender & school** – Is it easy or difficult for you (as a boy or girl) to go to school and why?
- Who receives more support at home to go to school and why?
- Are there particular problems you think only girls face concerning school?

3. Can you describe your school and classroom to me? How does it look like?

List of areas for further probing – might include questions on the following themes

i. **Learning at school** - Can you walk me through a typical day at school? What's the first thing that happens in the morning? After that? . . . What language does your teacher use in teaching? Do you understand everything you're taught in this language?

ii. **Infrastructure** – Can you also talk about the school infrastructure and material materials you have in your school and if you're satisfied or happy about it?
- Do you use furniture (tables & chairs) and reading materials (textbooks) in school?
- What about your teachers? How many do you have in your school? Do they come to school regularly? Why if not?
- What do you think about all of these? And how does it help you to learn?

Section 3: Children's learning and academic performance in school

i. Let's talk about learning and academic performance in the classroom? Which subjects/areas are you most interested in? And why?
- Tell me about your performance this/these subjects?

ii. Which subjects/areas do you not like at all in class? And why?
- Tell me about your performance in this/these subjects

iii. Can you tell me about your reading and comprehension abilities in class?
- Are you able to read texts/passages (in English/vernacular) at your level and answer questions on them?

iv. What about your abilities in mathematics/numbering? Can you talk about it also?
- Are you able to add, subtract and arrange numbers in order? Performance?

v. **Learning outside of classroom:** Apart from your interests in subjects at the classroom, what other things do you like doing most outside of the classroom?
- Can you tell me why you're interested and how you developed interest in it?
- Do you feel you use mathematics and reading in the things you do most outside of the classroom?
- Can you talk more about the specific things you do outside the classroom that you use numbers, calculations or reading?

vi. Moving forward, what do you think can be done for you to improve on the subjects you do not do well in school?

vii. **Basic Education Certificate Examination (BECE)** – You didn't mention the BECE! Is it something you think about? Can you share with me how you're preparing for the BECE?
- Do you watch/listen to classes organized on the television/ radio?
- Do you have specific materials (e.g. past questions, recording teaching) that helps you to prepare?
- Can you also share with me anything that you know your school, teachers or parents are/will be doing to help you write and pass the exams?

viii. Tell me about the progress you're making and the challenges you're facing preparing for this exam? How do you think you'll perform in this exam?

ix. **Intersection of gender and schooling experience:** Between boys and girls, who do you think like are more likely to go to school in your community and why do you say so?
- Who is more likely to face challenges and why do you say so?
- Who receives more support from parents/caregivers?
- Who has more time at home to learn?

Section 4: Your understanding of childhood

4. How would you describe who a child is, in your community?
List of areas for further probing – might include questions on the following themes
   i. **Social construction of childhood** – What is your understanding when we say someone is a child? At what stage would you say you're no longer a child?
      - What do you think your care-givers need to do for you, as a child?
      - What do you think you have to do for your parents, as a child?
   ii. **Parental expectations** - What do you think are the expectations of your caregivers/community members about you? How do these expectations inspire/affect you in school or what you do?

Section five: Children's understanding of education and schooling access as a right

5. Can you tell me about what school and education mean to you as a child/person?
List of areas for further probing – might include questions on the following themes
   i. **Importance of school** - Do you feel it is important for you that you go to school and why?
   ii. What do you think going to school will help you to achieve? Tell me about someone in your village/town who you think of as a role model. Why do you look up to this person? Did that person go to school?
   iii. **Access** – What do you think about the term "access to school"? Can you list what you think is needed in order to go to school and remain in school?
      - What do you think is needed in order to do well in school?
      - Do you have any of the things listed available to you at home and in school?

   iv. **BEA as a right** - Have you heard about the term - "basic education is a right for every child"? Where did you hear it from? How do you understand this?

- Who do you think is responsible for making sure that your right to go to school is realized?
- Do you think there's something that children have to and can do to make sure that you can go to school?
- What can you do or are willing to do to make sure that you can go to school?

v. Do you want to continue with school? Which level are you thinking of? SHS? Vocational/technical/training school?
   - Can you tell me the main reason(s) why you want to continue?

Debriefing: Ask participants & assistants about the interview process [5Minutes]

1. What were your feelings about the interview and the questions that were asked?
2. Was there anything (topic/theme/question) you felt you wanted to talk about but was not asked?
3. Is there any critique/advice you have for me concerning this study?

