Bɛ ŋme anfooni karimbu ka sabbu: accessing out-of-school children's perspectives of literacies in northern Ghana through collaborative digital photography

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Submitted in total fulfilment of the degree of Doctor of Philosophy

May 2020

Melbourne Graduate School of Education

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Abstract

Literacy is simultaneously a practice in which people engage daily and a global education policy challenge. Formal education contexts, such as schools, are generally viewed as the sites for developing literacy. Similarly, those that have been, or are going, to school are viewed as literate. When literacy and schooling are conflated, the understanding of literacy is narrowed. This has relegated 63 million primary school-age children to being considered out-of-school and, therefore, non-literate. This narrow understanding and hypothesis of literacy as a school-based skill has mobilised international advocacy and development efforts to achieve universal primary education and literacy targets. Ethnographic approaches to literacy research have challenged practices and policies of literacy as autonomously schooled, uncovering everyday literacy events and practices in which people engage outside of school. This study seeks to access and understand the literacy experiences of out-of-school children in order to support their literacy development.

To support the development of out-of-school children's literacy, it is important to understand the ways in which literacy is embedded in their everyday worlds. This case study seeks to access the perspectives of ten out-of-school children, from two rural communities in northern Ghana, of their understanding and practice of literacy. A collaborative digital photography methodology was developed to access the children's perspectives during their enrolment in a nine-month Complementary Basic Education program. The study demonstrates different configurations of literacy in the two communities, and how each child negotiated their understanding and practice of literacy in their community. It also finds that methodologically, visual research can access out-of-school children's perspectives through collaborative digital photography. This visual knowledge of children's literacies has the potential to inform the creation of relevant and meaningful curriculum, pedagogy, and assessment to progress their literacy learning. Appropriate interventions can be designed when a nuanced understanding of children's practices, knowledge, and understandings are taken into account. This will help to accelerate the goal to achieve universal primary education and meet literacy targets in those hardest to reach places.

Declaration

This is to certify that:

- this thesis comprises my original work towards the fulfilment of the degree of Doctor of Philosophy
- due acknowledgement has been made in the text to all other materials used
- the thesis is less than 100,000 words in length, exclusive of tables, maps, references and Plates.

Acknowledgements

This thesis is dedicated to the children from Bunglung and Botingli – Barachisu, Fatahiya, Rafatu, Siisu, Sulemana, Amina, Asana, Yakubu, Ibrahim, and Somatu – who fully and openly embraced the invitation to collaborate in this research. Without their creativity, honesty, and enthusiasm, this study would not have been possible. I would also thank their parents and guardians, and the communities of Bunglung and Botingli, for welcoming and inviting me into their lives and trusting me to carrying this research.

This thesis is also dedicated to my wife, Ellie Wong, who has persevered and supported me throughout with love and affection, despite the ebbs and flows of this project, and my parents, Chris Rigby and Dr Elaine Evans, who inspired and motivated me to pursue this research. Their love and unconditional support has made my journey to this point possible.

Thank you to my supervisors Professor Lesley Farrell and Dr Russell Gordon Cross for their academic guidance, support, and critical feedback which has pushed my writing, thinking, and research practice to where it needed to be over the course of seven years. Thank you to Professor Joseph Lo Bianco, who started this research endeavour with me and got me on my way, providing ongoing mentorship and support.

Thank you to my friends and colleagues for their continued love and support: Steve Purbrick, Dee Jenkins, and Lee Davelaar, who were with me in Ghana in 2011-12 when this truly

started; Rebecca Hetherington, Nick Sanchez, Andy Gild, Amanda Hiorth, and Zhang Jun for karaoke breaks and professional collaboration; Stu Meney, who donated most of the digital cameras and visited Tamale; Tania, Isma, Oli and Val for dinner, drinks and games; Laurie Phillips for the Skype sessions wherever he happens to be in the world; Mark Charters and family; Frankie Rubins; Scott Daniel; and colleagues Sean Box and Anne Tonkin. Last, thank you for UNICEF Ghana and School for Life for their support during the fieldwork, and my formidable translator Mr. Thomas.

Table of Contents

Abstract 2

Declaration 3

Acknowledgements 3

List of figures 8

List of tables 8

1. Introduction 9

1.1 Literacy 9

1.2 Statement of problem 12

1.3 Aim, scope, and research questions 15

1.4 Contexts of the study 18

1.4.1 Savelugu-Nanton District of Northern Ghana 18

1.4.2 Dagomba of Ghana 20

1.4.3 Historical provision of formal education in Ghana 21

1.4.4 Universal primary education and literacy 24

1.4.5 Ghana's progress in expanding educational opportunities 25

1.4.6 Complementary Basic Education 26

1.4.7 Orthographies of Ghanaian languages 27

1.4.8 From the camera obscura to digital photography 28

1.5 Significance of the study 30

1.6 Overview of the thesis 32

1.7 Summary 33

2. Literature review 35

2.1 Introduction 35

2.2 Cognitive processes and consequences of literacy 37

2.2.1 Cognitive consequences of mother tongue-based education 40

2.2.2 Economic and social consequences of literacy 42

2.3 Ethnography of literacy practice in out-of-school contexts 45

2.3.1 New Literacy Studies 48

2.3.2 New Literacy Studies in international development contexts 50

2.4 Mediation of literacy through non-state education provision 51

2.4.1 The provision of literacy through Complementary Basic Education 53

2.5 Perspectives between school and out-of-school literacies 56

2.5.1 Accessing multiliteracies across texts 57

2.5.2 Accessing multimodalities 60

2.5.3 Accessing materiality 62

2.6 Accessing children's perspectives through visual research 66

2.6.1 Using photography to access children's everyday worlds in out-of-school contexts 68

2.6.2 Using photography to access children's everyday worlds in school contexts 71

2.6.3 Using photography to access children's perspectives of literacy in their everyday worlds 73

2.7 Accessing the indexicality of photography 75

2.8 Summary 81

3. Methodology 83

3.1 Introduction 83

3.2 Collaborative digital photography research design 85

3.2.1 Mixed research case study 89

3.2.2 Participatory and collaborative research 93
3.3 Research sites and participant selection and invitation 95
3.4 Methods 103
3.4.1 Collaborative digital photography 104
3.4.2 Collaborative viewing of the photographs 106
3.4.3 Participant observation and documentation collection 107
3.4.4 Semi-structured interviews 109
3.4.5 Photography exhibitions 110
3.4.6 Equipment 110
3.5 Data analysis framework 113
3.5.1 The digital camera 115
3.5.2 The digital photograph 119
3.5.3 Anthological framework 121
3.6 Ethical framework 127
3.6.1 Reflexivity 129
3.6.2 Confidentiality 130
3.6.3 Benefit 132
3.6.4 Informed consent 135
3.7 Summary 138

4. Data analysis I 139
4.1 Shikuru: school contexts of production 141
4.1.1 “Dagbanli is our culture, our language”: the mediation of languages in school contexts 144
4.1.2 “It was both English and Dagbanli so I decided to take a picture of it”: the mediation of literacy through school materials 150
4.1.3 “I’m interested in being able to read this later when I’m in school”: the temporal mediation of primary schooling 156
4.1.4 “m ba Abu gulila niyi”: mediating school-based literacy actions 158
4.1.5 “I was reading and I took a picture of myself”: capturing selfies of school-based literacy actions 164
4.1.6 “We take care of ducks”: multimodal understandings of school-based literacy 166
4.1.7 “I wanted to take a picture of what I knew I could read”: the materiality of literacy 170
4.2 Summary 173

5. Data Analysis II 175
5.1 Koŋ da shikuru: out-of-school contexts of production 175
5.1.1 Mathematics, English, Science, Social, ICT, Dagbanli and RMT: the mediation of languages out-of-school 179
5.1.2 “I wanted to learn something about the writings here”: Mediating understanding through out-of-school literacy materials 181
5.1.3 “I learn English from the writing”: mediation of school-based literacy actions in out-of-school contexts 186
5.1.4 “I wanted to learn about those things I was taking pictures of”: emerging out-of-school literacy actions and everyday worlds 191
5.1.5 “Someone was drawing and I wanted a picture of the action and the image as well”: mediation of multimodality in out-of-school contexts 195
5.1.6 “We learn Arabic to pray”: out-of-school contexts away from the camera 197
5.1.7 Collaborative viewing photographs through community exhibitions 198
5.2 Summary 199

6. Discussion 201
6.1 Literacy in practice 201
6.1.1 Configurations of literacy in community 202

6.1.2 Materiality of literacy 211
6.1.3 Literacy of being out-of-school 217
6.2 At the intersection of local and global contexts of literacy 222
6.2.1 Qur'anic education 224
6.3 Collaborative digital photography in literacy practice 227
6.3.1 Audiencing photographs of literacy practice 228
6.3.2 Photography as literacy pedagogy 229
6.3.3 Ethical considerations and reflections 230
6.4 Summary 236

7. Conclusions 238
7.1 Introduction 238
7.2 Contributions 240
7.3 Limitations 241
7.4 Future directions for research 242

Plates 245
Plate I 245
Plate II 248
Plate III 254
Plate IV 258
Plate V 266
Plate VI 270
Plate VII 277
Plate VIII 284
Plate IX 295
Plate X 307
Plate XI 318
Plate XII 330
Plate XIII 336

References 339

List of figures

Figure 1: Google Map of Ghana showing location of Savelugu-Nanton 94
Figure 2: Location of the two communities (Google Maps)..... 97
Figure 3: Aerial view of Botingli (Google Maps)..... 98
Figure 4: Aerial view of Bunglung (Google Maps)..... 98
Figure 5: Facebook post requesting digital cameras 113
Figure 6: Selected view of the photographs by Siisu 123
Figure 7: Heat map of the in-school context of production 143
Figure 8: Language occurrence in the two communities 145
Figure 9: Fata's contexts of production 146
Figure 10: Contexts of production and language occurrence 148
Figure 11: Soma's contexts of production..... 149
Figure 12: Predominant literacy materials in participants' photographs based on community 151
Figure 13: Amina's contexts of production 152
Figure 14: Yakubu's contexts of production..... 153
Figure 15: Occurrences of literacy events and actions within each participant's portfolio 159
Figure 16: Bara's photographs that indexed literacy events and actions..... 160
Figure 17: Occurrences of literacies in Bunglung and Botingli 163
Figure 18: Rafa's contexts of production..... 165
Figure 19: Ibrahim's contexts of production 169
Figure 20: Occurrences of literacy materials across the two communities and participants' portfolios 171
Figure 21: The out-of-school contexts of production for each participant's portfolio..... 177
Figure 22: Community's out-of-school contexts of production 178
Figure 23: Asana's contexts of production..... 187
Figure 24: Sulemana's contexts of production 192
Figure 25: Occurrence of people in out-of-school contexts in participants' portfolios..... 193

List of tables

Table 1: Profile of the ten participating children..... 101
Table 2: Participant overview..... 102
Table 3: Phases and timing of data collection 103
Table 4: First-level tɛha (themes) from preliminary coding of printed photograph 141
Table 5: Second-level tɛha (coding themes) 142
Table 6: Co-occurrences for language and context of production..... 147
Table 7: Co-occurrences for multimodal literacy and context of production 167
Table 8: Second-level tɛha (coding themes) 176
Table 9: Co-occurrences of out-of-school context of production and languages 179
Table 10: Co-occurrences of literacy actions and out-of-school contexts 186

1. Introduction

This study seeks to advance knowledge in the fields of literacy theory and education for international development by elevating the perspectives of out-of-school children and developing a methodological approach focused on collaborative digital photography. It addresses the limitations of traditional ethnographic approaches to studying literacy and the mediation of literacy research by adults, which has excluded out-of-school children's perspectives. This study demonstrates how visual data produced and analysed with children indexes literacy practices in two rural communities in northern Ghana. It addresses the tension in literacy research between school and out-of-school contexts by situating the research in a nine-month literacy and numeracy program for out-of-school children known as Complementary Basic Education (CBE).

A mixed research case study research design, centred on collaborative digital photography, was developed to access out-of-school children's understanding of literacy. This research approach offers different ways into literacy research questions that invite participants not only into the production of data, but also into the meaning-making process. Importantly, the approach also offers a way to use research tools, such as digital cameras as pedagogical devices. The research findings will support non-government organisations (NGOs), policy makers, and communities to design and evaluate appropriate interventions for out-of-school children. It will also inform literacy theory and practice as to how digital photography can be utilised in collaboration with children as a robust and inclusive methodology. In undertaking collaborative digital photography with children, important ethical issues arise, and these are explored in the study.

1.1 Literacy

Generally, literacy has been, and continues to be, configured in the simplest way as the ability to read and write different types of texts. A person with literacy is considered to be literate, and a person without literacy to be non-literate. This conceptualisation has historical roots in surviving Classical Greek texts, the study of which influenced early studies of language and writing (Robins, 1957; Whitney, 1880). The earliest recorded Classical Greek concepts of literacy are grounded in notions that visual and material markings are representative of meaning and knowledge, but different from verbal language and the

"system of articulate sounds" (Whitney, 1860, p. 305). Early linguistic studies, however, situated the letters of an alphabet as written lines and scratches as "merely a way of recording language by means of visible marks" (Bloomfield, 1933, p. 21). This emerging concept of literacy as a device for documentation gave way to notions of civilisation, cognition and capabilities embedded in the ability to read and write.

Today, literacy is considered a means to reconfigure people's lives, welfare, and destinies. Not only is literacy situated as a foundation to improve people's lives, but also to change the course of the world's future at large. In a recent United Nations Educational, Scientific and Cultural Organization (UNESCO) Global Monitoring Report (UNESCO, 2016), literacy is positioned as able to reduce people's vulnerability to climate change, increase farmers' agricultural productivity, reduce child and infant mortality, and increase people's income earnings. A World Bank World Development Report listed "freedom from illiteracy" as fundamental for people to escape poverty (World Bank, 2003).

In the mid-20th Century, non-literacy was identified as a global problem to be combated, and primary school education as the means to win this war (UNESCO, 1957). UNESCO produced the first global estimates of literacy and non-literacy through the study of census and population survey data. Literacy rates and thresholds continue to be indexed by data such as national and international standardised assessments, and by attendance and attainment of formal education. Yet, despite sustained commitment to universal primary education and literacy, and the advancement of literacy theory and practice, tens of millions of children remain out-of-school. They are axiomatically considered non-literate despite our very little knowledge of their everyday worlds.

Literacy research has helped reveal the everyday worlds and practices of children and young people in social and educational contexts. This research has revealed varied, complex, and situated practices that extend an understanding of literacy beyond decoding and comprehension of texts. Research has also redrawn the boundaries of where literacy develops, is practised, and what shapes its development both in school and out-of-school contexts. Out-of-school contexts are not necessarily those in which children do not attending formal schooling, but rather are non-school contexts, in which children who attend school use and practice literacy in their everyday lives. We understand and know very little about the everyday lives and worlds of out-of-school children.

To support the inclusion and literacy development of out-of-school children, it is critical to understand their perspectives and practices of literacy in their everyday worlds. To access and understand their perspectives this study adopts a theoretical framework that is participatory (Hill, Davis, Prout & Tisdall, 2004), emancipatory (Santos, 2012), and social and material constructivist (Au, 1998). It is a fluid framework that recognises the construction and mediation of knowledge and worlds through social relations and materials. The learning and practice of literacy is a collaborative social and material accomplishment situated in cultural, political and economic contexts (Au, 1998). This study also draws on New Literacy Studies and literacy as social practice, but also emerging conceptualisations of how matter is mediates and is mediated through literacy and photography (Street, 1984; Seppänen, 2017).

This study is also situated within an emancipatory framework, seeking social justice as critical in pursuit of broader goals of research, particularly with out-of-school children, who have historically been marginalised and excluded (Morrow & Richards, 1996). Children, especially out-of-school children, have been subordinated as a social group not only in research but also in society despite the focus of social reforms and policies (Hill et al., 2004). This study positions children as social actors, who influence and construct the world they live in through literacy practice, and that adults have mediated their representation. Emancipation and the pursuit of social justice cannot occur without at least participation, if not, collaboration (Winton, 2016).

Out-of-school children's perspectives have largely been ignored, and attempting to reveal them will not only support their own literacy development but also the development of appropriate policies and programs. The research on literacy practice has favoured certain contexts, and placed value on written texts and Greco-Roman alphabetic literacy. The modalities and media of literacy have only increased in complexity throughout the 20th and 21st Centuries, embedded in historical, social, and cultural contexts. An understanding of how out-of-school children negotiate, understand, and use literacies in their everyday worlds requires innovative methodologies that do not further exclude these children from participation.

1.2 Statement of problem

There has been growing concern with the education and literacy learning of out-of-school children around the world. In 2016, it was estimated there were 263 million children and youth out-of-school, of which 63 million are primary school age (UNESCO, 2018). According to these estimates, sub-Saharan Africa is the region with the highest out-of-school rate and total number with almost 97 million children and youth. Of the 63 million children of primary school age who are out-of-school, over 50% live in this region, and are more likely to live in low-income or lower- to middle-income countries (UNESCO, 2018).

Contemporary notions of literacy are narrowed to a set of schooled skills and behaviours along a singular pathway to educational achievement and lifelong learning. Since the early 20th Century, literacy has become conflated with formal schooling, particularly in international development. Children who are not attending formal schooling are axiomatically relegated to the status of not only being out-of-school but also non-literate. This assumes deficiency and reinforces positions of power to determine what counts as literacy and who qualifies or does not qualify as literate. This labelling is based on a narrow understanding of literacy as a set of pre-defined skills and behaviours in reading and writing types of print text. A narrow understanding can hinder the effectiveness of literacy teaching and learning.

Since UNESCO published the first global study of literacy in the 1950s (UNESCO, 1953), those who cannot demonstrate pre-defined skills in reading and writing are considered non-literate. This estimation was based on analysis of survey data collected through national censuses, in which adults were asked closed questions about their literacy. Although UNESCO (2005) has recognised that the conceptualisation of literacy is contested, contemporary notions of literacy in international development have remained relatively unchanged. The World Bank (2004) defines literacy as the ability of those aged 15 years or older to read and write a simple sentence. The measurement of literacy, that is, the creation of thresholds through the literacy rate, formally excludes children. In effect, all children aged 14 years or younger, are unseen and uncounted in aggregated literacy data.

Enrolment in formal schooling has, therefore, been used as a proxy for measuring children's literacy. This has relegated tens of millions of children, who are out-of-school, to a deficit

understanding of their literacy and potentially impeded progress. Indeed, the concept of children being out-of-school is also uncontested. This containment of populations of children around the world as out-of-school and non-literate has removed literacy from its context outside of school boundaries, detaching its practice from historical, social, political, and economic contexts. In creating thresholds and boundaries around literacy these processes have been adult-mediated and predicated on concepts of literacy that are largely print text-based. Children, especially out-of-school children, continue to be excluded in more ways than one across policy, research, and data.

To date, the lack of literacy research with, and focus on the everyday worlds of, out-of-school children reinforces it as a domain primarily mediated by adults. It also reinforces literacy research as a domain that favours formal schooling and children who attend. This highlights two significant limitations of the literacy in theory and practice. First, that the mediation of literacy research by adults only reveals what is observable, potentially narrowing our understanding of literacy in everyday, local, and social contexts. Second, the research bias towards formal schooling reinforces a demarcation between school and out-of-school contexts. Even when out-of-school contexts are investigated, the participants are children who attend formal schooling. They are not out-of-school children, who have never attended formal schooling or who have been excluded or pushed out of formal schooling.

It is well established that everyday communication, whether through verbal, textual, or graphic modes, is embedded in social contexts (Hymes, 1964; Street, 1984). In particular, literacy has become a focal point for ethnographic approaches to the study of communication in context. These ethnographic accounts of literacy have revealed the everyday, local, and social contexts in which people use literacy and in which literacy is deeply embedded. More recently, ethnographic studies of literacy have sought to account for digital technology and changing modes of communication (Bhatt and de Roock, 2014; Kress and van Leeuwen, 1996), performance (Leander and Rowe, 2006), adult literacy policy and practice (Hamilton, 2001), multi-modality (Pahl and Rowsell, 2006) and materiality (Burnett, Merchant, Pahl and Rowsell, 2014).

In particular, digital cameras have become embedded in people's everyday lives, especially as built into smart phones. Digital cameras, and the production of digital photographs, have become standardised materials for communication globally. It is estimated that five billion

people have a mobile phone, with over half of these devices being smart phones (Taylor and Silver, 2019). Smart phone and Internet access and use are more common in advanced economies than in emerging economies such as Ghana, Kenya, and Nigeria (Hatt, James and Lucini, 2017; Taylor and Silver, 2019). There is an opportunity to better understand what the digital camera is and what it does within the context of literacy practice, as the device can push the boundaries of what is observable and who does the observing. This is particularly acute in context where children and young people may not have access to smart phones and cameras in which to digitally document, explore, share and create.

The ways children have been engaged in children's literacy research, and what it means to be an active participant, needs further systematic investigation. Although children have been engaged in research as participants, their voices and perspectives are often overshadowed and mediated by adults through written text-based methods and reporting. This stems from a historical over-reliance and dominance of research methods bounded by written text: methods that are not necessarily appropriate for engaging children, particularly those excluded such as out-of-school children. To examine how out-of-school children understand and practise literacy, we need methodological approaches that allow for different ways into research questions. In order to understand the everyday worlds of these children, their perspectives must be elevated. Recently, there has been an increase in the application of participatory and visual methodological approaches that seek to actively include children and young people in the research process (Aitken and Wingate, 1993; Mizen 2005; Sharples, Davison, Thomas and Rudman, 2003; Winton, 2016), including exploring literacy practice in school and out-of-school contexts (Burnett and Myers, 2002; Moss, 2001; Strawn and Monama, 2012; Yamada-Rice, 2010;).

However, these approaches remain mediated by adult researchers with limited control ceded to children, inadequate description and development of methodology, and focused on the lives of children who attend formal school. This study attempts to remedy these limitations through the development of a methodology grounded in the production of digital photographs by out-of-school children. The use of digital cameras to engage out-of-school children in the research process can potentially reveal literacy events and practice that are framed within the children's own perspectives. Digital photographs as visual research data are of a different nature to recorded, written text produced by other research

methods, potentially offering different ways into research questions and knowledge production. The digital camera offers a new way to not only conduct literacy research, but to also understand the nature of literacy practice in contexts that are often overlooked. Visual data produced and analysed with out-of-school children offers new insights into their everyday worlds, which can support effective interventions to support their literacy development and expand our understanding of what children can do with literacy.

1.3 Aim, scope, and research questions

This study aims to establish a participatory visual methodological approach to access out-of-children's literacy practice, analyse data produced by participants, and understand their perspectives of literacy. To develop the new knowledge, both substantive and methodological, needed to address this aim, the study poses two research questions:

1) How can participatory visual methodological approaches be developed to access out-of-school children's perspectives of literacy?
2) How do out-of-school children understand and practise literacy in their everyday worlds?

As an education officer for the United Nations Children's Fund (UNICEF) from 2011 to 2012, I supported the piloting of a CBE program in 25 communities in the Savelugu-Nanton District of Northern Ghana. I explored different methods for monitoring the implementation, particularly through children's active participation using digital photography. It was during this period that I became interested in further examining how out-of-school children practise literacy, and how visual methods can be developed to enable their participation in research.

The design and production of this study is in pursuit of equity and justice for children who are otherwise marginalised in policy, teaching and learning programs, and research. My aim is to also critically consider what role I can play to create the means and spaces for out-of-school children's perspectives that contribute to knowledge that will be discussed and considered in literacy policy, teaching and learning, and research. At the time of fieldwork for this study, CBE continued to be implemented in communities in Savelugu-Nanton over a nine-month period from October 2014 to July 2015. From 2013 to 2018, the Government of Ghana, with support from a range of national and international donors and partners, has

supported the implementation of CBE nationally, targeting 200,000 out-of-school children. In two communities in Savelugu-Nanton, Botingli and Bunglung, 25 out-of-school children from each community were enrolled in a CBE program, which was being delivered by an NGO called School for Life.

In conducting this research, there are ongoing ethical challenges to consider due to the purpose, methodology, and involvement of out-of-school children. These challenges encompass a range of ethical issues, including power imbalances between myself and the children and their families. I am a white male, affluent, Australian researcher, who did not fluently speak, read or write Dagbanli. I brought my own values, ethics and beliefs not only to this study, but also into these communities, as other Northern people (Dados and Connell, 2012) have before me and will continue to after me in the context of 'international development' to pursue research or professional work experiences (Horner, 2020). The families and children of Bunglung and Botingli did not request this research or the use of the particular research methods. They did not propose the research questions. I used my positional power to create these questions and research proposal independently of both communities. In working with children, I was conscious of attempting to ensure not only that their participation was voluntary and safe, but also empowering and representational. At the same time, it is easy to dismiss their voluntary participation as coerced or lacking in agency due to such power imbalances. This is a constant tension for this research, and one that is not necessarily resolved. It sits within the study and points to ethical challenges and limitations.

The power imbalances are also economic, as the completion of this study for my doctorate will eventually accrue professional and economic benefits through the conferment of a degree, writing publications, conference attendance, potential scholarship and fellowships, and career advancement. It is critical to continually acknowledge power imbalance, as it is entwined in the fabric of this study. Without economic, positional, and social power, I would not have been able to conduct this research and while I have attempted to redress such imbalances through the research process they cannot be simply discarded. In addition, during the research period, I did not stay within the communities, opting to stay in Tamale in accommodation with running water, electricity, air conditioning, and other amenities. I would arrive each day in one or both of the communities in a car and leave again later that

same day. I was able to come and go as necessary, a privilege afforded to me socially and economically. Although this study seeks to embed collaboration through the research process, and to invite out-of-school children to take ownership as photographers, the effects of my positional power have been considered and will continue to be considered in regards to key ethical issues including confidentiality, benefit, and informed consent.

This study seeks to examine how out-of-school children from two rural communities in northern Ghana understand and perceive literacy, using digital photography to produce visual data. It focuses in particular on understanding 'karimbu ka sabbu', which is the Dagbanli term for literacy and translates as 'reading and writing'. This study's operationalisation of literacy may appear at odds with the theoretical framework of literacy adopted. However, it uses a term – karimbu ka sabbu – that has meaning to the participants, is in Dagbanli rather than English, and provides enough direction to participants rather than leaving the participants guessing. The term is a linguistic and conceptual product of intersecting historical, social, and political contexts, and a pragmatic choice to enable the participating children can engage in the research. The ability to read and write English is generally used to measure, and as a marker of, literacy in Ghana (Edu-Buandoh, 2016). It also allows for space and distance between how I might interpret the term and the values and narrative I bring to it, and that of the participants and communities. Drawing on Santos' notion of keeping distance (2012), then, this study does not see it has problematic in operationalising this concept of literacy for research with the Dagomba communities.

Although I use this term, the aim of the study is to access how out-of-school Dagomba children understand, use, and practise karimbu ka sabbu in their everyday worlds, rather than start from an assumed knowledge or preconception of their reading and writing. The participating children are positioned as knowledgeable and capable of findings their ways between the epistemologies, while also acknowledging the contextual conditions under which they exercise this agency. This study adopts a theoretical framework situated across participatory, emancipatory, and social and material constructivist approaches to literacy and photography, through which reflexivity is embedded in consideration of my position as researcher in relation to the participants, their photographs and the contexts. It is hoped that this approach will produce new knowledge about out-of-school children's

understanding of reading and writing in these contexts, challenge assumptions about their literacy and inform CBE programs to effectively support their literacy development.

1.4 Contexts of the study

A key feature of case study and ethnographic approaches to literacy research is situating and understanding practices within contexts. Out-of-school children's access to CBE in northern Ghana is situated within local and global contexts that are demographic, historical, social, cultural, and political. The methodology of this study, and the invitation for a small number of out-of-school children to take digital photographs, is also situated within local and global historical and social contexts of colonialism, missionary activities, changing technology, and communication practices. Although this study does not explicitly adopt a postcolonial framework, as its purpose is not to examine the issues or the legacy of colonialism, it is important to situate this study in a postcolonial context given that the research sites are in Ghana and in the acknowledgement of my position and identity as a researcher from the Global North (Santos, 2012). The provision of CBE and out-of-school children's literacy practice cannot be decoupled from colonial and postcolonial contexts (Abu-Shomar, 2013), and my identity as a white, male researcher from Australia references a history of Western thought and imperialism dominated by other white, affluent men (Tikly and Bond, 2013).

This is relevant for northern Ghana, in which schooling and literacy have evolved historically at the confluence of colonialism, missionary activities, and international development (Edu-Buandoh, 2016). This section situates the purpose and scope of this study across different but interlinked contexts relevant to the research questions. These contexts are at times interlinked and overlapping, while at other times distinct. When considered in totality, the contexts of the out-of-school children's literacy practice, and the children's capturing of those practices in this study, support the analysis, interpretation, and discussion of the data and findings.

1.4.1 Savelugu-Nanton District of Northern Ghana

To address the two research questions, this study develops a participatory visual methodology to access out-of-school children's perspectives in two rural Dagomba communities, Bunglung and Botingli, in the Savelugu-Nanton District of the Northern Region of Ghana. The district is approximately 650 kilometres north of the capital Accra. It has a

population of around 166,000 (Savelugu-Nanton Municipal Assembly, 2018), who live across 149 communities, of which 143 are in rural locations where 80% of the population live. Savelugu-Nanton ranked 26th poorest out of 216 districts in Ghana, with a poverty headcount of 32% (Ghana Statistical Service, 2015). The average household comprises about nine persons.

The Dagomba are the dominant ethnic group in this district, and primarily practise Islam. Their home language is Dagbanali but a range of languages are used by the Dagomba, including English, Hausa, Qur'anic Arabic, and other Ghanaian languages. Approximately 80% of the population is involved in the agricultural production of maize, groundnuts, soybeans, or rice (Savelugu-Nanton Municipal Assembly, 2018). There are four major markets in the district where agricultural produce is sold on market days at Savelugu, Nanton, Tampion, and Diare. Community members also access markets outside of the district in Tamale, Karaga, and Gushegu.

The landscape is relatively flat, characterised by interior Savannah woodland, which supports small and large livestock. Almost all farmers keep some small livestock, such as goats, sheep, and guinea fowls but some also herd cattle. There is very little tree cover across the district or across Bunglung and Botingli. During the harmattan season from November to March, the dry and dusty north-east trade wind blows from the Sahara across West Africa, covering much of the district in dust. During this time, farmers clear their lands and search for game to hunt, which can lead to bush fires. The Municipal Assembly has identified the loss of tree vegetation as a significant threat due to the rate at which it is being cut down for fuel wood (Savelugu-Nanton Municipal Assembly, 2018).

There are a total of 106 primary schools, 23 junior high schools, and two senior high schools in the district (Savelugu-Nanton Municipal Assembly, 2018). Approximately 55% of the population has access to safe water, through mechanisms such as boreholes and hand dug wells. However, only 21% of the population has access to safe sanitation facilities. Although 22% of Ghanaians lack access to electricity, most of this district has no access to electricity, including both Bunglung and Botingli (Hatt, James and Lucini, 2017).

1.4.2 Dagomba of Ghana

Although it is not the purpose of this study to examine the history or culture of the Dagomba in Ghana, the broad context is fundamental to understanding an ethnographic approach to literacy research. Indeed, to access children's perspectives of literacy practice in everyday life, it is necessary to understand the contexts in which they live. The oral tradition and knowledge of the Dagomba refer to the common ancestor Tohajie, whose grandson Na Gbewa settled in Pusiga, close to the modern-day border with Togo and Burkina Faso (Tamakloe, 1931). According to this knowledge, Tohajie helped a king of Mali before being pushed south by Songhai kings (Rattray, 1931; Staniland, 1975). The establishment of the Kingdom of Dagbon occurred around the 15th Century, originating in conquest and the establishment of a state (Staniland, 1975; Imam, 2015).

Power is vested in chiefs (Na), with the paramount chief, the Ya Na, residing in Yendi. Rattray (1931) described the Kingdom of Dagbon as a loose federation of semi-independent provinces, each under the rule of a Na. However, Yendi was, and continues to be, recognised as a *primus inter pares* (Staniland, 1975). According to Tamakloe (1931), Na Zangina converted the royal court to Islam in the 18th Century, but the Kindgom of Dagbon never became theocratic (Staniland, 1975). According to Wilks (1971 p.384), Islam "had therefore to be accommodated within an essentially non-Islamic system". Recently, external support from Saudi Arabia has led to the spread of Sunni Islam in northern Ghana in particular, with this influence starting in the 1960s (Aning and Abdallah, 2013; Kobo, 2009).

The Dagomba have a sophisticated oral culture embedded in drumming and other musical instruments (Imam, 2015). Oral traditions and histories are regularly presented by state drummers, who guard and preserve cultural and oral traditions, and are recited annually during the Damba festival. More recently, orthographies for Dagbanli have been created beginning in the early 20th Century through missionary activities. Dagbanli has become one of the 11 government-sponsored languages in Ghana, and should be the language of instruction in government schools for grades one to three in Dagomba communities. Dagbanli is part of the Oti-Volta language group, which is one of the major branches of the Gur family. Although Dagbanli has an estimated two million speakers in Ghana, it does not have a standard orthography, and has two dialects, Eastern and Western (Abukari, 2018; Blench, 2004).

The Dagomba and northern Ghana were brutally affected by the trans-Saharan and trans-Atlantic slave trades (Kankpeyeng, 2009). As early as the 15th Century, a string of 60 fortresses were established by European countries along the West African coast to trade in humans, gold, and commodities (Kankpeyeng, 2009; Singleton, 1999). There is also evidence to suggest participation in the trans-Saharan slave trade for over 600 years prior to European arrival on the coastlines and beyond it (Kankpeyeng, 2009). Slave trading continued after the British abolition in 1807, with Basel missionaries and Dagomba drum historical traditions observing and recording slave caravans in the late 19th Century (Kankpeyeng, 2009). Evidence suggests slavery, as an institution, lasted at least to 1928 in Ashante and the Northern Territories (Schramm, 2007).

The Kingdom of Dagbon was invaded and administered under British and German colonial authorities in the 19th and 20th Centuries. Historically, the education experiences of the Dagomba and much of northern Ghana were starkly different from those of the southern areas of the Gold Coast (Graham, 1971; Staniland, 1975). Between 1899 and 1930, there was continued and persistent interference in the politics and administration of the Dagbon Kingdom by both German and British colonial administrations. Indeed, for a short period of time during the early 20th Century, the Dagbon Kingdom was divided between the two colonial powers, and a so-called “Neutral Zone” was created (Imam, 2015; Staniland, 1975; Sulemana, 2013). Today, the Northern Region is generally inclusive of the Dagbon Kingdom, and where the majority of Dagombas live. It is one of the three poorest regions in Ghana, along with the Upper West and Upper East regions.

1.4.3 Historical provision of formal education in Ghana

Communities in northern Ghana have a long history of different forms of formal and informal education provision (Graham, 1971), and it should be emphasised that the lacking of schooling did not mean the lack of education (Nyerere, 1967). For the most part, children’s access to formal education in northern Ghana has been through both state and non-state based institutions, and has been intertwined with colonialism, language policies and religion. Historical accounts do not reveal the everyday literacy practice of the Dagomba, but highlight different perceptions of the role of language and literacy under colonial administration. Indeed, the historical accounts demonstrate the inequity and lack of formal

educational provision in northern Ghana and access to Qur'anic schooling in communities since at least the 19th Century.

The earliest written accounts of the establishment of European education institutions date to the 18th Century in Cape Coast (Graham, 1971; Staniland, 1975). The introduction of the Monitor school system from England in the early 19th Century sought to implement a religious and moral curriculum, with reading the primary learning goal for students. By the mid-19th Century, there were three types of schools in the southern areas of the Gold Coast: government schools; Wesleyan schools; and Basel mission schools (Graham, 1971). Basel mission schools used the mother tongue of the communities in which they were based as the language of instruction, and established boarding schools. By the end of the 19th Century, there were over 150 Basel mission schools, which enrolled 5,000 students (Graham, 1971). From the 1850s onwards, the British colonial administration developed official education policy beginning with the 1852 Ordinance, which sought "to provide for the Better Education and the Inhabitants of Her Majesty's Forts and Settlements on the Gold Coast" (cited in Graham, 1971 p.107). However, the goal of these education systems was to often prepare individuals for servitude under colonial administration and/or civilise through evangelical missions (Nyerere, 1967).

In the Northern Territories, which cover the modern-day Upper West, Upper East, and the Northern Regions, the British colonial administration adopted a different education policy from that of the Gold Coast (Graham, 1971; Tamakloe, 1931). The authorities restricted the ability for missionary societies to establish schools, as they were already competing with the missionary schools established across the Gold Coast. Graham (1971) described the missionary education system developed by 1870 in the Gold Coast as advanced as that established in the 1960s in Ghana. Indeed, the British colonial administration was more broadly concerned with preservation of the political and cultural power of a federation of semi-autonomous provinces in the Northern Territories (Thomas, 1974).

The missionary societies opposed this ban, advocating it would lead to the continuing spread of Islam, which the British colonial administration perceived as useful for indirect rule of the Northern Territories (Thomas, 1974; Weiss, 2000). Although the Dagbon Kingdom and Dagombas largely practised Islam, it was characterised historically by pragmatism in its adoption in Islamic social and cultural practices (Staniland, 1975). Around

1700, the Ya Na converted to Islam and it became the official court religion, but the Dagbon Kindgom was never theocratic. Although the children of the royal family did not receive a Qur'anic education, colonial administrators viewed the Imam as a powerful figure in Dagomba society due to his literacy as "he is able to read and write, and etiquette forbids that any member of the royal family should compass these accomplishments" (Northcott, 1899 cited in Staniland, 1975, p. 6).

More broadly, the Islamic community grew in the Gold Coast during the colonial period, as labour migrants from across West Africa arrived, particularly the Hausa from northern Nigeria (Kobo, 2009). Kobo characterised British policy towards Islamic education as one of educational dualism, in which two systems evolved independently. Muslim scholars, or mallams, provided Qur'anic schooling, while Christian missionaries provided secular education and Christian theological teachings (Kobo, 2009). This was a choice faced by parents in Gambaga in the area of Mamprusi in the early 20th Century, which is north of Tamale. A Christian school was established in the early 1900s, which the Acting Chief Commissioner of the Northern Territories considered closing. He compromised, and suggested "as pupils complete their Islamic education at an early age, they could attend the Gambaga school later or they could continue their Koranic education and attend the Government school concurrently, depending on the preference of their parents" (Bening, 1990, p. 7).

Generally, the British colonial administration had neglected to create a formal European education system in the Northern Territories. In 1930, there were only a total of eight schools in the Northern Territories compared to 399 in the Ashante, Eastern, and Western areas of the Gold Coast (Graham, 1971). The first secondary school in the Northern Territories only opened in 1951, 42 years after the first primary school opened in Tamale. The period from 1930 to 1957 witnessed the rapid expansion and financing of the government education system across the Gold Coast. By February 1957, there were about 3,400 primary schools, as the British administration had introduced compulsory primary schooling after the abolition of fees (Graham, 1971). On 6 March 1957, Kwame Nkrumah declared national independence from the British Empire.

1.4.4 Universal primary education and literacy

Since at least the 19th Century, a global network of institutions and actors has evolved to design and deliver global development education and literacy policy (Arnove, 1980; Boli, Ramirez and Meyer, 1985; Jones, 1990). It is important to situate this study and understand the broad patterning of literacy as enacted in international development. The out-of-school children of northern Ghana are part of this network directly in two ways. First, as they are not accessing formal education they have become, unwittingly, part of the global policy discourse on out-of-school children (Abu-Shomar, 2013).

Second, CBE is a direct response to attempts to achieve the Millennium Development Goals (MDGs) and universal primary schooling. In Ghana, the provision of non-government schooling using a community's mother tongue as the language of instruction dates back to the Basel mission schools of the late 19th Century and early 20th Century, and the establishment of "vernacular schools" in the 1930s as an alternative to government primary schools (Graham, 1971). The MDGs were a culmination of the establishment and enshrinement of universal primary schooling and literacy as not only aspirational but a fundamental human right.

Literacy, schooling, and education have become central features of the notion of human development (UNESCO-UIS and Brookings Institution, 2013). Under the Universal Declaration of Human Rights adopted by the United Nations General Assembly in 1948, Article 26 ensures that everyone has the right to education, and that it should be free and compulsory at the primary level. The International Covenant on Economic, Social and Cultural Rights (ICESCR) reinforced the right to education, setting out a binding agenda in Articles 13 and 14. The ICESCR was adopted by the United Nations General Assembly in 1966 and came into effect in 1976 (United Nations, 1976).

The Convention on the Rights of the Child (CRC) was adopted in 1989 and secures education in Articles 24, 28, and 29 (United Nations, 1989). The World Conference on Education for All in Jomiten, Thailand quickly followed this treaty in 1990. Delegates from 155 countries adopted the World Declaration on Education for All and the Framework for Action to Meet Basic Learning Needs, which included universal primary education to be met by the year 2000. The Working Document (Inter-Agency Commission, 1990) underpinning the conference provided a glossary of terms, in which literacy "refers to the ability to read and

write with comprehension, as well as to make simple arithmetical calculations (numeracy); in an expanded sense, literacy may refer to a set of basic cognitive skills enabling one to obtain and process information in a meaningful way" (p. ix). The delivery of basic education, according to the Declaration, should be through primary formal schooling. However, those drafting the Declaration conceded that supplementary alternative programs could support children who do not have access to formal schooling to meet learning outcomes.

By 2000, the goals of Education for All (EFA) were not achieved. At the World Education Forum in Dakar, Senegal, delegates adopted the Dakar Framework for Action and reaffirmed the 1990 World Declaration on Education for All. Six new EFA goals were adopted, including the commitment to free and compulsory universal primary education for all children and the increase of literacy levels by 50% by 2015. The former was also translated into one of the eight MDGs. All 189 United Nations member states committed to achieving the MDGs by 2015.

The second MDG was to ensure that, by 2015, all children were able to complete primary schooling (United Nations, 2000). Three indicators were attached to this goal and target. These included the net enrolment ratio in primary education as measured by UNESCO, the proportion of students starting grade one who reach grade five as measured by UNESCO, and the literacy rate of 15–24 year-olds as measured by UNESCO (United Nations, 2000). Despite sustained commitment to the MDGs and EFA goals, universal primary education was not achieved in 2015. An estimated 63 million children of primary school age were estimated to be out-of-school, and a further 100 million did not complete their primary school education (UNESCO, 2016). Although the scale of the global challenge is quantified, the everyday lives of these out-of-school children and their literacy development remain relatively unknown. Access to out-of-school children's understanding of literacy in their everyday worlds can support policy and programs that seek to address their needs.

1.4.5 Ghana's progress in expanding educational opportunities

In the 21st Century, Ghana made significant progress to extend access to education. An analysis of the Ghana Demographic and Health Surveys (GDHS) found the percentage of 6–14 year-old children who reported never having attended school declined form 29.2% to 16.8% between 2003 and 2008 (UNESCO-UIS and UNICEF, 2012). The net attendance rate in primary school also increased from about 60.6% to 73.8%, and nearly 70% of 5–6 year-old

children were attending either preschool or primary school in 2008. However, there continues to be inequities and disparities based on gender, geography, and income generation.

Although Ghana has made increasing equitable access to quality education for disadvantaged groups a policy priority, 20% of primary-aged school children and 48% of lower-secondary school-aged children were estimated to be out-of-school (UNESCO-UIS and UNICEF, 2012). The educational trends in Ghana generally reflect that of global patterns of disadvantage structured around wealth, gender, and disability (Watkins, 2012). According to the Ghana Ministry of Education (2013), since 2006, there were declining primary and junior high school admission and completion rates. To increase equitable access to education, the Ministry of Education adopted the Complementary Basic Education Policy Framework (Ghana Ministry of Education, 2013).