Thank you 😊

Appendix 3: Key informant guide for teachers and principals

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Instrument 3 – Key informant guide for school teachers/principals

Basic Education Access (BEA) Research

Thank you for agreeing to participate in this research project on "***Micro-level experiences of Basic Education Access (BEA) in rural northern Ghana***" being undertaken for a doctoral dissertation at the School of Social Work, McGill University, Canada.

This interview guide aims to gather information from basic school teachers/principals on children's experiences of access to basic school and how policies and programs shape children's access to school in rural communities. This interview guide is divided into four sections, comprising demographic information, teacher's perspectives on BEA in community and definitions of access, teachers account on children's experiences of access, and teacher's perspectives on policies and programs for BEA in rural communities. Each section comprises one or two leading questions and a list of areas for further probing. Thank for agreeing to participate in this research project.

Section one: Demographic information

1. **Demographic information about school teachers/principals**
   - i. Sex of respondents: Male [ ] Female [ ]
   - ii. Title of job and responsibility:……
   - iii. Name of school…… Years served as a teacher [ ]
   - iv. Number of years worked at this school……
   - v. Number of teachers in your school……..
   - vi. Number of children enrolled in school……
   - vii. Composition of pupils enrolled in terms of gender……../……...
   - viii. Political administrative district in which community belongs…….
   - ix. What form of structure (school building) are the children housed in?

Section two: Teacher's perspectives on BEA in community and definitions of access

2. What is your general impression regarding basic education in this community?

   List of areas for further probing might include questions on the following themes

   - i. **Community role** - Could you describe the general attitude of the community towards children's education? Are there specific initiatives from the community to support the education of children?
   - ii. What are the things that typically hinder children in this community from attending school regularly or dropping out of school?
     - Are there special community events or cultural activities that sometimes keep children away from school?

iii. **Attitude of children** – How would you describe children's own attitude towards schooling or education in this community?

- How would you describe the performance school duties? e.g., homework?

iv. **Teachers and education officials**? How would you describe that of teachers (in general) and education officials towards schooling/education in this community?

3. **Understanding Basic Education Access (BEA)**. How do you understand the idea of "access" when it comes to schooling at this level? Could you share with me what BEA means to you at this level?
List of areas for further probing might include questions on the following themes

i. What do you consider as essential when it comes to access at this level? If you were to list specific things that are absolutely necessary in your definition of access (BEA) what would they be?

- Are there other things that are not absolutely necessary, but you see as useful for a better experience of access at this level?
- Would you say the children in your school have "access" given what you've said?

ii. **Comparing access** - Based on what you've said, do you see any difference in the state of BEA between children in your community and those in other parts part of the country? Tell me more about this difference.

- What would you say is needed for children here to have a good experience of BEA?

Section three: Teachers' account of children's schooling experience

4. Can you walk me through what a typical day at school and at home looks like in the lives of your children/pupils?

List of areas for further probing might include questions on the following themes

i. Lets start from the home. What do children usually engage in at home or outside of the classroom? Do you have specific examples?

- Would you say their work at home in anyway affect or does not affect their learning and progress in school?

ii. What about inside the classroom? What does a typical day in school looks like? How many subjects are taught in a day?
iii. **Attendance:** How would you describe attendance & staying in school until school closes?
iv. **Transit:** Which communities do your children live? What is the average distance to the school from these communities? How do they come to school?
v. **Payment of fees**: - How are school fees and other subsidiary fees handled here?

vi. **Teaching:** What do you think is going well for teachers and teaching in general in this community? Are there particular benefits one gets for being a teacher in this community?

- What problems do you encounter as teachers in this community?
- Do you have enough professional teachers or volunteer teachers? Do you have a problem with teacher absenteeism?
- Could you tell me the predominant language of instruction and whether or not children can understand?

vii. **Progression** - How have your candidates performed in this exam in the past 5 years? How many progresses through to the post-basic education?

viii. **Completion/drop-out** – Can you tell me more about school attendance/retention and completion rates? How many of that enrolled drop out before completing?

ix. **Gender & school** – Among boys and girls in your school, can you describe which groups have the worse outcomes on the following statements?

- Miss classes the most? Perform well in end-of-term exams?
- Drop out before completion? Perform well in the BECE? Progress to high school/vocational training?

Section four: Children's learning & academic performance in school

5. Can you tell me about academic performance of your pupils in the classroom?

i. Which subjects do they perform better in and why do you think they do well in those subjects?

ii. Which subjects/areas do they have the most difficulty with?

iii. What about their reading and/or comprehension (English/local language) skills? Are they able to read texts/passages (at their level) and answer questions on them?

iv. Tell me about their mathematics and counting skills? Are they able to add, subtract and arrange numbers in order?

v. **Assessment:** How would you describe their performance in these subjects? What do you think makes it difficult for them to learn/do well in the above subjects?

- **Do you think** these tests tell us about whether a child is able to learn something useful and how?

vi. **Basic Education Certificate Examination (BECE)** – Is it something your school is concerned about? Have you started preparing students for this exam?

- How are you preparing your students/children for this exam?
- Do they have access to watch/listen to recorded classes organized on the television/ radio?
- Do they have access to specific materials (e.g. past questions, text books) that help them prepare?
- Can you share with us the challenges you have preparing for this exam?
- Are there specific things that teachers, care-givers and the community does or do to help the children write and pass the exams in view if these challenges?

vii. Moving forward, what do you need to focus on to improve schooling and learning for children in your community?

<u>Section four:</u> Teacher's perspectives of impact of basic education policies and programs in rural communities?

6. Tell me about universal policies and programs to support BEA that are currently operational in your school?

   List of areas for further probing might include questions on the following themes

   i. **Effectiveness** - Are these policies and programs addressing the schooling needs of children in your school/community?

      - Do you know of any other interventions made to support children's access school in your area?
      - Where are these interventions coming from and who are the actors?

   ii. **Free high school policy** – Have you heard about the free senior high school (SHS) program? What do you think about it?

      - What consequence do you envisage it will have on BEA in your community?
      - Have you observed any impact of this program on children's desire to complete basic education in your school?

   iii. What would you say is the no.1 education need for children in your community? What do you think needs to be done to address this need and support BEA in your area?

<u>Debriefing:</u> Ask participants & assistants about the interview process [5Minutes]

1. What were your feelings about the interview and the questions that were asked?
2. Was there anything (topic/theme/question) you felt you wanted to talk about but was not asked?
3. Is there any critique/advice you have for me concerning this study?

Thank you 😊

Appendix 4: Interview guide for parents and caregivers

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Instrument 4 – Interview guide for Parents/care-givers

Basic Education Access (BEA) Research

Thank you for agreeing to participate in this research project on "***Micro-level experiences of Basic Education Access (BEA) in rural northern Ghana***" being undertaken for a doctoral dissertation at the School of Social Work, McGill University, Canada. This interview guide aims to gather information from parents and/or caregiver perspectives on children's experiences of access to basic education in rural communities. This interview guide is divided into three sections, comprising demographic information, parental/care-giver understanding of childhood, parental/care-giver accounts on children's schooling. Each section comprises leading questions and a list of possible themes for further probing if they are not covered in the initial response. Thank for your participation.

Section one: Demographic information

1. Demographic information on parents/caregivers

i. Community and districts where parents/care-givers reside ……
ii. Ethnic group in which parents/givers belong…….
iii. Profession/occupation of parents/care-givers…….
iv. Number of children ……..
v. Number of children enrolled in school……..
vi. Number of children out-of-school. ……...
vii. Number of children completed basic education……

Section two: Parental support for children's schooling

2. Tell me about your children's school and what you hope they become in the future?
   i. Do you support their education or school? Can you share with me the ways that you support them in school?
   ii. Do you motivate them to do well in school such as helping them to read?
      - Buying books or learning materials for them? checking their end-of-term results?
      - Attending their PTA meetings Can you tell me about their progress in school?
   iii. Do you know about any particular challenge he/she faces in school? Can you share with me what those problems are?

Section three: Parents/care-giver accounts on children's schooling experience

List of areas for further probing might include questions on the following themes

i. **Work at home** - Can you describe what your children do before going to school and after school?
   - **Farming –** Do they support work on the farms? How often do they work?
   - What other work apart from farming do they support?