1.4.6 Complementary Basic Education

Despite a deep and sustained commitment to public education through formal schooling provision, international and national education actors have also relied on non-state service provision. Between 1991 and 2004, non-state education provision was responsible for one-third of the increase in access to primary education across 136 developing countries (DeStefano and Moore, 2010). Recently, policies and programs around CBE have gained traction in the context of non-state education primary education provision in sub-Saharan Africa and Ghana in particular (Balwanz, Moore and DeStefano, 2006; Rose, 2009; Farrell and Mfum-Mensah, 2002; Ilon and Kyeyune, 2002; Longden, 2013).

CBE describes non-state primary education provision in sub-Saharan Africa. CBE is both an umbrella and specific term, covering approaches and programs that have varying but common characteristics. In 2006, researchers identified 154 complementary education programs operating in 39 countries in sub-Saharan Africa, reaching an estimated 3.5 million children (Balwanz, Moore and DeStefano, 2006). Although there is wide variance, CBE programs are commonly defined by: equivalency (to what extent achievement and learning outcomes are recognised by government); targets groups (usually out-of-school children); management (how they engage with government actors and institutions); facilitation (the training, certification, and support of teachers in the program); modification (to what extent formal education curricula, timetables, and learning materials are modified); language of

instruction (usually a community's mother tongue); community governance and accountability; and quality (DeStefano and Moore, 2010; Longden, 2013).

In Ghana, CBE is a pathway to formal primary schooling for out-of-school children, and was being implemented to support the achievement of universal primary education. It was positioned as a temporary solution and not intended to be a permanent alternative to formal primary schooling. There were a number of CBE programs in Ghana delivered by a range of non-government organisations (CARE, 2003; Mfum-Mensah, 2003, 2011). School for Life started as a pilot program with 50 classes and 2,500 children in 1995 in two districts in the Northern Region (School for Life, 2007). School for Life's program has many of the characteristics of CBE: flexible schedule and calendar; use of unqualified community-based volunteers as teachers; community management committees; culturally-relevant curricula and teaching and learning materials; part-time classes held in the afternoons four to five days a week; class sizes capped at 25 students; medium of instruction is a community's mother tongue; and a focus on literacy and numeracy. The goal is to ready the participating children for transition into primary school at an appropriate grade, usually grade three or higher.

1.4.7 Orthographies of Ghanaian languages

In acknowledging the patterning of literacy in the context international development, and the global place of out-of-school children in policy, it is also important to situate cultural and social histories relevant to communities in Ghana. In particular, the role of missionary societies in West Africa in language and literacy left durable, visible traces in the orthographies of languages such as Dagbanli. The German missionary societies, Basel and Bremen, in Ghana played a fundamental role in creating orthographies for oral languages using modified Greco-Roman scripts similar to the Westermann script (Westermann and Ward, 1933). Dagbnali was an oral language without a written script before the arrival of Christian missionaries in the 19th Century. The written script for Dagbanli out-of-school children learning to read and write in School for Life's program is a modified Westermann script that is used for language orthographies across West Africa.

Westermann (1929), whose script and principles for orthography had been widely adopted, argued against the use of Lepsius' Standard Alphabet. Lepsius' script used a Latin alphabet supplemented by diacritical marks, and was originally developed to transcribe Egyptian

hieroglyphs. The International Institute of African Languages and Culture wanted to unify and standardise the orthography of African languages for the purposes of English language learning and proselytisation (Eichholzer, 2012; Meyer, 2002; Westermann, 1929). This accounts for the similarities in the orthographies of different Ghanaian languages, such as Twi, Dagbanli, Ewe, Ga, Gonja, and others.

Local languages were viewed as the most important proselytising tool by Protestant missionary societies in Africa (Eichholzer, 2012; Meyer, 2002). The principles and language work of Christian missionaries represented a precursor to modern linguistic approaches developed half a century later (Stanley, 1970; Welmers, 1970). In the Gold Coast, the literacy policy of the Basel Mission was made explicit and clear in the instructions to the missionaries. “All missionaries should pay attention to learning the country’s language and to raising it to a written form” (Basel Mission Archive, Q-3-3,26 cited in Eichholzer, 2012, p. 78).

This written form has remained relatively unchanged in the orthography of Dagbanli, and global advocacy to first teach children in international development contexts in their mother tongue through programs such as CBE is the new prime directive. Local communities in Ghana are not disconnected from global events, practices or policies, the historical legacies of which can be visibly seen in the written forms of languages through which literacy is being taught. In seeking to access out-of-school children’s perspectives of literacy, it is important to understand the global, historical and policy contexts in which their perspectives are situated and negotiated.

1.4.8 From the camera obscura to digital photography

The digital camera and digital photography are embedded in the everyday lives of children, adults and communities around the world. There is a long history of the intersection of photography, research, and colonialism (Bates, 1993; Jenkins, 2018). Karl Richard Lepsius used colours as an analogy for the three primary vowels in his Standard Alphabet, ‘a’, ‘i’ and ‘u’. “There are three primary vowels as there are three primary colors, the other vowels are formed between those three, as colors between red, yellow, and blue” (Whitney, 1860, p. 306). Digital photography relies on three primary colours to convert light into matter, just as Lepsius relied on three primary vowels to convert visual sounds and utterances into a standardised orthography. The earliest technology that captured and reproduced visual

images was the camera obscura, dark chambers into which light was admitted through a small pinhole. The camera obscura was the precursor to chemical photography and other projective techniques that emerged and developed in the 18th Century. These devices were used for astronomy, painting, drawing, entertainment, and scientific inquiries. Indeed, the device's early use was as a scientific instrument and led to theoretical developments in optics and geometry (Wenczel, 2007). Christian missionaries also used photography in West Africa to proselytise, document their activities, and demarcate the civilised and uncivilised for a European audience (Jenkins, 2018).

The modern digital camera is still in many ways the same camera obscura. Light enters a small, dark box through a lens and is materially recorded, reconfigured, and reconstituted. Contemporary digital cameras are embedded in mobile phones, enabling people to capture and record images at any moment, in any place. Social media platforms and networks allow people to share these images almost instantaneously. Increasingly, people mediate their worlds through the lens of a camera, sharing stories and images with unknowable and knowable others. In 2013, Facebook reported that users had uploaded a total of 250 billion photographs, with 350 million added each day. Over 1 billion people use Instagram monthly to post photographs and videos, with close to 100 million posts each day (Abutaleb, 2016).

Although children participating in this study were using a digital camera for the first time, it is not the first time that this technology has been used in these communities or area. There is a long history, since the invention of the Daguerreotype, of photography in not only West Africa and Ghana, but in Dagomba communities, by missionaries, humanitarians, visitors, Ghanaians, and others. School for Life posts updates using photographs of children, staff members, and teachers on its Facebook page. A search on Instagram for keywords such as 'savelugu' reveals photographs taken in the Savelugu-Nanton District by different account users.

Although the histories of Ghana, Dagomba, and education policy are recorded in oral and written traditions from the perspectives of adults, photographs offer another form of historical recording and documentation. There are histories captured in visual images across the colonial period through the use of photography, particularly by Christian missionaries (Jenkins, 1993). The Basel Missionary Society has an archive of around 50,000 photographic images dating between 1860 and 1945, many of which are from Ghana, Togo and Cameroon

(Jenkins and Geary, 1985). Rudolf Fisch, who in 1913 published the *Wörtersammlung Dagbané-Deutsch*, the first written document to begin to create the orthography for Dagbanli, carried a camera on his journey into Dagbon in 1910 (Fisch, 1913). He travelled to the same sites as this study, including Tamale and Savelugu during the ten-week trip in the context of the Basel Mission's attempt to establish a mission in German-administered northern Togo (Basel Mission Archive, 2018)

Fisch produced photographs of Savelugu, Dagomba communities, and Qur'anic Arabic classes held outdoors with a mallam (Fisch, 1910). This study returns to the same area and similar communities just outside of Savelugu, inviting Dagomba out-of-school children to use digital cameras to show their understanding and practice of literacy during a CBE program that uses Dagbanli as the language of instruction. Photography is not incongruous in this setting of northern Ghana, and these communities are not unfamiliar with being the subjects of a photographic gaze (Landau, 2002). Collaborative digital photography provides an opportunity to redirect a gaze that has historically been voyeuristic and exploitative to one of inclusion and justice (Bates, 1993; Santos, 2012). This study attempts to turn the gaze around and invite participants to produce their own epistemologies and theories of everyday worlds.

1.5 Significance of the study

This study has four intended and broad outcomes for the advancement of literacy research, knowledge, and practice. First, it is the intended outcome of this study to support the literacy development of out-of-school children's learning, and their continued access to education. In order to achieve this, it is critical to examine how these children use and understand reading and writing in their everyday worlds. The global advocacy for universal primary education has enabled millions of children to access formal schooling. Yet, the current global education climate is defined as one of a "learning crisis" (World Bank, 2018; UNESCO, 2017/8), in which has been estimated that 25% of young people in poor countries are unable to read a single sentence (UNESCO, 2014). This study is timely in attempting to address research gaps in our understanding of out-of-school children's literacy learning as a means to better support their literacy development in the context of a CBE program (Longden, 2013).

Second, out-of-school children continue to be excluded as active participants in literacy research. It is an intended outcome of this research to not only show what these children can do with literacy but also demonstrate how children's participation expands research design, theory, and methodology. This study intends to challenge the dichotomies established in literacy research to demonstrate the impermanence of contexts such as school and out-of-school. However, there is a difference in the use of the term *out-of-school* in regards to context and to children. Literacy research has ethnographically examined the out-of-school practices of children who attend formal schooling. The literacy practice of children who *are* out-of-school, that is, not enrolled or attending formal schooling, has not been adequately examined. In particular, this study intends to access the perspectives of excluded children from rural low-income households in non-Western countries, who have either never attended formal schooling or have been pushed out due to social, cultural, and/or economic pressures.

Third, it is no longer adequate for research, particularly literacy research, to exclusively consider and examine print text as data. It is the intended outcome of this study to produce a transparent methodology for using collaborative digital photography to investigate literacy practice. This study intends to contribute to and build on our understanding of how visual data expands ontological and epistemological horizons. There is a range of digital methodological tools that are available to researchers to produce digital and visual data in pursuit of knowledge. This study seeks to understand out-of-school children's engagement with reading and writing in their everyday worlds, through the medium of a digital camera, to develop a collaborative digital photography methodology. It intends to present a robust theoretical and applied framework for the production and analysis of participant-generated visual data. The knowledge generated through digital photography by the children will test to what extent photographs can reveal, identify, and index literacy.

Fourth, in the context of rapid technological change, children and young people are socially and materially engaging with a range of literacies across different contexts. A better understanding of the materiality of literacy, as represented by children themselves through digital photography, has the potential to help resolve ontological and epistemological tensions in literacy theory and research. Digital photography is a mediation of matter, through which light is captured, converted, stored through photography, but not

independent of the person taking the photograph or those viewing the photograph. The visual knowledge produced through digital photography has potential to inform pedagogy, curriculum, and assessment in literacy teaching and learning. A potential that accounts for out-of-children's engagement with, and production of, the matter of literacy through technological devices such as digital cameras.

1.6 Overview of the thesis

This thesis is divided into seven chapters, including this first chapter. Chapter two is a critical review of literacy research, and how different approaches have generated different understandings and knowledge about literacy practice. In particular, it examines the development of the durable concept and thesis of literacy as a school-based phenomenon, and challenges to this concept through the ethnographic access to out-of-school contexts and everyday worlds. This chapter also examines the production of literacy theory and knowledge in international development contexts, in particular, sites of non-formal schooling and to what extent these contexts have been accessed as sites of children's literacy practice. It examines emerging approaches to the study of literacy that broaden our understanding of how children and young people engage with, and make meaning from, literacy in their everyday lives. Finally, this chapter examines how visual research, particularly participatory photography, has sought to access the perspectives of children and young people to understand their everyday worlds and to what extent research has accessed the indexicality of photography.

Chapter three outlines this study's research design, outlining the methodology in a broader framework of mixed research, case study, and collaborative research, discussing how this design promotes research validity and trustworthiness. The chapter then outlines the research sites and participant selection and invitation, data collection methods, analytical framework and ethical framework of this methodology. The data analysis is divided into two chapters, each one framed within dominant theme that emerged from the analysis. The data analysis used a coding and analytical framework to identify patterns and emerging themes across the participants' photographs and responses. The photographs can be viewed by two means for reading these two chapters. First, each participant's portfolio of photographs can be viewed in their entirety using the hyperlinks provided in Table 1. This enables the reader to view the photographs prior or simultaneous to reading the data

analysis. Second, each section in the analysis chapters has a corresponding Plate (I-XIII), which contains individual photographs referenced in the analysis. Chapter four presents the first section of the data analysis, which focuses on an analysis of the similarities and differences in how each community positioned the participating children's understanding of literacy in school contexts. Chapter five presents the second section of the data analysis, which focuses on the similarities and differences in how each community positioned the participating children's understanding of literacy in out-of-school contexts.

Chapter six presents the discussion of the findings from the data analysis. It examines and discusses three broad findings, and the various nuances and exceptions revealed through the data analysis. First, this study found that the children understood literacy as practice in the two communities, as expressed in three main configurations of the children's practice, the materiality of literacy, and out-of-school practices. Second, the children reconciled and negotiated local and global contexts of literacy as practice, through CBE, primary schooling and Qur'anic education. Third, the study found that collaborative digital photography not only accesses out-of-school children's perspectives, but also further enables their literacy practice through photography. Chapter seven presents the conclusion, addressing the two research questions in light of the findings. This chapter also examines the limitations and contributions of this study and areas for future research.

1.7 Summary

Literacy is more important for children's futures than ever before. Although access to education has expanded, thriving in schooling and beyond requires continuing literacy development. In the context of contested knowledge, climate change, rapidly changing technology, and continuing political and economic uncertainty, children's engagement with and understanding of their worlds requires a range of literacies; literacies that enable them to make meaning through different modes and media, whilst pursuing educational, social, cultural, and economic opportunities. It is, then, incumbent on us to understand their worlds to support them in pursuit of these opportunities.

This is especially pertinent for out-of-school children, who have not been afforded, and are excluded from, these opportunities. It is imperative that out-of-school children are supported in their literacy development in order to achieve not only the aims of the

Sustainable Development Goals, but also to uphold human rights and the Convention on the Rights of the Child (United Nations, 1989). However, what counts as literacy and schooling have fundamentally changed. In order to support the literacy learning of out-of-school children in Ghana and elsewhere, we need to understand their worlds in which literacy is embedded. In order to understand their worlds, we need to elevate children's perspectives, in which they have control over representing their understanding and practice. In doing so, we will have nuanced understandings of how literacy is embedded in out-of-school children's worlds. We cannot achieve global literacy targets if we do not understand these children's literacy experiences as they move in, through, and out-of-school. Moreover, a visual knowledge of their literacies has the potential to inform the creation of relevant and meaningful curriculum, pedagogy, and assessment to progress their learning and the learning of other children.

2. Literature review

2.1 Introduction

The theorisation of literacy has occurred within and across a wide range of disciplines including philosophy, history, linguistics, economics, international development, psychology, anthropology, cognitive science, ethnography, and education. This breadth of research has both created reductive and expanded theories, which have resulted in competing and contradictory claims of its development, practice, and measurement. Dualities and hierarchies have been established between oral versus written communication, school versus out-of-school, local versus global contexts, literate versus non-literate, autonomous versus ideological, in which certain attributes characterise one or the other. Within these dualities, out-of-school children have been reduced to non-literate and are largely overlooked in research and theory of reading and writing. This chapter examines different theorisations of literacy and how it has been studied as it pertains to this study's research questions, particularly to what extent out-of-school children's perspective and understandings have been accessed.

Generally, different theorisations of literacy contend there are different measures and thresholds of children and adults' literacy. That is, depending on the literacy thesis, including ontological paradigms, orientations toward data, and contexts, literacy is established as something to be measured either as countable (a person is literate or non-literate) or uncountable (a person uses literacy for a range of purposes in certain different contexts and under different circumstances). In the former, literacy theory created metric thresholds by measuring a person's acquisition of defined skills, knowledge and/or behaviours and defining their literacy by such acquisition (Goody and Watt, 1963; Levine, 1982; UNESCO, 1953; Wagner, 2011). This deficit literacy thesis contends that those who are non-literate do not possess literacy, but can develop literacy through schooling. Under this thesis, literacy is conceptualised as a consequence of developing and attaining reading and writing 'skills', 'knowledge', and 'learning'. This is achieved through a defined process, usually the phenomenon of school-based learning, with a linear goal or accomplishment assumed and against which skills and learning are benchmarked.

In the latter, literacy theory observes obverse non-metric thresholds of literacy dependent upon measuring how social, cultural, economic, technological and political factors shape a person's literacy practice (Barton, 2001; Heath, 1983; Scribner and Cole, 1981; Street, 1984). Rather than 'skills', 'knowledge', or 'learning', literacy is conceptualised around practice, which is non-linear, not necessarily school-based, and for which the consequences are not necessarily cognitive or economic. There can also be different configurations of practice, which are revealed in actions, events, and practices (Heath, 1983). This study uses the framework of literacy practice, which is defined as the way a person makes meaning and communicates through a range of available reading, writing, verbal, and multimodal actions and materials. This is a process, which may have an outcome or goal that the person wants to accomplish (Scribner, 1984). Literacy practice occurs in and is influenced by social, political, cultural and economic contexts, which shape the actions and materials made available (Street, 1984). Literacy practice is positioned as occurring both within school and out-of-school contexts, for which school literacy practice is shaped by dominant discourses, language/s, and values such as the deficit thesis. Out-of-school literacy practice is defined by non-school based activities and resources defined by dominant and non-dominant discourses, languages, and values (Barton, 2001).

This chapter is divided into six sections to examine the literature on approaches to the study of literacy and visual approaches to accessing children and people's perspectives. The first section examines the development of a consequences thesis in which literacy is defined as a school-based phenomenon characterised by cognition, attainment, and dualities. The second section examines ethnographic approaches to the study of literacy, which established alternative conceptualisations of literacy, and challenged school-based notions of literacy. The third section examines the literature on what we know about alternative approaches to the provision of literacy education to out-of-school children. The fourth section examines the broadening of literacy theory beyond print text, challenging and extending literacy theorisation bounded by defined contexts and written text. The fifth section examines visual research approaches to accessing children and adult's perspectives of literacy, education, and their everyday worlds. The sixth section examines theorisation of

the photography and photographs as mode and media for accessing people's perspectives and representations.

2.2 Cognitive processes and consequences of literacy

The theorisation of literacy as a singular set of skills to decode and comprehend print text was established by research that sought to identify the cognitive consequences of literacy. Cognition is positioned as a psychological process and outcome, through which skills and knowledge are attained. In relation to literacy, these skills and knowledge are related to the ability to read and write certain texts, including phonic awareness, phonological processing, word recognition, comprehension and orthographic knowledge (Kim and Morrison, 2018; Stanovich and Cunningham, 1992). Research posited that these texts and knowledge were embedded in alphabetic writing systems and learned through formal schooling and education. Often the goal of such research within this framework is to test school children's attainment of a narrowly defined set of literacy skills and knowledge, which overlooks not only their perspectives of literacy, but overlooks children who do not attend school.

Literacy theories situated within positivist paradigms established an enduring threshold that measures literacy as a school-based phenomenon. These paradigms configure literacy as the school-based ability to read and write alphabetic, print text, and rationalised literacy's link to cognition, human capital, and human development (Goody and Watt, 1963; Stanovich and Cunningham, 1992). This framework of literacy is not appropriate or adequate for examining the perspectives and understandings of literacy of out-of-school children, as it does not consider them to have literacy or be literate, attaching an axiomatic deficit view of out-of-school children and by extension their communities (Gutiérrez, Morales and Martinez, 2009).

Out-of-school children are often considered axiomatically non-literate because of the dominant notion of literacy as the school-based ability to read and write in a dominant language (Kim and Morrison, 2018; Wilson, Dickinson and Rowe, 2013). This is located in literature that created an enduring dichotomy between oral language and written language; an enduring valuing of the latter over the former, in which claims of cognition, development, and civilisation were made and continue to be made of written language and of literacy (Goody and Watt, 1963; Stanovich and Cunningham, 1992). The domain of school as the

context for literacy education was also firmly established. This section will briefly review this foundational research, as its claims are enduring and highly influential in international development in establishing literacy as school-based practice, and the written text as autonomous.

Early linguistic studies distinguished oral language from written language and conceptualised the act of writing as an autonomous practice (Bloomfield, 1927, 1933; Sapir, 1925; Whitney, 1880/1). Writing was viewed as "merely an external device" (Bloomfield, 1933, p. 282) through which an object is moved to record a scratch on another object. Reading is being able to decode those scratches and make relevant and appropriate meaning from them. Literacy research has generally sought to measure children and adults' understandings of these scratches, using different methods to access those understandings.

The earliest formal studies of literacy practice relied on surviving historical written texts and sources (Adamson, 1929; Clanchy, 1981; Webb, 1950). In Adamson's (1929) study of written sources from England in the 15th and 16th Century, he argued that the absence of evidence is not evidence of absence in regards to determining the extent to which people can read and/or write. Adamson also identified non-formal sites of education beyond formal grammar schools, in which local priests taught an ecclesiastical curriculum in their local communities. Webb (1950) questioned early claims about the lack of literacy skills amongst the working class in his study of 19th Century England. He studied different written sources, such as marriage registers, to identify traces and indices of literacy for the working class of this period. Webb also pointed to non-formal institutions as sites of literacy education, including Sunday schools run by local parishes. Although these studies are limited in that they could only rely on historical written sources, they countered early claims of literacy as a school-based phenomenon and sought to understand what people can do with literacy in different contexts.

A historical lens to uncover literacy was further expanded to make claims to support an emerging thesis that written communication in alphabetic print text, and the ability to read and write it, was foundational to abstract thought (Goody and Watt, 1963; Havelock, 1976). Literacy was posited, from a narrow historical perspective, to be materialised in Greco-Roman alphabetic letters. This perspective argued that abstract knowledge, as the domain of scientific thought, is mediated by the Greco-Roman alphabet. The hypothesis detailed

distinct cognitive consequences of written alphabetic literacy that differed from that of oral language. Goody and Watt (1963) traced the development of literacy historically and argued for the success of the diffusion of the Greco-Roman alphabet to its "intrinsic advantages" (pp. 317-8), one of those advantages being the phonetic system for transcribing oral language. They argued that the development and diffusion of this alphabet had cognitive consequences, leading to the development of classification systems, logical procedures, and the advent of the tradition of Western thought. This afforded the labelling of literate and non-literate societies, the development of which could be explained by literacy (Goody and Watt, 1963). This research was exclusive of cultures, languages, and histories, while at the same time overlooking the role of colonialism and imperialism in the diffusion of the Greco-Roman alphabet through mechanisms such as colonial government education systems (Abu-Shomar, 2013). However, Goody and Watt's hypothesis has been enduring in the discursive conceptualisation and operationalisation of literacy, and its methodological limitations were mitigated through different approaches to build on a thesis of cognition.

Research used Vygotsky's (1962) psychologically developmental framework to attempt to show causality between school-based literacy and cognitive development. Greenfield (1966, 1972) compared the performance on applied experimental psychological tasks of school and out-of-school children in Senegal. The tasks were designed to assess concept formation, grammatical forms, and context formation. She posited literacy as the source of observed cognitive differences, as analysed by their responses to the tasks, between school and out-of-school children. Olson (1977) attributed specific cognitive consequences to literacy and introduced the notion of the "essayist text", which was made possible by the development of the printing press. Writing was conceptualised as bypassing subjectivities and other ways of knowing. Text was an "autonomous representation of meaning" (p. 268), as evident by how texts were read and written, and the uniformity of skills needed to produce such texts.

Contemporary research continues to position the superiority of the alphabetic system, particularly in phonics research and advocacy of children's literacy (Castles, Rastle and Nation, 2018; Kim and Morrison, 2018). Cognitive processes and consequences, detached from the social contexts of learning and practice, are studied and highlighted in the psychological sciences (Rayner, Foorman, Perfetti, Pesetsky and Seidenberg, 2001). Indeed, emphasis has been placed on the cognitive consequences of phonics, and systematic

phonics instruction has been recommended in countries such as the United States, the United Kingdom, and Australia (Castles, Rastle and Nation, 2018; Rose, 2006; Rowe, 2005). Proponents of this understanding of literacy devalued other ways of knowing beyond decoding written text using a discrete set of skills learned through school. The implicit argument is that it is neither necessary nor important to understand children's perspectives of literacy, but to ensure they acquire a set of skills to produce certain text types in a dominant language. The methodologies for producing this research are bounded in positivist paradigms that exclude children's perspectives, focusing on data produced through orthodox research methods such as tasks and tests (Kim and Morrison, 2018; Wilson et al., 2013).

2.2.1 Cognitive consequences of mother tongue-based education

A range of frameworks have been developed to access and account for the language and literacy practice of children and adults in communities, such as those in sub-Saharan Africa, that are multilingual and linguistically diverse. In international development contexts, children's literacy achievement and practice have been understood and accessed within cognitive processes framed within mother tongue-based education (Benson, 2005). Mother tongue-based education is a broad pedagogical framework that encompasses a range of programs that posits the most effective language of instruction for literacy learning and education is a child's mother tongue (or first language). Studies of bilingualism and multilingualism have been influenced by the early work of Ferguson (1959) and Fishman (1965), which sought to understand language patterns in different non-monolingual communities. These studies have been extended upon to acknowledge multilingualism in societies in which the framework is applied through policy and programs, which are usually non-Western contexts, and extended to mother tongue-based education (Tupas, 2015). Literacy is conceptualised within this framework as, and understood in relation to, cognitive skill development and attainment within formal schooling contexts (Graham, 2010).

Mother tongue-based education is often positioned as a cognitive gateway to proficiency for children from linguistic minority groups in a dominant language, usually English (Tupas, 2015). The genesis of mother tongue-based education is found in the context of colonialism and missionary activities, particularly across Africa in the 19th and 20th Centuries (Welmers, 1970; Gilmour, 2007). Missionary societies advocated for and instituted mother tongue-

based education for the purposes of proselytising before and during the creation of international education institutions. In addition, missionary societies across sub-Saharan Africa had a fundamental and central role in creating orthographies for oral languages using modified Greco-Roman scripts. European knowledge of West African languages and the production of orthographies were led by German missionaries in the mid-19th Century (Eichholzer, 2012; Jones, 1986; Meyer, 2002; Welmers, 1970). As discussed in chapter one, local languages were viewed as the most important proselytising tool by Protestant missionary societies in Africa (Eichholzer, 2012; Meyer, 2002).

In seeking to understand the cognitive consequences of literacy, a child's mother tongue has been conceptualised as instrumental, and understood in reference to a dominant language and being able to access that dominant language (Olson, 1977; Skutnabb-Kangas, 1984; John-Steiner, 1985; UNESCO, 1953). Mother tongue literacy learning is positioned as a pedagogical means to literacy in a dominant language. Research and policy linked literacy learning in a child's mother tongue to cognitive consequences and benefits for learning literacy in an additional language (Gregory and Kenner, 2013; John-Steiner, 1985; Skutnabb-Kangas, 1984). UNESCO's (2004, p. 31) guidelines on language and education identified mother tongue-based education as "essential for initial instruction and literacy". This view remained largely unchanged since one of the organisation's first reports, which stated that it is "axiomatic that the best medium for teaching a child is his mother tongue" (UNESCO, 1953, p. 11). From a consequences perspective, mother tongue-based literacy learning is considered to be largely an issue of pedagogy, grounded in positivist paradigms of cognition located within formal schooling and the broader historical framework of mother tongue-based education.

Research of school children and adults' perspectives of mother tongue-based education in African contexts shows competing views and tensions to policy intent. Ansre and Klu (2017) studied the views of parents and guardians of mother tongue-based education for kindergarten school children in Accra. They found that most the parents and guardians would have preferred their children receive English as the language of instruction. Msila (2014) studied the views of South African pre-schoolers and their parents and guardians towards mother tongue languages. These studies challenge the cognitive consequences thesis to demonstrate that mother tongue-based education is not only perceived as a

pedagogical issue when the perspectives and understandings of children and adults are sought and considered. However, these research sites were confined to formal schooling and education contexts, and did not seek the perspectives of out-of-school children.

Mother tongue-based education as a framework is often distinct from bilingual education, and in international development contexts, the policy goal is often to transition a child from their mother tongue to a dominant language such as English, rather than bilingual education (Ouane and Glanz, 2005; UNESCO, 2005). Bilingual education also encompasses a range of programs, in which more than one language is used to deliver the curriculum in formal preschool and school contexts (Bialystok, 2018; Schwartz, 2018). The cognitive consequences thesis for bilingualism contends that it is a pedagogical approach that has long-term proficiency and attainment benefits for school children (August and Shanahan, 2017). Translanguaging has been introduced in response to the limitations of binary approaches to understanding language and literacy practice, and increasingly used to account for the complexity of bilingual and multilingual language and literacy practice and pedagogical approaches that support practice (García and Lin, 2016; MacSwan, 2017).

Translanguaging extends Hornberger's notion of biliteracy (1989; Hornberger and Skilton, 2000), in which bilingualism and literacy are located on a continuum of practice, and which focused research on written communication. Pacheco and Miller (2016) report on the use translanguaging pedagogies in a literacy classroom to leverage emerging bilingual students' linguistic repertories. Song (2016) explores out-of-school literacy events through the framework of translanguaging in four Korean homes. These studies move beyond the cognitive consequences thesis of literacy, acknowledging the complex sociocultural knowledge and practices students bring into the classroom and engage in outside of the classroom. It captures the fluidness of boundaries between school and out-of-school, although the focus of practice is still on children who access and attend formal education settings such as preschool or primary school.

2.2.2 Economic and social consequences of literacy

A growing body of policy and research literature has addressed the literacy and schooling access of out-of-school children. This literature has built on the cognitive consequences thesis of literacy, and literacy's conceptualisation and role in the lives of out-of-school children has been increasingly influenced by intergovernmental and multi-lateral

organisations in international education and development (Arnove, 1980; Boli, Ramirez and Meyer, 1985; Fiala and Lanford, 1987; Jones, 1990; Zachariah, 1985). Since its creation in 1946, UNESCO has been highly influential in the global promotion, positioning, and conceptualisation of literacy (Jones, 1990; Limage, 2009; Wagner, 2011). A global network of actors has evolved to define literacy and education policy and programs in international development, which has been informed by cognitive, economic, and social theories of literacy (Limage, 2009). The literacy practice of out-of-school children have largely been overlooked, except insofar as they are the targets of programming and policy to ensure they have the opportunity to attend schooling in order to contribute to economic development, uphold human rights, and meet policy objectives.

An economic consequences thesis has ascribed to literacy a range of positive consequences if attained by children and adults for society (Blaug, 1966; Deutsch, 1961; Golden, 1955). It has endured in policy goals and contributed to the framing of children's literacy as instrumental. In this theorisation, literacy is not a pedagogical issue so much as an economic one, in which rationalisation paradigms are used reductively to measure societies as either literate or non-literate. Golden (1955) argued that literacy is not only an index of development, but also functions in economic growth in developing countries. Golden used national census data to identify a relation between literacy and industralisation, the same data set used by UNESCO (1953, 1957) to create global literacy rates. Deutsch (1961) expanded Golden's parameters to identify correlations between literacy and a range of social change processes such as political participation and birth rates and argued for deliberate interventions in the political and social mobilisation processes of developing countries. Blaug (1966) sought to further strengthen the economic consequences thesis for literacy using adult literacy and specifying a threshold for economic development grounded in literacy rates. He concluded that, "a 40 per cent literacy rate is necessary but not sufficient condition for rapid economic advance" (p.401).

This research established an understanding of literacy as linked to economic development and the capacity of an adult to function productively within a given society. The emergence and increasing use of the concept of human capital further embedded a conceptualisation of literacy as instrumental but also adult-focused. Schultz (1960) created the term human capital to describe the phenomenon of education becoming a part of the person receiving it,

and as a form of capital, an educated person provides services of value to an economy. The notion of functional literacy gained prominence globally, with an emphasis on fostering adult literacy in key economic sectors (Blaug, 1966; Jones, 1990; Levine, 1982). The research in which the concept was grounded was largely based on the analysis of statistical data, rationalisation theories about the economic development, and assumptions about the cognitive consequences of literacy learning.

A human capital theory of literacy was challenged by critiques of capitalism, economic development and colonialism, which included associated models of education under these systems (Frank, 1967; Freire and Macedo, 2005; Illich, 1971). Frank (1967) challenged traditional economic analysis and theory, arguing that international development efforts to-date and the effects of colonialism had rendered many societies dependent on wealthier countries. Frank contended that Chile and Brazil were not poor and underdeveloped because of a lack of literacy or education, but because of historical and continuing dependency. Underdevelopment in Latin America, Frank argued, was the direct result of capitalist development, whose origins dated to colonisation. Illich's (1971) critique of the education system, both in the United States and around the world, argued that such a system services the capitalist economy and cannot promote learning or justice because of its commodification. His central thesis was the de-institutionalisation of education and learning by breaking up the monopoly of schooling. Freire and Macedo (2005) advocated and understood literacy as a weapon for social change, with which people can transform the world around them. They conceptualised a notion of critical literacy, which is socially constructed and ideologically grounded in understanding the political nature of non-literacy.

More recently, postcolonial theory has sought to understand how the creation of education systems during colonialism in countries such as Ghana has endured in its discursive power and knowledge culturally, politically, socially, and economically (Abu-Shomar, 2013; Edu-Buandoh, 2016). Abu-Shomar (2013, p.266) argued that the "residues" of colonial education systems are tangible and continue to effect postcolonial systems around the world. A postcolonial lens brings into relief the construction of literacy as a colonial product, the effects for which are still apparent in both education systems and local communities around the world. Edu-Buandoh (2016) argued the ability to read and write English in Ghana has become a measure of literacy and part of the construction of self-representation and

identify, which is situated in the postcolonial condition. Furthermore, research has found that students can be punished for speaking a Ghanaian language rather than English in school (Edu-Buandoh and Otchere, 2012), and most school textbooks are written and published in English (Opoku-Amankwa, Edu-Buandoh and Brew-Hammond, 2015). However, this does not necessarily explain or demonstrate how this construction of literacy was achieved globally and translated locally across different contexts in Ghana.

In the context of declining funding and provision of social services, particularly education, in developing countries (Lewin, 1993; Noss, 1991), international development institutions announced, "basic education must be protected through overt measures" (Inter-Agency Commission, 1990, p. 4). Formal schools, particularly primary schools, were positioned as the site for literacy and numeracy learning. The trend of conflating schooling with literacy reached its zenith as reporting on literacy inextricably linked the phenomenon of being out-of-school with being non-literate. Indeed, children were not considered non-literate, but rather out-of-school (which would lead to a future state of being non-literate as an adult). "The more than 105 million children who are not in school mean adult illiteracy will remain a common problem into the next century" (Inter-Agency Commission, 1990 p. 4). The conflation of children's literacy and schooling is grounded in the economic and cognitive consequences thesis of literacy. Although it has been challenged through expanded theorisation of literacy and language, the school as the site for literacy is dominant (Cremin et al., 2015). The literacy and educational experiences of out-of-school children have been disregarded, except insofar as they were out-of-school, and a recognition that this is their state. Primary school has been positioned as the de facto place to learn literacy and therefore, the place for children to accrue the positive cognitive and economic consequences established by the research literature.

2.3 Ethnography of literacy practice in out-of-school contexts

The theorisastion of literacy as a singular set of skills to decode and comprehend print text in school contexts is enduring, reinforced by the continuation of a cognitive and economic consequences thesis. It has been challenged by a social consequences thesis of literacy practice, which has been defined by methodological approaches and out-of-school contexts. In particular, ethnographic accounts often looked to out-of-school contexts to identify and explore the social practice of literacy (Heath, 1983; Scribner and Cole, 1978; Street, 1984;

Szwed, 1981;). The findings of these influential accounts demonstrated that literacy practice is embedded within social, economic, cultural, and political contexts, which were hypothesised to effect the development, value, and learning of literacy. This research advanced the theorisation of literacy beyond positivist paradigms, and expanded the methodological approaches used to study literacy to ask how children and adults negotiate literacy in their everyday worlds in out-of-school contexts.

Ethnographic accounts of literacy as a social practice were influenced by the ethnographic studies of communication (Sapir, 1929; Hymes, 1964) and critical literacy theory (Freire, 1971). Hymes (1964, 1972, 1977, 1980) established an enduring tradition of utilising ethnographic methods to study communication in social contexts. The broader context of this establishment was a paradigm shift, which sought to recognise and understand how social relations affect human behaviour, history, and everyday life. The formal study of language established by early linguistics was methodologically and theoretically unable to account for the world/s in which language/s were situated. Proponents of a singular reality, which can be classified and catalogued, disconnect language from context.

Hymes' (1964) ethnography of communication secured a paradigm shift that challenged existing frameworks and built on constructivist paradigms for understanding language and literacy. Hymes broadened the scope of language inquiry through a methodological and theoretical framework to study language in use that recalled Whitney's notion of language as a social institution (1880). Hymes advocated research embrace a methodological turn toward ethnography. This approach rejected essentialist and positivistic accounts of the world out there, which emphasised materials and entities to be classified, catalogued, and studied. Two characteristics defined the ethnography of communication, which continue to underpin contemporary language and literacy research. The first is epistemological in nature, in which Hymes argued for the "need for fresh kinds of data … to investigate directly the use of language in contexts of situations" (1964, p. 3). Ethnographic methods were positioned as being able to produce this data, in which the adult researcher observes and documents practices. The second is the scope of inquiry, which must take for its context a community and investigate the communicative habits of the community as a whole. Communication was situated in social relations and contexts, which should be explored together in relation to "communicative events and patterns" (p. 3).

In order to understand the everyday worlds of people, ethnographic researchers adopted Hymes' framework to challenge the dominant conceptualisation of literacy, which had become entwined with notions of human capital, classification, and formal schooling. Ethnographic accounts sought out out-of-school or non-school contexts to explore the situated-ness of literacy in relation to activities and patterns (Basso, 1974; Szwed, 1981). Although debates continued to occur around the definition of literacy and its cognitive consequences, Hymes's framework challenged researchers to critically inquiry about the nature of literacy itself, what counts as literacy, and where literacy develops. Szwed argued, "we do not fully know what literacy is" (1981, p. 14) and created an agenda that influenced the direction of ethnographic accounts of literacy that challenged the economic consequences thesis.

Szwed's agenda included exploring the varieties, context, and roles of reading and writing available in society, their interpretation, and assessment. He expected ethnographic accounts to reveal "a variety of *configurations* of literacy, a *plurality of literacies*" (1981 p. 16). A shift in literacy research towards out-of-school contexts challenged the singular, school-based notions of literacy established by historical and positivist accounts, which influenced global policy frameworks. Szwed's agenda has been highly influential in the study of literacy as a social practice, not only theoretically, but also methodologically in the value placed on ethnography to reveal practice. Literacy researchers positioned ethnographic approaches as being able to identify these configurations and pluralities through the direct observation and study of communities (Heath, 1980; Scribner and Cole, 1978).

Scribner and Cole (1978, 1981) combined anthropological fieldwork with experimental psychological methods to study out-of-school literacy practice in Liberia in response to the perceived lack of empirical evidence in previous studies (Goody and Watt, 1963; Havelock, 1963). Previous psychological and cognitive studies assumed that the consequences of literacy would be the same "in all cultures irrespective of the contexts of use or of the social institutions in which literacy is embedded" (Scribner and Cole, 1978, p. 452). Scribner and Cole's study revealed the different literacy activities performed by the Vai in Liberia and introduced the term 'practice' to conceptualise literacy activities. Practice was defined as a "recurrent, goal-directed sequence of activities using a particular technology and particular systems of knowledge" (1981, p. 236).

Heath (1980, 1982, 1983) used ethnographic methods to study the out-of-school and school literacy practice of three communities in North Carolina. Her study introduced the concept of literacy 'events', which were ways of taking meaning from reading and written sources across communities (1982, p. 50). Literacy events were regulated and shaped by social norms, rules, and relations in interactions between people. These social norms, rules, and relations, in particular, shaped the literacy events of children, who were differentially prepared for the expectations of schooling depending on social context. "Each community has rules for socially interacting and sharing knowledge in literacy events" (p. 50). These differences were not located within cognitive differences, but social contexts and relations. Heath's analysis is framed in terms of exploring types and features of literacy events. Her research illustrated Szwed's (1981) hypothesis that literacy has a variety of configurations for community members from different groups, and that it was acquired, functioned, and used in a variety of ways.

Ethnographic approaches set the foundation for the research of literacy as a social practice, establishing key heuristic concepts such as literacy *events* and literacy *practice*. Fundamental to their approaches was a focus on out-of-school contexts and exploring the relations between these and school contexts. Although enduring, the concepts of literacy events and literacy practice are epistemically bounded in the methodological approaches employed which favoured researcher observation (Heath, 1982) and/or experimental methods (Scribner and Cole, 1981).

2.3.1 New Literacy Studies

Gee (1990) first referred to "New Literacy Studies", marking a somewhat artificial shift in the study of literacy, but which acknowledged the influence of sociocultural approaches, emerging contexts for research, and a departure from the autonomous model (Street, 1984). Willinsky (1990) referred to the "New Literacy" as a challenge to rethink the teaching and learning of literacy in schools. To better understand and reveal non-school literacy practice, New Literacy Studies (NLS) investigated out-of-school contexts almost exclusively, positioning an appreciation of non-school literacy practice as distinct (Hull and Schultz, 2001). And, that these contexts are best for revealing and understanding the social, cultural, political patterning of literacy away from the noise of schools.

NLS research decoupled literacy from schooling, prefiguring schools, particularly formal schools, as sites for the reproduction of inequalities, class, and power relations. To define out-of-school literacy practice, researchers conceptualised a number of different and dichotomous terms to describe the practice observed. These include everyday, local, alternative, hidden, vernacular, and ordinary (Barton, 2001; Prinsloo and Breier, 1996). However, the NLS demarcation between school and out-of-school contexts only reveals certain configurations, and does not account for different models of non-formal schooling such as CBE, which perhaps create relations between local and global contexts and require new methodologies to redress power relations between researcher and researched.

Similar to Hymes' (1964) insistence on investigating communication within social contexts, Street (1984) advocated for the investigation of literacy in out-of-school contexts. Although Street encountered school-based literacies in his ethnographic accounts, he chose to focus on out-of-school contexts. The ideological model called for focus on the social practice of reading and writing in out-of-school contexts, and emphasised the process of socialisation in literacy meaning-making (Heath, 1982, 1983). This was in contrast to the autonomous model of literacy, which claimed to be able to study the consequences of literacy as an independent variable embedded in school-based contexts. Street empirically demonstrated, using ethnographic methods, the existence and maintenance of literacies in contexts other than mainstream education institutions.

NLS research contributed to Street's original framework and methodology, establishing researcher-centred ethnographic approaches as orthodox in the study of local literacy practice. Barton (1991) documented literacy practice in locally situated contexts, extending Street's framework to demonstrate how other social institutions, such as the family and communities, adjust literacy practice. Barton and Hamilton (2000) further advocated for the documentation of local literacy practice using literacy events and practices as units of analysis, which is different from Brandt and Clinton's (2002) literacy-in-action unit. Local literacy practice is positioned to be non-dominant, historically situated, regulated by social institutions and power relationships. Prinsloo and Breier (1996) documented and described the everyday uses of literacy by children and adults in a range of contexts in South Africa, demonstrating what those considered as 'non-literate' can accomplish with their literacy practice.

NLS research advanced the theorisation of literacy beyond the autonomous model, revealing and documenting literacy events and practices across institutions, places, and contexts. It demonstrated the efficacy of ethnographic approaches to understand how people use literacy in their everyday worlds across different contexts. However, NLS research approaches could only advance understandings of practice so far, as they were grounded in written texts and bounded contexts, and relied on ethnographic case studies that were dependent methodologically on researcher observation.

2.3.2 New Literacy Studies in international development contexts

International development research and policy maintains positivist orientations to understanding literacy framed within human rights discourse, cognitive consequences, and formal schooling. The increasing global attention to universal primary education has drawn interest from literacy researchers, who draw on traditional NLS methods and concepts to challenge assumptions of the relationship between literacy, education, and international development (Basu, Maddox and Robinson-Pant, 2008; Rogers and Street, 2011). Interdisciplinary approaches have been used to explore global literacy policy and education (Papen, 2004, 2005), capabilities (Maddox, 2008) adult literacy practices (Bartlett, 2008; Juffermans, 2011; Robinson-Pant, 2000, 2008) and discourses (Dyer, 2008).

In particular, researchers have used the NLS framework to challenge autonomous concepts of literacy established in multilateral policy contexts such as UNESCO and expressed in global policy goals such as universal primary education (Rogers and Street, 2011). These accounts highlight the intersection of identities, histories, schooling, and materiality across different contexts as children and adults negotiate their literacy through formal and non-formal education. The focus of these accounts is often on the literacy practice of adults and young people and not children.

Dyer (2008) examined how literacy was linked to communities' perceptions of development in Kutch, India. Discourses of education and development in Rabari communities suggested that formal schooling was seen as an important adaptation strategy. Her research revealed that schools provided families with literacy skills and different ways of making meaning in their everyday worlds. Juffermans (2011) focused on a single person's use of texts in The Gambia, and how access to formal, non-formal, and informal education shapes writing resources for this individual. He theorised that individual literacy events leave durable

traces or “literacy products” (p.465) and that the study of these products can provide access into people’s literacy practice.

Papen (2004, 2005) explored adult literacy programs and adults’ perspectives of literacy in Namibia and South Africa. The learning of English was often conflated with schooling by adults, and situated historically, economically, and socially as the “language of power” (2005, p. 11). Bartlett (2008), drawing on NLS and critical literacy, provided an ethnographic account of young people and adults’ literacy mediation in Brazil. She argued that literacy involves active and flexible identity work, and that these identities are performed with cultural artefacts on both levels. “People use objectifications of social identities – e.g., images, narratives, labels, or memories of past events – to manage their own feelings and actions on a broad scale” (2008 pp. 55-6).

These ethnographic accounts have explored literacy practice between school and out-of-school contexts, and illustrated the practices of young people and adults who would otherwise be dismissed as literacy failures. In particular, turning the lens of NLS to postcolonial and international development contexts revealed tensions between globally dominant discourses and local versions of literacy. These ethnographic accounts, whilst beginning to explore the materiality of literacy through the notion of “literacy products” (Juffermans, 2011) and “objectifications” (Bartlett, 2008), are limited methodologically in being able to theorise and explain the role of materiality. In addition, children as subjects of this research remain passive under the observation of the ethnographer or not included at all.

2.4 Mediation of literacy through non-state education provision

The theorisation of literacy is largely built on the assumption that literacy practice is an activity bound within formal schools (Cremin et al., 2015). This has been challenged by NLS research and through the exploration of the provision of non-formal education for adults (Brock-Utne, 2018; Rogers, 2014), and adults’ pedagogical experiences and perspectives (Sichula and Genis, 2019; Vega and Bajaj, 2016). Non-formal education provision has strong historical foundations (Coombs and Ahmed, 1974), and is growing in many countries seeking to achieve universal primary schooling particularly through the concept and implementation of Complementary Basic Education (DeStefano and Moore, 2010; Jere, 2012). Studies of

non-formal education have identified out-of-school sites of literacy practice, advancing the theorisation of literacy that is fluid in terms of where it is situated and practised. This research is situated within international development and education, and largely continues to conceptualise literacy within a consequences thesis.

There are new opportunities to examine out-of-school children's literacy practice to extend theory and to better understand how to support children's literacy development. The provision for access to formal schooling for out-of-school children has been developed and expanded across many countries. Complementary Basic Education (CBE) is an approach in international development contexts created to support out-of-school children's access to literacy and formal schooling. CBE is seemingly the instantiation of the confluence of local and global contexts, in which out-of-school children are enrolled in a mother tongue-based education program for a short period of time. However, to-date, the examination of how out-of-school children experience these programs and their literacy learning has not been adequately researched (Malcolm, 2009; Mfum-Mensah, 2011).

The study of non-formal education, and non-formal education provision as a site of literacy practice for out-of-school children, is limited and has focused effort on issues of conceptualisation, classification, and characterisation (Miller-Grandvaux and Yoder, 2002; Rogers, 2004; Hoppers, 2005, 2006; Rose, 2009; Longden, 2013; Jere, 2012). Miller-Grandvaux and Yoder (2002) found a large portion of the research on non-formal education provision is conducted by non-government organisations or international institutions, which were interested in understanding issues related to education access, attainment, and achievement. Rogers (2004) problematised the discourse of non-formal education, challenging the boundary and dichotomy created between formal and non-formal education in international development contexts and commented on the lack of new research directions in this space. Hoppers (2005, 2006) and Longden (2013) have sought to better understand the characteristics of non-formal education programs, prioritising the classification, sorting, and conceptualisation of programs.

More recently, non-formal education has come to be conceptualised as a site of adult lifelong learning and research has sought to move beyond economic rationalisation to explore pedagogical issues and perspectives of teachers and learners in these programs in different educational contexts (Sichula and Genis, 2019; Vega and Bajaj, 2016). Sichula and

Genis (2019) examined teachers' pedagogical practices in two adult literacy programs in Zambia and the attainment of adult learners. The findings suggest the choice of pedagogical approach was influenced by the perception that the adult learners were non-literate, and that they would have achieved more learning gains through different approaches. However, because of the deficit perception of learners, the teachers believed their role was to eliminate non-literacy rather than meet learning needs. Vega and Bajaj (2016) explored teachers' and students' pedagogical experiences and perspectives of non-formal education in Colombia, examining how conflict settings affect the design and delivery of education provision and the guarantee to the right to education. The research shows the importance of how different instances of context, including historical, affect education provision and learners' access and participation in different sites of education. It also shows that accessing participants' perspectives of non-formal education highlights pedagogical similarities between the non-formal provision and the formal provision of education as perceived by the learners. This builds on Rogers' (2014) contention that non-formal, formal, and informal education provision are on a continuum and not necessarily separated and bounded by the institutions in which they take place. This also challenges the dichotomies traditionally created by NLS between school and out-of-school contexts of literacy practice, suggesting the need for a more fluid and dynamic framework in which to situate practice.

2.4.1 The provision of literacy through Complementary Basic Education

Complementary Basic Education (CBE) is a reconceptualisation of non-formal education provision, particularly community schools in Africa, as a development strategy for achieving Education For All (Miller-Grandvaux and Yoder, 2002). Ilon and Kyeyune (2002) used the term CBE to describe non-state primary education provision in Uganda. Balwanz, Moore and DeStefano (2006, p. 9) stated unequivocally that CBE "models are not non formal education" nor are they alternative primary education. CBE is also distinct from complementary schooling as community language programs, which have been studied in other contexts such as the United Kingdom and Norway (Hornberger, 2005; Özerk, Zulfiqar and Tan, 2002; Li, 2006; Creese, Bhatt, Bhojani and Martin, 2006; Robertson, 2006; Creese and Martin, 2006).

The research literature on CBE is patchwork, with grey literature and reports focusing on program effectiveness and implementation, and literature on policy implications and some

case studies. In particular, there is a clear lack of research on CBE students' literacy learning and practice. It is generally agreed that CBE programs target out-of-school children, either those who have dropped out or never attended (Dennis and Fentiman, 2007; Longden, 2013). Some studies have taken a case study approach to examine the institutional arrangements of CBE programs and to identify the characteristics of different programs in order to classify and catalogue them (DeStefano and Moore, 2010; Ilon and Kyeyune, 2002; Longden, 2013). Longden (2013 p.4) described CBE as an accelerated learning program, which provides an "alternative route" to primary schooling by using a parallel curriculum, which enables children to transition to formal schooling.

The conceptualisation of CBE as a transitory space connected to formal schooling is enduring, and representative of the Education for All policy agenda (Jere, 2012; Nath, 2000). Malcolm (2009) accessed the education experiences of ten 12–20 year-old Malawian CBE students with a focus on understanding the transition from CBE to formal schooling. Malcolm found that students have a degree of agency within the Malawian CBE program, and that there are a range of complex and interrelated factors that determine whether a CBE student transitions to formal schooling. This study reinforces the conceputalisation of CBE as a transitory space connected to formal schooling found in the grey literature, and is one of the few studies to explore CBE learners' experiences and perspectives.

There are a number of CBE programs in Ghana, where the relationship between government and non-government provision of education services has been institutionalised through the creation of the Complementary Basic Education Policy Framework (Ministry of Education, 2013). However, there is very little empirical research of out-of-school children's experiences of CBE and their literacy practice (Casely-Hayford and Hartwell, 2010; DeStefano and Moore, 2010; Mfum-Mensah, 2011). DeStefano and Moore (2010) examined and discussed ten case studies of CBE programs from around the world, including in Ghana, classifying and cataloguing the common characteristics of non-government education service provision. In the Ghanaian context, Mfum-Mensah (2011) examined a case study of School for Life's collaboration with different government and community stakeholders, and revealed the differences between stakeholders in their perspectives of education and CBE. Accessing perspectives of CBE illustrates different ways of understanding aspects of education provision, including concepts of achievement and attainment. Mfum-Mensah

found that the community had different perspectives of achievement compared to service providers, although it is not clear who represented the community perspectives and learners did not appear to be included.

Other literature predominantly comprises grey literature, including policy briefs and organisational reports, which sought to document the characteristics, and advocate the effectiveness of, CBE programs in countries such as Ghana (Arkorful, 2010; CARE, 2003; Farrell and Hartwell, 2008; UNICEF, 2007). Casely-Hayford and Hartwell (2010) reported on the impact evaluation Casely-Hayford was the lead evaluator on and which was first published in 2007 (School for Life, 2007). There is little debate on the effectiveness of the teaching and learning in CBE programs, and few studies seeking to access the perspectives of children enrolled in these programs and understand their literacy practice. However, this issue of the lack of empirical evidence and research has been noted in policy discussions. Longden concluded that the data on CBE programs is not always robust "and definitive data on learning is often missing" (2013, p. 9). Jere (2012) also noted the lack of evidence and research into CBE students' learning. Rose (2009), in a study exploring the non-state provision of basic education in four countries including Ghana, called for further critical and systematic analysis of the outcomes and implications of these programs. CBE programs in countries such as Ghana have increasingly been implemented as alternative primary education for out-of-school children. However, there is little understanding of the literacy practice, learning, or development of out-of-school children in these programs.

The research literature on CBE as a site of literacy practice is nascent, and reveals the growth of this form of literacy provision at scale in countries such as Ghana. Studies reveal the extent to which this form of education is perceived as a legitimate, but temporary alternative to formal schooling for out-of-school children. CBE is conceptualised as transitory, as a pathway for out-of-school children into formal schooling, even though it is also indicative of the failure of government education systems to provide equitable access for all children in many countries. The research takes us as far as the doorstep of CBE. This study seeks to open the door to understanding CBE from the perspective of those out-of-school children attending, using methodologies that allow access to their perspectives.

2.5 Perspectives between school and out-of-school literacies

Although Szwed (1981) hypothesised that ethnographic approaches to the study of literacy can reveal a plurality of literacies, NLS and socio-cultural approaches created arbitrary boundaries between school and out-of-school contexts, in which the school as a site was sealed off from the rest of children's everyday lives and assumed contexts out-of-school could be studied in situ to reveal local, everyday practice free from a cognitive and economic consequence paradigm underwriting children's literacy learning (Hull and Schultz, 2001). NLS challenged the durable notion of a singular schooled literacy, however, local out-of-school contexts were valorised through the mediation of ethnographic data. In measuring everyday practices, ethnographic accounts sealed-off local contexts in much the same way as school contexts were sealed-off as the primary sites for literacy learning (Brandt and Clinton, 2002; Luke, 2004; Schultz and Hull, 2008). Out-of-school contexts were treated as free from the autonomous model that was posited to govern school-based practice, to the point of being perceived as more significant and representative of reality of people's everyday lives.

Researchers have continued to explore and understand connections between different sites of children's literacy practice, particularly between school and out-of-school contexts (Cummings, McLaughlin and Finch, 2018; Sibanda and Kajee, 2019; Subero, Vujasinović and Esteban-Guitart, 2016). This research builds on a growing consensus for understanding education along a continuum, and a theoretical framework that does not demarcate between school and out-of-school contexts (Rogers, 2014; Subero, Vujasinović and Esteban-Guitart, 2016). Subero et al. (2016) located this need within globalisation and rapid technological advancement, calling on the funds of knowledge concept to consider pedagogical strategies for leveraging learning across school and out-of-school contexts. This concept seeks to include a range of identity and knowledge artefacts that have meaning for children in their learning, including photographs, and moves beyond print text-based understandings of literacy practice.

Cummings et al. (2018) employed surveys and interviews to access children's perspectives of different literacy activities, including across different media, modes of representation, and contexts. This research acknowledges the role of technology, and seeks to access children's perspectives of literacy practice in order to inform pedagogical issues and

practices in the classroom. Sibanda and Kajee's (2019) case study in South Africa conceptualised children's home as the predominant context for literacy practice within early childhood education, drawing on NLS and continuing the work of Heath to explore the relationship between school and out-of-school contexts for young children. They found that despite the research literature documenting this relationship, educators are generally unaware of children's out-of-school literacy practice despite the potential benefits to learning and teaching in school classrooms.

The primacy of social relations in understanding events and practice overlooked the materiality of literacy, the things people use to participate in and create literacy events and practice. Literacy theorisation has built upon NLS with new directions that seek to understand fluidness across contexts, how literacy is affected by globalisation and technological change, and what role materiality plays in shaping practice. There has been increasing acknowledgement of the unclear demarcations between local and global contexts and the challenge in attempting to understand complex phenomena. This has also led to debates about the utilisation and impact of NLS on the teaching and learning of literacy (Brandt and Clinton, 2002; Luke, 2004).

Whilst NLS researchers have revealed out-of-school contexts as sites of complex and socially situated literacy practice, proponents seeking to better understand literacy beyond the local have demanded literacy theory development in the context of increasingly complex phenomena, defined particularly by rapid technological change, emerging modes of representation, and globalisation (Gee, 2012; Kress and van Leeuwen, 1996; New London Group, 1996; Spencer, Knobel and Lankshear, 2013). The theorisation of the materiality of literacy emerged from the development of, and continues to be intertwined with, multiliteracies and multi-modality (Vieira, 2016). This research has built on the principles of NLS and sought to show how people's everyday lives are surrounded by a multitude of media, materials, and modes of meaning making, which are increasingly interconnected and made available across contexts.

2.5.1 Accessing multiliteracies across texts

The study of literacy across contexts, and across different media and modes, has engendered debates on appropriate theoretical orientations and frameworks through which to study practice. In the development of literacy theory, dichotomies have tended to be

generated, whether they are literate/non-literate, local/global or school/out-of-school. In the context of globalisation, literacy researchers have attempted to transcend these dichotomies to find connections, patterns, and linkages between sites, modes, and practice (Kress and van Leeuwan, 1996; New London Group, 1996). To explore children's perspectives requires not only approaches to the study of literacy that acknowledge the plurality of literacies and of their everyday worlds (Hymes, 1980), but also methods to access those perspectives.

A number of frameworks, building on the foundations of NLS, have influenced approaches to the study of the plurality of literacies. Gee (1990) introduced a framework on discourses that attempted to bridge the dichotomy between language and literacy through applied linguistics. Discourses were defined as actions or performances, which embodied a range of communicative modes including words, thoughts, gestures, values, and things. The New London Group (1996) introduced the concept of multiliteracies (New London Group, 1996) as a framework for understanding literacies across different contexts and media. It was informed by critical literacy and pedagogies of literacy after Freire and Macedo (2005), discourses (Gee, 1990), and NLS. Multiliteracies positioned knowledge as embedded in cultural, linguistic, and material contexts, and focused on modes of representation (New London Group, 1996). In particular, it was concerned with designing responsive curricula, a perceived shortcoming of ethnographic approaches to literacy research (Cope and Kalantzis, 2000, 2009; Jewitt, 2008).

Within this framework, literacy is the consequence of being able to make meaning using all available forms of media and materials, in multilingual contexts, and through different communication channels. It is a framework that offers a bridge between school and out-of-school experiences and has been articulated within pedagogical models (Jewitt, 2008). Literacy researchers have shifted the NLS concern with out-of-school contexts back into the classroom to better inform pedagogy, curriculum, and assessment in non-Western contexts (Dixon, Place and Kholowa, 2008; Prinsloo and Stein 2004; Stein and Newfield, 2003; Stein and Mamabolo, 2005). In southern African contexts, these approaches have been applied, highlighting the use of hybrid theoretical and methodologies approaches, incorporating both NLS and multiliteracies, to the study of children's literacy practices across school and

out-of-school contexts. The studies predominantly focused on the role of teachers and are concerned with print alphabetic text in the children's literacy practice.

Prinsloo and Stein (2004) examined South African students' early encounters with school literacy using a hybrid theoretical framework that weaved together emergent literacy behaviour, NLS, and multiliteracies. They used the situation as a unit of analysis, rather than literacy events or activities, and examined four school situations. Prinsloo and Stein were concerned with identifying the cultural resources acquired by children, and what the limiting effects are on children's emergent literacy. They identified the role of the teacher, and the teacher's understanding of literacy and literacy teaching as having far reaching implications for children's identities as readers and writers.

Dixon, Place and Kholowa (2008) undertook multiple comparative case studies in four preschools across rural Malawi and South Africa. The researchers used mixed methods including interviews, observation, and questionnaires with a range of participants marking a departure from the ethnographic approaches usually associated with studies that continue in the tradition of NLS. They also produced and analysed photographs as observational data from the research sites, utilising Hamilton's (2000) analytical framework for visual analysis. The study highlighted the tension between in school and out-of-school literacy practice, particularly the devaluing of orality at preschools. They also identified similar pedagogical practice as Prinsloo and Stein (2004) in the teaching and learning of the alphabet, with the teachers relying on rote learning without mediation of meaning. The authors concluded that teachers and pedagogy play a pivotal role in bridging the literacy gap between home and school contexts by challenging "their assumptions about what counts as learning in schools" (p. 19).

Although multiliteracies created a shift towards a renewed focus on pedagogy, and expanded NLS preoccupations with local contexts, it did not sufficiently account for modes of representation beyond print text or from the perspectives of children. Increasingly globalised societies encompass diverse cultural, linguistic, and textual contexts, and the development of digital technologies has created a proliferation of new texts, modes, and materials. Literacy pedagogy in this movement is situated as design for social futures across work places, personal lives, and civic engagement, and the extent to which learners'

experiences are accessed is limited and the renewed focus on classroom practice overlooks children who are out-of-school.

2.5.2 Accessing multimodalities

The study of literacy as social practice largely assumed that literacy events and practices were mediated by print texts, and relied on orthodox ethnographic approaches to access and reveal those events and practices. In the literature, literacy has been generally conceived embodied in alphabetic letters of text. The semiotic, materiality, and multimodality of texts and representation has been relatively ignored in not only autonomous models of literacy, but also in research documenting everyday literacy practice (Kress, 2005; Kress and van Leeuwen, 1996; Pahl and Rowsell, 2006; Perry 2012; van Enk, Dagenais and Toohey, 2005). Kress and van Leeuwen's (1996) advocacy and theorisation of multimodality added new dimensions to literacy inquiries, which built upon semiotics (Barthes, 1964; de Saussure, 1975). Reading, writing, and language are positioned to be just three modes available to make meaning from a varied communicative system that include gesture, verbal, digital, graphic, and artistic.

Similar to multiliteracies, studies utilising multimodality shifted the sites for accounts of literacy back into school contexts, and also between the school and out-of-school contexts (Jewitt, 2008; Leander, 2001; Luke, 2004; Marsh, 2003; Pyo, 2016). Marsh (2003) examined the home literacy of three and four year-old children attending pre-schooling in a community in northern England. She documented the range of print and multimodal texts available in the family's homes, both everyday and cultural texts. Marsh compared those practices listed through interviews at the pre-school with the inventory, observation, and interview evidence from the family's home, attempting to audit the curriculum. The study observed the rich and varied multimodal texts available to children at home, which were not reflected in the practices at school, further highlighting the dichotomy between school and out-of-school practices despite the literature documenting out-of-school practices. Leander's (2001) ethnographic study of a school-based trip from Illinois to Memphis in the United States examined school-related discourses as students travelled across different contexts and spaces. He suggested that static and singular concepts of space and time are limiting, as pedagogical discourses observed on the bus produced and hybridised space–time contexts. This suggests that bridging the school to out-of-school divide observed in

much of the research literature is complex, and linear notions of space and time implicit in literacy theory may be inadequate to understanding how literacy travels across contexts.

The attempts to bridge and explore multimodal literacy practices (and multiliteracies) across school and out-of-school contexts has led to an increased focus of literacy as a social practice on pedagogy and curriculum development and issues. This framework has also been employed to challenge deficit models applied to particular groups of learners in school contexts, including disadvantaged groups. Pyo's (2016) case study of the multiliteracies experiences of an adolescent Korean English language learner in the United States uses a pedagogical model to facilitate engagement with multimodal texts. Pyo explored different multimodal objects within the classroom with students, documenting repertoires of literacy practice that included images, sound and texts, showing the complex ways in which students drew on their repertoires. It challenges deficit models associated with English language learners, and highlights the challenges and benefits of integrating culturally relevant pedagogical models for literacy. Papen and Tusting (2019) extended on this approach to explore the integration of culturally relevant pedagogy and everyday literacies to English literacy teaching and learning for young deaf adults in India. Ethnography is explicitly positioned as a mode available to support literacy curriculum development, and the NLS framework informs the documentation and use of adults' practices. However, the researchers reconceptualised their approach using multiliteracies and multimodalities to take account of digital communicative modes and channels used by young deaf adults such as WhatsApp. This research counters deficit models applied to disadvantaged groups of learners, and recognises an expanded communicative field in which literacy practice occurs and is integrated into classroom contexts.

Literacy research is increasingly considering the role and nature digital communication. However, the aforementioned frameworks are based on static print and visual modes of meaning making, which assume static time and space concepts, such as bounded contexts (Leander, 2001). Although the theorisation of literacy as a social practice has developed to position it as ways in which children and adults' understand and make meaning using available media, modes of representation, and communication channels available, the motivation is decreasingly less about ideological and increasingly more about pedagogical issues. Multimodality's implications for approaches to the study of literacy were both

epistemic and methodological. It questions fundamental assumptions about practice, and particularly about what counts as literacy, where events and practices are found (and how they can be observed), and reframed literacy within a broader communicative system. Whereas NLS has revealed local contexts for understanding texts and practices, multimodality suggests a range of communicative devices and modes available to children and young people to make meaning in both school and out-of-school contexts (Pahl and Rowsell, 2006).

2.5.3 Accessing materiality

Studies of literacy as part of a broader set of communicative modes and technological devices have refocused consideration on the materiality of literacy (Brandt and Clinton, 2002; Latour, 1986; van Enk et al., 2005). Literacy is increasingly theorised as much more than cognitive, economic, or social accomplishments, but as the construction of knowledge that calls on a broad range of devices, meanings, and relations across contexts both physical and digital (Jewitt, 2008). Therefore, access to children and adults' perspectives of literacy requires the consideration of complex theories of both social and material practice. Recent research has reconsidered the role of materials and matter in literacy practice, building on the conceptual foundations of NLS, multiliteracies, and multimodalities (Vieira, 2016).

The study of the materiality of literacy is representative of broader theoretical and paradigm shifts across research disciplines and sites, as materiality experiences a reimagining (Barad, 2003; Coole and Frost, 2010; Fowler and Harris, 2015). More broadly, researchers are applying post-structural and post-humanist approaches to exploring issues in education in the context of rapidly changing technologies and their use in everyday lives. These approaches offer fundamentally different conceptualisations of literacy practice situated in complexity, matter, and body.

These different approaches consider materials to different degrees and include actor-network theory (Fenwick and Edwards, 2010), affective literacies (Hickey-Moody and Haworth, 2009), literacy performances (Leander and Rowe, 2006) and multiple literacy theory (Masny, 2006; Masny and Waterhouse, 2011). The matter of literacy has always been there in practices and the study of practices, in the form of materials, products, and things that people use and interact with to do literacy. Although literacy as social practice, particularly NLS, has largely dematerialised literacy and the literacy practice of children,

researchers are building on NLS and multimodality to consider literacy's materiality in out-of-school contexts (Pahl, 2014; Vieira, 2016).

Considerations of the materiality of literacy can un-situate literacy events and practices, reimagine the materiality of literacy, and bridge the dichotomy between people and things. Brandt and Clinton (2002) proposed literacy-in-action as a stand in for the literacy event in analysing practice. In this unit, meaning can be traced across objects, places, and contexts and not only situated within human agents. van Enk et al. (2005) reinforced a focus on the materiality of literacy, in the context of further understanding the relation between school and out-of-school contexts in regard to how literacy travels, integrates, and endures across these spaces. Burnett, Merchant, Pahl and Rowsell (2014) further conceptualised the re-emergence of materiality in literacy theorisation, proposing that literacy can be materialised in things. They also advocated for the need to understand the intersection of the global and local, and "seeing the ways in which the broader patterning of practices, shifting power relations and so on are inscribed or become manifest in specific situations" (p. 101). The theorisation of the materiality of literacy reconsiders the concept of everyday literacy practice, where it is located, and how it can be accessed not just by children and adults, but also by researchers.

Research has explored the materialisation of literacy in things, expanding the theoretical boundaries of out-of-school literacy, the implications for which are found to one extent in how these practices are accessed. Vieira (2016) built on Brandt and Clinton's (2002) framework to access the materiality of Brazilian migrants' literacy practice through tracking communication between families across digital and physical contexts. The study highlights how objects and things, in particular writing remittances, become imbued with emotional and economic usage and memory amongst transnational families. Hass, Takayoshi, Carr, Hudson and Pollock (2011) also pushed the boundaries between school and out-of-school contexts to study the everyday literacy practice of young people using instant messaging. Rather than focusing on the social practice of literacy, the researchers studied the language features of instant messaging as mediated by technologies and "let the language of participants speak to us" (p.399). The writing practices revealed through accessing young people's language usage as materialised in digital text has pedagogic implications for how

these experiences are translated into school contexts and how research seeks to understand children and young people's everyday worlds.

The theorisation of literacy's materiality is still emerging, and relies to an extent on semiotic concepts and notions of knowledge construction. Although research on the materiality of literacy builds on well-established frameworks and theories of literacy as a social practice, the theorisation of materiality in other disciplines is instructive in offering new concepts with which to access perspectives and understandings. In particular, the notions of intermateriality, intramateriality, and transmateriality are perhaps of significance in the theorisation of literacy's materiality and have been considered within ethnography, linguistics, archaeology, digital media, and computation (Bocancea, 2010; Kirschenbaum, 2008; Munster, 2014).

Both intermateriality and intramateriality are terms that are relatively recent, and have been used to extend semiotic analyses and perspectives of communicative and play activities but not necessarily literacy (Bocancea, 2010; Nakassis, 2013; Smith, 2016). In a short blog post, Bocancea (2010) claimed to have coined the terms intermateriality and intramateriality in relation to an archaeological discussion about Neolithic figurines. She defined intramateriality as a reference to objects within the same category of material or medium, and intermateriality as a reference to objects across or between materials or media. Intermateriality represents meanings created between actors, both material and immaterial, but also between materials/objects. Intramateriality represents meanings created and relations between objects/materials in the same category.

A few studies have explored and tested these concepts in application both in physical and digital everyday worlds. Smith (2016) studied Southern Peruvian boys playing marbles, adopting a material semiotic approach to understand socialisation and communication actions during play. He argued that the network of relations at play within a game of marbles requires attention to the intermaterial relationship between material things. Nakassis (2013), in a response to Hull's (2012) study of the materiality of governance in Pakistan, singularly referenced the term "intermateriality" (p. 402). Although not completely discussed, Nakassis suggested that it referred to the material, discursive, and indexical relation of one semiotic event to another. Both Smith and Nakassis located their references to intermateriality within semiotics and the sign functions of material things.

Transmateriality has emerged conceptually from post-humanist ontologies of materiality and specifically from studies of digital media (Munster, 2014; Whitelaw, 2012; Kirschenbaum, 2008). According to Whitelaw (2012, p. 223), writing on media arts, transmateriality was a view of media "as always and everywhere embodied". The transmateriality of media constantly (re)converts patterns of energy through different material manifestations. Matter is in a constant state of μετουσίωσις, or a changing of essence through transducing patterns and configurations. Transmateriality describes this state and is closely related to Barad's (2003) notion of things-in-phenomena.

Kirschenbaum (2005) referenced the forensic notion of every contact leaving a trace to conceptualise materiality of media and computation. That is, digital technology is always and everywhere material while maintaining the behavioural illusion of immateriality. Kirschenbaum distinguished between forensic and formal materiality. Forensic materiality referenced the micro-processes and movement of data happening within computers that exhibit individuation. He sought to understand computers as unique writing technologies that also exhibit a duality identified by countless researchers, academics, and philosophers; that between the material and immaterial, object and subject, agency and structure. Indeed, his definition of electronic writing practices is relevant to thinking about the materiality of literacy; "writing practice engender an eruption of tools and techniques to fix, expunge, and recover meaning-bearing marks and traces" (p. 9). Although Kirschenbaum referred to electronic writing practices, that is coding, this definition signals possibilities for reconceptualising the materiality of (traditional) literacy practices and their transmateriality.

Whitelaw (2012) elaborated on the concept of transmateriality with two further concepts, influenced by Kirschenbaum; that of specificity and transduction. Digital technologies transduce patterns of relations across different material instantiations. A digital photograph sent via an app such as WhatsApp is the same photograph received, "but only in the sense that its pattern has been accurately propagated across a whole chain of material substrates" (p. 231). Whitelaw called this generality, which is another name for the illusion of immateriality. However, digital materials are also specific, "always subject to the local conditions of its instantiation" (p. 231).

Literacy practice is not confined to scratches that form letters and words. As literacy theorisation began to consider making marks using different tools to form different things,

different frameworks to understanding these configurations were needed. Debates have focused on how best to study literacy, which can seemingly range and move across contexts through relations, materials, and technology. Hymes (1980), in his later ethnographic monitoring research in education, recognised the significance of visual meaning making in communication, and advocated for ethnographic research to continually push pre-existing boundaries and frameworks, and even go beyond them (Van der Aa and Blommaert, 2011). Literacy research has continually sought to access visual meaning making, which has refocused attention on, and the theorisation of, the materiality of literacy. In particular, studies that seek to access children's perspectives and understandings of literacy must consider materiality and the ways in which the thingness of literacy shapes and translates meaning across contexts, both globally and locally, and continue to push pre-existing frameworks.

2.6 Accessing children's perspectives through visual research

The first key research question of this study seeks to examine how participatory visual methodological approaches can be developed to access out-of-school children's perspectives of literacy. The preceding literature review has critically engaged with established paradigms and theorisations of literacy practice, demonstrating the durable tension between school and out-of-school contexts and the inadequate understanding and attention to the everyday worlds of out-of-school children. Literacy research has largely favoured accessing the perspectives, understandings, and practices of school children and young people, the findings from which have informed key literacy theories. This study builds on those theories, particularly NLS and the materiality of literacy, to access and understand the literacy perspectives of out-of-school children in their everyday worlds. It also builds on visual theories of knowledge construction to find different ways into the literacy research question and to access children's perspectives.

Approaches to the study of different research topics have employed visual theories and frameworks, recognising the role and value of visual data in the production, transmission, and understanding of knowledge. Research approaches across different paradigms have used visual theories to address research questions related to children's experiences in school and out-of-school contexts. Traditionally, the acknowledgement of knowledge has been embedded in the notion of literacy as the ability to read and write alphabetic text, that

is, knowledge as stored and produced by written text (Goody and Watt, 1963). The durability of this understanding has largely relegated the knowledge produced by visual modes and media, particularly in approaches to the study of literacy. This has been challenged by theorisation of literacy practices that account for multi-modality and materiality, expanding the range of objects and things available to children and young people through which to communicate and make meaning.

Visual theories have increasingly been employed by researchers to provide different insights into familiar research questions. In particular, visual research appears to lend itself to participatory approaches that involve research participants in data generation, analysis, and interpretation. Active participation of children in research can involve the production of visual data through drawings, writings, and photographs (Moss, 2001; Burnett and Myers, 2002; Yamada-Rice, 2010). In participatory visual research that utilises photography, researchers usually seek to access and understand certain aspects of participants lived experiences or perspectives on a particular subject.

Visual research approaches utilising cameras have been employed to explore a range of research topics including geography (Aitken and Wingate, 1993), child labour (Mizen, 2005), identity (Desyllas, Croghan, Griffen, Hunter and Phoenix, 2008), community development (Banauka and Vaughn, 2014), health (Drew, Duncan and Sawyer, 2010; Wang and Burris, 1994), education (Einarsdottir, 2005; Kaplan and Howes, 2004; Karlsson, 2001; Mahruf, Shohel and Howes, 2007) and literacy (Burnett and Myers, 2002; Moss, 2001; Strawn, and Monama 2012; Yamada-Rice, 2010). Participatory visual research approaches using photography have sought to understand the everyday lives of school children and young people both in and out-of-school contexts. These approaches have invited children further into the research process, seeking to uphold and elevate their perspectives of their everyday worlds as a means to generate new knowledge that is not adult-oriented or text-bound. Participatory photography research is assumed to be able to access spaces, stories, and situations, to cross boundaries that are inaccessible to the adult researcher and/or observer (Liebenberg, 2009).

These approaches are part of movements in research to renew and review the relationships between researcher/s and the researched, which acknowledges the creation of knowledge across fluid boundaries, ethically complex situations, and power imbalances (Liebenberg,

2009). Within this movement is the further acknowledgement of children as social actors, who are often overlooked or treated as tokenistic in their participation (Morrow and Richards, 1996). These research approaches also challenge the place of the privileged position and authority of the researcher in children's studies, particularly of children from disadvantaged or excluded groups and communities who are defined and classified, and removed from claiming their own knowledge and identify (Liebenberg, 2009). Out-of-school contexts have been identified as sites of participatory visual research to better access and understand children's perspectives of their lives away from the influences and grounds of school.

2.6.1 Using photography to access children's everyday worlds in out-of-school contexts

Participatory visual research approaches using photography have attempted to access children's perspectives in out-of-school contexts to better understand their everyday worlds and lived experiences (Aitken and Wingate, 1993; Kullman, 2012; Liebenberg, 2009; MacDonald, 2012; Mizen, 2005; Mizen and Ofoseu-Kusi, 2010; Winton, 2016; Young and Barrett, 2001). This body of research has accessed children and young people's perspectives of their everyday worlds in a range of out-of-school contexts, applying the concept of children as social actors and participatory visual research approaches to generate new knowledge about their lives. The genesis of photography in research approaches to understanding the everyday worlds of children are found in the anthropological literature and studies by Worth and Adair (1972) and Chalfen (1974). This seminal research established an ongoing relationship between the researcher/s, the photographer/participant, the photograph, and the audience, which is a discourse and framework adapted in contemporary visual research (Pink, 2003), and laid the foundation for accessing the everyday worlds of participants using visual approaches including photography.

Aitken and Wingate (1993) sought to better understand participatory photography as methodology through research with three groups of children in San Diego, U.S in out-of-school contexts. The researchers described their analytical coding framework transparently, using a *leitmotif* concept to identify recurrent themes and patterns in the children's photographs, and offered a theoretical framework for understanding photographs based on photography theory (Barthes, 1964; 1993). This study, and the photographs produced by

the children, generated preliminary understandings of these children's everyday worlds and the contexts in which they are socialised from the children's perspectives. The researchers acknowledged that the knowledge of their everyday worlds is "partial and somewhat contrived" (p.71). However, this study treated the photographs produced by the children as at least partially representative and indexical of their perspectives, without supplanting photography by other orthodox research methods. Young and Barrett (2001) adapted the notion of childhood as socially constructed to access the perspectives of out-of-school children living on the streets of Kampala, Uganda over a 24-hour period. The researchers framed visual representation as universal, and adopted four different methods as it was assumed the participating children were predominately non-literate. The photographs produced by the children were treated largely as "self-explanatory" (p.148) and commentary was made about their technical aptitude, which locates photography within a positivist paradigm. Elicitation methods were used to complement the photographs and other data to generate knowledge about the survival mechanisms of these children. The study demonstrated the lived realities and childhoods of these children, as represented by the participants themselves, in which everyday survival is dominant theme. These early studies demonstrated the efficacy of a participatory visual research approach in accessing out-of-school children's perspectives, elevating worlds and lives often overlooked and challenging norms of children's competencies and agency.

Mizen (2005) used participatory photography to generate new sources of data and evidence to better understand children's labour in England and Wales. The participating children were positioned as "researcher photographers" (p.126) and invited to use photography to represent their perspectives and understanding of work and employment. The children's participation enabled them to make "visible" (p.132) the spaces, places, and things representative of their labour and employment. In particular, the photographs produced pointed to the materiality of their labour, the things and objects with which they interacted with to be productive. The research demonstrated how children produced knowledge using photography from their perspectives as employed workers, and which captured everyday things that have meaning to them that otherwise would not have been generated using traditional research approaches. Mizen and Ofosu-Kusi (2010) similarly sought to access the perspectives of children as workers in the streets of Accra, Ghana, in which they

problematised the indexicality of children's participatory photography. Nonetheless, the researchers argued that the children's photographs captured a relation between the photographer and the photographed, which was surfaced through interviews with the children about the photographs. The relationship was patterned in their analysis of photographs, as the children captured spaces, places, and things with regularity so much so that a single photographed referenced "a broader category of existence" (p.261). Both studies grappled to some extent with indexicality of children's photography, but argued participatory photography can access children's perspectives as they sought to communicate to the researchers something they did not know. They relied, however, on the photographs as stimulus for interviews rather than an analytical engagement with the photographs themselves and demonstrated a tendency for the voice of researchers to be at the forefront.

Out-of-school visual research approaches have also sought to access those spaces in-between school and out-of-school, in which schooled activities are not far removed. Kullman (2012) used an experimental approach to participatory photography with children on their everyday school journeys in Helsinki, Finland. The researcher wanted to access children's perspectives of mobility and how they physically negotiated spaces, bodies, and technology on those journeys. The photographs produced by the children, and their acts of photography, showed performative elements, collaboration with other children, and a capturing of photographs for their own reasons. Kullman framed these findings in a notion of "ongoingness" (p.9), in which the knowledge produced did not have a fixed spatial or temporal point and nor did the children's photography. The researcher applies this notion to the analysis of the meaning generated in photographs, cautioning against a focus in analysis "only on the meanings of images" (p.12). These findings pointed to a need to be methodologically open and experimental in participatory visual research to ensure participating children can be innovative and empowered as photographers.

Moving into exploring the connections between children's home environments and school learning, MacDonald (2012) sought to access children's perspectives of measurement in their homes to inform mathematics education research. The children used photography to demonstrate their understandings of measurement using things, people, and places in and around their homes, the meanings of which were elicited in interviews with the children.

The photographs, and the accompanying interviews, demonstrated a sophisticated understanding by the children of measurement, connecting home and school contexts in accessible ways to the researcher. In these out-of-school studies, it is often unclear whether photography is central to knowledge generation or rather an add-on to facilitate interviews with children; a way into their private spaces and places. However, they demonstrated the extent to which children can participate in photography research to make visible to a researcher, what may be invisible to traditional approaches, while also challenging concepts of childhood within everyday experiences and worlds.

Winton (2016) expanded on participatory photography approaches in a project with seven young people in a marginalised community in Mexico City, Mexico. The aim was to explore spaces of inclusion and belonging among young people by accessing their perspectives using participatory photography. This research was completed in partnership with a non-government organisation, and was also partly rationalised in contributing to the aims of the organisation and as a photography course. The young people produced a range of photographs about their everyday worlds using a range of styles, subjects, and viewpoints. Winton built on Kullman's (2012) analytical point of view, looking to other data beyond and related to the photographs as part of a multidimensional and open-ended analysis, but without a transparent framework or approach.

2.6.2 Using photography to access children's everyday worlds in school contexts

Participatory visual research approaches have attempted to access children's perspectives of schooling in different contexts, from pre-school to secondary school (Damico, 1985; Dockett and Perry, 2003; Einarsdottir, 2005; Kaplan and Howes, 2004; Young and Barrett, 2001). Damico's (1985) study of school students' perspectives using participatory photography set a research agenda, building on Chalfen's (1974) research in out-of-school contexts, and was a response to the use of photography as researcher-directed. Damico's purpose was also similar to that of literacy as a social practice research in the same period to examine the relationship between socialisation and cognitive processes (Scribner and Cole, 1981), but putting a hypothesis forward that was grounded in visual rather than textual data.

Dockett and Perry (2003) explored children's experiences of starting primary school in Australia using a range of visual methods including photography. The study demonstrated

the competence of children participating as photographers and as social actors, and their capabilities to represent and share their experiences and perspectives. Classroom contexts were identified to play influencing children's focus on what mattered to them, however, the participating children also sought to break through boundaries created by the researchers and explore spaces "out-of-bounds" (p. 16). The children's perspectives of what was important to them were shaped by the materiality of the classroom context, and by the behaviour management structures and processes set up in their contexts, in which "rules" (p.14) became a predominant theme in photo-elicitation and were largely immaterial.

Einarsdottir (2005) extended on Dockett and Perry's study (2003) seeking to understand and access the younger children's perspectives of playschool in Iceland. One group of participants was given a digital camera each and gave the researcher a guided tour of their playschool. The second group of children were given disposable cameras and were directed to take photographs of their choosing and significance in their playschool. The research demonstrated that both approaches could access children's everyday worlds, but that the type of approach (and camera) appeared to effect children's representation choices, at least as interpreted by the researchers. It demonstrated how children were able to represent things, people, and spaces important to them in their playschool, bounded within a particular educational setting and treated temporally in a static manner. Kaplan and Howes (2004) sought to access secondary school students' perceptions their school environments. They collaborated with ten secondary school students, who were given cameras to document how they saw their school environment. The photographs referenced power dynamics between students and teachers, in which a photograph acted as a "contact zone" (p.150) to bring enable exploration of these dynamics. The photographs acted as social nodes in which different perspectives of different people were brought together, and in the clustering of photographs on a website added further meaning through a more transparent and interconnected understanding of context. In-school participatory visual research appears to have a static concept attached to analysing photographs, in which meaning is bound within classroom and school contexts.