- **Children farms:** I heard a lot about personal farming from talking to children. Why do they do their own farm?
- Tell me how they manage working on the farms, doing house chores, working on their own farms and also having enough time to learn and do school work?
- Do you think they get enough time to work learn and do school work?

ii. **School attendance** – Do your children attend school regularly and stay in school until they close?
- How can you be sure about this? If they don't, why is that so?
- How do they go to school? Do they walk, use bicycle, motor or other means?
- How long does it usually take them to get to school?

iii. **Drop-out** - Have any of your children dropped out of school?
- Which of your children dropped out of school?
- Can you share with me why they drop out?

iv. **School fees** - Do you pay school fees or any subsidiary fees? How much do you pay in all? Is it something you're able to afford?

v. **School performance:** Are you aware about the performance of your children in school? Tell me about their performance in school?

vi. **Basic Education Certificate Examination (BECE)** – Have you heard about this exam? And do you understand its importance to their future education?
- **Can you share with me** how your children are preparing for this exams?
- Are there specific preparations that you're making to support them to write this exams?
- Is there anything that you know the community or the teachers are doing to help them prepare and pass the exams?
- How do you think your children will fare in this exam?

vii. **Post-based education** – Do you want your children to continue schooling and why? Which level do you want them to get to? – Senior high school (SHS)? Vocational & training? University?
- Why do you want them to get to this level?
- How are you going to ensure they continue to this level?

viii. **Free high school program** – Have you heard about the free SHS program?
- What do you know about it and what do you think about it?
- Does that play a role in whether or not you want your children to continue schooling?

3. **Challenges** – Are there specific challenges that you face that makes it difficult to support your children in school?
   - Are there community events or cultural activities that sometimes keep children away from school?

- Do you know of any challenges at the school level that make it difficult for your children to stay in school or do well in school?

Section four: Parents/care-givers understanding of childhood

4. **Social construction of childhood** – What is your understanding when we say someone is a child? At what stage would you say one is no longer a child?
   - **i.** **Parental expectations** - What do you think are the expectations of parents or caregivers of their children in this community? What are the responsibilities of children towards their families?
   - **ii.** What do you think constitute the responsibilities of parents/ care-givers towards the child?
   - **iii.** **Gender & parental** – Does the work children have to do to help parents/caregivers at home depend on their gender? If so why?
     - Is parental support towards children defined by the gender of the child?
     - Who do you think the gender role help better to do well in school and continue in school? Boys or girls? Why do you say so?

Appendix 5: Ky informant interview guide for District Education Officials (DEOs)

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Instrument 5 - Key informant interview guide – Education officials

Basic Education Access (BEA) Research

This is a key informant interview guide designed for a research project on "***Micro-level experiences of Basic Education Access (BEA) in rural northern Ghana***" being undertaken for a doctoral dissertation at the School of Social Work, McGill University, Canada. This interview guide aims to gather information from basic school teachers and principals on children's experiences of access to basic school and how policies and programmes shape children's access to school in rural communities. This interview guide is divided into four sections, comprising demographic information, official's perspectives on BEA, official's definition of access and the impact of universal policies and programmes on access. Each section comprises one or two leading questions and a list of areas for further probing. Thank for agreeing to participate in this research project.

Part one: Demographic information

1. Title of job and responsibility
2. Administrative unit of work
   - District [ ] Regional [ ] National [ ]
3. Number of years of you working in the policy position
4. Political administrative district in which community belongs.

Part two: Education official's perspectives on BEA

1. What is your general impression regarding basic education in your area (district/region/country)?
2. What do you like and do not like about the state of basic schooling in your area?
   List of areas for further probing
   i. What do you think about the state of infrastructure in school in your areas?
   ii. Do schools have access to reading materials, furniture (tables & chairs), safe classrooms and trained teachers?

iii. How do school children commute to school? Do you have any idea about the distance they cover to come to school?

Part three: Official's definition and understanding of access.

3. Could you share with me your personal thoughts of what BEA means to you? What comes to your mind as a teacher when you hear the word "access"?

   List of areas for further probing

   i. If you were to list specific things that are absolutely necessary in your definition of access (BEA), what would they be?
   ii. Are there other things that you do not find absolutely necessary, but you see as useful in your definition of access?
   iii. What about things you think cannot be defined under access?
   iv. How would you describe the state of BEA in your area, based on what you have said above?
   v. There was no mention of school fees and other subsidiary fees. Do you think they are also tied to the conversation on access?
   vi. Do you see any difference in the state of BEA between children in your area and those in other parts part of the country? Tell me more about this difference.

Part four: Impact of policies and programmes and BEA

4. How would you describe the impact of government policies and programs on children's access to basic education in your area?
   i. Can you identify which of these policies and programmes are benefiting children in your area the most and which ones are having the least impact?
   ii. What do you think these policies and programs are not able to do?
   iii. What do you think can be done to improve the state of access for children in deprived communities?