2.6.3 Using photography to access children's perspectives of literacy in their everyday worlds

While participatory visual research emerged within a range of approaches, there is a limited amount of educational research that seeks to access children's perspectives and understandings of literacy using visual research approaches (Orellana and Peer, 2010). A framework for employing participatory visual approaches in research emerged under photovoice, which is perhaps the most influential approach to participatory visual methodologies using cameras (Wang and Burris, 1994, 1997). In particular, photovoice is an emerging methodology in health studies and public health research (Catalani and Minkler, 2010), but is being applied across a range of disciplines and contexts. Wang and Burris (1997) introduced the term "photovoice" based on a study of women's health promotion in China. Disposable cameras were distributed to participants between the ages of 18 and 56 years for the purposes of a participatory needs assessment. The researchers drew on Freire (1996), feminist theory, and photography. Wang and Burris argued that participants should be involved in a three-stage process of analysis: selecting, contextualising, and codifying the photographs produced.

A general assumption of photovoice, and participatory visual approaches generally, is that increased participant control over data production will highlight aspects of lived experiences that have not been captured, and even ignored (Guillemin and Drew, 2010). Many of the assumptions in regards to ontology and epistemology go unaddressed and unproblematised. There is often little discussion of limitations, a lack of transparency around data analysis and presentation, and disengagement with key theorisations about photography (Pink, 2003; Rose, 2001; Catalani and Minkler, 2010). This study seeks to transparently examine to what extent participatory digital photography can access out-of-school children's perspectives of literacy.

The potential of using participant-directed and generated photography in literacy studies was recognised by the Lancaster Literacy Research Group (Barton, Hamilton, Ivanic, Ormerod, Padmore, Pardoe and Rimmershaw, 1994) as the researchers of the group began photographing literacy events in their travels. "Learners can themselves become photographic ethnographers of their own community literacy practices" (Barton et al., p. 136). Hamilton (2000) contended that visual data, and in particular photographs, can be

used to focus and extend the knowledge of literacy as a social practice. She argued that photographs identify elements of literacy practice more closely and, therefore, challenge the elaborate underlying concepts of literacy practice and literacy events (Street, 1993). As research into literacy practices collects observable data, among other types, about literacy events, photographs "are particularly appropriate for documenting these aspects of literacy since they are able to capture moments in which interactions around texts take place" (Hamilton, 2000, p. 17). However, the uptake of photography in NLS accounts was somewhat muted and did not integrate broader methodological approaches and theorisation advanced by other researchers exploring children and people's everyday worlds in out-of-school contexts (Aitken and Wingate, 1993).

Burnett and Myers (2002) explored home literacy practices with four, 7 to 11-year olds in Sheffield, United Kingdom. The participating children were given disposable cameras, the resulting photographs of which were used to conduct semi-structured interviews. Before taking photographs, participants were asked to discuss their understanding of literacy. Although the participants selected which photographs to discuss for the interviews, little information is provided about how the photographs were analysed. The study drew on the classification of literacy events, and it can be extrapolated that the photographs as images were considered to be indexical of literacy events. Yamada-Rice (2010) extended the work of Burnett and Myers (2002), framing participatory photography as methodology within multi-modality, technology change, and literacies. He worked with 11 four-year olds in Tokyo, Japan to explore visual meaning making in the home context. The participating children were asked to record home literacy practice using digital cameras. However, only a short description of data analysis is provided, with emerging themes being identified.

Strawn and Monama (2012) used photovoice in an action research project, which drew on NLS theorisation in their approach to understanding adults' literacy practice. In total, 30 participants shared five cameras to document their perspectives, and although the researchers concluded that photovoice introduced new literacy practices to the community, their application of robustness and reliability in the use of photography as methodology is inadequate. In addition, it is perhaps more of a photo-elicitation methodology, as the main goal of the project was for research participants to use their photographs to write their own

stories rather than understanding and accessing their perspectives of literacy in the adults' everyday worlds.

The research literature, both in education research and elsewhere, demonstrates the possibilities of using participatory visual approaches in addressing literacy research questions. However, there are commonalities in regards to the limitations of the research, especially in regards to the theoretical treatment of photography and photographs, the limitations placed on the children in their production of photographs, the favouring of school contexts in education research, and the lack of analytical rigour and transparency. There are unexplored possibilities for using participatory visual approaches, particularly digital photography, to access out-of-school children's perspectives using visual theoretical orientations and transparent methodologies to reveal and understand their everyday worlds.

2.7 Accessing the indexicality of photography

Visual research using digital photography offers a seemingly ready-made research approach to accessing children and adults' perspectives and understandings of their everyday worlds. This study seeks to access out-of-school children's perspectives of their literacy practice, and examine to what extent participatory digital photography can access these children's perspectives in northern Ghana. As discussed in the literature review previously, approaches to the study of different research topics have used participatory photography to document and understand people's worlds. Underpinning the use of photography are often implicit assumptions about what photography is and about photographs as indexical objects. This study builds on the theorisation of the indexicality of photography, using it to explicitly ground the research approach to accessing out-of-school children's perspectives of literacy.

There are two broad approaches to the production of photographic data in the literature. First, is an approach that uses photographs as data produced by a researcher or by researchers, in which the use of photography is complementary to ethnographic observation (Hogan, 2012; Rose, 2001). Second, is an approach that uses photographs as produced by research participants at the time of the research and analysed as data (Luttrell, 2010; Mannay, 2013; Mizen and Ofoseu-Kusi, 2010; Packard, 2008; Yates, 2010). The research literature carries implicit assumptions about the theorisation of photography and photographs often uncritically treating photographs as referential copies of people's lived

experiences and perspectives. When photographs are explicitly treated, they are usually bounded within orthodox paradigms such as social constructivism, in which the material photograph ceases to exist and the primacy of social relations guides the meaning-making process (Liebenberg, 2009; Winton, 2016).

The theorisation of photography in research is also somewhat overshadowed by ethical considerations, including power relationships between researcher and research participants, and a predisposition to photography being framed as verbal utterance or voice for people often excluded from research. Packard (2008), in conducting visual research with the male homeless community in Nashville Tennessee, addressed power dynamics in the use of participatory photography as central to theorisation. He concluded that the current visual methods are often ineffective in reducing the power divide between researcher and participants, and do not inherently create collaboration or empowerment. Mannay (2013) also examined the effect of power dynamics in the visual research process in her participatory research with low-income families in south Wales. In examining different types of visual data, Mannay focused on to what extent the presence of others in relation to the participants affects meaning making in the research process. This focus on power dynamics is crucial in researching with participants, particularly children. However, it also tends to assume the researcher speaking on behalf of participants and shifts a focus away from the knowledge generated by participants using photography.

Luttrell (2010) attempted to demarcate between children's photo-voices in visual research and those of the researcher/s, commenting on the lack of transparency and reflexivity in research literature on the analysis and interpretation of photographic data. She developed a transparent analytical framework for dealing with different types of data, including photographic data produced by primary school children in one urban school in the United States, and transparently discussed her inductive content analysis of photographs. Luttrell explored the children's understandings and experiences of their relationship to family, community and school. Mizen and Ofosu-Kusi (2010) used participatory visual research to explore children's everyday worlds in Accra, Ghana, particularly those out-of-school children living and working on Accra's streets. They framed photography as a methodological means to give voice to children, and theorised photographic voices as socially constructed. Mizen and Ofosu-Kusi's analysis relied on the photo-elicitation interview transcripts with children

as the source of their voice for the photograph, rather than a content analysis of the photographs similar to Luttrell (2010). The materiality of photography has largely given way to social meanings constructed through photography, in which the perspectives of participants was superseded by ethical concerns, verbal utterances translated to text, and a hesitancy about the materiality of photographs due to their capacity to replicate and reproduce points in time and place.

To adequately access out-of-school children's perspectives using photography, research must engage with accessing the indexicality of photography. The theorisation of photography, and of images more broadly, is historically extensive. Generally, photographs have largely been placed at one end of one of two spectra of indexicality in the literature albeit often implicitly (Barthes, 1964, 1980; Derrida, 1968; Peirce, 1867; Saussure, 1975). One spectrum locates photographs on the material spectrum, in which light is converted into matter. As matter, a photograph is considered representational of an observed reality of the past and analytical techniques can be applied to generate knowledge (Damico, 1985; Luttrell, 2010). This conceptualisation does not critically consider the material processes and relations behind this production; it is material insofar as it is positivist. The camera is treated as an autonomous device, faithfully capturing, storing, and eventually reproducing what was once seen with a human eye. Photography and a photograph supposedly produce a causal connection in a linear manner (Frosh, 2015). This causal connection relies to a certain extent on materiality; on the physical connection between a photograph and the photographed.

The other spectrum locates photographs on the relational spectrum, in which photography is a semiotic practice mediated by social relations between context, audience, and photographer/photographed. The causal connection between camera device and photograph also relies on photography as a semiotic practice. Along both spectra, photographs are conceptualised as indexical objects (Doane, 2007; Frosh, 2015; Gómez Cruz and Meyer, 2012; Hjorth and Pink, 2014). Research approaches that employ participatory photography are often located along one or both of these spectra in regards to theoretical assumptions about the indexicality of photographs. However, their location is often not explicitly identified nor discussed, which affects the validity of the analysis and findings, as the two spectra are potentially at odds with the over theoretical orientations of the research.

A number of theoretical and philosophical accounts of photography, and more broadly of representation, have been highly influential in the conceptualisation of indexicality (Barthes, 1964; Benjamin, 1972; Peirce, 1867; Saussure, 1975). Although photography theory critically examines and discusses the indexicality of photographs (Benjamin, 1972; Doane, 2007; Foster, 2008; Krauss, 1977) it is usually excluded from consideration in the visual research literature, with the exception of a few seminal texts (Barthes, 1993; Sontag, 1977). As reviewed previously, research uses of photography are often located within orthodox qualitative research designs. The research literature relies on traditional designs that call on theoretical frameworks, methodologies, and analytical lenses that assume text (in the form of survey responses and interview transcripts) as the data, rather than the visual as the data (in the form of a photograph). The use of photography in visual research methodologies has its roots in the epistemological foundations of different academic disciplines, particularly anthropology and sociology (Bateson and Mead, 1942; Ruby, 1976; Worth and Adair, 1972). In addition, there is a tendency to frame photographs as *voice*, as indicative of photo-voice methodology (Wang and Burris, 1997), the notion of entering a dialogue using participatory photography (Winton, 2016) and the concept of a photograph as a verbal utterance (Croghan et al., 2008).

Plato discerned two types of the production of images, a dichotomy that has been enduring and influential. One type of production is described as “the art of likeness-making”, which is an image that is a direct copy of another thing, whether object or subject (*Sophist*, Section 235c–236c). According to Plato, within likeness-making there is a difference between the art of making appearances and the art of making images; between *appearance* and *image*. In making images, the proportions of the *paradeigma* are maintained, and appropriate colours are used. In making appearances, the true proportions of the original are altered to ensure the image appears beautiful from a distance. This difference between *eikastikê* (image-making) and *phantastikê* (appearance-making) has been influential in the theorisation of photography and of the photograph. Along the material spectrum, a photograph could be considered as an image of the reality observed by the photographer and/or the viewer. Along the relational spectrum, a photograph could be considered as an appearance of reality, its indexicality dependent upon relations between context, audience, and photographer/photographed.

To access the relational spectrum and meaning of images, semiotics is an established framework for interpretation, and Rose's (2001) triumvirate of context, image, and audiencing is an extension and re-modelling of Peirce's sign, object, and interpretant (Peirce, 1867). Peirce's division of signs into icons, indexes, and symbols remains influential in photography theory, and in participatory visual methodologies. Most studies that use a participatory visual research approaches implicitly, and sometimes explicitly consider photographs produced by participants to be indexes. In addressing the first research question about developing participatory visual methodological approaches to access children's perspectives of literacy, a further discussion of photographs as indexical is necessary.

Indexes are those "whose relation to their objects consists in a correspondence in fact" (Peirce, 1867, p. 294). For example, a pointing finger is an index, saying "there", signifying its object "solely by virtue of being really connected with it" (Peirce, 1885, p. 181). Indeed, Peirce commented specifically on photographs, distinguishing them from icons and designating them as indexes. However, an index could be anything from a finger pointing and a photographic image to pronouns such as "this", "there", and "here" (Hanks, 2005). Doane (2007) argued that the common unifying feature was the traces of these indices, which are defined by a physical and material connection to an object. Doane divided the concept of index into two categories, index as trace and index as *deixis*. In the former, index is a trace of the real and maintains a connection to realism and positivism. Here, it is closely linked with icons, resembling the object, materially and physically, with which it has established a relationship. In the latter, index as *deixis* emphasises the symbolic, embedded in linguistic notions (Hanks, 2005).

Barthes (1964) is perhaps the most cited discussant of photography, firmly locating theoretical understandings of photography and the photograph in semiotics. However, his writings specifically on photography are few, and the main text is a fictional work (1980). In *Rhetoric of the Image*, Barthes (1977) examined an advertisement for Panzani pasta and cheese that utilised a photographic image. Although he used the terminology of semiotics, Barthes switched to linguistics to give his basic premise of what a photograph is: "message sans code" (p. 154). Indeed, it is a paradox, as Barthes too recognised the translation that occurs in the moment of photography as the natural world is imprinted. This transition that

occurs when a photograph is arranged, framed, reduced, and flattened, loses equivalency and leads to “a statement of quasi-identity” (p. 154).

The relationship between the signifier and signified in a photograph according to Barthes is then quasi-tautological. In other words, there is sameness in photography that exerts itself, and is largely due to the materiality of the device and process. It is not a transformation but a recording. “[The] scene *is there*, captured mechanically, not humanly (the mechanical is here a guarantee of objectivity). Man’s interventions in the photography (framing, distance, lighting, focus, speed) all effectively belong to the plane of connotation” (p. 158). Barthes, similar to Peirce, highlighted the materiality of photography but does not adopt his analysis due to the association of materialism with realism and objectivity. Barthes also addressed the spacio-temporal plane of photographs, offering a new category of space–time: “spatial immediacy and temporal anteriority” (p. 159). It is not a presence, but rather the reality is that of *having-been-there*; a conjunction between the unreality of the present (here-now, in the hand’s of the viewer) and past (there-then, produced by the photographer).

Derrida (1968) replaced Saussure’s sign with the notion of trace, which indicates a closure of presence and an absence of meaning. The “trace” refers no less to the future than to the past; its relation to what is called the present is constituted by what it is not. A spatio-temporal interval, according to Derrida, must separate the trace from what it is not. This same interval divides the present, it divides everything that be conceived on the basis of the present, that is, every material or subject. This interval is what he called “spacing”; time becoming spatial or space becoming temporal (temporalising). The production of différance, is then, without origin. It is constantly *becoming* and is “irreducibly nonsimple” (p. 288).

Photography theory has grappled with different approaches to understanding the photograph as indexical trace, how it is produced and what it represents (Seppänen, 2017). In particular, visual images and appearances have been strongly theorised to produce knowledge and meaning that words and printed text cannot produce. Theoretical orientations to photography and photographs require understandings that are not based in epistemologies historically and materially embedded in written, printed text; in which knowledge is assumed to be produced and transmitted through text. At the material level, the production and viewing of a digital photographic image are fundamentally different to

producing and viewing written text. In literacy research, multi-modality has engaged with this epistemology.

The research literature that has employed participatory photography in methodology does not adequately engage with this theorisation explicitly in setting up its inquiry (Banks, 2007; Cox et al., 2014; Pink, 2003). The ontology of the photographic image produced by participants is usually an afterthought. Digital photography is a relationship between the digital camera, digital photograph, objects and subjects of the photograph, viewer/s, and photographer. A methodological framework needs to not only provide logic for sorting, coding, analysing, and categorising visual data, it also needs to adequately design, theorise, and analyse visual data produced by participants (Pink, 2003). This study builds on the theorisation of the materiality of photography, viewing digital photographs as fundamentally different from that of written text and therefore, requiring different approaches to the analysis of digital photographic data produced in reference to literacy. This study explicitly engages with the concept of indexicality to theoretically and methodologically ground the analysis of the data produced. This will be further discussed and outlined in the proceeding methodology chapter.

2.8 Summary

This chapter examined the approaches of the research to understanding literacy and the use of participatory visual research. Although ethnographic accounts of literacy have revealed the everyday, local, and social contexts in which people use literacy, and there is an increased awareness of the use of visual research, there are four gaps that this study seeks to address. First, there is a lack of research with out-of-school children, particularly in non-Western contexts that seek to understand their literacy practice. This reinforces literacy, and literacy research, as a domain primarily mediated by adults in certain school contexts. This study builds on education research in international development, identifying CBE as a site for further research, particularly in attempting to understand out-of-school children's perspectives of literacy practice. Despite the global advocacy around universal primary education, out-of-school children are axiomatically assumed to be non-literate because they do not attend formal schooling.

Second, out-of-school children have not been sufficiently included in order to understand how they practise literacy in their everyday lives. Participatory visual research offer news ways into literacy research questions, and the opportunity to include children who are normally excluded not only from research but also from formal schooling. This study builds on participatory approaches to visual research with children, seeking to outline and use a transparent methodology for producing and analysing photographic data.

Third, written text continues to be privileged as data in education and literacy research, as both data for analysis and the mode for communicating findings. This has perhaps led to the further exclusion of children's perspectives from research, particularly younger children who are out-of-school and from different language backgrounds. This study builds on ethnographic approaches to the study of literacy that use visual methods to access children and adults' perspectives of literacy. Fourth, research has largely dematerialised literacy practice and, despite the resurgence of materiality, there is insufficient understanding of how children use and interact with literacy materials and objects in their everyday worlds. This study will examine how out-of-school children enrolled in a CBE program in northern Ghana understand and use literacy in their everyday lives. The next chapter will present the methodology for this study, and further discuss collaborative digital photography as a methodological approach in the research design.

3. Methodology

3.1 Introduction

To understand the literacy practice of out-of-school children in their everyday worlds, this study uses a collaborative digital photography methodology. This involves a mixed methods case study that affords the ontological, epistemological, and methodological rigour needed to explore and answer the research questions of this study. The first question asks how participatory visual methodological approaches can be developed to access out-of-school children's perspectives of literacy. The second question asks how out-of-school children understand and practise literacy in their everyday worlds.

There are four main challenges in accessing out-of-school children's understandings and perspectives of literacy in their everyday worlds. First, participatory visual methodologies have not been adequately transparent or robust in their theorisation and analysis. Second, there might be deficit assumptions about the cognitive capabilities of out-of-school children as knowledgeable about their literacy. Third, as shown in the previous chapter, methodologies used to date tend to rely on verbal or written communication mediated by researchers. These are not necessarily appropriate for literacy research with children as they limit the extant children can express their perspectives and have those perspectives understood by adults. Last, there are language and other social and cultural barriers faced by researchers from outside the communities, which might hinder a thorough understanding of context.

To overcome the challenges to answer the research questions central to this research, this study develops a collaborative digital photography methodology that has three key elements. First, it is theoretically grounded in the materiality and practice of photography, which is distinct from other forms of data production. Second, it acknowledges participants as photographers, who can use a digital camera to create material traces and relationships between themselves, the photographs, subjects, objects and the audience/s that communicates their perspectives of literacy (Pink, 2003). This study positions out-of-school children as knowledgeable about their literacy and capable of communicating through an appropriate method (Luttrell, 2010). Third, the methodology builds on ethnographic

approaches to literacy research and NLS concepts of practice and considerations of contexts to guide the analysis of photographs as perspectives of literacy.

Two communities in northern Ghana were identified as the research sites, where a CBE program was being implemented and at which out-of-school children were attending. Ten out-of-school children attending CBE were selected and invited to photograph their understanding of 'karimbu ka sabbu' over a three-week period, which translates directly to 'reading and writing' in Dagbanli - and broadly as literacy - with no limitations on the amount of photographs they could take. This methodology enables the children to explore and capture their understandings without reliance on verbal or written language, creating new knowledge that captures their perspectives as a visual material trace that can be viewed and accessed through digital photographs. The methodology then utilises a transparent and robust framework to analyse these photographs as representative of their perspectives.

The methodology of this study takes the social realities of children, and their agency to create knowledge, seriously. There has been increasing recognition of children as social actors (Barker and Weller, 2003; Morrow and Richards, 1996; Sinclair, 2004). It has been acknowledged that research with children is fundamentally different from that with adults, and the differences can be found and perpetuated in power imbalances, social barriers, and perceptions of competence (Punch, 2002). Childhood as socially constructed also needs to be framed within cultural contexts, including those specific to communities (Honig, 2009). Generally, in Ghana, childhood is socially and culturally constructed, in which children are seen as biologically vulnerable but also contributors to the family (Boakye-Boaten, 2010). Traditionally, from an early age, children are given domestic and economic roles in families defined by gender, with boys and girls engaging in different activities (Fortes, 1949). In addition, childhood in Ghana, particularly in rural communities, can be defined by fostering. Fostering helps biological families cope with economic shocks and support the fostering family with their labour needs, but can also lead to further exclusion from education for the fostered child (Agblorti and Tanle, 2011).

Children, like other individuals, seek to understand and construct their understanding of their everyday worlds. They create meanings of their experiences, which are negotiated socially and historically, but varied and multiple (Creswell, 2009). However, as argued in the

previous chapter, out-of-school children's agency and everyday worlds have been largely overlooked in the research literature, in particular in literacy research. A participatory approach in regards to the application of methods and analysis of data enables a deeper commitment to understanding the lives of children from their point of view, and potentially overcomes some of the challenges in doing research with children (Lodge, 2009).

This chapter outlines the development and implementation of collaborative digital photography methodology through a mixed methods case study design. This methodology seeks to provide means to participants by which they can create meanings of their lived experiences, and communicate them in ways that produce knowledge. The centrality of photography, and its location within a broad participatory visual methodology, will allow for the answering of the study's research questions. A thorough and transparent application of a participatory visual methodology will consider to what extent children can mediate their participation in the research process. The use of participatory visual methodology employing digital photography is considered robust to explore the mediation of literacy practice that is socially embedded and largely unseen in the worlds of children who are out-of-school (Lodge, 2009; Pauwels, 2015).

This chapter is divided into six sections, including the introductory section. First, the chapter will situate the study's methodology in the framework of a mixed methods case study and participatory research. Second, it will outline this study's approach to research sites and participant selection and invitation. Third, it will outline the study's methods, including equipment. Fourth, it will present the study's framework and approach to data analysis, including the analytical and coding framework, which is inclusive of the digital camera and digital photograph within this framework. Fifth, it will discuss the core elements of ethical considerations of participatory visual research as related to this study, including reflexivity, confidentiality, informed consent, and benefit.

3.2 Collaborative digital photography research design

This methodology proposes an innovative and transparent mixed research case study approach that embeds collaborative digital photography at its centre to answer the two research questions. Mixed research has a range of definitions, but common characteristics have emerged as it has become increasingly credible and applied across different disciplines

including education (Campbell and Fiske, 1959; Johnson, Onwuegbuzie and Turner, 2004; 2007). Crewell, Clark and Garrett (2003) identify five common characteristics: collection and analysis of both quantitative and qualitative data; rigorous procedures; integration of findings; design procedures for data collection, analysis and integration; and the use of theory related to these procedures. In particular, they identified integration as the fundamental characteristic that distinguishes mixed research from other approaches. This study positions mixed methods as adding value to design and capacity to generate rich information to address the research questions than a single method (McKim, 2017). There are three additional characteristics identified by Johnson, Onwuegbuzie and Turner (2007) of mixed methods research. First, is mixing in the data collection and analysis stage. Second pertains to the breadth of mixed methods to encompass mixing of paradigms and worldviews. Third, is the orientation of mixed methods research, and what the rationale and broad purpose is driving the research such as social justice, participation and/or emancipation. The use of collaborative digital photography, both theoretically and pragmatically in this study benefits from mixed research defined by these characteristics and helps ensure out-of-school children's perspectives can be credibly and reliably accessed.

The methodology of this study moves between post-positivist paradigms of understanding (interpretive and social constructivist), participatory, and post-humanist (Cohen, Mannion and Morrison, 2011; Denzin and Lincoln, 2011; Lather, 2006). This study adopts a case study approach, which explores the use of collaborative digital photography as an integrative fulcrum in mixed methods research. The use of collaborative digital photography builds on research paradigms that are mobile, fluid, and material through which out-of-school children are able to index their views of literacy in their everyday worlds (Crewell, Clark and Garrett, 2003). It builds on a participatory research paradigm, in which the role of the researcher is treated critically and reflexively and alternative methods are employed to enable possible transformation and empowerment of participants (Lather, 1986; van der Riet, 2008).

Participatory research is often defined by negotiation with participatory communities and peoples, intention to empower, and reciprocity within the research process (Lather, 1986). However, this study also moves beyond participatory approaches and is situated in collaboration (Winton, 2016), which does not assume empowerment and acknowledges the

materiality of practice and notions of indexicality that need to be considered when doing visual research. This study is situated within an orientation toward the materiality and indexicality of literacy and photography theory, which will be explored and drawn on within the methodology to design rigorous data generation and analysis procedures, which is a characteristic of mixed methods research (McKim, 2017).

This study's research design is inclusive of mixed methods within both quantitative and qualitative research, integrating a range of different methods and data at which collaborative digital photography is at the centre (Denzin and Lincoln, 2011). A case study research design relies on multiple sources of evidence, and is intended to investigate contemporary phenomena in depth and in real-life contexts (Yin, 2012). Orthodox positivist methodological approaches are concerned with uncovering the universal and natural laws that govern behaviour. The ontological assumptions underpinning such a universal view find a single world, which individuals and society inhabit, acting, behaving according to a set of rules. Positivist paradigms are ontologically and epistemologically oriented in such a way that they reflect reality as stable and external. Reality is assumed to be observable from an objective and detached viewpoint (Gough, 2002). Positivist paradigms are not considered appropriate for accessing out-of-school children's perspectives and understanding of literacy in their everyday worlds. To take seriously and consider out-of-school children's perspectives requires post-positivist paradigms that acknowledge and seek to access their realities, agency and practices.

At the foundation of interpretivism, reality is viewed as socially constructed, and knowledge is not out there waiting to be revealed and analysed, but is produced and performed (Law and Urry, 2004). How those relations and realities are interpreted has been subject to a range of continuing and developing approaches. Denzin and Lincoln (2011) identified a number of concurrent moments occurring in interpretivist research, including the changing nature of the global economy and how this affects research, the distance between the researcher and the researched, and feminist, postcolonial, and queer theorists challenging the assumed identity of the researcher. Qualitative research is underpinned by the principle that studying the social worlds from the perspectives of individuals and is a consistent feature of different research approaches (Denzin and Lincoln, 2011; Law and Urry, 2004; Sandberg, 2005).

However, existing methodological paradigms do not account sufficiently for the production and nature of knowledge with particular regard to out-of-children's everyday worlds. Relational frameworks are static, contained in the boundaries of worlds that privilege certain groups that exclude out-of-school children (Law and Urry, 2004). Positivist frameworks are inappropriate for understanding the lives and circumstances of out-of-school children, as they do not necessarily acknowledge their different realities and everyday worlds (Baker, 1996; Punch, 2002). Therefore, there is a need to further develop visual research methodologies committed to equity and social justice for out-of-school children, while also recognising fluidity and complexity to account for their everyday worlds and lives (Law and Urry, 2004).

Visual research design is broad in regards to the nature of the visual, and there is a wide set of methodological applications across different disciplines (Pink, 2003; Prosser and Prosser, 1998; Rose, 2001). The visual research literature offers numerous approaches to the design of methodology, as it has engaged with numerous visual modes and media. Visual research that is image-based can be sub-divided into drawings, photographs, art, video, cartoons, and other modes. As discussed in the literature review, photographs are one of the more widely used modes of visual research, and photography naturally lends itself to participatory visual research. However, when used, photography can often play a supplementary role in methodology (Prosser, 1998). To access children's perspectives of literacy given the challenges, it is necessary to move beyond positivist understandings of photographs and develop new and innovative methodologies.

As discussed in the previous chapter, research approaches using photography to access children's perspectives have increased, located in orthodox qualitative research designs. Although there is a reliance on approaches that call on orthodox theoretical frameworks, methodologies, and analytical lenses, these research approaches challenged dominant modes of representation and adult-centred understandings of children's worlds. The limited use of photography in participatory methodology has its roots in the epistemological foundations of different academic disciplines, particularly anthropology and sociology (Bateson and Mead, 1942; Worth and Adair, 1972). To recover the meaning that photographs and the photographer proclaim requires the advancement of new methodologies, which draw on different theoretical and methodological approaches that

see beyond raw realism and continue to ask what a photograph is, why is it being used and how can meaning be accessed.

Pink (2003) argued that the theoretical frameworks within which visual research has been employed are not precise enough to capture the fluidness of photography. Photovoice offers a standardised methodology, with clear protocols for research design and grounded in notions of empowerment. Photovoice has become an increasingly used methodology for employing photography-based research in education and other disciplines (Catalani and Minkler, 2010; Guillemin and Drew, 2010; Sutton-Brown, 2014; Wang and Burris, 1997) As examined in the previous chapter, photovoice as a methodology draws on a number of paradigms that give primacy to social action, and makes assumptions about photography theory. Despite its emergence in photography-based research methodology, the research literature does not sufficiently outline the implementation and analysis of photovoice (Sutton-Brown, 2014). There is often little discussion of limitations, a lack of transparency around data analysis, and insufficient engagement with photography theorisation. This study builds on the framework and research of photovoice to develop a collaborative digital photography methodology within a case study approach.

3.2.1 Mixed research case study

A case study approach is considered appropriate to explore a small number of cases in-depth and up-close in everyday contexts (Yin, 2012). Complementary to theoretical understandings of literacy as a social and material practice, the examination and understanding of context is fundamental to case studies. It is well established that a case study approach is suitable for exploring research questions that seek to understand how and why, and in situations where the boundaries are not clear between phenomena and contexts (Baxter and Jack, 2008; Yin, 2012). Mixed research combines quantitative and qualitative methods and/or research paradigms into studies (Onwuegbuzie and Johnson, 2006; Teddlie and Tashkkori, 2006). The implementation of this case study methodology to answer the research questions will discuss and consider digital cameras, digital photographs, and the relations between objects, subjects, viewers, and photographer to the camera and the photographs; the boundaries between each which are not clear or static.

As there are usually no specific design requirements to guide case study approaches, it is critical to promote validity and trustworthiness through transparent articulation. A case

study approach allows research design to be fit for purpose in relation to the research questions, but this also has limitations and can result in poorly designed case studies (Meyer, 2001). A number of established strategies were integrated into this case study research design to promote and secure validity (Johnson, 1997). Although research validity is a necessary consideration of any inquiry, Onwuegbuzie and Johnson (2006) argued that in qualitative research the term validity is unsuitable due to its association with quantitative research and suggested that the term has been replaced by trustworthiness but offer legitimisation under a mixed research paradigm.

In quantitative research paradigms and designs, Shadish, Cook and Campbell (2001) identified four types of validity assessments including statistical conclusion validity, internal validity, construct validity, and external validity. Validity is not limited to quantitative research, and is often conceptualised and applied more broadly as an assessment of whether a research study, and its component parts, are of a certain quality (Onwuegbuzie and Johnson, 2006). In qualitative research paradigms, quality criteria have been adapted from quantitative research and there are a number of offers. Lincoln and Guba's (1985) offer included credibility, transferability, dependability, and confirmability. Maxwell (1992), within a critical realism paradigm, identified and offered five types of validity in qualitative research including descriptive validity, interpretive validity, theoretical validity, generalisability, and evaluative validity. In Maxwell's typology, validity is a consideration not of research methods and data, but of the account as "validity is relative to purposes and circumstances" (p.283).

In regards to mixed research, there are several validity or trustworthiness offers and considerations, including representation, integration, and legitimation (Onwuegbuzie and Johnson, 2006). Onwuegbuzie and Johnson (2006) built on the inference quality frameworks (Teddlie and Tashkkori, 2006) and identified nine types of legitimation in mixed research studies, of which the following are applicable in this study: inside-outside; weakness minimisation; multiple validities; conversion; paradigmatic mixing. In particular, multiple validities is relevant to all mixed research, in which the relevant qualitative and quantitative validity types are addressed such as internal validity or credibility, interpretive validity or confirmability and dependability.

Although a case study approach has limitations in the generalisation or confirmability of findings, often use a multitude of research designs without standardisation, and may not be considered rigorous under positivist paradigms, it is suitable for exploring phenomena, such as out-of-school children's literacy practice, previously inaccessibly to research inquiry (Gerring, 2006). Indeed, this study argues that the difficulty in addressing research questions related to the everyday worlds of out-of-school children may be exacerbated by the limited methodological choices available, and more specifically by the methodological choices made. To address the problem of representation encountered by mixed research and dependability, this case study design embeds a participatory or collaborative approach utilising digital photography to access the understandings of out-of-school children. Although ethnographic approaches to understanding out-of-school literacy practice have advanced literacy theorisation and challenged durable concepts of literacy, they have largely overlooked out-of-school children and their experiences. A case study approach is open to the different uses of theories to guide research, paradigmatic mixing, which this study adopts, considering different theories and concepts of literacy, ethnography, and photography to access out-of-school children's perspectives of literacy in their everyday worlds (Meyer, 2001; Yin, 2012). These theories will be used as a framework in which to understand the data generated and analysed using different methods, procedures and equipment.

A key type of legitimation in all research paradigms, including mixed research, is the consideration of the way individuals and communities are selected (Onwuegbuzie and Johnson, 2006; Yin, 2011). Although the overall approach to sampling of the communities was purposive, which is a feature of qualitative case study research designs (Denzin and Lincoln, 2011; Emmel, 2013), the sampling of communities and the children was completed using simple quantitative methods. Purposive sampling enables in-depth studies of cases, and for which both pragmatic and theoretical issues are concerned (Emmel, 2013). The choice of the cases was determined by instances where CBE was being implemented for out-of-school children in Savelugu-Nanton district in northern Ghana. CBE is only implemented in communities where there are high proportions of out-of-school children. This was a pragmatic decision to ensure access to out-of-school children, and to contexts

that would provide the richest information and allow comparison using collaborative digital photography (Patton, 2014).

However, within the purposive sampling of the district with a CBE program, simple quantitative sampling methods were applied in the selection of the two cases (communities) and sub-cases (participating children) to meet a representativeness criterion, mitigate selection bias, and increase credibility (Emmel, 2013; Meyer, 2001). Within each case, five sub-cases were selected and invited for a total of ten, which included five boys and five girls, each of which represents an out-of-school child attending CBE in their community. These 10 children were representative of 20% of the total number of children attending CBE classes in the two communities. The two cases representing two different communities and 10 sub-cases selected for this study allows for comparative analysis, augments external validity, and mitigates researcher bias (Meyer, 2001). This approach also promotes sample integration, and yields quality inferences in establishing a relationship between quantitative and qualitative sampling designs (Onwuegbuzie and Johnson, 2006). The cases and subcases will be elaborated on in the following section 3.3 in regards to selection, context, and invitation.

This study utilised a range of evidence generated through mixed research, with a particular focus on the participating children's digital photography over a period of three weeks. This promotes the inside-outside legitimation of mixed research, which involves the extent to which the researcher appropriately utilises the insider's view, in this case that of the participating children and other children. This was achieved through the primacy of collaborative digital photography to generate data from the perspectives of the children in a standardised way that utilised both quantitative and qualitative methods to minimise weakness in one approach over the other (Onwuegbuzie and Johnson, 2006). The methods will be further elaborated on and discussed in the following section 3.4. The design also promotes multiple validities through dependability of involving the participants as collaborators in data generation and analysis as well as interpretive validity (Maxwell, 1992), in which phenomena are understood from the perspectives of the participants in the context studied.

In addition, the primary unit of analysis was the digital photograph produced by the children, which further responds to researcher and participants' biases (Yin, 2011), the problem of representation in mixed research, and the inside-outside legitimation (Onwuegbuzie and

Johnson, 2006). This allowed for comparing and contrasting between cases and sub-cases through the integration of qualitative and quantitative data (Maxwell, 2016), and an opportunity to access children's everyday worlds beyond the use of text, words, and numbers (Onwuegbuzie and Johnson, 2006). There were a range of choices made in this study's case study research design around the two cases and sub-cases, including research sites and participant selection and invitation, methods, data analysis framework, and ethical framework. Each of these choices will be elaborated on in detail in the following sections of the chapter.

3.2.2 Participatory and collaborative research

In social constructivism, human action is viewed and treated as social, driven by power and interrelationships across economic, social, and cultural contexts (van der Riet, 2008). Participatory research seeks to understand everyday human action by ensuring local knowledge is integral to the inquiry, and corresponding research methods seek to not only generate new knowledge with participants but also to unsettle and critique the role of the researcher, particularly in international development contexts (Chambers, 1994). By engaging with children as co-researchers in inquiry, this paradigm assumes that the structures that maintain and legitimise social inequities and practices can be disrupted through joint knowledge production (Bergold and Thomas, 2012). A participatory research approach in this study also promotes validity or trustworthiness as discussed in the previous section, particularly in regards to dependability and inside-outside legitimation.

Participatory research is grounded in the belief that all children and adults have a right to participate in decisions, research, and other activities in which knowledge is being created and understood about them. For children, the right to participation is codified in the Convention on the Rights of the Child (UN, 1989). This study's research design seeks to uphold this right. Although human rights are not explicitly part of research validity or trustworthiness, it can be considered in the context of credibility and inside-outside legitimation. Participatory research methods seek to reduce the artificial distance between object and subject of knowledge, between participant and knowledge construction (van der Riet, 2008). A participatory paradigm is central to photovoice methodology (Wang and Burris, 1997), embedded in notions of social justice and social constructivism (van der Riet,

2008) and foundational to participatory rural appraisal in international development (Chambers, 1994).

However, a participatory research paradigm does not fully account for matter, and the relationship between human actions and materiality. The methodology of this study involves participants interacting with technology. They do not participate with the digital camera, but actively collaborate with the camera to capture relationships between themselves, the camera, subjects, objects, the researcher and the direction toward literacy. In addition, participatory research similar to NLS has tended to create artificial boundaries around local contexts and knowledge, insufficiently address reflexively issues of power, and claim empowerment autonomously (Winton, 2016).

Collaborative research is different from participatory research as it usually denotes multidisciplinary inquiry between researchers or between organisations (Hunter and Leahey, 2008; Wray, 2002), rather than between researcher/s and research participants (Cummings and Kiesler, 2005). It is suggested that collaborative research can accelerate the production of new knowledge, promote innovation, open new lines of inquiry not otherwise possible, help unify theories, and enhance learning (Hunter and Leahey, 2008; Wray, 2002). The term collaborative is used in this study intentionally to signify the position of the participating out-of-school children as researchers, particularly as researchers of their own literacy practice using digital photography (Winton, 2016). Collaborative digital photography further cements the position of participants and local knowledge at the centre of knowledge production, and attempts to elevate epistemically their experiences and knowledge of everyday practices to that afforded researchers and experts (Wray, 2002).

This promotes the legitimation of this study's mixed research design, however, it is also acknowledged that this approach is not unproblematic, which is further discussed in section 3.6 in the ethical framework (Johnson, 1997). This study's research design recognises equally the creativity, knowledge, and practices brought to the research by those involved, while also recognising joint ownership in the inquiry (Maxwell, 1992; Winton, 2016). Last, collaborative research makes possible inquiry that may not be feasible, such as that of this study in seeking to access the perspectives and understandings of out-of-school children (Mizen, 2005; Mizen and Ofosu-Kusi, 2010). As a single researcher I do not have the required background knowledge or capacity to access different children's perspectives at

the same time, and therefore, am dependent on the participants. The participants were involved at multiple points in the research process, not only in data generation but also analysis, interpretation, and dissemination. This study's research design further promotes inside-outside legitimation as researchers and others external to the process are given access to the data to review and interpret, including a transparent presentation of the coding framework, data analysis, and the photographs (Onwuegbuzie and Johnson, 2006).

This study employed digital photography as the common denominator around which the researcher, participants, teachers, communities, and others collaborated in accessing and understanding out-of-school children's literacy practice. The participating children used digital cameras as their research equipment to generate new data and knowledge, composing and taking photographs that were representative of their perspectives of literacy. This method builds on, but is different from photovoice, which traditionally has an explicit political agenda and makes ontological and epistemological assumptions about photography (Wang and Burris, 1997; Sutton-Brown, 2014). This approach promotes the credibility of the research design in addressing the two key research questions, which is further strengthened in the combination of methods, and the data and ethical frameworks (Lincoln and Guba, 1985). The methods, data framework, and ethical framework are further elaborated on and discussed in the following sections below.

3.3 Research sites and participant selection and invitation

As introduced in chapter one, the two research sites are located in the Savelugu-Nanton district in the Northern Region of Ghana (see Figure 1), where I was an Education Officer for UNICEF from 2011 to 2012. At the time of research in 2015,

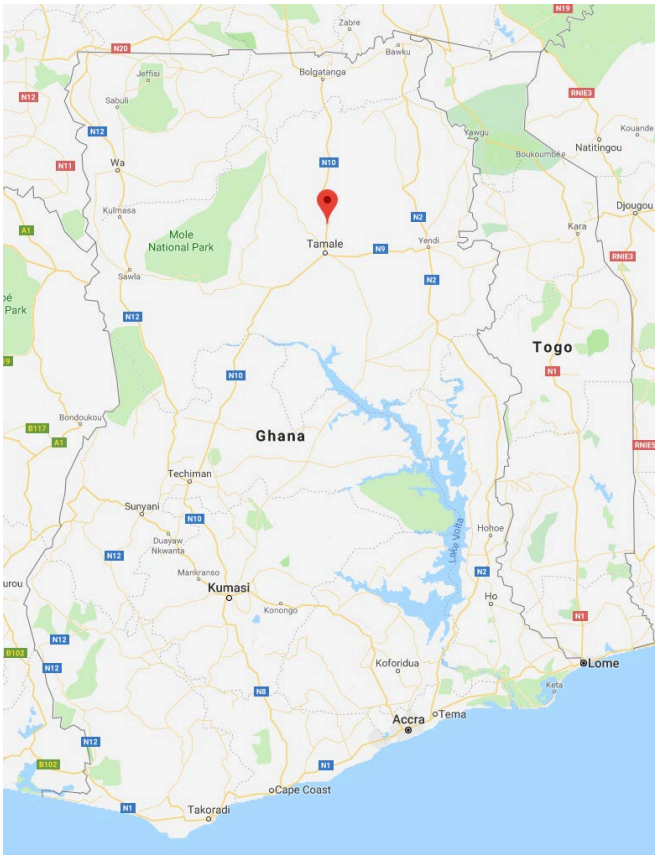


Figure 1: Google map of Ghana showing location of Savelugu

Complementary Basic Education (CBE) programs were being implemented across the country to support the literacy and numeracy learning of out-of-school children, with the overall objective for the children to transition into formal primary schooling.

In July 2014, I made initial contact with UNICEF Ghana and School for Life through email, then meetings over Skype to present my proposed research scope and design. Both School for Life and UNICEF Ghana endorsed the research and agreed to provide support where possible but were not involved in data collection, analysis, or interpretation. In the first week of February 2015, I arrived in Accra to meet with UNICEF Ghana and representatives from the Ministry of Education to present and brief them on the research aims, purpose, and design. I then made my way north to Tamale, in which UNICEF Ghana provided office space in their northern regional office for the duration of the field work to April 2015. However, UNICEF Ghana and School for Life did not provide any additional accommodation, transport, or financial support.

There were 25 communities in the Savelugu-Nanton district that had CBE classes running from October 2014 to June 2015. Each community had similar characteristics in terms of languages, demographics, size, rural location, and CBE class size. The two communities of Bunglung and Botingli were sampled from the 25 communities using simple random sampling (see Figure 2). This means there was an equal chance of any one of the 25 communities being selected as part of the sample (Moore, McCabe and Craig, 2016). T

The two communities sampled are located about four kilometres east of Savelugu. Botingli is accessed along a dirt road that ends when the community is reached. It is a small community that sits near a river and comprises roughly 20 Dagomba households (see Figure 3). There are no electricity utilities with the exception of a small number of solar-powered streetlights, and a single water pump. Botingli does not have primary or secondary schools, however, a community member funded the construction of a school building for informal Qur'anic Arabic classes. There is also a mosque in the centre of the community, which was reportedly funded by a private individual from Saudi Arabia. Less than two kilometres south of Botingli is Bunglung (see Figure 4). A large unpaved road that connects Savelugu to Nanton divides the community. Bunglung is about twice the size of Botingli, has electricity and a primary school. There are roughly 40-50 Dagomba households in Bunglung, and a mosque just on the north side of the road.

During field research period from February to April 2015, I was based in Tamale, which is located about 25 minutes south of Savelugu. Over the period of fieldwork, I made regular trips to both communities from Tamale via a private taxi and driver. A one-way trip from Tamale to either community took around 25 minutes. To minimise disruption, the communities were only visited on the days of School for Life classes and only during class time.

Figure 2: Location of the two communities (Google Maps)

Figure 3: Aerial view of Botingli (Google Maps)

Figure 4: Aerial view of Bunglung (Google Maps)

I travelled independently to each community and made initial contact with the community elders to discuss the research purpose, aims, and methods, and to seek their permission to

conduct the research. When visiting the research sites, a translator, Mr Thomas, accompanied me during the recruitment and interview stages of research. I independently contracted Mr Thomas through my professional network in Tamale. He had worked for the regional social welfare department for 30 years and was from Yendi, the former centre of the Dagbon Kingdom. He was also a teacher of Dagbanli to expatriates in Tamale, including visiting Christian missionaries.

After gaining permission to approach the two CBE classes, I met with the School for Life teachers and observed one of their classes. I took the opportunity to explain the research design, aims, and methods to the students of Bunglung and Botingli. Although the intention was to randomly select participants, five from each community's CBE class, School for Life staff pre-empted this by preselecting students. After a discussion with the teachers and staff about the problematic nature of this recruitment strategy for the research design, it was collaboratively decided that the parents or guardians of the students would be invited to class to be briefed about the research as a community. I took this opportunity to collaborate with the community stakeholders to reach consensus on a recruitment strategy. It was agreed that those students who wished to participate would submit their name and that ten names would be randomly selected transparently with parents, guardians, and children present. This strategy was suggested by one of the community members, and was considered fair by the parents, guardians and children. This approach was first used in Botingli and then repeated in Bunglung. I also took this opportunity to outline the methods of the research that would affect both classes and the communities, including the photography, CBE observations, and the exhibitions. Both communities, represented by the elders, the enrolled CBE children and their parents or guardians, consented collectively and allowed me to conduct this research. Further ethical considerations encountered in this approach are discussed in section 3.7 below.

The ten children whose names were randomly sampled were invited to participate in the research according to the procedures outlined below. Five children from Botingli and five children from Bunglung were invited to participate. The children were around what would seem to be between 8 and 12 years of age, although their age is uncertain, as many of the children were not registered at birth. In addition, they had varying experiences with formal schooling, which are outlined in profile of all the participating children in Table 1 below. The

plain language statement and consent forms were verbally translated to the parents, guardians, and students with only a translator and the CBE teacher present. This activity and documentation is necessary to ensure the study is ethical, further considerations of which are discussed in the section 3.7 below.

Community	Name	Sex	Age	Schooling history	Portfolio
Bunglung	Amina	Girl	10	Pulled out of primary school at grade two, did not attend Qur'anic Arabic lessons	333 https://goo.gl/photos/cT3i24DpgZSbx1xy8
	Ibrahim	Boy	10	Never attended formal primary school, attended Qur'anic Arabic lessons	368 https://goo.gl/photos/Vi1DQpdWhuDDiF5o9
	Somatu (Soma)	Boy	12	Completed primary school and pulled out of junior high school, attended Qur'anic Arabic lessons	635 https://goo.gl/photos/iNz4FeRKgmCN2HK97
	Asana	Girl	8	Never attended formal primary school, did not attend Qur'anic Arabic lessons	569 https://goo.gl/photos/4V8NFV3tPHAQFF8h8
	Yakubu	Boy	11	Pulled out of primary school at grade two, attended Qur'anic Arabic lessons	441 https://goo.gl/photos/BLDA4e9CLuHWoaiV7
Botingli	Fatahiya (Fata)	Girl	13	Never attended formal primary school, attended Qur'anic Arabic lessons	171 https://goo.gl/photos/BLDA4e9CLuHWoaiV7
	Siisu	Boy	9	Never attended formal primary school, attended Qur'anic Arabic lessons	353 https://goo.gl/photos/axt9MQf3D996C43fA
	Rafatu (Rafa)	Girl	12	Never attended formal primary school, attended	475 https://goo.gl/photos/iS9K

				Qur'anic Arabic lessons	B7w6RcKyFFmj8
	Barachisu (Bara)	Girl	11	Never attended formal primary school, attended Qur'anic Arabic lessons	209 https://goo.gl/photos/QHvrPPb6qqFnAQ2t9
	Sulemana	Boy	10	Never attended formal primary school, attended Qur'anic Arabic lessons	463 https://goo.gl/photos/b77DCXcFzMZ3mQEM8

Table 1: Profile of the ten participating children

I returned after two days to further discuss and collect recorded verbal agreements if the children consented, and if their parents or guardians also consented. All invited children and their parents or guardians consented. The teachers were also recruited from the classes attended by the participating children. An introduction was made face-to-face at their class, and after an initial meeting, the plain language statement and consent form was delivered in-person and discussed. I carried out recruitment of School for Life staff in Tamale, where School for Life's headquarters was located. The co-ordinators of the CBE program in Savelugu-Nanton district were invited to participate due to their knowledge of the communities and program. Plain language statements and consent forms in English were provided to two staff members and returned. See Table 2 below for overview of all participants involved in this research, including those indirectly involved as subjects of photographs.

Participants	Location	Communication	Number	Method
Out-of-school children enrolled in CBE	Bunglung Botingli	Dagbanli (translated with Mr. Thomas)	10	Collaborative digital photography, collaborative viewing sessions, CBE observation, exhibitions
Children's parent or guardian	Bunglung Botingli	Dagbanli (translated with Mr. Thomas)	10	Collaborative digital photography (as subjects), semi-structured interviews, exhibitions
CBE teachers	Bunglung	English	2	Collaborative digital

	Botingli			photography (as subjects), semi-structured interviews, exhibitions, CBE observations
CBE community coordinators	Tamale	English	2	Semi-structured interviews, photography exhibitions
Other children enrolled in CBE	Bunglung Botingli	Dagbanli (translated with Mr. Thomas)	40	Collaborative digital photography (as subjects), CBE observations, exhibitions
Community members	Bunglung Botingli	Dagbanli	Unknown	Collaborative digital photography (as subjects)

Table 2: Participant overview

In addition, there were indirect participants outside of Ghana both before and after the research fieldwork. The digital cameras used for collaborative digital photography were procured through a Facebook post (see Figure 5). In the post-fieldwork phase, three photography exhibitions were also organised in Ghana and Australia. Community exhibitions were organised and held in both Bunglung and Botingli. Community members, parents, guardians, children, district government representatives, School for Life staff, and other stakeholders attended the exhibitions. In Australia, an exhibition was organised and hosted by 45downstairs, a non-profit gallery in Melbourne. Over the course of two weeks, at least 400 people viewed the exhibition.

This study's research design with two cases (two communities with CBE), 10 sub-cases (participating out-of-school children) and additional participants including parents or guardians, teachers and staff (for an overall number of 24 direct participants and an unknown number of other indirect participants from the community as subjects in the photographs) is adequate to generate multiple sources of data using different methods, augment external validity, and allow for contrast and comparative analysis (Meyer, 2001; Yin 2011). CBE in both communities had spatial boundaries within each community in terms of place, delivery, and participants that allowed for a structured approach to simple random sampling. It also had a temporal boundary, as the CBE program was being implemented for the same period of nine months in both communities simultaneously, using the same

curriculum and delivered by the same organisation. See Table 3 below for an overview of the research phases.

Phase	Dates	Research activities
Phase 1	10 – 22 February 2015	• Arrival in Ghana • Preliminary meetings with UNCIEF Ghana, Ministry of Education, School for Life • Travel to Tamale • Case sampling and community introductions
Phase 2	23 – 28 February 2015	• Sub-case sampling and invitation • Distribution of digital cameras to participants and training • CBE observations
Phase 3	1 – 21 March 2015	• Collaborative digital photography • CBE observations
Phase 4	22 – 29 March 2015	• Collaborative viewing sessions • Semi-structured interviews with parents and guardians • Semi-structured interviews with CBE coordinators • Community photography exhibitions
Phase 5	April 2015 onwards	• Return to Melbourne, Australia • Coding and analysis of data

Table 3: Phases and timing of data collection

3.4 Methods

Within this research design, mixed methods were employed with different participants to generate different forms of data. Mixed methods uses both quantitative and qualitative research methods, and can offer both pragmatic and epistemological opportunities to facilitate communication, generate rich information and allow for exploration within a case study approach that is open to theory (Johnson, Onwuegbuzie and Turner, 2004). The generation of multiple sources of data and triangulation are integral components of case study research, and mixed methods complement this research approach (Crewell, Clark and

Garrett, 2003; Johnson, Onwuegbuzie and Turner, 2007). Multiple sources of data including digital photographs, interview transcripts, observation notes, and artefacts were collected. The research methods reflect the methodological positioning and choices of this study and enable the answering of the research questions. The following sections outline and identify specifically the methods used to generate data, which is an important step in the process of integration and promotes legitimation (Maxwell, 2016).

3.4.1 Collaborative digital photography

To generate data and knowledge to address this study's research questions, collaborative digital photography was the main method used. This method is participatory, however, this study frames the digital photography method as collaborative (Lather, 1986; van der Riet, 2008; Winton, 2016). Accompanying children in participatory photography research approaches is common in method design (Aitken and Wingate, 1993). In designing this research encounter and collaboration with children, I wanted to reduce my physical presence while also elevating the opportunities for the children to express themselves technically unencumbered through selectivity, instantaneity, and credibility (Barrett, 1986). However, as Mannay (2013) illustrated, this space unoccupied by the researcher can be occupied with others including siblings, parents, and other community members.

There is variation in the analytical rigour, documentation of approaches, and transparency in approaches using participatory photography as a method (Guillemin and Drew, 2010; Orellana and Peer, 2010; Winton, 2016). There is no standardised methodology, as researchers have drawn on a range of theoretical orientations, use different equipment, and have participant numbers ranging from four (Burnett and Myers, 2002) to 180 (Sharples, Davison, Thomas and Rudman, 2003). The majority of studies favour the use of disposable cameras rather than digital (Aitken and Wingate, 1993; Burnett and Myers, 2002; Mizen 2005; Moss, 2001; Wang and Burris, 1994). The rationale for the use of disposable cameras is one of restriction. That is, researchers restricted the number of photographs participants could produce. Studies that distributed digital cameras (Dockett and Perry, 2003; Einarsdottir, 2005; Yamada-Rice, 2010) placed instructional restrictions on the number of photographs participants could produce. For this study, there were no restrictions or minimum thresholds placed on the number of photographs could or should produce.

There were three stages to the implementation of this method. First, the participating children were given technical instructions in how to operate the cameras with instructional workshops conducted in each community, with both the children and their parent/s or guardian/s present. I facilitated this session in English, which was translated by Mr Thomas into Dagbanli. I demonstrated how to hold the camera, operate it, take photographs, and view the photographs using the digital display screen on each camera. Mr Thomas translated the instructions into Dagbanli, and questions from the children, parents, and guardians were addressed. As the children had never used a digital camera before, I choose to focus on operations rather than composition or aesthetics. This is in contrast to Winton's (2016) collaborative photography research with young people in Mexico City using manual single lens reflex (SLR) cameras, in which composition was discussed with participants. This was a choice grounded in wanting to limit my influence on how the photographs would be taken, but was also pragmatic given the children's unfamiliarity with holding and using a camera.

In the second stage, the ten participating children were invited to each use a digital camera provided to take photographs of their understandings and perspectives of literacy. The digital cameras were loaned to the children for three weeks for this purpose with as little presence of me as possible. This is similar to the approach taken by MacDonald (2012) and Winton (2016), who wanted to demonstrate trust in the research participants by leaving the cameras with them and also to not accompany them for observation purposes. This is in contrast to Kullman's (2012) ethnographic research using digital photography to study everyday urban mobility using digital photography with 23 children in Helsinki, Finland. She accompanied the participating children on school journeys while inviting them to document everyday experiences using digital cameras. Kullman defined research participation as an uncertain activity that involves collaboration between researcher and participants, and argued that visual research should seek to experiment with digital technology.

For the purposes of this study, the participating children were asked to photograph their understanding and perspective of 'karimbu ka sabbu'. These two words are the Dagbanli translation for literacy, which individually and literally mean 'reading and writing' respectively. No further instructions were given, and no limit on the amount of photographs was set (MacDonald, 2012; Mizen, 2005). It is important to note that this conceptualisation

of literacy for the participating children does not align with the theorisation of literacy positioned and discussed in this study. This was a pragmatic choice discussed with Mr Thomas and the teachers, and was the most effective way to communicate the intention of the children's collaboration and to give some direction to their actions. The simplicity and openness of the instructions is similar to approaches taken by other researchers to participatory photography with children in school and out-of-school settings, including Ghana (Mizen and Ofose-Kusi, 2010).

Dagbanli has many loan words from a range of languages, including English, Arabic, Hausa, and others. Although there is not a word for literacy, a literate person is known as 'alikali', which is also the word for a judge or Muslim scholar. A pencil or object used for writing is 'alikalami'. These words come from Arabic via Hausa, for which 'alqadi' in Arabic means 'judge', particularly a judge who is responsible for Shari'a court and other functions (Blench, 2004; Naden, 2014). To read in Dagbanli is 'karim' and a teacher is 'karimba'. It can also mean to study and to be at school, which perhaps comes from the Arabic, 'qara'a', which means 'to read' (Blench, 2004; Naden, 2014). To write in Dagbanli is 'sabi', which is also related to 'sabigi' and means 'to darken' or 'to blacken'. In addition, 'sabili' could mean a number of things including Arabic writing (Blench, 2004; Naden, 2014). The participating children were invited to photograph their understanding and perspective of karimbu ka sabbu. The third stage was the enactment of collaborative viewing of the digital photographs, which took place with the participating children and then with other collaborators through photography exhibitions.

3.4.2 Collaborative viewing of the photographs

As part of collaborative digital photography, and overall research design, is the viewing of the digital photographs with participants as method to generate data. The production of the photographs was a research task into which the participating children were invited, and discussing their photographs with them acknowledges this and their role as collaborators and owners (Croghan, Griffin, Hunter and Phoenix, 2008). A common feature of collaborative research is the joint analysing of data between researchers, and in participatory approaches to photography the joint viewing photographs is a common method usually called photo-elicitation (Croghan et al., 2008; Prosser, 1996; Winton, 2016). Photo-elicitation is different from other social science research methods that involve

interviewing participants not only because of the use of stimulus material, but because that materials are visual and photographic and have been assumed to overcome shortcomings of verbal interviews (Harper, 2002). The intention is to elicit direct responses from participants to the images shown to them, decentring the researcher from the position as knowledgeable (Collier, 1957). Photo-elicitation invites the participant/s to discuss photograph/s as a method for interpretation, and is frequently used in participatory photography research approaches (Harper, 2002; Kullman, 2012; Winton, 2016).

A collaborative viewing method is similar to photo-elicitation, but refrains from shifting the focus away from the photographs to the participants' responses. The focus of photo-elicitation is often not on the photographs themselves, but on using the photographs as stimulus material or visual prompts for documenting participants' responses to the images (Harper, 2002; Liebenberg, Didkowsky and Ungar, 2012). It is also a methodological safeguard against the voyeuristic gaze that is assumed of visual imagery, particularly photography and unintended or intended exacerbation of stereotypes (Croghan et al., 2008 p.351). Collaborative viewing of the digital photographs acknowledges the intention of the participants as photographers, and the value of photographs as data generated for research purposes. This method was also the preliminary stage of the coding process. It was an opportunity to collaborate with the participants in an analysis of their photographs and the development of the coding framework.

The sessions with the participating children focused on collaborative viewing of their photographs. I sat down with each student and the translator to discuss the portfolio of photographs produced. The photographs were displayed on the screen of my laptop, and the interviews were conducted within their homes and recorded digitally. The collaborative viewing session with each participant was conducted for no more than one and a half hours, and the times were arranged with his or her parents or guardians at their convenience. Open-ended questions about photographs were used to elicit responses, such as, "Tell me about this photograph". Follow up questions were asked based on the initial responses.

3.4.3 Participant observation and documentation collection

Participant observation is an established research method in social sciences, and more specifically in education research (Kawulich, 2005; Orellana and Peer, 2010). Atkinson and Hammersley (1998) defined participant observation not as research method but as "a mode

of being-in-the-world" (p.249). Kawulich (2005) listed a number of characteristics and principles of participant observation including having a non-judgemental attitude, being open to learning, and listening actively. Musante and DeWalt (2010) framed participant observation as complementary to other research methods such as interviewing, surveys, and quantitative methods as it helps the researcher better understand the context of the phenomena being studied and support research design validity. However, participant observation requires reflexivity from the researcher, including an awareness of how the presence could alter and/or effect the people and community being observed (Kawulich, 2005). Within this study's research design, participant observation is positioned as complementary and supplementary to the other research methods and was used for contextual understanding within limited circumstances defined by CBE classes.

The CBE classes in both Bunglung and Botingli attended by the participating children were directly observed over a period of one month. Participants were not observed outside the CBE classes or in any other contexts. As the purpose of this study is to access out-of-school children's perspectives, participant observation was not a suitable method for generating primary data but rather helped me build contextual knowledge of CBE and of the Dagbanli language. The stance I adopted was not one of complete immersion in the communities, but rather the maintenance of some perhaps artificial distance. This can be considered a peripheral membership role, in which I observed a specific context setting but did not participate in activities (Adler and Adler, 1987). I did not seek to participate in the CBE classroom activities, evaluate the effectiveness of the pedagogical approaches of the teachers or assess the children's literacy activities. Furthermore, I did not seek to observe the everyday lives of the participating children outside of CBE, as I wanted to mitigate my influence as an outsider coming into these communities. Field notes were recorded and entries logged into a hand written journal. In total, 25 hours of CBE classes were observed in Bunglung and Botingli; an equal number of classes were observed in each community. In addition, copies of the CBE textbooks and workbooks used at the time of classes were obtained from School for Life in Tamale, and a copy of the Complementary Basic Education Policy Framework (Ghana Ministry of Education, 2013) was obtained in Accra.

3.4.4 Semi-structured interviews

The semi-structured interview is an established research method in which the researcher asks a set of pre-defined and open-ended questions of participants, and is appropriate for a mixed methods case study (Corbin and Strauss, 2014; Creswell, 2009). Although these types of interviews are beneficial for researchers that want to ensure the same concepts are covered in each interview, participants may not offer relevant information if the particular questions was not asked (Corbin and Strauss, 2014). However, given the nature of this study and the particular research questions, it was considered an appropriate method to ensure relevant information was elicited from each participating adult on the concepts of literacy, CBE, and schooling. The purpose of these interviews with adults was to supplement the collaborative digital photography, which will support a reliable analysis and interpretation of the photographs (Croghan et al., 2008; Winton, 2016).

I developed an interview guide of semi-structured questions. The questions were to be asked of invited adults in each community, and for which there would only be one interview with each participant. Each child participants' parent/s or guardian/s were invited for a semi-structured interview. Each interview lasted no longer than one and a half hours, and took place within the participants' respective community, usually outside. The interviews with the participants focused on their perspective of their child's education history, literacy practice, and education service provision in northern Ghana. The purpose was to further support the analysis of the photographs and collaborative viewing through generating contextual, demographic, and schooling information. The interviews were conducted in Dagbanli with the translator present. Times for the interviews were at the convenience of the participants and recorded digitally.

Interviews were also conducted with both CBE teachers in a mixture of English and Dagbanli with the translator present. The CBE teachers switched back and forth between answering questions in English and/or Dagbanli. These were conducted in Bunglung and Botingli outside of CBE class times. In addition, semi-structured interviews were conducted with two School for Life staff who coordinated the program in Savulugu-Nanton. These interviews were conducted in English without the translator present, although I offered both staff the opportunity for the interview to be conducted in Dagbanli. Both interviews lasted no more than two hours and were recorded digitally. The purpose of these interviews was to

generate further information about CBE provision and pedagogical approaches to teaching and learning. This information was used to support the analysis of the photographs.

3.4.5 Photography exhibitions

A photography exhibition was organised with the participating children and the facilitators in each community (Winton 2016). I printed all the photographs and gave each participant a copy of the photographs they produced for the exhibition. For the exhibitions, the participants were invited to select ten photographs for display. A CBE classroom was used to display the photographs for one afternoon at the end of the research fieldwork period. At the same time as the exhibition, the remaining School for Life students who did not directly participate were invited to use the cameras for the afternoon. These photographs (n=1,700) were not collected as data, and this event was designed to ensure every student had an opportunity to use a digital camera. In addition, a photography exhibition was organised at a non-profit art gallery in Melbourne. I selected 28 photographs to print and display. Each photograph was printed 800x600mm and mounted on simple foam backing. This exhibition ran for two weeks in 2016 and was open to the public. The exhibitions did not generate data for analysis, but were avenues for sharing the participants' photographs with their communities and with wider audiences as part of the collaborative methodology.

3.4.6 Equipment

Visual research using cameras vary in the equipment used and the rationale for choosing such equipment. However, it is not always transparently outlined or discussed. Generally, researchers seek to limit the number of photographs participants can compose and capture especially when researching with children and young people through equipment (Luttrell, 2010; Packard, 2008; Winton, 2016). As this study acknowledges the materiality of literacy and photography, and positions the participants as in collaboration with the digital cameras, it is important to outline the main features of the cameras and how they were procured for research.

I purposefully choose to use digital cameras with the participants in this study. This is in contrast to participatory photography research methodology by those such as Packard (2008), Mizen (2005), Young and Barrett (2001), Croghan et al. (2008) and others who preferred disposable and/or analogue cameras. This was a choice I made without consultation of the participants, parents/guardians, or community members. This was partly

pragmatic, as I had to bring the cameras with me from Australia, but I also recognise this is an imposition within a collaborative approach. In addition, I did not want to limit the number of photographs that could potentially be composed and captured, and wanted this decision to be in their hands as collaborators and photographers (Winton, 2016). I judged that technical limitations would unduly influence composition, aesthetic, and practical choices made by participants. I wanted them to have the freedom to produce as many or as little photographs as they wanted, which would also helped mitigate my influence.

Researchers procure cameras as equipment for their studies, but this process is not often outlined. Based on the principles of this study's collaborative approach to photography, I sought to procure second-hand digital cameras through crowdsourcing. Crowdsourcing in research is an emerging approach and method for data collection, participant sampling, and analysis (Behrend, Sharek, Meade and Wiebe, 2011; Sheehan, 2018). Generally, crowdsourcing can be explicitly an open invitation to a public audience to help solve a problem, with particular roles assigned to the crowd depending on the nature of the problem and/or research (Ghezzi, Gabelloni, Martini and Natalicchio, 2017). This study sought to stretch the concept of collaboration to include potentially unknown collaborators through crowdsourcing equipment, creating new connections across contexts between Australia and Ghana and avoiding expenditure on new equipment. The use of crowdsourced digital cameras also immediately challenges notions of local knowledge and local contexts through the participants' use of technology imported and transferred across global contexts starting from the place of manufacture.

I choose Facebook as the channel for crowdsourcing. I posted an update on my Facebook profile on 20th January 2015, tagging a number of friends in the post (see Figure 5). It was not a public post, and only my Facebook friends and the friends of those I tagged could see it. I used a photograph taken by a Fulbe girl in the Savelugu-Nanton District in 2012. It was collected when I was employed with UNICEF Ghana, and managing a pilot CBE program in partnership with School for Life. Two digital cameras, purchased in Japan by a colleague and with funding from the Australian foreign aid program, were rotated amongst eight children enrolled in the CBE program. These cameras remained in the Tamale office of UNICEF, which I discovered upon arrival in February 2015. However, I did not use these cameras for this research, as I did not know they were still secured in Tamale.

In response to the crowdsourcing Facebook post, I received ten digital cameras via Australia Post from five people. In total, I took eleven digital cameras to the research sites, with one camera as a spare. In addition, I had to purchase a number of secure digital (SD) cards for storing the photographs taken. I purchased additional cases to protect, secure, and transport each camera, which were also given to the participants. In early 2016, a doctoral candidate and colleague at the Graduate School of Education borrowed eight of these digital cameras for her fieldwork in indigenous communities in Malaysia.

The eleven digital cameras were of the following models. All cameras used rechargeable lithium batteries with the exception of the Canon PowerShot A560 and the Olympus FE-26, which both used AA batteries.

- Canon PowerShot A3200 IS, which was made in Malaysia and released in 2011 (n=4)
- Canon IXUS 145, which was made in China and released in 2014 (n=1)
- Canon PowerShot A560, which was made in Malaysia and released in 2007 (n=1)
- Casio Exilim Z75, which was made in Japan and released in 2007 (n=1)
- Olympus FE-26, which was made in China and released in 2009 (n=1)

The participating children did not get to choose the cameras used, and were allocated the same camera for the duration of the research period. All cameras have the same basic features and technical operations. The memory cards in each camera allowed for a maximum of 9,999 digital images to be stored. I periodically backed-up each memory card during the three-week period, and recharged the batteries when needed as there was no regular electricity available in either community and I did not want to burden the families with this additional task and utility cost.

Figure 5: Facebook post requesting digital cameras

3.5 Data analysis framework

The overall strategy for data analysis in this study rests in exploring theoretical propositions related to how literacy is produced, influenced, and perceived by the participating children and the extent to which the methodology allows access to participants' perspectives of literacy (Creswell, 2014; Punch, 2014). More specifically, it intends to identify patterns across the participants' photographs and data produced and build explanations for these patterns (Aitken and Wingate, 1993; Damico, 1985). The framework presented was iteratively designed and built, and is presented transparently. This approach enabled an analysis of the data and a discussion of the findings to address two research questions, and promotes validity and trustworthiness of the overall research design through interpretive validity and inside-outside legitimation (Maxwell, 1992; Onwuegbuzie and Johnson, 2006).

As discussed in the previous chapter, photographs produced by participants often disappear from research communication and dissemination, replaced by written accounts of the data, analysis and findings; components of the education research discourse. A review of the literature revealed that this is due to the lack of a robust protocol or framework for analysing digital photographs as data (Mizen, 2005; Orellana and Peer, 2010; Punch, 2013). As demonstrated in the literature review and previous sections of this chapter, there is often a lack of detailed discussion about the analytical frameworks and processes used in the research literature, or necessarily an engagement theoretically with broader

photography theory. In addition, the research literature does not generally detail how codes or emerging themes were determined using photographs as data (Punch, 2013). This study, in addressing the research questions, considers transparently and critically materials used for producing data and how that data is analysed both theoretically and pragmatically. This is particularly pertinent to addressing the study's first research question. Therefore, the digital photograph produced by each participating child was the primary unit of analysis, and each child a sub-case of the two cases (Gerring, 2006).

In order to answer the research questions, to develop approaches to access children's perspectives and explore how they understand and practise literacy, requires advancing photography theory and methodologies. This requires a consideration of not only what researchers do with photographs but also what they can do and what they should do with photography. There are three inseparable but distinct elements to these considerations that are foundational to the analytical framework: cameras; photographs; and, the relations between objects, subjects, viewers, and photographers to the camera and photographs.

Wang and Burris (1997) suggested that participants should be involved in a three-stage process of analysis: selecting, contextualising, and codifying the photographs produced. This framework has remained relatively unchanged, but has been adapted to be inclusive of the fluidness and theories of photography. Rose (2001) proposed a three-tier framework for the analysis of photographs, which includes the site of production, the photograph itself, and audiencing. Participatory visual research methodology that employs digital photography as a primary method for generating data must use an analytical framework that sufficiently accounts for photography theory, materiality, and indexicality. In order to address the research questions, this methodology will account for photography theory, materiality and indexicality, developing a robust analytical framework to access children's perspective of literacy. It is only through sufficiently understanding the camera, the photographs, and the relations that the data produced can be rigorously analysed to ensure the children's perspectives of literacy are treated seriously and given primacy of place in interpretation. In addition, the data analysis section considers three elements of ethics, positioning these are integral and embedded within the analytical framework. These include: authorship and ownership (section 3.5.1); representation and audience/s (section 3.5.2); and unclear boundaries (section 3.5.3) (Cox, Drew, Guillemin, Howell, Warr and Wavcott, 2014).

3.5.1 The digital camera

In Dagbanli, to take a photograph is 'ŋme anfooni', of which 'ŋme' means *to* hit, ring an object, or play an object and 'anfooni' meaning image, picture, or chart. The verb 'ŋme' is also used in conjunction with other nouns to make verb phrases such as to shoot a gun, to argue, to complain, and to boast. It is a physical act, sometimes violent, and something completed with a part of the body such as the hand, foot, or mouth. This has similarities in English in verb phrases such as to shoot a photograph or photography shoot. However, when 'ŋme' is used with different nouns such as 'looko' or 'bobgu' it can mean to interrupt a journey or to travel, which still refers to physical movement with the body to complete an action.

An analytical framework for collaborative digital photography must first conceptualise the digital camera. The analytical process begins before the production and viewing of a photograph; when decisions are made as to what and how the photographs are to be taken (Prosser, 1996). Orthodox theoretical and analytical approaches embed the camera in interpretative perspectives within positivist and structuralist frameworks without a consideration of the camera itself as the device for producing data (Collier and Collier, 1986). The anthropological literature conceptualised cameras not as devices for producing photographs, but as extensions of the subjectivities of the social interactions *in situ* (Byers, 1964; Prosser and Prosser, 1998). Worth (1980) made a distinction between photographs as "records of" and "records about" culture. Ruby (1976) argued that photographs produced by researchers are actually records of the culture of those researchers, while also being records about the culture of others. Recently, there has been a deeper engagement with subjectivities, reflexivity, critical voice, and the visual as knowledge (Pink, 2003; Rose, 2001). However, there is often very little or explicit theorisation and positioning of the camera itself as a material device involved in the research process.

This study considers the need to explore and recognise the materiality of digital photography; of the digital camera as a device used by photographers. This is often overlooked and/or implicitly considered in the research literature (Krauss, 1977). In particular, this is critical when introducing cameras as devices for the first time to children and young people participating in research. Photographs are only produced mechanically and digitally through this device. Both the digital camera and the production of photographs

mediate the participants' involvement in research, and understanding how is important in the analytical framework of this study to address the research questions. In acknowledging the digital camera, the role of the participant as photographer must also be acknowledged, as they produce the photograph.

This raises complicated issues around authorship and ownership, which are usually considered part of the ethical framework (Cox et al., 2014). As part of this study's analysis, and reporting of the analysis, authorship of the photographs is consistently acknowledged. The analytical framework sought to maximise and embed the contributions of the participants as photographers, through positioning the photograph as the primary unit of analysis and using the collaborative viewing sessions to develop the coding framework. In addition, the community photography exhibitions sought to secure the authorship of the photographs and position the participating children as photographers in their own right. This included providing printed copies of their photographs to each participating child to help establish shared ownership (Cox et al., 2014). However, the ongoing digital storage of the photographs, particularly for analysis, is with myself as the researcher.

Digital photography insists on a material connection with the event, object, or subject photographed (Vestberg, 2008). The mechanical and electrical processes of a digital camera demonstrate this insistence (Seppänen, 2017). Visible light, viewed and captured through the lens of the digital camera, is converted into electrons using an image sensor. On the surface of sensors are millions of photodiodes, each of which captures a single pixel through a Bayer filter array (Canon Science Lab, ND). When the shutter button on a camera is pressed sufficiently hard, the shutter opens briefly. Each photodiode on a filter array absorbs the brightness of the light, storing the photons as electrical charges (Canon Science Lab, ND). When the shutter closes, exposure is ended. The electrical charge from each photodiode is converted into a digital number, which all then used to recreate the image as pixels (Adams, Parulski and Spaulding, 1998). A Bayer filter array is usually layered over the image senor and arranges red, green, blue (RGB) colour filters on the square grid of photodiodes. The filter uses twice as many green elements on the filter as red or blue to imitate the physiology of the human eye, which is more sensitive to green visible light (Adams et al., 1998). It was almost universally used on all consumer digital cameras,

irrespective of manufacturer. The filter absorbs and blocks incoming light at each photodiode, so only certain ranges of wavelengths pass through to the photodiode.

Therefore, a significant portion of incoming light is blocked before reaching the image sensor. Photodiodes do not cover the entire surface of a sensor and are situated in cavities. On top of each wall of the cavity sits micro-lenses that funnel the photons to improve absorption. However, as the Bayer filter only absorbs RGB, approximately two-thirds of visible light is discarded in the process. In order to get a full colour image, de-mosaicing algorithms are applied to reconstruct a full colour image from what is grey-scale rendering of the image (Adams et al., 1998). This process is called interpolation, whereby computation takes the colour of each pixel by combining what was captured directly with its Bayer filter with the other two colours captured by the pixels around it (Adams, et al., 1998). Seppänen (2017) conceptualised this process as the first form of the material and indexical trace of a photograph. This material process of producing a photograph is taken into account when examining to what extent digital photography can access children's perspectives of literacy. Whatever is captured in a photographed has been filtered through a mechanical process, to the extent that the image needs to be reconstructed before it can be viewed.

The production of a digital photograph demonstrates the materiality of digital photography, as mechanical processes create an output of what was originally a person-oriented action (eye, looking, body, hand gesture, stance, instructions, etc.). This methodology considers digital photography as the interplay between the photographer/s and the digital camera. When the participants took their photographs, it was a process repeated every instance the shutter button was pressed, and the image sensor was exposed to visible light. Although this suggests photographs are incomplete utterances, they are perhaps complete insofar as photographs are products of the material processes of digital technology. However, photographs are not raw realism, particularly when considering the process of capturing light and converting it to matter. The production of a photography using a digital camera in the hands of a photographer is a complex chain of sequences, processes, and events, in which some information is lost and other information reconfigured (Seppänen, 2017).

The modern digital camera is conventionally designed to take two types of photographs, either landscape (horizontal) or portrait (vertical) orientations. Indeed, the labels for the two orientations are telling. Using a digital camera horizontally is generally considered more

appropriate for photographing landscapes, while vertical orientations are used for portraits of a person or people. The rectangular shape is ubiquitous in art, particularly paintings, which traditionally took and continue to take rectangular or square orientations. It is also an efficient shape to hold in one hand or two, and to produce. Although a camera's lens is circular, the image sensor is rectangular and, thus, the image captured by the lens is cropped automatically into the shape of the camera's image sensor. The digital cameras used by the participants each have an LCD screen display, which participants used as a viewfinder. The digital cameras were held out in front of their bodies, with two hands, perhaps 30 to 40 centimetres away from their bodies and at various levels above the ground depending on each shot.

All photographs were digitally stored on a laptop and catalogued under each participant's name while I was in northern Ghana. The original designation assigned to each digital image in a camera's Digital Camera Images (DCIM) directory was kept. For example, the prefix 'IMG' is automatically assigned to each digital image as the naming convention with a number following that is based chronologically on when the photograph was produced. 'IMG0001' refers to the first photograph produced by the participant. However, different models of cameras can have different prefixes. The Casio Exilim Z75 model assigns the convention 'CIMG' to each digital image.

As this study seeks to examine how out-of-school children understand literacy through collaborative digital photography, it is important to consider how the photographic data is produced and to what extent digital photography can access children's worlds. The analysis of the photographic data is considered within this context and acknowledges the interplay between the participants as photographers and the digital camera. Each photograph produced and analysed is not a complete copy of what the participant was intending to capture. Although a digital camera seemingly offers the opportunity to record, document, and capture events and practices anywhere the photographer is, the process of production is material and artificial, in the sense that naturally occurring light is artificially captured, converted and stored digitally. Every time a digital photograph is produced, each time the participant hit or ŋme the shutter button the same process repeated itself often with imperfections. This largely invisible process mediated children's capturing of literacy and the access to those perspectives.

3.5.2 The digital photograph

An analytical framework for collaborative digital photography must also conceptualise the digital photograph. The previous section illustrated the materiality of digital photography and the creation of a digital photograph. Once the process of interpolation is complete, a photographer usually can either use the liquid-crystal display (LCD) screen on the back of a digital camera to view the image (or any image taken that is stored on the SSD card) or transfer the image files onto a computer or phone to view, edit, or share. The transfer of photons into electrons gets to the very materiality of photographs, but in using photographs as data, there are theoretical and pragmatic considerations that can be framed around the concept of indexicality, which has been previously discussed in the literature review in chapter two (Doane, 2007; Krauss, 1977; Seppänen, 2017).

This section briefly defines this study's concept of the indexicality of a digital photograph, which is central to accessing out-of-school children's perspectives through collaborative digital photography. In order to access those perspectives, it is necessary to theoretically and methodologically consider the indexicality of a photograph, which was previously discussed in the literature review. The methodology of this study positions digital photographs as a product of material processes in one instance, but recognises that it is not a linear process (Frosh, 2015). At the same time, photographs are an output of the photographer, who presses a button to capture, store, view, and share them. This action assumes an expression of part of the photographer; an action they take to represent something or someone with an intention to produce a photograph in a social context (Liebenberg, 2009; Winton, 2016). It also speaks to issues of representation and audiences, which similar to authorship and ownership, are considered as ethical issues (Cox et al., 2014).

As part of the analytical framework, and analysis of the photographs, it is critical to consider two aspects of representation relevant to this study's research questions. First, is the intersection of the digital photograph and the representations that the participating children wanted to capture and communicate to an audience. This study's analytical framework treats the photographs as representative of the participants' perspectives, as they sought to document their understanding of 'karimbu ka sabbu'. During the analysis and subsequent dissemination and publication of the photographs, I did not edit or alter the

images, as this may interrupt the original meaning and representation intended by the participant (Cox et al., 2014). The analysis also considered the intended and unintended audience/s for the photographs, but not included in the direct analysis of the photographs. The direct analysis of the photographs was confined to the participating children and myself, although it is acknowledged that subsequent viewers of the photographs will bring their own interpretation and meaning to the viewing.

Second, is the intersection of the digital photograph, representation, and indexicality (Doane, 2007; Krauss, 1977). Digital photography offers what is seemingly a ready-made approach, particularly with the advent and use of the smart phone (Gómez Cruz & Meyer, 2012; Hjorth and Pink, 2014). However, as discussed above, the materiality of digital photography must be considered in the development of any methodological approach. Photography is a process whereby light is turned into matter, but not in a vacuum. Photography is a process in which light interacts with matter, and it is also a practice that occurs within spaces that are political, social, economic, and cultural (Mizen and Ofosu-Kusi, 2010). Indeed, usually holding the camera is a person (although not always) who intends to produce an image of something, someone, somewhere for any number of reasons. This aligns with ethnographic approaches to the study of literacy, particularly NLS, in which literacy as practice is embedded in political, social, economic, and cultural contexts (Street, 1984).

This study positions digital photographs as visual traces of indexical material, as they maintain a connection to that which was photographed through the materiality of digital photography. More precisely, it positions digital photographs produced by participants as material and indexical traces of their perspectives and understanding of literacy (Seppänen, 2017). At the same time, it is acknowledged that digital photographs are easily effaced and can changed particularly through editing, post-production activities, and sharing across known and unknown contexts. The development of visual participatory methodologies involving photography requires a nuanced and critical consideration of theories and practices connected to photography. Photography does not produce text, and photographs are not text. The production of photographs is different from that of producing a written text or making a verbal utterance (Croghan et al., 2008). However, the notion of photographs as indexical is usually grounded in conventions of language, such as deixis

(Doane, 2007; Hanks, 2005) or leitmotif (Aitken and Wingate, 1993) rather than of visual (Seppänen, 2017). Therefore, this study developed an anthological framework to analyse the photographs as visual traces of indexical material, in which the visual is not subordinated to the textual but nor are the relations in which the photograph was produced ignored.

3.5.3 Anthological framework

The analytical framework of this study considers digital photographs to be material and visual indexical traces that imperfectly capture and produce an image through a digital camera, which are also produced by a photographer who presses a button to open the shutter briefly. This image is interpreted by both the participants and the researcher in the first instance, but potentially by known and unknown others who view the photographs. Participants were asked questions about the photographs they produced to ground the coding process in their perspectives and to complete the picture of what they were intending to index. Most importantly, in seeking to answer the research questions of this study, the analysis of the photographs treated the photographs not as utterances or as voices of the participants, but as indexical and materials traces of their perspectives that can be analysed to generate knowledge. These traces were produced through a digital camera as a digital photograph, which can be printed, viewed, arranged, and considered repeatedly.

This framework builds on the early approaches of Damico (1985) and Aitken and Wingate (1993), in which transparent coding frameworks were developed to analyse photographs. In particular, this study adapts Aitken and Wingate's leitmotif concept to develop an anthological framework but one which is more culturally and linguistically relevant to Dagomba while keeping distance to non-Ghanaian or Western thought. The digital photographic dataset is imagined as an anthology. Anthology derives from the Classical Greek, ἀνθολογία, which translates as 'the collecting of flowers'. Meleager of Gadara published a collection of Greek poems by various authors in the 2nd/1st Century BCE called 'Garland'. Each poet included in Garland was compared to a flower by Meleager, and contemporary usage of the term often refers to published collections of poems, literature, photographs, television shows, and other media. Indeed, although the term has often been reserved for published collections of poems, it has been extended to various media beyond traditional written literature. Although the term 'anthology' is not a Dagbanli word or of

Dagomba culture, it affords the status of the collective artistic and photographic merit shown by the participating children to audiences and readers. It is an attempt to discursively position the children's epistemologies as shown through their photographs and assembled as part of this study. It is used in conjunction with Dagbanli language in the analysis to reduce the distance between the ethics and values I bring, those of the theories I work within, and those of the children and their communities (Tikly and Bond, 2013).

In this anthology for analysis, the ten participants are the individuals included as sub-cases of the two cases, while I act as the researcher and curator. The notion of anthology allows for an examination and exploration of the photographs as an aggregate whole, which was the result of a collaborative research project between the participating children and myself. This framework also ensures that each participant's portfolio within the anthology is treated in its own right and within context. Individual photographs are referenced in Plates I-XIII and found in the Appendix. It also acknowledges the unclear boundaries of collaborative digital photography, as the normative boundaries between the roles and purposes of the researcher, researched and data are obscured and renegotiated (Cox et al., 2014). The concept of anthology within analysis attempts to encompass these unclear boundaries and account for different roles, purposes, and ethical challenges.

The term 'Plate' is a commonly used reference in research articles for images of artefacts that have been documented, drawn, or photographed (Young and Barrett, 2001). This term also references the daguerreotype, which was the first device to capture and produce photographic images on polished copper plates, and recognises that for the participating children it is the first time they are producing digital photographs. A unique feature of this anthological framework is the open-access to the reader or viewer of this study to the complete portfolio of each participating child and the anthology. The complete anthology is available for viewing online using the embedded hyperlinks in the portfolio column (see Table 1). The digital photographs are included without captions, but the anthology is arranged by participant name and presented chronologically for each participant. The digital photographs have not been altered or edited in post-production. Although contextual information has already been provided, the viewer is invited to explore the photographs online before continuing (see Table 1).

Figure 6: Selected view of the photographs by Siisu

A quote attributed to Garry Winogrand, a street photographer of New York and American life between the 1950s and 1980s is, “No one moment is most important. Any moment can be something”. This notion that any moment captured by a camera “can be something” is relevant to collaborative digital photography. There is an expectation in participatory visual research, particularly digital photography, that participants will produce singular photographs of significance. This study considers every digital photograph produced to “be something” for analysis and discussion, particularly when viewed collectively as an anthology (see Figure 6). Therefore, every photograph produced by the participants was analysed and included in the anthology without reservation. The anthological framework adapts Rose’s (2001) three-tier analytical framework that focuses on where meanings are made within photography: 1) site of production; 2) the photographic image itself; and 3) audiencing. Two additional elements are added to this framework: 4) the digital camera; and 5) the photographer. This accounts for the role of the camera and the photographer, who uses the camera. This framework accounts for the materiality of photographs, in considering how the image was produced and how it is given meaning by different audiences and viewers as it travels across digital and physical sites. This framework will also be aligned with the coding framework and process (Punch, 2013).

In the first instance, the analysis explores and considers the materiality of photographs. This process is considered iterative and ongoing, as I will be engaged in constant viewing of the

photographs over an extended period of time. The photography exhibitions consider audiencing within this viewing, inviting other participants and non-participants into the study and into the photographic viewing. Conversations, decisions, and reflections over the course of the fieldwork period and the three exhibitions shape and disrupt the development of the analytical framework. The coding framework aligns with this study's analytical framework, adopting a tiered coding process that consists of identifying and developing themes through:

1. Collaborative viewing of the photographs with the participants;
2. Viewing and opening coding of all the photographs as printed photographs;
3. Viewing and open and axial coding of all the photographs as digital photographs using Atlas.ti, which builds on the two previous iterations and references the collaborative viewing with participants to check for understanding.

3.5.3.1 Collaborative viewing of the photographs

The first stage in coding and analysing the photographs was through collaborative viewing. In Bunglung and Botingli, in and around where the participants produced photographs, I sat with each participant to view their photographs with them. I invited each participant to discuss their photographs, using semi-structured interview questions, asking them to tell me about individual photographs using prompts such as, 'Tell me about this photograph' and 'Why did you take it?'. This approach invited each participant into a discussion about the photographs. This constituted a preliminary and collaborative open coding process, which was directed by each participant in regards to communicating their response to a photograph itself. The responses and themes that emerged after conducting ten collaborative viewing sessions served as a benchmark for the proceeding analysis, against which to check and compare analysis and consideration of the site of production, the photographs, and the audiencing. However, this did not replace the digital photographs themselves as the primary unit for analysis, and is considered supplementary in the analytical framework.

3.5.3.2 Coding process of all the photographs as printed photographs

In Melbourne, I printed every photograph at 80x60mm size but did not retain their original chronological ordering. The printed photographs were placed in random order and without

reference to the participants. As part of an open coding process, I wanted to be able to view the entire dataset as an anthology, and keep an overview in sight (Punch, 2013). I then conducted a preliminary coding of the photographs labelling each printed photograph with one code as a first-level concept (Punch, 2013). Each printed photograph was viewed and sorted, with a focus on modified questions after Punch (2013). What is the central thing captured in this photograph by the photographer? What is this photograph mainly about? This activity allowed for an overview of the entire dataset to identify patterns and dip in and out of the dataset, easily being able to move from one printed photography to another (Punch, 2013). It was also an opportunity to physically hold each photograph and treat it as a physical and material trace of the participants' perspectives.

3.5.3.3 Coding process of all the photographs as digital photographs

Using the software program Atlas.ti, the photographs were uploaded and sorted according to the community and each participant. Each photograph was coded using Atlas.ti, which involved highlighting planes on each digital photograph and assigning a code to that plane. The term 'plane' is used intentionally and refers to its geometrical conception. A geometric plane is a flat, two-dimensional surface that extends forever. The plane drawn over a section of a photograph in Atlas.ti to code it represents just a part of a geometric plane. This represents not only the time and space hybridity of digital photographs, but also reinforces the two-dimensional nature of photographs. Traces, translations, and relations can be identified infinitely in any given plane. Points within the plane can be identified and possibly connected by lines of relations within each photograph and across the anthology.

The concept of a photograph being a part of a geometric plane also captures the materiality of photographs. Photographs cut out a particular space and time of three-dimensional space. This space is not necessarily visible as the four edges of a photograph delineate the two-dimensional space. Interestingly, this space can be manipulated through the editing processes of digital photographs. Codes were developed inductively around social or contextual settings, composition, actions, domains, materials, and social identities, which were preliminarily taken from the preceding coding stages. Interview transcripts were also uploaded, coded, and analysed using Atlas.ti, as well as documents including the Complementary Basic Education Policy Framework.

In addition, all photographs were uploaded securely to Google Photos, which is protected using two-factor authentication. This allows the data to be shared via a private link. As it is not feasible to include all photographs within the study, links are provided to the viewer/s for each participant's photography portfolio. This allows for transparent viewing and access to the entire dataset (see Table 1). Although not explored in this study, Google Photo offers a number of features for data management, searching, and analysis for future research. These concurrently can be used by the viewer/s of this study. For example, Google Photo has a search feature using keywords. A search for 'blackboard' will return all images of blackboards or that feature blackboards in the frame. The search feature can be used for people, places, objects, and colours. Searching abstract concepts such as 'beautiful', and actions and concepts such as 'reading', offer interesting opportunities to explore digital technology, research, and data analysis. Google Photo is also an application that can synchronise with mobile phones, laptops, and tablets. There are also opportunities to utilise the Google Photo application for geo-tagging, data mining, data visualisation, editing, and dissemination.

The photographs were analysed using a number of features of Atlas.ti and quantitative analysis such as frequency distribution using Microsoft Excel and pivot tables (Gravetter, Wallnau, Forzano and Witnauer, 2020). After the first-level concepts were developed using the printed photographs, digital codes were generated on Atlas.ti and a coding paradigm emerged that includes: contexts of production; languages; multi-modalities, materials; and literacies. These were identified as connecting concepts across the anthology after the collaborative coding with participants and coding of both the printed and digital photographs. The connections between these concepts were identified by first counting the occurrence of second-level concepts, and their co-occurrence across the data.

The occurrence of each code in a participant's portfolio was counted and expressed as a percentage. Totals were calculated for each participant and each community. This allowed for comparison of cases and sub-cases. This also allowed for data visualisation using Microsoft Excel and the identification of patterns using heat maps, column graphs, and spider diagrams. These visualisation tools and graphs enable patterns and co-occurrences to be generated, comparing communities and portfolios to better understand how and why practices were evident. In addition, co-occurrences of codes were produced and analysed,

expressed as a normalised co-efficient between 0 (codes do not co-occur) and 1 (codes occur when they are used). Individual photographs, particularly those used in photograph elicitation with the participants, were analysed using a framework that was developed based on the emerging meta-codes, codes, research literature, and literacy as a social practice. In particular, the recorded response and comments made by participants to these photographs were analysed simultaneously and in complement to the referred photograph. Chapters four and five discuss the results of the data analysis to examine the participating children's perspectives and understanding of literacy.

3.6 Ethical framework

The consideration and critical engagement with ethical issues in this study's research design are foundational in addressing the research questions and to validity and trustworthiness (Johnson, Onwuegbuzie and Turner, 2007; Maxwell, 1992). This study's development of a collaborative digital photography methodology considers a range of complex ethical issues including reflexivity, confidentiality, informed consent, and benefit. In critically engaging with ethical issues throughout the research process, three frameworks informed both procedural ethics and ethics in practice (Cox, Drew, Guillemin, Howell, Warr and Wavcott, 2014). This study considers and discusses the ethical issues transparently and in depth, as they are ongoing and significant to the methodological design and research process.

The first framework was the ethical regulations guided by the University of Melbourne's Graduate School of Education (MGSE). The framework required detailed planning and justification of the sampling procedure, participant recruitment, risk management, informed consent, plain language statements, privacy, confidentiality, and data management. I was also required to submit a letter of endorsement from the supporting organisation in Ghana, School for Life. I sent an outline of my research proposal to both UNICEF Ghana and School for Life Ghana. I received letters of endorsement from both organisations. In addition to these institutional ethical regulations, a number of cascading values informed my everyday ethics in practices. These included respect, justice, beneficence, and research merit and integrity (Australian Government, 2007; Cox et al., 2014).

The second framework was underpinned by professional guidelines made up of a number of key documents, which informed the completion of the ethics application submitted to

MGSE and aligned to my personal ethical and moral values (Cox et al., 2014; Graham, Powell, Taylor, Anderson and Fitzgerald, 2013). The UNICEF Office of Research (Graham et al. 2013) produced a compendium as part of an international project concerned with ensuring children's human rights, dignity, and wellbeing are respected in all research. Similar to other guidelines, it is not prescriptive and encourages a critical and reflexive engagement with the ethical issues of research with children. It also contains an international charter for ethical research, which highlights issues particular to research with children. The charter emphasises dignity, justice, and equity. These issues intersect with those more generally of visual research, but are particular to research with children.

Although central ethical issues to all research are relevant to visual research, those issues raised by visual research are distinct. Visual research data produces quantitatively different types of ethical issues from those of text-based data. Visual data can potentially produce visually identifiable individuals both with and without consent, an issue that is itself further complicated. Cox et al. (2014) presented a professional guideline with six key considerations for visual research, which have been adopted and are discussed in this section and the previous data analysis section. In this section, these include: reflexivity; confidentiality; benefit; and informed consent. In the data analysis section, these included: authorship and ownership; representation and audience/s; and fuzzy boundaries.

The third framework was that of the evolving approaches and theories of research communities. Although participatory visual research has been applied across different disciplines and contexts, the research literature provides little guidance and transparency on the design and implementation of methodologies (Sutton-Brown, 2014; Winton, 2016). Approaches are generally adaptions of the photovoice paradigm (Wang and Burris, 1997). Participatory visual research with children must critically consider the ethical intricacies of visual research, participatory research, and research with children as overlapping and intersectional. In addition, postcolonial studies have engaged with ethics in education research, offering distinctive lens in the creation and enactment of frameworks in postcolonial settings (Santos, 2012; Tikly and Bond, 2013). Indeed, it is acknowledged that education research ethical frameworks are often grounded in Western or Eurocentric codes and principles and can be problematic when applied to non-Western contexts. Santos' (2012) critique of Western or Global North social theories argues for "keeping distance"

(p.47) to get closer to silenced and marginalised theories both Western and non-Western. This study, therefore, treats key issues such as ownership, benefit, and consent as ongoing to keep distance and create space for the communities and participants to contribute their version of ethics when applied to digital photography. A postcolonial lens, however, does consider the need to safeguard against 'Othering' the participants and the communities especially in the entwined historical context of colonialism and photography (Bate, 1993).

3.6.1 Reflexivity

Reflexivity is a defining feature of contemporary qualitative research, which is partly an acknowledgement of the centrality of the researcher in the production, collection, and interpretation of data (Finlay, 2002; Johnson, 1997; Pink, 2003). The international Ethical Research Involving Children (ERIC) project is underpinned by the encouragement and advocacy of reflexivity in research (Graham et al., 2013). This engagement with reflexivity is also mirrored by the visual research community, which places high value on the demonstration of reflexivity by researchers (Pink, 2001, 2003). However, different versions of reflexivity exist and its application in research practice is challenging (Finlay and Gough, 2008). Pink (2001) defined reflexivity as the autobiography that explains how the researcher's "social position has affected what they found" (p. 13). However, reflexivity in participatory visual research with children adds layers to the notions of presence in the research, co-construction of knowledge, and interpretation. This study adapts two broad approaches to reflexivity. First, is reflexivity as mutual collaboration, which entails a range of approaches and is aligned with collaborative digital photography (Finlay, 2002). This approach emphasises compromise and negotiation with multiple participants in the participatory research process, and resonates with approaches in postcolonial research ethics that situates local and adaptable approaches (Tikly and Bond, 2013).

However, collaboration with research participants may also disguise and overlook unequal relationships as part of the postcolonial condition (Mannay, 2013). I am at all times aware that no matter what I do, I will be offering to some extent an account of Dagomba children's reading and writing practice which will always be situated in postcolonial condition as context (Abu-Shomar, 2013; Tikly and Bond, 2013). Therefore, second, this study engages in reflexivity as social critique, which addresses power imbalances between researcher and participants, considers social positions, and recognises shifting researcher–participant

positions. This approach aligns with and complements this study's collaborative photography methodology, in which power, authority, and positions are pertinent issues. Some of these issues have already been discussed in chapter one and will be further reflected upon in chapter six. A reflexive position is also embedded in the analysis of the photographs, as I considered my role as researcher in the repetitive handling, viewing, and interpretation of the photographs, aware of the gaze that I bring to the process and that other viewers may bring as well.

3.6.2 Confidentiality

Confidentiality is located along the spectrum of the legal and ethical relationship created between the researcher and participants. Collaborative digital photography has legal implications relating to privacy, as children, young people, and adults' personal information can potentially be identified in photographs. In Australia, privacy exists legally through such legislation as the *Privacy Act 1988* (Privacy Act Cth). Under the *Privacy Act*, images of individuals in photographs are treated as personal information if a person can be identified from the photograph. Consent is not required unless the image records sensitive information, such as a person's racial or ethnic origins or religious beliefs. In Ghana, the legal conceptualisation of privacy was enacted in the *Data Protection Act 2012* (*Data Protection Act*). Personal data under the *Data Protection Act* includes information from which an individual can be identified including images and pictures. Under the *Data Protection Act*, a person processing data will take into account the privacy of a person by applying eight principles.

Child protection guidelines also encourage researchers to submit information to relevant authorities when a child is deemed to be at significant harm of risk (Alderson and Morrow, 2004). However, both researcher and participants can define 'harm' very differently, and Alderson and Morrow (2004) suggested that the consent process is the stage at which to clarify differences. I attempted to clarify this with the children, parents and guardians, and community members through a discussion of what this concept means contextually and culturally. Visual research, especially collaborative digital photography, needs to consider whether confidentiality is an appropriate ethical value to embed in the process to protect participants' privacy (Cox et al., 2014).

This is a consideration made more complex in the use of participatory photography and other camera-based methods. The visual representation and recording of individuals and people through digital photography can intentionally and unintentionally reveal the identity of participants, researchers and non-participants. In considering risks to participant's confidentiality, I identified key risks for participants' and non-participants' confidentiality and considered unforeseen and unexpected risks for non-participants, families, and the communities. These included non-participants being photographed without their consent, in ways that do not respect their dignity or privacy. In addition, I was cognisant of participating children capturing images of actions or events that violate child protection laws, both national and international. UNICEF Ghana was consulted on any perceived or potential violations captured by the participants.

Collaborative digital photography adds a layer of complexity to the ethical issue of confidentiality and privacy in regards to children and adults captured by the participants in photographs, as participants potentially take photographs of a range of subjects across different contexts. These could be other children not directly participating in the research, but are peers in the same CBE class. It could also be other community members who are completely unaware of the research project, which is an additional consideration of representation and audience as discussed in the previous section (Cox et al., 2014). Although it was made clear to the participating children that they should always ask an individual or group of people if they can take their photograph, this was entirely out of my control and perhaps should not be (Winton, 2016). I could only ensure that the resulting photographs were secured, and that any resulting use of images containing non-participants and other third parties be critically considered in regards to ownership, confidentiality and privacy before sharing and publication (Tikly and Bond, 2013).

In this study, confidentiality was an ongoing negotiation between the researcher and participants. However, given the physical distance between myself and the participants in the post-fieldwork phase, and the lack of access to communication modes such as the internet in the two communities, it cannot be reasonably assumed that negotiations are ongoing. I do not want to act unreasonably in regards to censorship, and do not want to undermine the participants' representation, agency, and photographs. Therefore, it was critical to periodically review the photographs produced during the data production process,

and identify any potential risks and implications relating to confidentiality, privacy, and place. It emerged from the collaborative viewing with participating children that there were places and things they were willing and not willing to photograph. They photographed with intention, and did not take photographs of places or things they felt uncomfortable capturing. Wiles et al. (2008, p. 32) called this practice an "anonymisation strategy" and perhaps a form of censuring of visual data. It demonstrates the practice of ethics by the participants, informed by their own social and cultural norms, practices and postcolonial condition. This will be further elaborated on in chapter six.

3.6.3 Benefit

Although benefit as an ethical issue can be framed as minimising harm (Cox et al., 2014), this study aggregates it into the broader ethical issue of benefit (Graham et al., 2013). There are two components to this issue. First, is the issue of minimising harm or non-maleficence. Second, is that of beneficence and a related principle of justice. Researchers have a clear obligation and responsibility to avoid harm or injury to children. According to UNICEF's guidelines (Graham et al., 2013), this avoidance should be both through acts of commission or omission. It is also the responsibility of the researcher to consider economic and other costs of participating in research. However, these principles and related guidelines do not necessarily or sufficiently account for participatory visual research, for which types of harm could be unforeseen and not predicted by ethics committees (Cox et al., 2014). I considered the potential economic and social costs of the children's participation, and sought to ensure in consultation with the community, that participation would not be an opportunity cost for the children or their families.

Photography can be an intensely personal activity, and can reveal personal spaces, individuals and emotions in a very open and transparent medium (Winton, 2016). Cox et al. (2014) reflected on the use of participatory visual research, considering whether the future selves of participants will regret openness displayed during the research period. The considerations of minimising harm occur along a temporal spectrum and are not a one-off activity during the institutional ethics approval process. This responsibility falls during planning, design, recruitment, collection, analysis, and dissemination. A particular consideration for the recruitment phase of this study was the random selection of participants from a larger cohort of students. Only ten from a possible 50 students were

invited to participate in the collaborative digital photography. This left 40 students excluded from taking photographs over a three-week period.

This risk was mitigated through a number of protocols and procedures. After the three-week period of photography, the other 40 CBE students in both communities were invited to use the digital cameras for one afternoon at the community photography exhibitions. The photographs taken during this time were not used as data, but shared with the respective communities when reporting back. In addition, the random selection sampling procedure was a community solution to the recruitment of participants, with students, parents, and guardians coming to a consensus on this approach.

The issue of minimising harm also includes that of beneficence. According to Australia's *National Statement on Ethical Conduct in Research Involving Humans* (Australian Government, 2007, p. 10), beneficence connotes that the likely benefits of research must justify risks of harm or discomfort to participants. Under UNICEF's guidelines, the principle refers specifically to "actions that promote the well-being of children" (Graham et al., 2013 p. 17). Accordingly, research must seek to improve the status, rights and/or wellbeing of children involved. Empowerment is often assumed to be a benefit of participatory visual research. It can be argued that the assumption of empowerment is equally weighted against the risk of discomfort and/or harm. Photography is a highly intrusive activity both for photographer and subject/s. The photographer has almost complete control during the act of photography, and must make moral decisions about what to photograph and what not to photograph. Moreover, participatory research should not be an undue burden for children and participating children should not be denied benefits of research. This is a strong principle, but challenging in practice. The act of participation in research is perhaps already a burden for children, but to what extent it is an undue burden is a question of legality. In the United States, an undue burden is any obstacle intentionally and unfairly placed in the way of a party seeking to exercise a constitutional right (Metzger, 1994). Undue burden standards for participatory research, however, are far less scrutinised, standardised, or discussed.

Although UNICEF declared that involving children in research should not carry an undue burden, standards are not specified. A principle for undue burden in this context could be that of ensuring no obstacles are intentionally or unfairly placed in the way of children being

denied their rights under the Constitution of the Republic of Ghana (1992), the Convention on the Rights of the Child (United Nations, 1989), or the Ghana Children's Act No.560 (1998). Furthermore, it must act as a principle in maintaining and balancing the interests of the participants and those of the researcher. In practice, participatory visual research may place an undue burden on children. For example, under Article 16 of the Convention on the Rights of the Child (United Nations, 1989), children have the right to privacy, for which visual research may have challenging and unknown implications. Similarly, participatory visual research may act to uphold children's rights under the Convention on the Rights of the Child. For example, Article 29 refers to a standard of education that seeks to develop children's personality and talents and respect their cultural identity, language, and values. Lerner (1995) defined the undue burden standard as a "noncoercion doctrine" (p. 368). In this context, I sought to ensure that the children's participation in the research was not substantially more difficult on their lives or diminished their rights.

The visual and collaborative components of this research are considered enabling and empowering for the participants, but also recognised that their participation may have placed an undue burden on their lives. This study emphasises the importance of understanding children's lives from their perspectives within the context of family, schooling, and community. It acknowledges the right of children to have their voices heard and to participate; a right afforded under the Convention on the Rights of the Child. In particular, in alignment with the ERIC approach, this study respects the views of children and young people as persons in their own and as "worthy and capable of recognition, respect and voice in research" (Graham et al., 2013, p. 18).

Involvement in the research potentially enhanced children's knowledge and understanding of their literacy practice, creating spaces for them to reflect on where, how, and why they use their literacy. The research may uncover unanticipated and unexpected ways that literacy is used and influenced, giving the community, including relevant stakeholders, a better understanding about what children can do with literacy and how literacy interventions influence literacy practice. This may have pedagogical implications regarding how literacy interventions are delivered to, designed for, and target out-of-school children. The potential benefits of this research, therefore, are considered to outweigh any limited and unforeseeable risks. However, the participating children's involvement took place in

partnership with a skilled and caring researcher and other adults, with appropriate support and guidance put in place during the research process. This helped to ensure their views and participation took place in a safe and meaningful way (Graham et al., 2013).

3.6.4 Informed consent

Informed consent reflects respect for human beings as capable of making their own decisions and must be voluntary. In participatory visual research with children, it is complicated and ambivalent (Alderson and Morrow, 2004; Gallagher, Haywood, Jones and Milne, 2009). In addition, there are ethical issues relating to informed consent that are specific to participatory visual research with children (Cox et al., 2014; Gallagher, et al., 2009). Participatory visual research disrupts traditional approaches to informed consent, which are often predicated on verbal and written modes of research.

There are four central features of informed consent, which informed the ethical framework of this study (Graham et al., 2013). First, is that consent constitutes an explicit act often through a verbal of written agreement. In research with children, this usually involves a dual act of obtaining consent from both the participating child and their parent or legal guardian. This can complicate the imperative of ensuring children can freely choose to participate, as their parents or guardians are ethically and legally obliged to also give consent (Graham et al., 2013). This constructs a duality, in which children are caught between agency and parental guardianship (Gallagher et al., 2009). As discussed in the previous section on research sites and participant selection and invitation, informed consent was verbally gained and recorded from both children and at least one their parents or guardians.

Second, is that consent must be informed. Alderson and Morrow (2004) defined consent as, “the invisible act of evaluating information and making a decision, and the visible act of signifying the decision” (p.96). For consent to be valid, it also must be *informed*, which is usually synonymous with understanding (Gallagher et al., 2009; Graham et al., 2013). UNICEF’s guidelines defined informed consent as “an understanding of the research activity, whatever research methodology is being used” (Graham et al., 2013, p. 57). This understanding is underpinned by the notion of access to relevant information, which I verbally communicated through a translator and materially through written documents. I assumed that the presentation of this information enabled an understanding of the

research project that led to understanding and informed consent or dissent (David, Edwards and Alldred, 2001).

The emphasis on understanding is complicated and assumptive, particularly of my own understanding of the research project (Gallagher et al., 2009). It positions my understanding and the implications of the research as static and unyielding. It does not account for unintended consequences and implications as a result of children's active participation or other factors. This is particularly salient for participatory visual research, during which it "may be difficult for participants to fully understand the effects of producing images" (Cox et al., 2014, p. 12). However, I presented this information as clearly as I could, allowing time for consideration and questions from the community, visiting each community again two days later after the initial presentation session. In working through School for Life to identify the research sites, and having their explicit support for this research, initiated trust with the communities, who held School for Life in regard and respect.

However, I did not consider this gaining of consent as a one-off event and treated it as an ongoing process in which I checked in with community members and participants throughout the research period. The potential and unintended effects of this research can be located along the spectrum of the entire research process, from production and analysis to interpretation and dissemination. For example, to what extent can participants understand the potential consequences of publicly exhibiting their digital photographs? This is heightened for participants from communities who may not be familiar, or have any experience, with digital cameras and photography. This is not a comment on children's capabilities to participate, but rather on their readiness to understand and conceptualise the full extent of what their participation is and will be (and give or not give informed consent). However, this also assumes that I can predict and understand the consequences and implications of participatory visual research. I ensured that in my regular visits to the communities to undertake CBE observations, I gathered information on how the participants were going with their photography, particularly if there were any concerns from the participants or community members that should be raised with me.

Discussions around competencies to give informed consent are proxy for more general debates on the agency and capacity of children (David, Edwards and Alldred, 2001). Article 12 of the Convention on the Rights of the Child links the extent of a child's participation to

their level of maturity, reasoning that children's capacity "to form and express their opinions develops with age" (United Nations, 1989). A child's informed consent can also be understood within the concept of Gillick competence (Alderson and Morrow, 2004; Hunter and Pierscionek, 2007), in which the United Kingdom House of Lords defined a competent child as "one who has sufficient understanding and intelligence to enable him or her to fully understand what is proposed" (Barton and Douglas, 1995 pp. 125–6). The Gillick ruling was a legal judgment in reference to medical treatment, and not a statement about ethical conduct in social research (Gallagher et al., 2009).

Alderson and Morrow (2004) argued that children's capacity should be assessed within the given context, but this is time-consuming and perhaps unrealistic for individual researchers (Gallagher et al., 2009). Visual research disrupts and undermines these notions of "form and express" as participation, which is implicitly based on verbal and written responses. Children's participation in visual research is fundamentally different, enabling children to form and express opinions non-verbally and non-alphabetically. Although collaborative digital photography may enable children and young people to participate in research, this does not necessarily simplify their competencies to provide informed consent in such research. However, I positioned and treated the participating children as capable and competent in operating the digital camera and using it to document their perspectives and understanding of literacy. As discussed previously in other research approaches, I did not accompany the children around during their photography and left the cameras in their care for the duration of the research period. Even when I needed to recharge the batteries, I left the cameras with the participants to demonstrate my trust in the participating children.

Third, is that consent must be given voluntarily. Although informed consent assumes that children are not coerced into participation, invitations to participate may engender feelings of obligation to cooperate (Gallagher et al., 2009). This is especially acute and relevant to this study. My presence as a white, male foreigner with links to the host organisation providing CBE may engender a situation in which children feel a desire to be seen as cooperative with researchers (David, Edwards and Alldred, 2001). This may be heightened by participatory visual research methods such as photography, in which a novel and perhaps new item is introduced temporarily into the communities. Last, is that consent must not be a one-off process, but renegotiable through the research process (Cox et al., 2014; Graham

et al., 2013). This study treated informed consent as renegotiable and continues to treat it as ongoing in reflecting on the extent to which an ethical participatory research approach can be developed to access out-of-school children's perspectives of literacy.

3.7 Summary

A mixed methods case study research was designed and implemented to generate substantive data in order to be able to answer the two key research questions. The research design builds on participatory research approaches using digital photography, creating a collaborative digital photography methodology. Two Dagomba communities in Northern Ghana, Bunglung and Botingli, were purposively sampled and selected as the cases, with sub-cases represented by ten out-of-school children enrolled in CBE in these communities randomly selected and invited to participate. The participating children undertook collaborative digital photography and viewing sessions over a three-week period in March 2015, and additional semi-structured interviews with other participants in the community and CBE observations were conducted. A robust and transparent analytical framework was designed and implemented, with three key aspects focused on within collaborative digital photography, including the digital camera, the digital photograph and an anthological approach to analysis. In addition, the coding framework and process was transparently and iteratively developed to analyse the photographs within the anthological framework. This framework and approach positions the digital photographs as traces of indexical material, produced by the participating children as photographers with the intention of capturing their perspectives and understanding of literacy. Last, an ethical framework was critically outlined, which was not static and one-off but considered iterative throughout this research and will be reflected on again in chapter six.

4. Data analysis I

This chapter and proceeding chapter present the analysis of digital photographs produced by the ten participating children of their perspectives of literacy, the collaborative viewing of their photographs, and semi-structured interviews. In order to access the participating children's perspectives and generate data, the analysis achieved three things. First, it conceptualised the photographs as traces of the children's perspectives of the literacy, which are captured and converted into matter for analysis. By treating the photographs as traces of indexical material produced by the participants using digital cameras, the children are connected to that which is photographed. Second, the intentionality of the children's participation and endeavour to record their literacy practice through the lens of a digital camera allowed this study to access their understandings and perspectives. These photographs are representative of the children's perspectives and understanding of literacy. Third, the volume of digital visual data allowed for both quantitative and qualitative analysis, the former in identifying patterns and the latter to explore those patterns by viewing individual photographs.

As a result, this study is able to access and examine how out-of-school children understand and practice literacy in their everyday worlds. The analysis shows that they understand literacy through two predominant tɛha, a Dagbanli plural noun (tɛhigu, singular) that translates to 'thoughts' or 'ideas'. When viewing the photographs with the participating children, this was often a word used to describe why that decided to take a photograph. They liked the tɛhigu. This is an adaptation of Aitken and Wingate's (1993) *leitmotif* coding paradigm but this study seeks to embed culturally relevant concepts into the analysis. This approach is another way to mediate ownership of the data, and preserve the children's epistemologies in the analysis through this noun and Dagbanli language used throughout (Santos, 2012).

The two main tɛha are school contexts and out-of-school contexts. This chapter will examine the results of the analysis through the lens of school contexts. The proceeding chapter will examine the results through the lens of out-of-school contexts. However, although this separation between contexts is helpful in terms of structuring the analysis, it should be noted the data shows even when children were out-of-school their understandings of

literacy were not bounded by out-of-school contexts. They moved in and out of school contexts within their communities, producing photographs to show how they engaged in different school and out-of-school literacy practice and used the camera to represent their understandings. The traces of the children's literacies are threaded and patterned in the analysis of individual portfolios and anthology throughout the two data analysis chapters.

The participating children produced 4,017 digital photographs over a three-week period. The five children from Bunglung, which included three boys and two girls, produced 2,346 digital photographs. The five children from Botingli, which included three girls and two boys, produced 1,671 digital photographs (see Table 1). The mean average number of digital photographs per participant was 401. The participating boys averaged 452 digital photographs, while the participating girls averaged 352. In addition, there were a few digital video files included in the dataset, but these were not considered for analysis as ethical permission was not obtained to collect digital video recordings. It is likely that the participants accidentally recorded scenes that they were attempting to photograph or they discovered how to record videos. As outlined in section 3.6 of chapter three, ethical considerations and implications were considered ongoing throughout the analysis, and are embedded within the analytical framework. The result of the coding process is transparently shared, and each chapter examines the emerging tɛha within the coding paradigm. As also outlined in chapter three (section 3.8), the analytic approach adapts and builds on Rose's (2001) analytical framework and focuses on: a) context of production; b) the photographic image itself; c) audiencing; d) the camera; and e) the photographer.

This chapter focuses on school contexts of production, and is divided into eight sections. Each section examines a particular tɛhigu that emerged from the coding process. The photographic image comprised the primary unit of analysis, and was treated as a trace of indexical material of the children's perspectives as discussed in in chapter three (section 3.5.2). Audiencing was considered through a number of avenues, including collaborative viewing with the participants and the photography exhibitions as outlined in section 3.4 in chapter three. The camera is the primary device through which data was generated as discussed in section 3.5.1 in chapter three. Last, the photographer is a positioning of each participant as a photographer, who intentionally chose what, how, where and why to photograph subject/s and object/s throughout the research period.

The coding paradigm iteratively emerged from the coding process comprising: 1) collaborative viewing; 2) viewing of all printed photographs; 3) viewing of all digital photographs. As outlined in section 3.5 of chapter three, the next stage after collaborative viewing was an open coding process, which involved analysing the printed photographs. Each printed photograph was viewed and sorted, with a focus on modified questions after Punch (2013) in considering the perspectives of literacy produced: What is the central tɛhigu captured in this photograph by the photographer? What is this photograph mainly about? The coding paradigm did not emerge during this process, but a range of first-level tɛha emerged (see Table 4).

First-level tɛha from preliminary coding of printed photographs	
English language	Dagbanli language
Buildings and environment	Literacy out-of-school
People	Play
Selfie	Drawings
Animals	Textbooks
Teacher	Workbooks
Researcher	Blackboard
Home	Literacy in action
Materials	Clothing

Table 4: First-level tɛha (themes) from preliminary coding of printed photograph

The approach to analysing the printed photographs was to code singularly and inductively based off my initial response to each photograph as I made my way through them during the coding process. Each printed photograph could only have one code at this stage. I had viewed the photographs previously, including during the fieldwork when transferring the photographs from the cameras to a laptop. However, this was the first instance when I had viewed all the photographs individually and physically as an anthology.

4.1 Shikuru: school contexts of production

The quantitative analysis of the data shows that there are schooled literacies, languages, pedagogies, and objects associated with school sites and within each community. However, the qualitative analysis finds traces that disrupt this pattern, and call attention to the differences between the communities and the children's individual representations of literacy practice in school. In Dagbanli, the word school was adapted as 'shikuru' (Abukari, 2018). Although this study focuses on out-of-school children, the analysis of the data shows that the children adapted different literacies in different schooling contexts in their

communities. Within the school context of production, four second-level tɛha emerged with a number of more specific items representative of how the participants perceived and understood literacy (see Table 5).

Second-level tɛha	Items					
Languages	Dagbanli		English		Arabic	
Literacy materials	Blackboard	CBE book	Formal school textbook	Pen	Teaching and learning materials	
Literacy actions	Student writing	Teacher writing	Wall writing		Literacy in action	Numeracy
Multimodalities	Image		Drawing		Photograph	

Table 5: Second-level tɛha (coding themes)

In total, photographs produced of literacy in the school context are identified in 54.10% of the anthology. Although it was not always possible to precisely determine a photograph's context of production, two broad patterns emerged from the anthology for the in-school context as seen in Figure 7 below. School contexts in the Botingli community are defined by the production of photographs during CBE classes. In the Bunglung community, primary school and CBE classes defined school contexts of production. On the surface, this difference can be primarily defined by absence. That is, Botingli does not have a formal primary school building. The closest formal primary school for those in Botingli is in Bunglung.

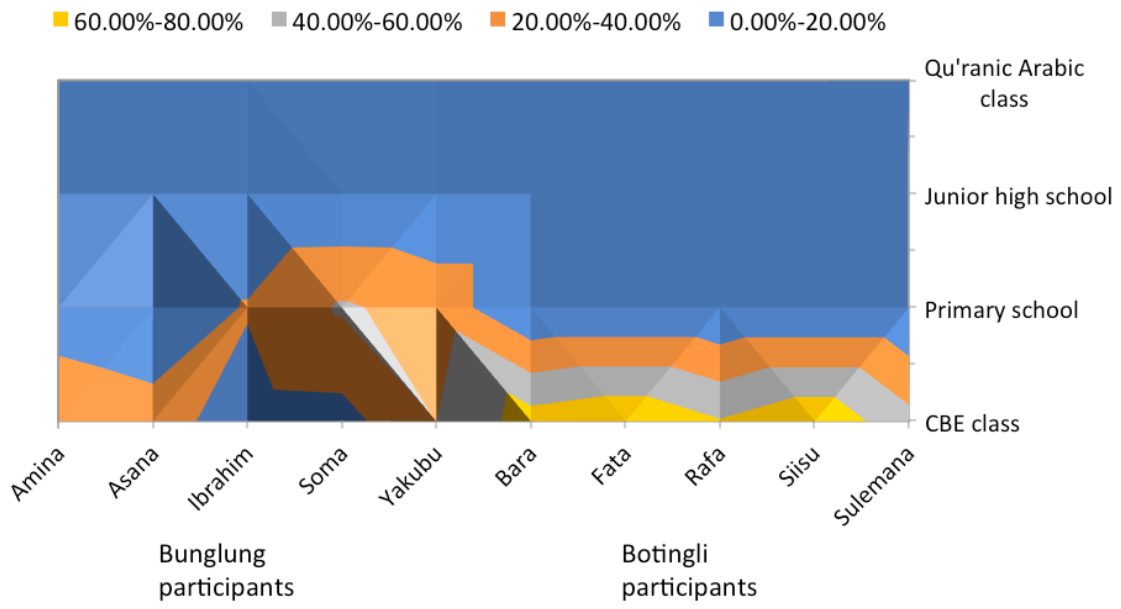


Figure 7: Heat map of the in-school context of production

Figure 7 is a heat map that highlights what school contexts participants produced in their photographs of literacy. Patterns emerging from this analysis show not only variation between the two communities, but individual variance across the participants' portfolios. Photographs produced in a CBE class are identified in 40.3% of the anthology. Botingli participants produced a total of 1,053 photographs in the context of CBE, which accounts for 63% of their photographs (with a range from 46.65% to 77.19%). Bunglung participants produced 566 photographs in the context of CBE, which accounts for only 24% of their photographs (with a range from 11.41% to 39.91%).

Photographs produced in the context of a primary school are identified in 16.9% of the Bunglung participants' total (with a range from 4.9% to 29.9%). Photographs produced in the context of a junior high school are identified in only 0.46% of the Bunglung participants' total. The participants from Botingli produced zero photographs in the context of a primary school or junior high school. In addition, despite all participants attending community-run Qur'anic Arabic classes, there are only two photographs in total that were produced within this context both by Sulemana in Botingli. This is also despite the same small building used for CBE classes in Botingli also being used for the Qur'anic Arabic classes.

Neither building in each community used for CBE classes was originally designed for these classes. The CBE classroom in Bunglung is a primary school classroom and the classroom in

Botingli is a Qur'anic Arabic classroom. Therefore, any photograph taken during a CBE class in Bunglung was also simultaneously taken in a primary school classroom. For the purposes of coding, a distinction was made between the two contexts when it was possible to identify that the class was timetabled for CBE or whether the participants were out of class and exploring the primary school classrooms.

The remainder of the chapter is divided into seven sections, and systematically reviews the data analysis across each of the second-level tɛha through languages, literacy materials, literacy events and actions, and multimodalities. The photographs referenced are found in the Plates section, and will be referred to guide viewing (see Plates I-VII). It is recommended that the Plates be viewed along side a reading of this chapter. The similarities and differences between the two communities will be examined in regards to how the participants understand literacy in school contexts.

4.1.1 "Dagbanli is our culture, our language": the mediation of languages in school contexts

Data reveal differences in how each community positioned different languages with respect to the children's understanding of literacy as shown in Figure 8 below. The participating children perceived different school-based literacy to be embedded in the written scripts of languages, and that each language represented was situated in different social or cultural histories and practice. Languages, written either on blackboards, books, materials, and other objects, are identified in 53.6% of the anthology. Dagbanli is identified in a total of 28.2%, English in 25.3%, Arabic in 0.2% and there was only one photograph in which Chinese language script is identified. However, there is a clear dichotomy between the two communities in relation to the visibility and materiality of printed Dagbanli and English

script in photographs (see Figure 8).

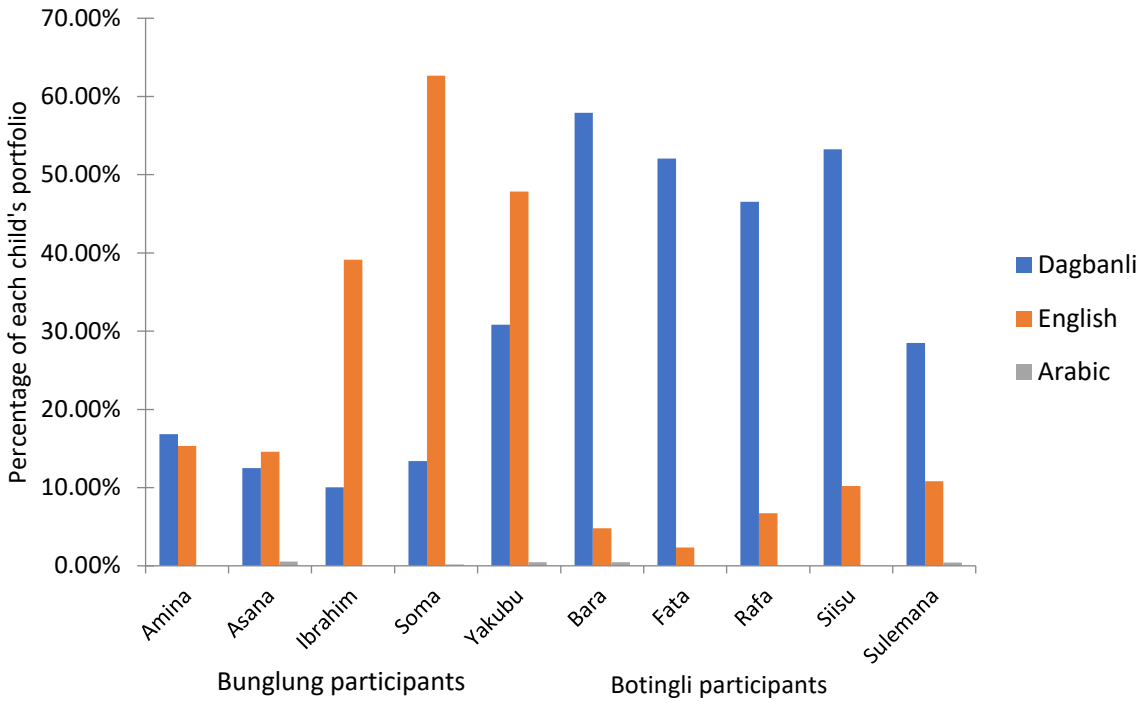


Figure 8: Language occurrence in the two communities

Bunglung participants produced photographs in which Dagbanli is only indexed in 16.4% of their total (with a range of 10% to 30.8%). Whereas, Botingli participants produced photographs in which Dagbanli is indexed in 44.9% of their total (with a range of 28.5% to 57.8%). As also shown in the graph above, the inverse was identified with English language. Bunglung participants produced photographs in which English is indexed in 37.8% of their total (with a range from 14.5% to 62.6%). Botingli participants produced photographs in which English is only indexed in 7.9% of their total (with a range from 2.3% to 10.2%).

To further examine this pattern, this section examines the portfolio of Fatahiya (Fata), whose portfolio is typical in regards to its index of Dagbanli but who also produced the lowest total number of photographs (see Plate I). Fata is 13 years old, lives in Botingli and has six siblings. One of her siblings is Barachisu (Bara), who is also a participant in this study. Fata used to be fostered with an aunt, and would help her with seasonal farming. Fostering is a common practice among the Dagomba, and usually involves the relocation of a child from their biological family to another family, usually in kinship care (Kuyini, Alhassan, Tollerud, Weld and Haruna, 2009). Fata has never attended primary school and cites seasonal farming as the reason. Fata's mother wants her to finish CBE and Qur'anic Arabic

classes before they attend formal school. Her mother said, “The difficulties and problems I am facing today because of lack of education can be avoided if these girls pursue their education journeys through School for Life” (Fata’s mother, personal interview, 24 March, 2015).

Fata produced the lowest total number of photographs amongst all the participants at 172 photographs. IMG0782 (Plate I) is a point of view photograph Fata produced in CBE class of her textbook opened to a page. The majority of Fata’s photographs were produced in CBE classes as evident in Figure 9 below, which shows the entirety of her contexts of production for comparison. Furthermore, 44% of them feature her or other’s CBE textbooks and/or workbooks. It is unsurprising that it is Dagbanli language that appears in 52% of Fata’s photographs. Fata knows that learning Dagbanli will help her in the future, particularly in primary school and to learn English. When asked about how Dagbanli will help her in the future she replied, “Once you know the sound in Dagbanli you can identify it when it’s in English” (Fata, personal interview, 19 March, 2015).

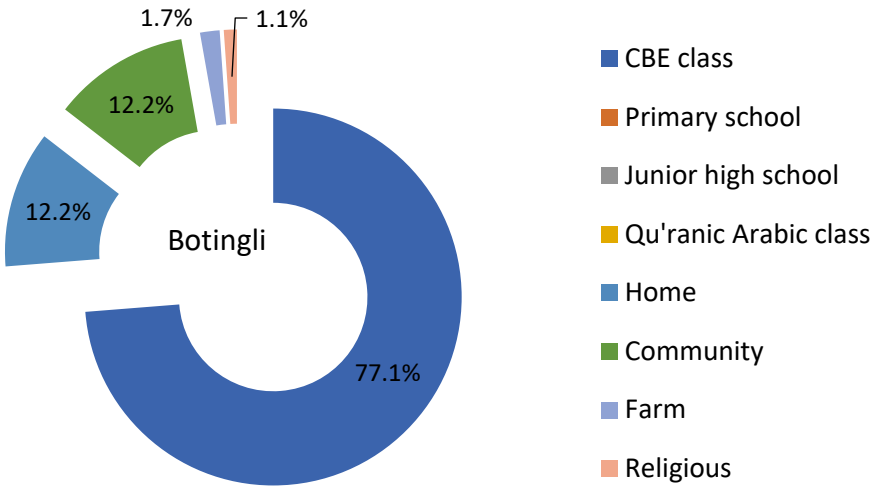


Figure 9: Fata's contexts of production

In the collaborative viewing of the photographs with Fata, she often remarked that she wanted to take photographs of things she could read as well as occasions when she and/or the class were reading Dagbanli aloud. IMG0665 (Plate I) is of Dagbanli written on the blackboard by their CBE teacher. In response to the photograph she said, “This was something written on the board and we were asked to copy it into our books and to take it home and read” (Fata, personal interview, 15 March, 2015). IMG0725 is of their CBE

textbook, opened to chapter six. It is a reading lesson that tells the story of a boy called Adam and how he helps to clean the house. Fata perceives literacy to be embodied in her ability to not only read Dagbanli in CBE classes, and as facilitated by the CBE teacher and contained in her textbooks, but also as a future tense activity that may enable her in primary school.

The CBE class in Botingli situates Dagbanli firmly in the sights of the children's literacy practice, as evident in Fata's portfolio and the portfolio of her sister and peers in Botingli. Despite small variations in the language indexed, Dagbanli endures in the portfolios of the Botingli participants. However, the CBE class in Bunglung does not situate Dagbanli as prominently, and there is more variation across the Bunglung participants' portfolios. Using Atlas.ti, the language and context of production codes were selected to count their co-occurrences across the anthology. This also presents a normalised co-efficient, which should vary between 0 (codes do not co-occur) and 1 (codes co-occur where they are used). This tool can be used to identify in what context specific codes co-occur. Overall, the co-efficient for Dagbanli and CBE is strongest at 0.55 (see Table 6). The co-efficient for English is strongest with primary school at 0.39.

	English	Dagbanli	Arabic
CBE class	126 – 0.05	979 – 0.55	3 – 0.00
Primary school	442 – 0.39	22 – 0.01	
Junior high school	8 – 0.01		

Table 6: Co-occurrences for language and context of production

However, there are inherent limitations in this analysis as the semantic significance of co-occurrences may not be visible in such a configuration. It appears that the pattern discerned shows written Dagbanli contained in school, particularly CBE classes, while written English language goes across school contexts. Although Dagbanli is the dominant language spoken in both communities, both in- and out-of-school contexts, written English is predominant in textual and literacy materials and objects in Bunglung. There are 126 instances of CBE classes and English language codes co-occurring. These co-occurrences are produced solely in Bunglung, and are predominantly associated with objects such as books and wall writing that participants photographed during their CBE classes. There are also 22 co-occurrences of

Dagbanli in the primary school context, which are indices of Dagbanli being taught as a Ghanaian language during primary school classes (see Table 6). However, the participants were not students in those primary school classes, but rather were exploring the primary school classrooms after school hours with their digital cameras.

Data reveals differences and similarities in how each community situates languages with respect to the children's understanding of school literacy, as shown in Figure 10 below. Botingli participants understand literacy to be predominantly embedded in Dagbanli, which is situated in their CBE class. On the other hand, Bunglung participants have more varied understandings, in which the three boys (Soma, Ibrahim, and Yakubu) understand literacy to be primarily embedded in English, which is situated in primary school. Amina and Asana's understanding, the two Bunglung participating girls, is more similar to Botingli participants' understanding although not to the same quantitative extent.

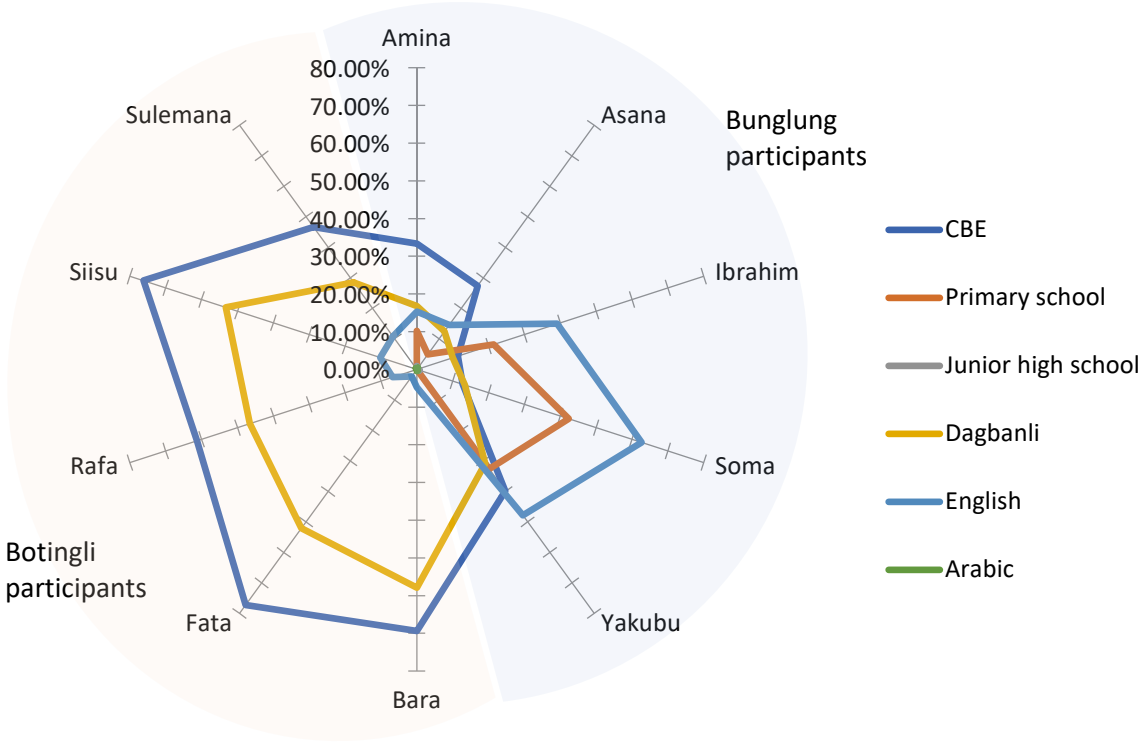


Figure 10: Contexts of production and language occurrence

However, the data does not necessarily reveal stable patterns in how each community situates languages. Although there are individual preferences for in-school contexts of production (for example, Fata and Somatu), the indices of languages in those contexts does not necessarily align. For example, although Fata produced 77.1% of her photographs in CBE classes, only 52% of her photographs indexed Dagbanli language. On the other hand,

Somatu produced 12% of his photographs in CBE classes and 13% of his photographs indexed Dagbanli language. Although there appears to be a broad pattern in the anthology that demonstrates how the children perceived literacy to be mediated by the written scripts of two languages in certain school contexts of production, the nuances, micro-patterns, and relationships in participants' portfolios highlight exceptions.

To further examine this pattern, this section examines the portfolio of Somatu (Soma), whose portfolio has the highest indices of English and primary school contexts and is somewhat of an outlier in the anthology (see Plate I). Soma is 12 years old and lives in Bunglung with his parents and four siblings. According to Soma's father, he actually completed primary school and was attending junior high school before he was pulled out. Soma was frustrated that he could not read Dagbanli, and he dropped out and was enrolled in School for Life CBE class. This is an unusual situation, as School for Life is nominally for children who have never attended or dropped out of primary school. Soma is the only participant who completed primary school. This schooling history, and school literacy experiences, appears to mediate Soma's contexts of production, as the primary school is dominant (see Figure 11) and 62.6% of his photographs indexed English language (see Figure 10). For example, IMG0284 (Plate I) is of a classroom wall, but it is not clear in what context, and shows the drawing of flowers with the text in English in capitalised letters next to it, "FLOWERS".

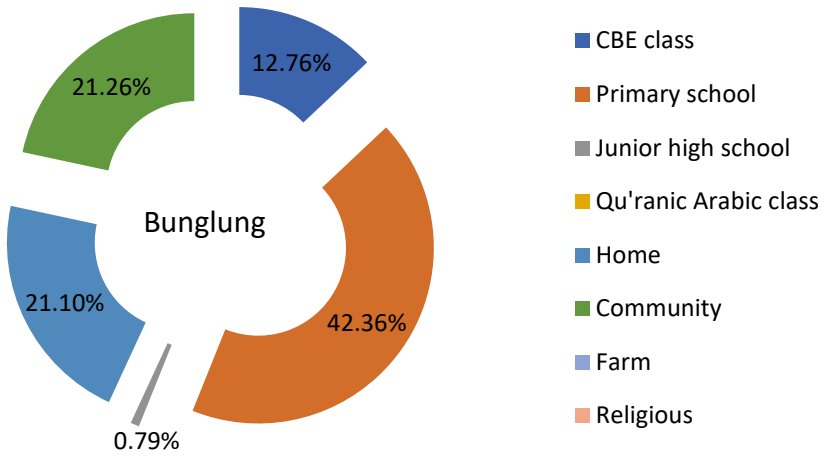


Figure 11: Soma's contexts of production

In addition to print English and Dagbanli language, over 40% of Soma's photographs contain images, photographs and/or drawings, many of which are from school contexts. Soma's perception of literacy goes beyond written or print text to be situated in multi-modal understanding and practices. In addition, Soma produced five of 11 photographs produced in a junior high school context, which is perhaps unsurprising given he is the only participant to have completed primary school. For example, IMG0110 (Plate I) is of a classroom wall with the name 'BUNGLUNG E/A JHS' written in black, capitalised letters. For Soma, formal school is a dominant context for literacy experiences, in which school-based actions using English are indexed in his photographs. However, it was not the only context, as he moved throughout school and out-of-school sites to document karimbu ka sabbu.

Soma's portfolio is very different from those of the other Bunglung participants, and particularly from the Botingli participants. Although Yakubu and Ibrahim's respective portfolios reveal a similar patterning, Soma's quantitative output outpaces both of them. CBE is not positioned as the dominant school context for Soma's understanding of literacy, which is a common pattern throughout the Bunglung participants' portfolios. However, Soma brings his past schooling experiences into his understanding of literacy and his representation of that understanding through photography, for which CBE and Dagbanli features but is not prominent. Whereas, in Botingli, CBE is the dominant school context with respect to the children's understanding of where literacy is situated.

4.1.2 "It was both English and Dagbanli so I decided to take a picture of it": the mediation of literacy through school materials

The children perceived literacy to be embedded in materials, which had print language, images, and/or drawings. Their perspectives of literacy were embodied in these things and captured in their photographs. These things included, CBE textbooks, formal school textbooks, pens, clothes, teaching and learning materials, blackboards, and signs. The anthology reveals significant differences in how each community mediated different literacy materials with respect to the children's understanding of literacy (see Figure 12). Botingli participants used blackboards and CBE textbooks to mediate their literacy compared to those from Bunglung. Bunglung participants used images, drawings, and other photographs, compared to those in Botingli, to mediate their literacy practice.

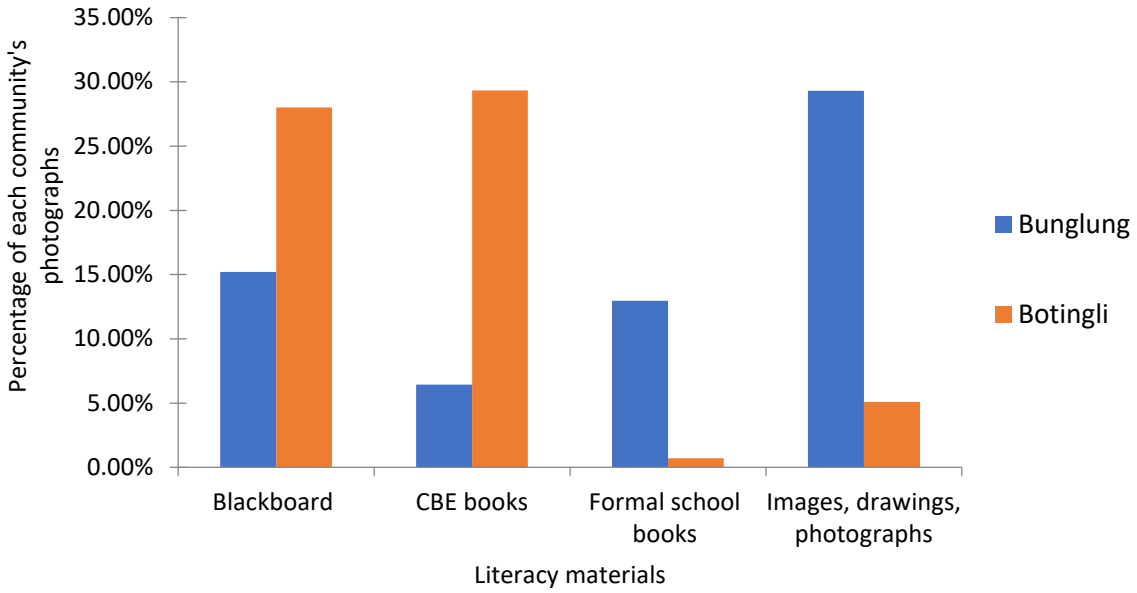


Figure 12: Predominant literacy materials in participants' photographs based on community

At the same time, the camera captured other things that were perhaps not directly or intentionally the focus of the participant. For example, the CBE class in Bunglung is always held in one of the primary school classrooms. The walls and blackboard of that classroom are covered in written English and Dagbanli, some of which was permanent, some temporary, and written by unknown persons. A portfolio that is indicative of this comes from Amina, who is 10 years old and lives in Bunglung with her parents and nine siblings (see Plate II). Amina attended primary school until grade two and is the only participant who does not attend Qur'anic Arabic classes. She took 333 photographs, the majority of which are either in the community or in CBE class (see Figure 13). Over 30% of her photographs indexed print English (15.3%) and/or Dagbanli (16.8%) languages, sometimes intentionally and other times incidentally. Amina's portfolio is more balanced in its indexing of languages compared to her peers in Bunglung and Botingli. One language is not indexed more than the other. However, she also produced the most photographs in out-of-school contexts as a mean average in individual portfolios at over 40%. When in the CBE classes, 21.3% of Amina's photographs are of the blackboard, which usually has either Dagbanli, English, or arithmetic problems written on it. These photographs feature the same blackboard, in the same classroom, repeatedly.

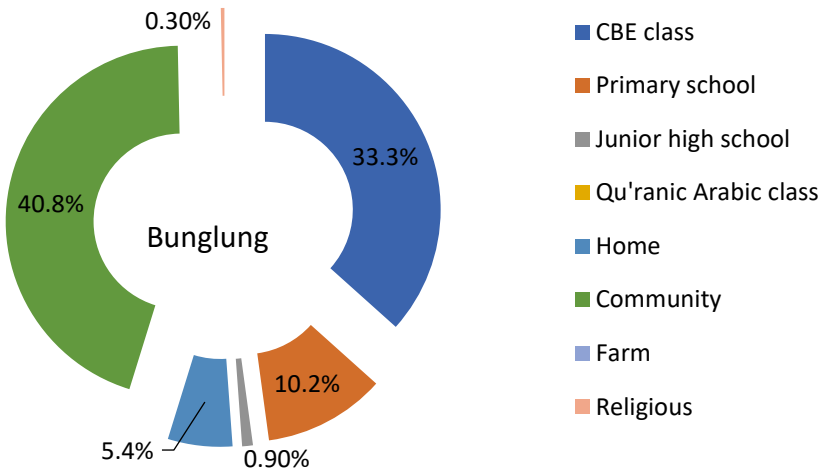


Figure 13: Amina's contexts of production

IMG0455 (Plate II), by Amina, was taken during a CBE class, and shows the blackboard and the wall above it leading into the roof. On the blackboard, their CBE teacher wrote 'LaaSabu malibu', which indicates that the students will be solving arithmetic problems. Above the blackboard are words and sentences such as 'my Teacher name is Abukari'. Also taken by Amina, IMG0409 shows the blackboard before the CBE class started that day, with individual English words written by someone, possibly a primary school teacher or student/s. 'Thirst', 'Independent', 'Honey', 'Independence', and 'Gift' are five of those words. They are centred in the photograph produced by Amina, which was taken in the same classroom used for CBE classes. IMG0211 is of the first page in their CBE textbook. When viewing this photograph with me, Amina said that she was reading and begun to read aloud the proper nouns on the page of the book she photographed, 'Naya, Karaga, Asana, Tali'.

The data reveals differences in how each community positions images, drawings and/or photographs in literacy materials, which mediated the children's understanding of literacy. The three boys in Bunglung account for the majority of these photographs, which is evident in Yakubu's portfolio and serves as a contrast to Amina's within the community. Yakubu is 11 years old and lives in Bunglung with his parents and eight siblings. He was pulled out of primary school in grade two, but attends Qur'anic Arabic classes in addition to CBE classes. According to Yakubu, he was pulled out of primary school to be eligible to attend CBE classes (as School for Life only enrols out-of-school children). Yakubu produced 441 photographs across a range of contexts, in particular both CBE classes and primary school

(see Figure 14). Yakubu enjoys studying both Dagbanli and English, but believes English can help him in the future, as the completion of formal schooling can lead to employment.

IMG0216 (Plate II) is the first of a series of photographs of English language textbooks from primary school, and almost 11% of Yakubu's photographs are of primary school textbooks. He remarked in the collaborative viewing that, "I read them together with the books given by School for Life" (Yakubu, personal interview, 26 March, 2015). The primary school textbooks are in colour, feature lots of images and drawings, which Yakubu captured in his photographs. Over 30% of Yakubu's photographs indexed images, drawings, and photographs from a range of school contexts. Although English is predominant in Yakubu's photographs, Dagbanli also features in 30.8% of his photographs, which is the highest mean average for Bunglung participants.

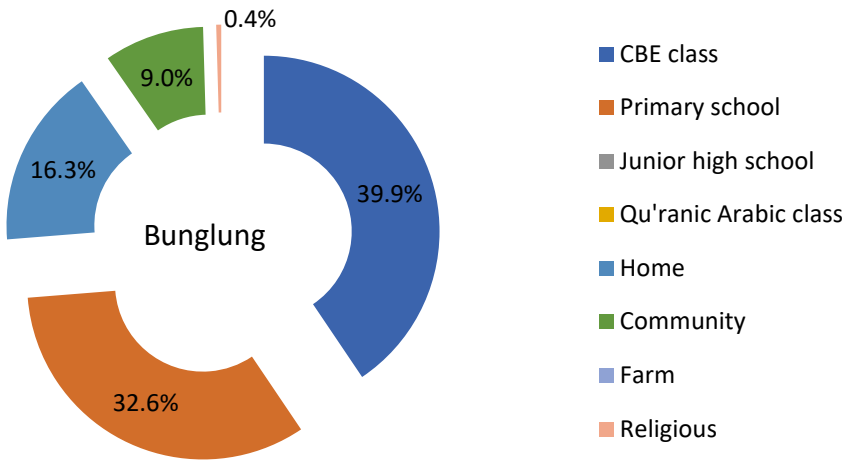


Figure 14: Yakubu's contexts of production

Yakubu explored Bunglung's classrooms and photographed different literacy materials. IMG0295, by Yakubu, is a photograph of a blackboard in another classroom. The primary school teacher had written five subtraction activities for students of that class to complete. Yakubu's next photograph, IMG0297, is from yet another blackboard in a different classroom. The teacher's writing instructs students to 'Copy these words correctly', illustrating a pedagogical example from a previous English class. Blackboards are a prominent literacy material in classrooms in both communities, demanding the children's attention to pedagogical instructions for reading, writing and numeracy teaching and

learning. In Bunglung, the blackboards belong to the primary school classrooms, for which there are at least six and take up almost the whole width of a classroom.

In contrast, Botingli has but one blackboard that sits at the front of the classroom, propped up on two legs and leaning against the front wall. It is roughly a square shape, not more than 1.5m by 1.5m. The blackboards in Bunglung are filled with English and Dagbanli printed language, from CBE class and other primary school subjects across the primary school. This discrepancy in the blackboards between the two communities is typical generally of the differences in literacy materials between the two communities, and exemplified in Amina and Yakubu's portfolios. Bunglung is seemingly rich in different school literacy materials, both quantitatively and qualitatively, due to the presence of a formal primary school. Despite this primary school being less than two kilometres away, the Botingli participants do not have access to similar materials, and had been excluded from access formal schooling before CBE, and are relatively confined to Dagbanli in their understanding of literacy.

This is further evidenced in the range of school literacy materials captured by Bunglung participants compared to Botingli participants. English and Dagbanli literacy materials mediate Yakubu's understanding of literacy, which is perhaps representative of his shortened schooling experiences but also Bunglung's access to primary school. IMG0296 (Plate II) is a photograph of a poster from one of the primary school's classrooms. It is one of the few bilingual representations of English and Dagbanli. Drawings of animals are accompanied by their English and Dagbanli names. Yakubu photographed a bilingual primary school textbook in a series of three photographs. IMG0376 is a photograph of the front cover of the book, which features the image of a young girl. At the top is written in Dagbanli 'Bomi Baŋsim' and the English translation 'Book for knowledge'. A person's name is written in pen, 'Alhassan Ayisha', who is Yakubu's sister and the place where she was/is staying and/or going to school in Tamale.

IMG0377 is of the first page of this book, indicating that it is an English to Dagbanli reader for basic or primary school students. The name and phone number of the author is given with instructions to call the author with any corrections on the listed mobile phone number. When asked about the book, Yakubu said, "when I was attending formal school, my sister gave me this book. It was both English and Dagbanli so I decided to take a picture of it" (personal interview, 26 March, 2015). Yakubu's understanding of literacies is not bounded

within a particular context or site or in a particular object or set of objects. He perceives literacy practice to be embedded in things such as books, images, words, texts, and signs, which he attempts to make sense of and take meaning from, whether English or Dagbanli. Dagbanli is associated with "our culture", while learning English "can help you in the future" (personal interview, 26 March, 2015). When asked how he thinks English can help him in the future, Yakubu replied, "If you are able to complete your schooling, you can get a job" (personal interview, 26 March, 2015).

In both communities, the children perceive different literacy practice embodied in different materials, in which the school exerts its position. In Bunglung, it is the primary school that Yakubu and Amina used to attend before they were pulled out. Yakubu shows how he is accessing literacy materials, mediating and moving between English and Dagbanli languages, between CBE and primary school classrooms. In these movements between school contexts, the data also reveals the presence of others, of Yakubu's sister, who was going to school in Tamale or of the instructional message from a teacher to their students to 'copy these words correctly'. In Bunglung, materials position literacy beyond the children's local culture, beyond 'our culture' to a wider set of pedagogical possibilities accessed through formal schooling embedded in materials such as pens, books, and blackboards.

On the other hand, the data from Botingli reveals the extent to which literacy is positioned within the confines of a small CBE classroom and a small blackboard focused on Dagbanli literacy learning. The small 1.5m by 1.5m blackboard is the predominant literacy material complemented by the CBE textbooks and workbooks of the children. At the same time, similar to Bunglung, the data reveals the presence of others beyond the local context and confines, which challenge the patterning of the children's perceptions as embodied only in Dagbanli and only in CBE classroom practices.

The Botingli CBE class is held in the building constructed by a local community member for Qur'anic Arabic classes. IMG0093 (Plate II), by Rafatu, is a photograph of a wall of this building. Written on the wall is 'BOTINGLI NURUDEEN ISLAMIC SCHOOL'. 'Nurudeen' is an Islamic boy's name that means 'light of the faith'. CIMG1112, by Siisu, shows another wall of the same building with more text about its construction. The text announces who donated and supported the building's construction. 'Mallama' is an honorific title given to Islamic scholars in Africa and 'Hustaz' is a version of 'ustaz', which usually refers to a teacher,

university professor or Islamic scholar. In both communities, the children perceive the materiality of literacy as mediated by school buildings and school materials associated with CBE class. Literacy experiences and practices are constructed through a range of materials, for which the Bunglung participants seemingly have access to further pedagogical possibilities. However, the Botingli participants positioning of their CBE literacy materials and lack of access to primary school suggests a focus on emerging practices that are also not necessarily confined to local contexts, and situated in contexts beyond the community.

4.1.3 "I'm interested in being able to read this later when I'm in school": the temporal mediation of primary schooling

This data sections shows that some of the children perceived literacy to be not only materialised across different contexts and objects, but also time and space. Although in both communities the school context of production emerged as a main tɛhigu, it is not durable when analysing and viewing individual, and series of, photographs. It assumes a static spatio-temporal dimension of a photograph representing the here and now. However, the data reveals that some of the children's understandings of literacy practice were not always spatially or temporally confined to the context in which the photograph was produced. As outlined above, the data reveals spatial differences between the two communities in how the participants understood and accessed the materials of literacy. A closer examination of individual portfolios also reveals temporal differences between how the two communities position the materiality of school literacy. The Bunglung participants, in particular the three boys, tended to reference an understanding of literacy embedded in primary or formal school contexts and materials, despite none of them attending formal school at the time. This understanding of literacy was temporally situated in the past and future and embedded in literacy materials in primary school contexts both within and outside of Bunglung. However, Fata in Botingli, also indexed this future in recognising the orthographical and pedagogical connections between Dagbanli and English.

In Bunglung, this is evident in Somatu's portfolio, in which he produced 269 photographs in a primary school context, which represented 42.36% of his photographs (see Figure 11). IMG0270 (see Plate III) is a photograph of a wall from Bunglung's old primary school building. It is located much closer to the community than the new school buildings. The building has no roof, but its walls are covered in images, colours, and English language print

text. Many of Somatu's photographs are of the walls of the old primary school building. When asked about IMG0270, Somatu responded, "I think that some day I would be in that school. That's why I got interested" (personal interview, 26 March, 2015). Somatu is referring to formal school, although he has already completed primary school before attending CBE. In IMG0027, which features both English and Dagbanli, naming the drawing of a cow, Somatu stated, "I wanted to try to draw something like this when I'm at school" (personal interview, 26 March, 2015). Somatu also travelled with the digital camera outside of Bunglung, and visited a primary school building in Kpachilo, a nearby community. He is one of the only participants to produce photographs outside of his community. He took a number of photographs of images and English language print text on the walls of this school. Somatu also took a number of photographs in an out-of-school context, but which represent a future aspect of his aspirations with regard to formal schooling. They were not taken in school, but are expressions of wanting to go back at school in the future. IMG0058 is a photograph of a sign referring to a joint initiative between the Ministry of Food and Agriculture, the Canadian International Development Agency, and the World Food Program of a community-based milling and fortification program.

In response to viewing the image, Somatu said, "I'm interested in being able to read this later when I'm in school" (personal interview, 26 March, 2015). He took three photographs of this particular sign. MTMSG is an acronym for 'mother-to-mother support group'. These groups are for women to discuss infant and young child feeding. Tunteeya is a shorthand form of the Sirugu Tunteeya Association, an organisation based in Tamale. In IMG0005 (Plate III), Somatu produced a photograph of a short piece of text that is part of a larger instruction poster linked to the MTMSG program. It states in English to 'Mix content of Mixer thoroughly for another 10mins'. Somatu said, "I can't read this now so I took the picture in hope that when I get to school, when I see it, I can read it" (personal interview, 26 March, 2015). IMG0048 presents further evidence for this program, a poster advocating community members to 'Eat Locally Fortified Food For Healthy Growth' that Somatu photographed. It also features a photograph of a woman engaged in the process of milling and gives a list of the nutrients and vitamins contained in fortified corn and soya flour.

IMG0013 (Plate III) is a photograph taken in the home context of a primary school exercise book with student writing in English. When asked why he took this photograph, Somatu

responded, “It was a student who wrote this and I hoped that when I get into school, I’ll be able to write the same thing” (personal interview, 26 March, 2015). The text refers to traditional systems of inheritance in Ghana, and has most likely been copied directly from a blackboard or textbook. IMG0008 is a photograph of a t-shirt laid out on the ground. The text on it says, ‘i FACEBOOKED YOUR MUM’. In response to the image, Somatu stated, “I want to be able to name the image and also do the reading” (personal interview, 26 March, 2015). Yakubu also expressed a similar sentiment in reference to a photograph of the upper and lower case letters of the English alphabet. Speaking to IMG0174, Yakubu said, “When I was in school, this is what we used to read daily” (personal interview, 26 March, 2015). Across Somatu’s portfolio, the data reveals an understanding of literacy beyond the here and now, embedded in literacy materials he accessed in the past or that he wants to access in the future. This spatial and temporal negotiation of primary school literacy materials is only substantively found in the three Bunglung boys’ portfolios.

4.1.4 “m ba Abu gulila niyi”: mediating school-based literacy actions

The data in this section shows that children understood literacy to be school-based actions, involving them and/or others as subjects. Actions were defined by the teaching and learning they experienced in school contexts, predominantly CBE class. Some actions occurred in the past, and were photographed afterwards. Other actions were captured during the act of completion. Five tɛha emerged from the coding process: student writing; teacher writing; wall writing; numeracy; and literacy in action. These five tɛha were identified in 46.5% of the anthology. The first three tɛha do not necessarily refer to when the action occurred, but who produced the writing (a student or a teacher) or the place where it was produced (on a wall). These are predominantly actions that occurred before the photograph was taken. The final two tɛha indicate the content and/or subject of the photograph were related to numeracy actions (numeracy) or subjects captured in the act of doing literacy (literacy in action) (Wray, Bloom and Hall, 1989; Brandt and Clinton, 2002). The most common forms of literacy in action coded were: reading aloud; copying as writing; teacher marking; drawing; reading silently; letter formation; and phonics.

Figure 15 is a heat map of these five tɛha across each participant’s portfolio, in which the data reveals emerging patterns. The Botingli participants captured a range of school literacies in their photographs compared to those Bunglung participants. Although, as

discussed above in sections 4.1.2 and 4.1.3, Botingli participants were confined to a singular school context in CBE, the data reveals that their understanding of literacy was embedded in a present pedagogic tense. That is, more in the here and now of literacy learning in CBE and Dagbanli, particularly compared to Bunglung participants such as Yakubu, Somatu and Ibrahim, whose understanding was sometimes embedded in the past and future tense of primary schooling and English.

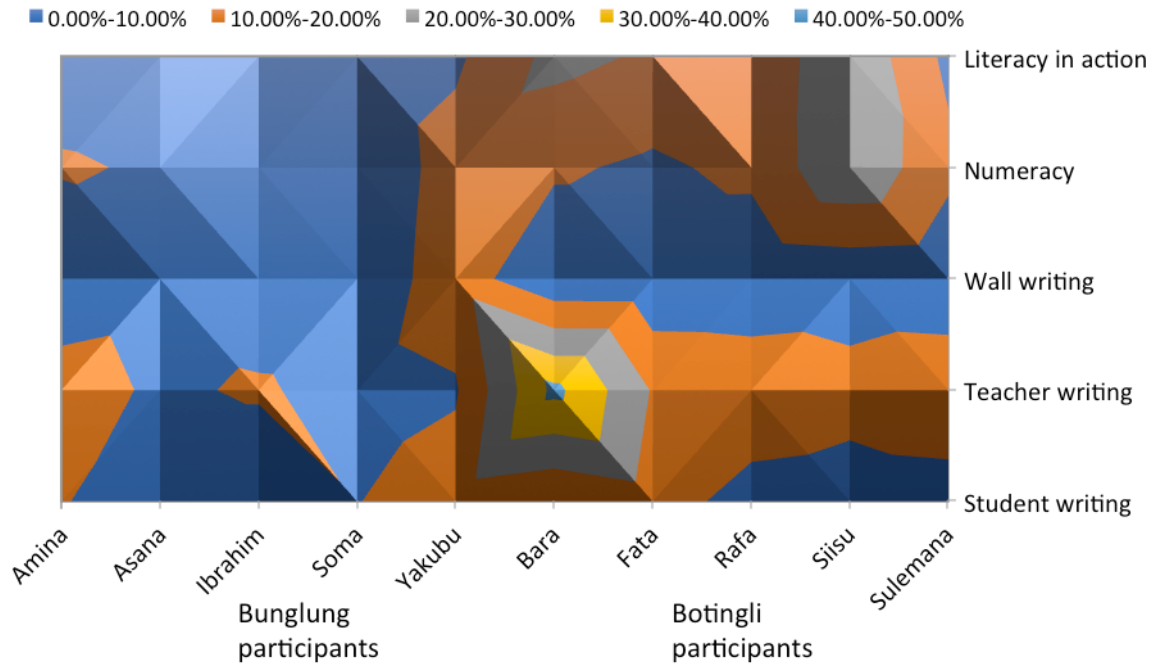


Figure 15: Occurrences of literacy actions within each participant's portfolio

There are similarities and differences in how both communities positioned literacy in school contexts. In both communities, the participants understood literacy in action, in the here and now, almost exclusively as CBE-based literacy practice. A total of 401 photographs were coded as literacy in action, which represents 10% of the anthology. Although all photographs could be coded as literacy in action, given the instructions to the participants, their intent and purpose of this study, this tɛhigu emerged from the analysis of the data as a distinct school-based action being performed (see Plate IV). The majority of these photographs (88%) co-occurred in the CBE class context and in Botingli (67.5%). There are a total of four co-occurrences of the primary school context and literacy in action, which all occurred in Bunglung. Teacher writing, student writing, wall writing, and numeracy occurred both in CBE and in primary school contexts. Teacher writing and numeracy were also more common tɛha in Botingli, occurring in 20% and 15.3% respectively of the participants'

portfolios compared to 9% and 7.6% of Bunglung participants' portfolios. The co-efficient for CBE and teacher writing, student writing, and numeracy are most significant at 0.28, 0.10, and 0.22 respectively. The data reveals differences in how the communities positioned school literacies with regard to how the participants understand literacy, particularly in Botingli through teacher-directed or pedagogical events in the CBE classroom.

This is evident, for example, in the portfolio of Barachisu (Bara) who produced 145 (70% of her total) of photographs in the context of CBE class and who understands literacy as embedded in the pedagogic literacy actions such as teacher writing. Bara is 11 years old, the sister of Fata, and lives in Botingli with her parents and six siblings. She was fostered to her aunt in the past with Fata. Bara has never been to primary school, but attends Qur'anic Arabic classes like her sister. Almost one-quarter of her photographs (23%) indexed literacy in action, and 13% of her photographs indexed students reading aloud (see Figure 16). All of these literacy actions co-occurred in the context of CBE class.

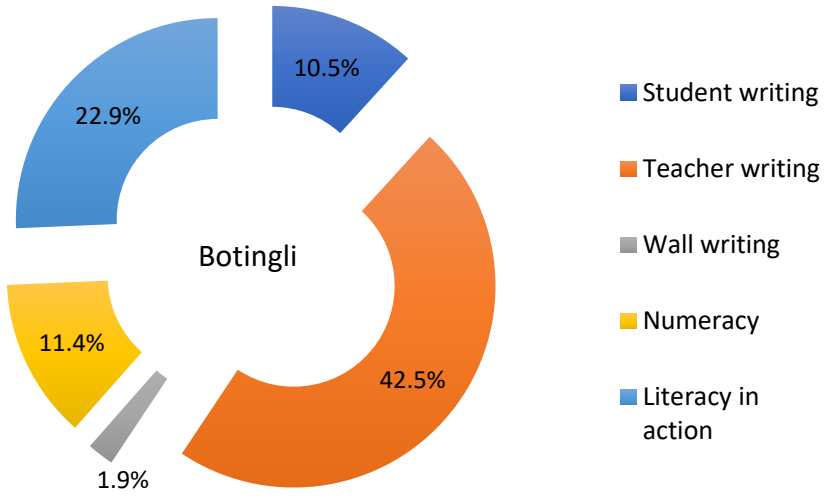


Figure 16: Bara's photographs that indexed literacy actions

IMG2037 (see Plate IV), by Barachisu, is a photograph of Siisu standing in front of the blackboard. Siisu is reading from the blackboard, and when asked why she took a photograph, Bara replied, "None of us could read what he was reading. I felt he did very well. I wanted a picture of Siisu reading" (personal interview, 19 March, 2015). However, teacher writing was the dominant tɛhigu of Bara's photographs, indexed in 42.5% of her

portfolio. Bara's understanding of literacy was mediated by a number of actions, but particularly by the CBE teacher and his written Dagbanli on the classroom's small blackboard. Bara's photographs indexed school literacy as an event or action practised in the CBE classroom, directed by the CBE teacher, and embodied in the blackboard and textbooks. This is further evident in IMG2060 (Plate IV), by Barachisu, which is a photograph of the teacher next to the blackboard, with a wooden stick in his right hand. There is an extensive list of words divided into three columns (the same word list appears in IMG2037).

> Barachisu: Our teacher was teaching us.
>
> Brendan: How was he teaching you?
>
> Barachisu: He was teaching a lesson that we had done.
>
> Brendan: What was the teacher doing here?
>
> Barachisu: He was reading.
>
> Brendan: And what did you have to do?
>
> Barachisu: Watch him and look at him while he was reading
>
> (Personal interview, 26 March, 2015).

Although the data reveals Botingli participants' understanding of school literacy practice is strongly mediated by CBE, it also reveals Bunglung participants' similar understanding even though that understanding may not be as frequently referenced quantitatively in the anthology. This is evident in the portfolio of Yakubu, who is the only participant to have produced photographs almost equally in the contexts of CBE (39%) and primary school (32.5%) and produced the most photographs in the context of CBE in Bunglung (see Figure 13). For example, IMG0136 (see Plate IV), by Yakubu, is a photograph of one of his peer's writing during a CBE class in Bunglung. The teacher had copied four questions on the blackboard from chapter ten of their textbook. The topic of the chapter was animals, specifically cows. The photograph shows the writer answering the four questions. The first answer states 'm ba Abu gulila niyi' in Dagbanli, which translates as 'Abu watches over the cows'. I asked Yakubu about this photograph, and he responded, "We were doing writing in class and I was moving around. Whenever I saw beautiful writing I took a picture of it" (personal interview, 26 March, 2015).

The data reveals that the act of writing in school contexts in Bunglung was also mediated by a teacher, as evident in photographs such as that of the CBE teacher's marking of students' exercise books. IMG1133, by Ibrahim, is a photograph of a pile of students' exercise books, with the one on top having been marked by the CBE teacher with long red ticks and a numerical score inscribed across the page. Ibrahim said that the book on top of the pile and writing were his own. It is from the same CBE book section as shown in IMG0136 (see Plate IV), and shows a list of words, copied from the blackboard and four answers to the questions listed by their teacher. In Bunglung, Yakubu (IMG0332) and Somatu (IMG0585), and in Botingli Siisu (CIMG1267), all produced photographs of their CBE teacher in the act of marking exercises books (see Plate IV).

This mediation was not confined to the CBE class, as is evident in photographs produced in primary school contexts and/or of formal school textbooks, which is only referenced in Bunglung participants' portfolios. For example, IMG1123 by Ibrahim is a photograph of a page from a primary school textbook. At the centre of the photographic frame is a picture of two young people, with large red X's above their left shoulders. The boy in the picture appears to be drawing in a book. The girl is tearing a page of the book in her hands. Both actions are signalled to be incorrect. The caption under the book's picture is not completely visible, but part of the first sentence reads 'about the importance of treating books with care'. In taking a photograph of this page, Ibrahim stated that he was in one of the primary school classrooms looking for interesting pictures in textbooks to photograph.

However, the data reveals differences between the two communities in the positioning of the CBE teacher at the centre of literacy actions. Although the two CBE teachers are indexed in 8.61% of the anthology, the majority of the photographs (73%) were produced by Botingli participants. This discrepancy between the two communities is also reflected in the frequency of teacher writing. In the Bunglung participants' portfolios, teacher writing is indexed in 9.25% of the participants' photographs. In the Botingli participants' portfolios, teacher writing is indexed in 20.47% (see Figure 17). Although there are quantitative differences between the two communities, the CBE teacher is positioned in regards to the understanding of school literacy actions of the Bunglung participants. This is evident in Ibrahim's portfolio, who has the least amount of photographs produced in the context of CBE class in both communities (11.4% of his portfolio). Indeed, 49% (n=180) of his

photographs were not coded for context of production because a context could not be reliably identified. In the anthology, only 6.54% (n=262) of photographs' context could not be reliably identified. The majority of Ibrahim's photographs were of an English language primary school textbook filled with pictures (see Plate IV, IMG1209).

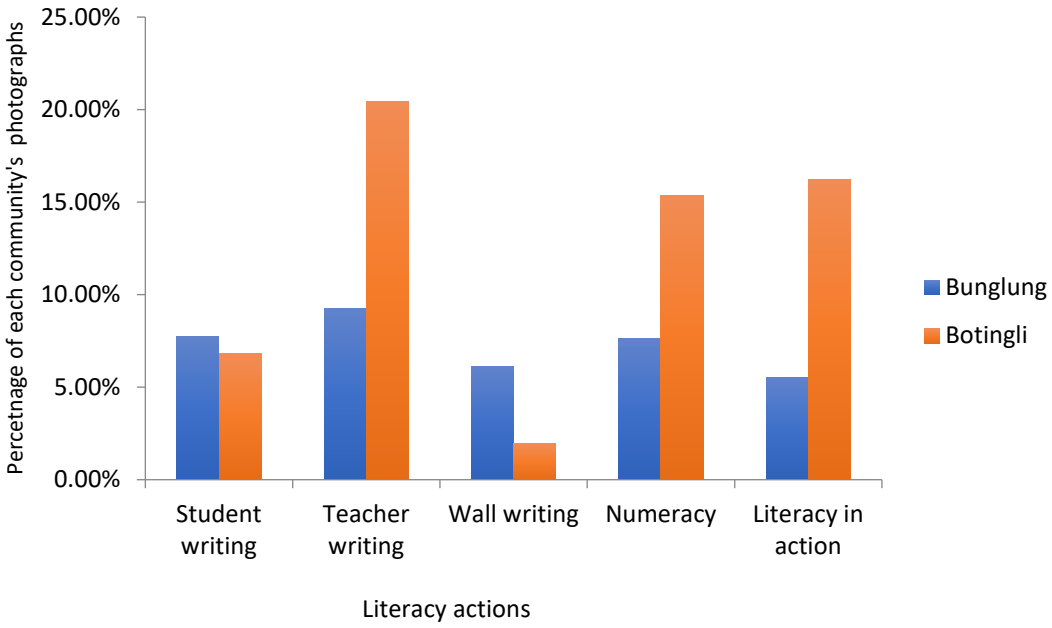


Figure 17: Occurrences of literacy actions in Bunglung and Botingli

The position of the CBE teacher in Bunglung is evident in eight of Ibrahim's 42 photographs produced in the CBE class context. For example, IMG1281 (see Plate IV) is a photograph of the teacher walking in front of the blackboard. The static blackboard in the background indexes the motion of the teacher. However, there are 41 photographs in which teacher writing can be identified either on a blackboard or in an exercise book. For example, IMG1084 is a photograph of a list of words written by both the teacher and other students for the letter 'z' during a CBE class. Ibrahim took the image out-of-school into his home on the camera and copied it into his exercise book. In IMG1026 the teacher's writing from a primary school class is identifiable, written in English. The content of the writing concerns materials such as paper and cloth.

> Ibrahim: It is writing on a wall and I'm interested in the letter and words
>
> Brendan: Do you recognise the letters or words?
>
> Ibrahim: Yes. [Makes "Ah" sound] [Makes "S" sound] [Makes "I" sound]
>
> (Personal interview, 26 March, 2015).

Although Bunglung participants may not position the CBE teacher, Dagbanli, and literacy actions as often as Botingli, their data provides insight into the position of these tɛha in formal primary schooling in Ghana. This is often evident in the photographs of an unknown primary school teacher's writing on a blackboard in Bunglung. The literacy action and language are often in stark contrast to that of what appeared in the Botingli school context. For example, Fata's photograph of the CBE textbook, opened at section six and covers the topic of necessary household work, is typical of CBE content, lessons, and instructions (see Plate IV, IMG0725). On the other hand, the Bunglung participants' photographs of literacy materials and actions in the primary school highlight the pedagogical and curricula differences between CBE and formal schooling. This is evident in IMG1248 by Ibrahim, which is a photograph of a blackboard from one of Bunglung's primary school classrooms. The statements written on the blackboard by a teacher describes Newton's laws of motion in English. In addition, IMG1041 is also from a primary school classroom, but in this instance a teacher's writing on the blackboard is in Dagbanli, with the first question asking what country Accra is the capital. Ibrahim said that he decided to produce the photograph because of the letters and words.

4.1.5 "I was reading and I took a picture of myself": capturing selfies of school-based literacy actions

The data in this section shows that in both communities the participants used their digital cameras in different ways to represent and capture their perspectives of literacy actions. As discussed in section 4.1.4, although the data reveals an emerging pattern in the two communities in regard to how the children understand literacy in school contexts, individual perspectives and representations disrupt this pattern. In addition to the positioning of literacy actions enacted by teachers and peers, participants from both communities produced selfies. The spatio-temporal aspects of their selfies were nuanced and varied. Participants experimented with different angles, depths, and actions. This was particularly evident in the perspectives of Botingli participants Rafatu and Siisu, who accounted for half of the selfies produced, some of which were literacy selfies. That is, photographs of themselves in the act of doing literacy.

Rafatu (Rafa) is 12 years old and lives in Botingli with her parents and two siblings. She has never attended primary school, but attends Qur'anic Arabic classes. Rafa often helps her

mother with work, either on their farm or selling fish. She produced 478 photographs, 61.2% in the context of CBE classes (see Figure 18). Rafa also produced 22 selfies, some of which are literacy selfies. IMG0437 (see Plate V) is a literacy selfie produced by Rafa, and captured two of her classmates as well. She is holding her CBE numeracy textbook in her right hand, while taking the selfie with her left hand. IMG0422 was not taken by Rafa, but was stored on her camera. She asked a classmate to take a photograph of her in the act of writing in the CBE numeracy textbook. Rafa is copying two words printed in the textbook on that page 'labi yuli'. Rafa's understanding of literacy is partially as a school action that she does, and can do, and includes numeracy within the context of CBE classes. This is similar to the other Botingli participants' understandings, with the addition of selfies being used to directly reference herself in the photographs, in the here and now, performing literacy actions.

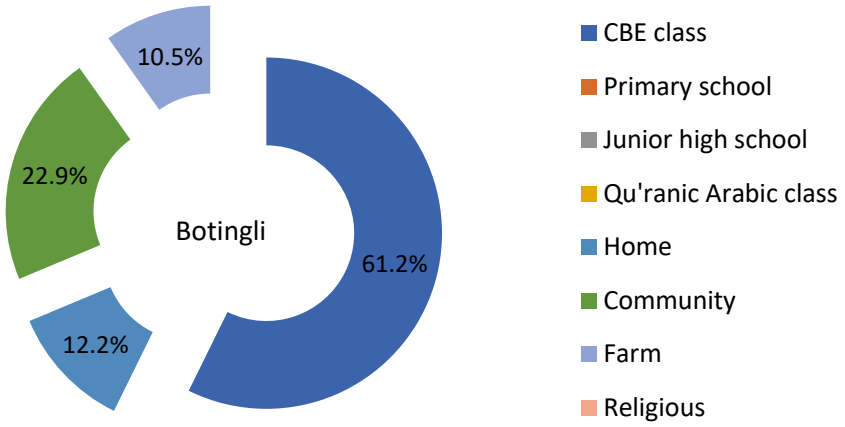


Figure 18: Rafa's contexts of production

The understanding of literacy actions as represented through selfies is also evident in Siisu's portfolio. He is nine years old and lives in Botingli, fostered with his grandfather and grandmother. Siisu's parents both live in Accra and he has never been to primary school, but attends Qur'anic Arabic classes. He helps his grandparents with farm work. Siisu produced 353 photographs, 76.2% in the context of CBE classes in Botingli and 16.7% (n=59) composed as selfies. In CIMG1440 (see Plate V) the camera is at ground level being held in his right hand. When asked what he is doing in this photograph, Siisu responded, "I was reading and I took a picture of myself" (personal interview, 18 March, 2015). He is in his grandfather's home, and appears to be reading a CBE textbook. Siisu photographed himself

writing, reading aloud, and doing numeracy, which are identified as school-based literacy activities. CIMG1360 was taken during CBE class using his right hand over the back of his right shoulder. He is reading from his CBE workbook, and this is one in a series of literacy selfies he took of this activity. Siisu already considers himself to be literate, and when asked about the selfies, he said that he took them because the digital camera was his; he expressed a sense of ownership over the photography and also over his literacy actions.

Siisu's tendency to produce literacy selfies is partially representative of his perception of literacy, which like his Botingli peers is embedded in Dagbanli and CBE, but similar to Rafa also in the performance of literacy actions for the camera and for the audience. Siisu performs confidently as photographer and subject, which is evident also in his responses during our collaborative viewing. He described literacy as reading and writing, for which "you have to write steady as you try to make signs" and not to be nervous when reading (Siisu, personal interview, 18 March, 2015). "Don't fear. Don't be ashamed", he stated (personal interview, 18 March, 2015). The portfolio of Bara further supports this emerging pattern in Botingli, the notion of audiencing, and a challenge to the finding that the Botingli participants' understanding of literacy practice is predominantly embedded in their CBE teacher and literacy materials. Bara also expressed a direct sense of ownership in her literacy actions during the collaborative viewing. For example, IMG2047 (see Plate V) is a top down view of her CBE exercise book. Her left arm and legs are visible in the portrait-oriented photograph. Bara had just finished writing, and she took a photograph to show me that she had been given the book and could write and read.

In addition to literacy selfies, Botingli participants used the cameras to view photographs in their CBE classes, enacting pedagogic viewing of actions captured. For example, CIMG1294, by Siisu, shows Rafa and Bara viewing a photograph previously taken on a camera's LCD screen. Similarly, CIMG1298 shows Rafa and at least three other CBE classmates viewing photographs previously taken. This same practice is not evident in the Bunglung participants' portfolios, but that does not mean they did not view and show one another their photographs.

4.1.6 "We take care of ducks": multimodal understandings of school-based literacy

This data section shows that although the children predominantly perceived school literacy actions and materials to be print and text-based, some participants also understood them as

multimodal. In addition to print-based literacy and languages identified in the data, multimodalities emerged with images, drawings, and photographs indexed in 19.29% of the anthology. The data reveals differences between the communities in how the children understood literacy beyond print-based school texts. Although all children had at least one photograph that indexed multimodality, there is a clear discrepancy between the two communities, with only 5.15% being identified in Botingli participants' portfolios (with a range of 0.48% to 12.28%) and 29.37% in Bunglung participants' (with a range of 10.21% to 51.36%).

The Bunglung participants' photographs account for 88.5% of the multimodality codes identified and Somatu, Ibrahim, and Yakubu's portfolios account for the majority of these codes in the anthology (see Figure 20). Images are the dominant code across both communities, most commonly indexed in textbooks, particularly primary school textbooks. In Bunglung, images are indexed in 67.6% of the multimodalities total, with drawings being indexed in 25.3%. The most significant co-occurrence for images is within the primary school context at 0.19 (n=173), followed by drawings also in the primary school context (see Table 7). The primary school, as a physical entity, is the primary site for multi-modal literacies as produced by participants across the anthology.

	CBE	Primary school	Home	Community
Drawing	40 - 0.02	77 – 0.12	17 – 0.02	3 – 0.00
Image	62 – 0.03	173 – 0.19	119 – 0.11	25 – 0.02
Photograph	6 – 0.00	7 – 0.01	24 – 0.03	8 – 0.01

Table 7: Co-occurrences for multimodal literacy and context of production

The capturing of these understandings, particularly by the Bunglung participants, are not incidental and the intention is evident through their portfolios. In addition, there are spatial crossovers between primary school and CBE contexts in Bunglung, which is unsurprising considering that the CBE class takes place in one of the primary school classrooms. For example, IMG0147 (see Plate VI) by Yakubu is a photograph of a blackboard in a primary school classroom. Two drawings are visible, with the word 'HOUSE' written in English below the drawings. In comparison, IMG0262, by Yakubu, is a photograph of a student's drawing in a CBE exercise book. The drawing is of a traditional Dagomba house, with the thatched roof

represented by crisscrossing lines and brown pencil colour. Written next to the image is the Dagbanli word DUU', which translates to 'hut' or 'room'. There are a number of similar photographs in Yakubu's portfolio from CBE class (see also IMG0263, 0261).

From observations in Bunglung, the CBE teacher would model the drawing on the blackboard, which is then copied by the students and marked by the teacher. Similarly, IMG1322 (see Plate VI), by Ibrahim, is a photograph that captured the CBE teacher using a red pen to mark a student's drawing of a hut and grass ('vali'). These were common practices in the Bunglung CBE class, as the teacher endeavoured to dedicate class time each week to multimodal literacy actions. IMG0593, by Somatu, is a photograph of two pages from an exercise book, showing five separate student drawings from the CBE class. In contrast, the Botingli participants did not index any drawings in their CBE classes or as part of their CBE lessons. For example Bara, whose understanding of literacy is mediated by the CBE teacher and the blackboard (see Figure 20), does not have any photographs that indexed multimodalities in school and only one photograph out-of-school. In addition, Siisu only produced four photographs that indexed multi-modalities and none of them in school contexts, despite 76% of his portfolio being produced in the CBE classroom. However, there are pictures and images in the CBE textbooks, which were focused on by some Botingli participants such as Sulemana. For example, IMG0722 (see Plate VI) is a picture from chapter six of their CBE textbook. There is no written text in the frame of the photograph, only the picture. This is part of a series of seven photographs Sulemana produced of pictures from the CBE textbook (see also IMG0731).

That Bunglung participants understood literacy to be multimodal and embodied in drawings, images, and photographs is further evident from the range of literacy materials indexed. This is evident in the portfolio of Somatu, who travelled outside of Bunglung to another community and its school. For example, IMG0440 (Plate VI) is a photograph of a wall of a school building outside of Bunglung. It is an image of two disembodied arms holding an object under a running water tap. There is not a visible caption for this image on the wall. Similarly, IMG0441 is a photograph from the same building, showing another disembodied hand sweeping. No caption is visible for this image. It is also evident in the portfolio of Ibrahim, which indexed multi-modality in 51.3% of his photographs. His understanding of literacies went beyond print text to include a range of multi-modalities. Ibrahim is 10 years

old and lives in Bunglung with his family, which includes 18 siblings across the three wives of his father. Unlike his peers Somatu, Yakubu and Amina, Ibrahim has never attended primary school, as his father did not consider him mature enough. He does attend Qur'anic Arabic classes, and takes care of farming the vegetables for his family. Ibrahim produced 368 photographs across a number of in-school and out-of-school contexts (see Figure 19).

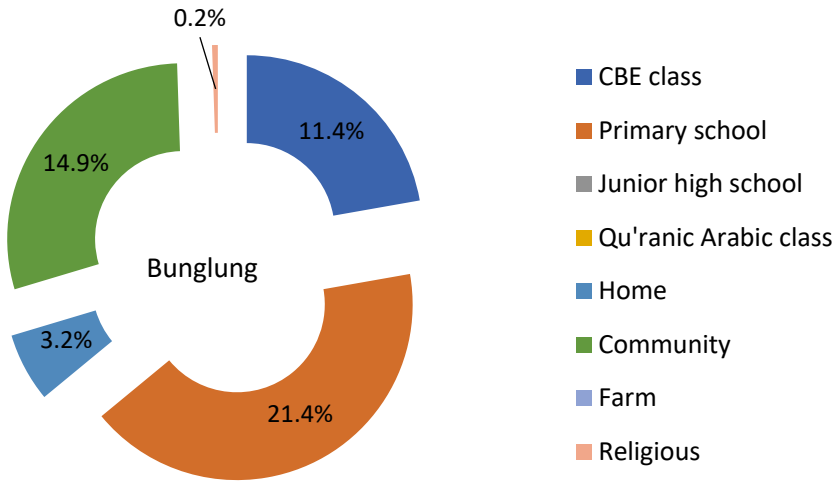


Figure 19: Ibrahim's contexts of production

The data reveals that the photographs of images in school contexts were associated with Ibrahim's everyday world, and he made connections between CBE classes and daily life. The CBE textbooks are intended to be culturally relevant and the themes, vocabulary, and characters of the textbook are intended to be relevant to Dagomba culture. This is evident in IMG1071 (Plate VI) by Ibrahim, which is a close up of an image of a duck from the CBE textbook. When asked why he took the photograph, Ibrahim responded, "We take care of ducks" (personal interview, 26 March, 2015). In addition, IMG1072 is a photograph of an image of a bicycle on the same page of the textbook as the image of the duck.

> Ibrahim: It was also from a book.
>
> Brendan: And why did you take it?
>
> Ibrahim: When our mothers send us to other villages, we pick a bike to ride
>
> (Personal interview, 26 March, 2015).

Ibrahim also made this connection in photographs produced in the primary school context. IMG1120 is a photograph from a primary school textbook. It shows images of a number of

vehicles in colour that are labelled in English. “If you are going to Tamale, and you don’t get a ride on a motorbike, you can take a bus”, Ibrahim said when asked why he produced this photograph (personal interview, 26 March, 2015). Ibrahim’s perceptions of literacy went beyond printed text and included a diverse range of multimodalities and were connected to everyday life in the community and outside the community.

4.1.7 “I wanted to take a picture of what I knew I could read”: the materiality of literacy

The previous data sections have shown that similarities and differences in how each community positioned different school languages, materials, and actions with regard to the children’s understandings of literacy practice. This data section shows that the children’s understandings of literacy are embedded in differing perspectives of the materiality of literacy, in which languages, materials, and actions coalesce into an understanding of the materiality of literacy. The photographs are rich with objects in frame, both in the foreground and background. Indeed, many objects are captured that may not have been intended to by the photographer, which revealed intentionally or unintentionally a multitude of materials related and unrelated to literacy and the purpose of this study. However, there were a small number of predominant objects captured by the participants that they associated with literacy, which were identified in the collaborative viewing of the photographs. These included objects previously discussed in section 4.2.2 such as a blackboard, CBE textbooks, and formal school textbooks.

The data reveals differences in how the two communities positioned the materiality of literacy with regard to the participants’ understanding of literacy. In the anthology, a blackboard is indexed in 20.54%, CBE books in 15.86%, and formal school textbooks in 7.87%. A blackboard is indexed in 15.22% of Bunglung participants’ photographs and 28.01% of Botingli participants’. CBE books are indexed only in 6.44% of Bunglung participants’ photographs but 29.32% of Botingli participants’. And, formal school textbooks are indexed in 12.96% of Bunglung participants’ photographs but only 0.72% of Botingli participants’. The classroom’s blackboard in Botingli and the CBE books used by students are dominant in the Botingli participants’ portfolios. On the other hand, CBE books are indexed infrequently in the Bunglung participants’ portfolios, with formal school textbooks appearing in twice as

many photographs (see Figure 20).

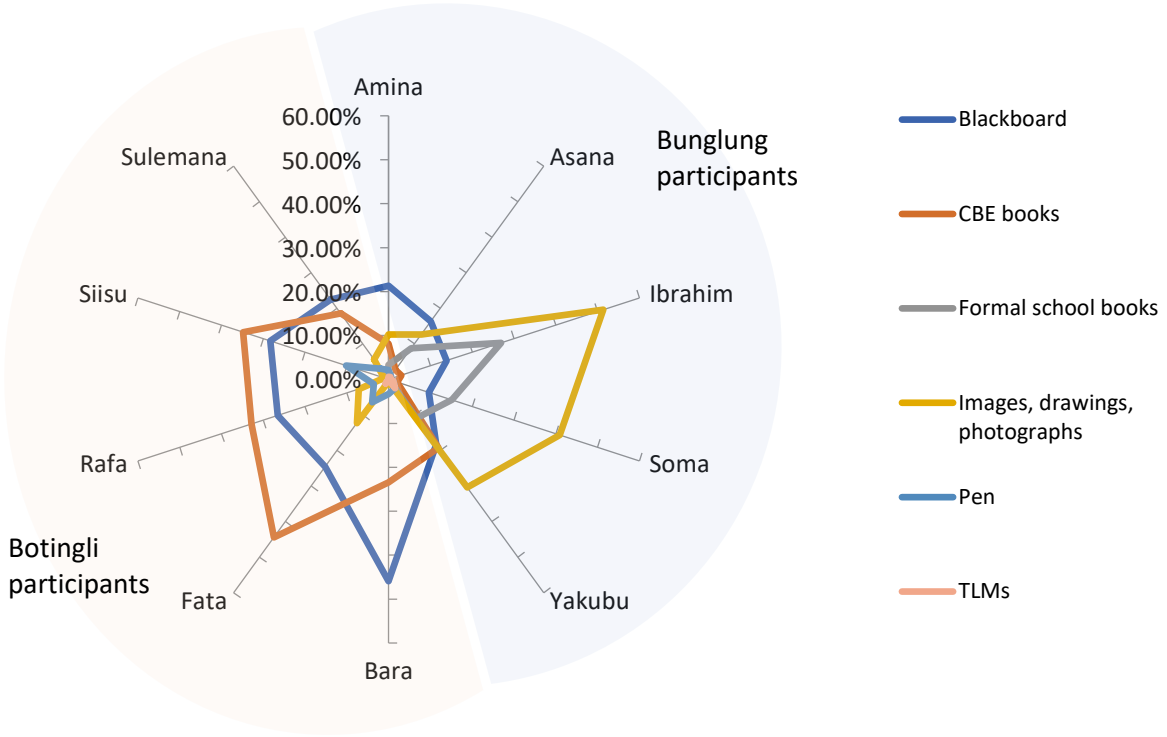


Figure 20: Occurrences of literacy materials across the two communities and participants' portfolios

The range of objects indexed in school contexts are fairly defined and limited in each community. In Botingli, the participants' understandings of the materiality of literacy are embedded within the four walls of the building, within which are the CBE classroom's blackboard, their CBE books, and pens. Literacy actions captured in the Botingli participants' photographs indexed this materiality, which featured participants or others in the act of writing, are usually accompanied by a pen or pencil being held. The pen or pencil is held just above a piece of paper or pressed firmly against it, forming shapes and lines, and demonstrating that the subject/s can write and is writing at the time. The pen or pencil indexes the literacy practice and practising of the subject, in the here and now, which is then temporally and spatially transferred across contexts.

This is evident the Fata's portfolio, in which 44.4% of her photographs indexed CBE textbooks and 34.5% either student or teacher writing as a past literacy event. Fata's portfolio indexes the highest proportion of CBE textbooks in both communities. Her understanding of the materiality of literacy is uniquely and strikingly referenced in IMG0676 (see Plate VII), which is a literacy selfie of her hand grasping a blue pencil. Fata's hand dominates the frame. Grains of dirt are visible across her fingers and knuckles. Three fingers

hold the small pencil. Fata used her left hand to take the photograph, while the white strap was still secured around her right wrist. Although it does not feature her face, it is a selfie of her literacy that brings together action, materials, and performance in which the matter of literacy cannot be ignored. In IMG0707 (Plate VII), Fata produced another literacy selfie, but from a different angle. Her lips and chin are visible, with her right hand holding a blue pencil pressed to a piece of paper. She is writing, forming the shapes of two consonants of Dagbanli's alphabet that form the diagraph 'gb'.

Fata's sister Bara appeared to understand literacy actions configured and directed by her CBE teacher, in which teacher writing is indexed in 42.5% and the blackboard in 45.9% of her portfolio. However, Bara's photographs also reveal an understanding of her literacy that is embedded in materiality. This is evident in IMG1918 (see Plate VII), which is a photograph of a page from the CBE textbook. A familiar blue pencil and eraser sit on top of the page. When asked why she decided to take this photograph, Bara responded, "I was excited because I knew how to read this. I wanted to take a picture of what I knew I could read" (personal interview, 19 March, 2015). Bara indexes this association in a photograph between materials and her literacy again in IMG2026. Low lighting in the classroom accounts for this photograph's blur. At the centre of the image, is a red pencil, motionless. The end of the pencil and a student's finger both point at something on a page of a CBE textbook. Bara indicated that the two students were reading, and that one was helping the other.

> Brendan: Do you know what they were reading?
>
> Barachisu: They were reading about Asana and her brother and how they worked together to keep the house clean
>
> (Personal interview, 19 March, 2015).

Sulemana's portfolio featured the least proportion of photographs that indexed literacy in action in Botingli at 7.5%, but which is higher than the average for the Bunglung participants. An understanding of the materiality is also evident in his portfolio. For example, IMG0865 (see Plate VII) is of his left hand holding a blue pencil, pressed against the page of a writing exercise book. The photograph was taken with his right hand, looking across and down at the scene, in a similar selfie style to that of Fata's. He is writing the diagraph 'kp'. He also

captured his peers writing in action through a number of photographs such as IMG0759. Sulemana also noticed my presence and my literacy actions when I was observing the CBE class. For example, IMG0878 (see Plate VII) is of my notebook, open with observation notes I had recorded using a blue pen. It highlights the materiality of my own literacy practice as a researcher, particularly as I was documenting events I observed such as the students repetitive writing and formation of the diagraph 'kp'. The repetition of four horizontal lines, cascading down the length of each page in the writing exercise book, guides the pencils. There are correct and incorrect methods for forming letters, and these exercise books reinforce the instructions of their teacher.

On the other hand, the data reveals that the Bunglung participants' understanding of the materiality of literacy is embedded across different school contexts, but not within CBE to the same extent as Botingli. This is evident in the Bunglung participants' movement through different school buildings both within their community and sometimes outside. For example, the data reveals how wall writing on school buildings mediated their understanding of both printed text and multimodal literacy. Wall writing was indexed in 6.1% of Bunglung participants' portfolios (with a range of 3.3% to 15.1%), compared to only 1.9% of Botingli participants' (with a range of 1.4% to 2.8%). For example, IMG1048 and 0998 (Plate VII) by Ibrahim are photographs of the old primary school building in Bunglung. The text and pictures on this abandoned building are also indexed across Amina (IMG0028), Yakubu (IMG0085), and Somatu's (IMG0085) portfolios. Ibrahim's hopes for a future transition from CBE to formal schooling were embodied in this photograph of what the building represented. When asked why he decided to take it, Ibrahim responded, "I hope one day my father will send me there" (personal interview, 19 March, 2015). The majority of the wall writing is English text accompanying the pictures, although there are a few examples of Dagbanli in these primary school contexts (see Plate II, IMG0296 by Yakubu).

4.2 Summary

This data analysis chapter showed that although the participating children in both communities were out-of-school, their understanding of literacy practice was partially embedded across two school contexts. They used the digital cameras to intentionally capture and represent their perceptions and understandings of literacy as school-based. The choice of object/s, subject/s, context, and composition by each participant involved a

consideration of what literacy means. Each photograph involved a consideration of what my expectations of the participants were, and of expectations of themselves. Participants also wanted to be able to speak to their photographs, and made deliberate choices about what, and what not, to photograph. They were photographing with a purpose, which was largely to demonstrate and represent their perceptions and understandings of literacy as participants in this study.

Their compositions, framing, diversity of visual representations, and collaborative viewing allows access to their understandings of literacy practice. The analysis shows that their understandings of literacy are materialised across a two main school contexts, and that there were differences between the two communities. The Botingli participants understood literacy to be embedded in CBE, whereas the Bunglung participants understood literacy to be embedded predominantly in primary school but also in CBE to a certain extent. Within these two school contexts, the data revealed differences in how languages, literacy materials, literacy actions, and multimodalities were understood and how they shaped participants' understandings and practice. Participants in both communities used the photographs temporally to index languages, materials, literacy actions, and multimodalities in the past, present, and future tenses.

5. Data Analysis II

This chapter is the second data analysis chapter and focuses on out-of-school contexts of production, which were coded as home, farm, community and religious contexts. The previous data analysis chapter shows that although this study focuses on out-of-school children, they understood literacy to be partially embedded and materialised across two main school contexts and that the actions associated with contexts are framed by their teaching and learning experiences, cultural and social histories and practices, and individual perspectives. This chapter shows that the children's perspectives and understandings are also partially embedded and materialised in out-of-school contexts, and that their use of the digital cameras allows access to a range of sites, actions, and practice that may not be observable to the researcher.

5.1 Koŋ da shikuru: out-of-school contexts of production

This data analysis chapter demonstrates similarities and differences in both communities in how literacy was positioned in out-of-school contexts with regard to how the participants understood literacy. Although the majority of the participants' photographs of literacy were produced in school contexts, 39% of the anthology was produced 'koŋ da shikuru' or 'without school'. In responding to the invitation to capture karimbu ka sabbu, the understanding of literacy in both communities went beyond reading and writing in classrooms and school buildings and into the community and homes. The data reveals not only how understandings of school literacy travels between contexts, but also the participants' different understandings of where, how, and when they use school and non-school literacy to make meaning in their everyday lives.

As outlined in in the first section of the previous chapter, the primary coding paradigm that emerged from the anthology was contexts of production. From this paradigm two first-level tɛha emerged as school and out-of-school contexts of production. Four dominant contexts emerged from the coding process in out-of-school contexts: home; community; farm; and religious. Within the out-of-school context of production, as with the school context, the same four second-level tɛha emerged with an additional one in Qur'anic education and a number of more specific items including Chinese language, clothing, signs, objects, vehicle, television, and radio (see Table 8). However, the data also reminds the viewer that these

communities are small, and besides the presence of the Dagomba housing compounds, school buildings, and a mosque, there almost no other buildings in either community and few infrastructure utilities such as a hand pump water well.

Second-level tɛ̀ha	Items									
Languages	Dagbanli		English			Arabic		Chinese		
Literacy materials	Blackboard	CBE book	Formal school textbook	Pen	Clothes	Sign	Objects	Vehicle		
Literacy actions	Student writing	Wall writing			Literacy in action		Numeracy	Teacher writing		
Multimodalities	Image		Drawing			Photo	Television	Radio		
Qur'anic education	Qur'anic text		Qur'anic writing			Islamic objects				

Table 8: Second-level tɛ̀ha (coding themes)

Although quantitatively the out-of-school contexts of production appear confined, these contexts account for 39.3% of the anthology. As outlined in the previous chapter, 6.5% of the photographs were not assigned a context of production code, as the context could not be reliably identified. The majority of these photographs were from Ibrahim's portfolio in Bunglung, and indexed pages from a primary school textbook. The data reveals that the differences between the communities in how out-of-school contexts are positioned are not as pronounced in regards to how the participants understand literacy, as evident in Figure 21 below. The two most common out-of-school contexts were either the home or the community, with only small difference between the two communities.

The data reveals that the children understood literacy predominantly within their respective communities, either Bunglung or Botingli, with only a small number of contexts outside indexed in the Bunglung participant's portfolios. Spatially, there are similarities between the communities in how they locate the movement of participants between their homes, community, school, CBE classes, and nearby farms. This is not to say that the children did not travel outside of their communities, but that the participants produced photographs in local contexts that were relevant to their everyday worlds. Figure 21 is a heat map highlighting the out-of-school sites at which participants produced photographs. Unlike the differences between Bunglung and Botingli in regards to school contexts of CBE and primary

school, there were similarities in the out-of-school contexts in how they were positioned in view of the participants' understandings. There are more consistent patterns in the traces as visible in the heat map across both communities and between the individuals, with outliers in Amina and Asana's portfolios, which indicates a greater indexation in community and home contexts (see Figure 21).

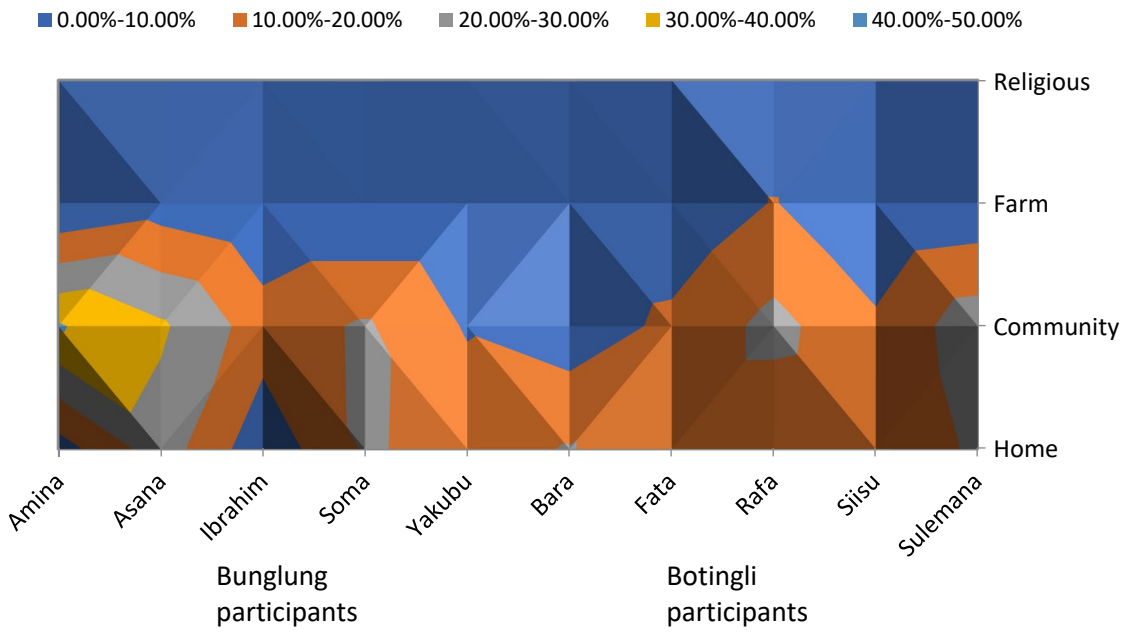


Figure 21: The out-of-school contexts of production for each participant's portfolio

Bunglung participants produced 381 photographs in their homes, which accounts for 16.24% of their total (with a range of 3.26% to 25.48%). Botlingli participants took 260 photographs in their homes, which accounts for 15.56% of their total (with a range of 10.20% to 22%). Participants took 846 photographs in their respective communities, which accounts for 21.06% of the anthology. Bunglung participants took 546 photographs around their community, which accounts for 23.27% of their total (with a range of 9.07% to 40.84%). Botingli participants took 300 photographs around their community, which accounts for 17.95% of their total (with a range from 3.83% to 25.92%). Overall, there are more similarities than differences at the anthology level between the two communities, especially when compared to school contexts of production (see Figure 22).

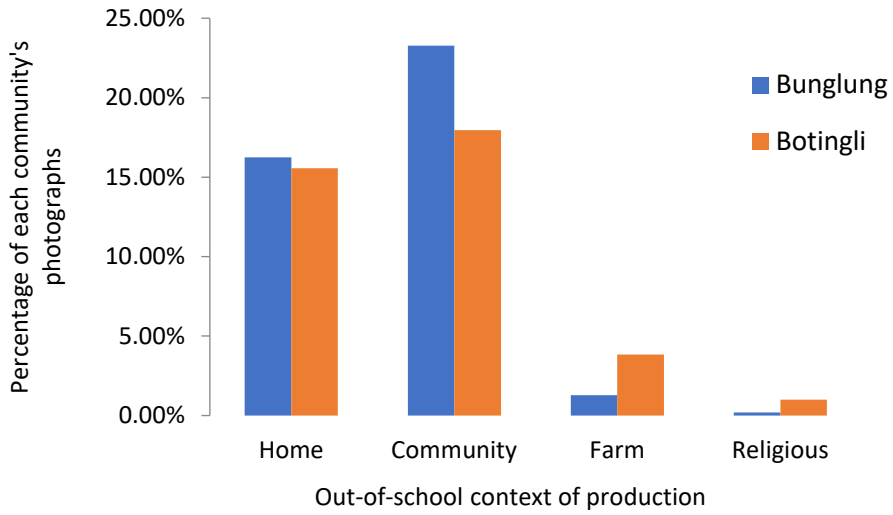


Figure 22: Community's out-of-school contexts of production

The farm context is only identified in four of the participants' portfolios, three of who are from Botingli (Fata, Rafa, and Sulemana) and one from Bunglung (Asana). In particular, the farm context is identified in 10.53% of Rafatu's photographs. The participants often supported their families to work on the farm or around the farm by tending to animals, helping with subsistence agriculture, collecting firewood, or collecting fresh water and is often a factor in why they do not attend formal schooling.

The religious context was identified in less than 0.5% of the anthology, but it was not an absent context in their everyday worlds. Nine of the ten participants were attending community-based Qur'anic classes. Indeed, the cameras were turned away from this context except in a couple of instances, which appears to indicate that the learning of Qur'anic Arabic was not understood as part of their literacy practice. Participants perceived the purpose of Qur'anic education to be learning morality and recitation of prayers. This was consistent across both communities, and also expressed in the interviews with the parents and guardians of the participants.

The remainder of the chapter is divided into seven sections, and systematically reviews the data analysis across each of the second-level tɛha through languages, literacy materials, literacy actions, and multimodalities. Similar to chapter four, the photographs referenced are found in the Plates section, and will be referred to guide viewing (see Plates VIII-XIII). It is again recommended that the Plates be viewed alongside the reading of this chapter, starting with Plate VIII. The similarities and differences between the two communities will

be examined in regards to how the participants understand literacy in out-of-school contexts.

5.1.1 Mathematics, English, Science, Social, ICT, Dagbanli and RMT: the mediation of languages out-of-school

This data section shows that in out-of-school contexts, children's perspectives of literacy are embedded predominantly in English texts. In particular, Bunglung positioned English more frequently both in the home and community contexts with regards to the participants' understandings of literacy. In the analysis of the correlation between contexts and languages, the strongest co-efficient is for the codes home and English language at 0.15 (see Table 9). The co-efficient for home and Dagbanli language is 0.05, with almost no indexes of Dagbanli in Bunglung and Botingli. However, the co-efficient for community and English language is 0.07, with Bunglung participants moving around their community as they encountered different English texts.

	Dagbanli	English	Arabic	Chinese
Home	80 – 0.05	220 – 0.15	6 – 0.001	1 – 0.000
Community	3 – 0.00	114 – 0.07		
Farm		1 – 0.00		
Religious		1 – 0.00	5 – 0.06	

Table 9: Co-occurrences of out-of-school context of production and languages

In Botingli, the positioning of written languages, in variety, materiality, and visibility is less pronounced compared to Bunglung. The walls of the building in which CBE classes are held are largely clean of writing compared to Bunglung. However, in out-of-school contexts in Botingli, there are examples of wall writing within the homes of the participants, indexed sometimes unintentionally, which reveal the extent to which different languages are positioned. For example, IMG1020 (see Plate VIII) by Sulemana focused on two fish hung up to dry inside his home and IMG1023 in which two of his peers pose for the camera. In both backgrounds, there is writing and inscriptions on the walls. This perhaps unintended indexing of writing is also evident in IMG1950 by Bara, in which her father poses for the camera, taken inside a building of their home. Over the left shoulder of her father is what

appears to be writing on the wall. On closer inspection, it is Arabic writing, perhaps a verse from the Qur'an. This is one of the six co-occurrences of Arabic language in the home context. In Bunglung, Yakubu also produced two similar photographs of his grandmother returning from the community's mosque (Plate VIII, IMG0386, 0387).

However, the data reveals differences more than similarities in how the two communities positioned languages in regards to the participants' understanding of literacy. In Bunglung, there are a range of different inscriptions and texts, mainly in English, within the home and community that all the participants' negotiated. This is evident in the portfolio of Soma. For example, IMG0380 (see Plate VIII) is a photograph of a large bucket in the frame. It announces 'OKI: The Obvious Choice Margarina'. Interestingly, 'margarina' is the Spanish word for 'margarine'. But, the sentence before it is in English. "OKI" is the brand name. To the right of 'MARGARINA' is a small circle, in which it is written 'HALAL حَلَال'. This is one photograph from a series of 22 that Soma produced, which focused on different materials in his home, which also included a Lipton tea bag box (IMG0356), another margarine bucket (IMG0359), a bag with a printed image and the text 'TAJ MAHAL' (IMG0386), and others.

This mediation of printed English text is also evident in other Bunglung participants' portfolios. For example, IMG2132 by Asana is of a piece of paper on the ground. A young girl's image is on the paper. It is branding for a product made by the 'Madina Hijab-Factory'. In the bottom left-hand corner of the paper is Arabic script. Underneath the Arabic script is the sentence 'MADE IN CHINA'. Furthermore, English language is indexed across the community by the Bunglung participants, on clothing such as football jerseys by Ibrahim (IMG1015) and non-governmental organisation signs by Amina (IMG0446), and vehicles by Soma (IMG0011). In Botingli, there are some similar objects, including non-government organisation signs (see for example, IMG0091 by Rafa) that positioned the mediation of English but they are infrequent.

The data also reveals the differences between the communities in how languages are transferred between school and out-of-school contexts, and more specifically and materially, to the walls of family's homes in Bunglung. This is evident in the portfolios of Yakubu, who produced 25.4%, and Soma who produced 42.36%, of their respective portfolios in out-of-school contexts. Their portfolios are also the ones that indexed English language the most frequently at 47.8% and 62.6% respectively (see Figure 8). For example, IMG0380 by Yakubu

is a photograph of a drawing and writing on the wall of his family's home. The drawing is a cross-section of a piece of fruit with its features labelled. This is one photograph in a series of eight that document various sections of this wall. Next to the drawing of the cross-section are four names: ''Fatima', 'Amina', 'Ayisha', and 'Mohammed'. In IMG0369 (Plate VIII) of the same series are two English words, 'Book' and 'pen'. This drawing of a cross-section is similar to another drawing of a cross-section of a plant from one of Bunglung's primary school classrooms (see Plate VIII, IMG0597 by Soma).

In another example, IMG0563 by Soma was taken inside his family's home, is a table written on the wall. It covers the length of the wall with seven rows. From top to bottom, the following words are inscribed in English: 'Mathematics, ENgLish, SCIENCE, SOCiaL, ICT'. IMG0564 reveals the other two rows: 'DAGBANLI, RMT'. The word 'social' was written over another word, which can be made out to be 'citizenship'. 'DAGBANLI' was originally written as 'DAGNI', and the spelling was changed with an unknown person adding the 'ba' and 'l' in the appropriate places. 'RMT' is an acronym for 'religious and moral teaching'. It is preceded by what appears to be the letter 'B', which is crossed out by four lines perhaps correcting a mistake. This appears to be either the class list for primary school in Bunglung or nearby junior high school in another community. On another section of this home's wall, in IMG0566, Soma also captured the Dagbanli word 'KPAM', which is a verb that can mean either 'to spoil a child' or to 'to implore' and is one of the few indices of Dagbanli language inside the home in either community.

5.1.2 "I wanted to learn something about the writings here": Mediating understanding through out-of-school literacy materials

The data section shows that there are differences and similarities between the communities in how literacy materials are positioned with regards to the children's understanding of literacy in out-of-school contexts. Bunglung participants, as discussed in the previous section 5.1.1, understood literacy as mediated predominantly by English in their homes and community through clothing, signs, vehicles, and other objects. In particular, signs are significant in both communities not in regards to frequency, but in regards to the materiality of literacy embodied in these signs in out-of-school contexts. Overall, signs are indexed in only 1.69% of the anthology. Botingli participants indexed signs in 0.60% and Bunglung participants in 2.47% of their respective totals. The signs were erected by international

development agencies and organisations, such as foreign aid donors, multi-lateral agencies, and international non-government organisations. The signs often acted as pedagogical prompts for the participants, who wanted to learn and read the letters and words in the signs, which connected Botingli and Bunglung to places and events outside of the communities.

This is evident in IMG0068 (see Plate IX) by Rafa in Botingli, which is a photograph of one of the community's three signs (the others are the 'Africa RISING' signs found when entering and exiting Botingli. See Plate VIII, IMG0091). The photograph gives a sense of movement, as the image is not entirely in focus and it was produced as the sun was setting. The centre of non-movement in the image is around the centre of the sign, in which the viewer can clearly identify the logo and brand of the Rotary Foundation. The sign is located next to Botingli's sole water hand-pump, which is located just east of the community toward the river. The construction and materials of the pump were donated by the Louisville, Kentucky Rotary Club. When asked about the photograph, Rafa responded, "I wanted to learn something about the writings here" (personal interview, 20 March, 2015). I proceeded to tell Rafa about the sign, who donated it, and why the sign was constructed. This is in contrast to Bunglung, which as a water tank in the community, as captured by the Bunglung participants (see for example, Plate IX, IMG1690 by Asana).

Every day, when Botingli girls and women such as Rafa walk to collect water, they pass this sign and everyday girls and women in both communities collect water. The participants in their photographs of community members indexed examples household labour and employment work performed by girls and women, such as IMG0361 by Amina in Bunglung and IMG0797 by Fata in Botingli. In addition, besides the literacy selfies produced by Rafa, she photographed herself collecting water, selling fish, and performing other household tasks (see IMG0446). Some of this work took place in or across the farms, which was a context indexed in 10.5% of Rafa's portfolio and, in Bunglung, in 5.2% of Asana's portfolio.

Although this data does not directly relate to this section on literacy materials, the photographs of girls and women working in and around their communities indexed the constrained opportunities for girls like Asana, Amina, Bara, Fata, and Rafa to negotiate and mediate their understanding of literacy. The CBE class schedule accounts for the household labour of children, which is in contrast to formal primary school, and is often partially a

reason why children do not attend or are pulled out of school. CBE classes are held in the afternoons to enable girls (and boys) to complete tasks such as collecting water and firewood (see Plate IX, IMG00449 by Amina), selling small goods (IMG1780 by Asana), cooking (IMG0395 by Amina), farming (IMG0050 by Rafa), cleaning compounds (IMG0958 by Sulemana), washing clothes (IMG by Soma), selling fish (IMG0180 by Rafa), and unpaid care work (IMG0664 by Sulemana). In all these photographs, the girls' and women's labour is materialised not only in the photograph itself, but in the objects associated with the labour such as the water drums, firewood, cooking pots, clothing, food, and other materials.

Rafa also produced a photograph of Botingli's third sign, featured in IMG0022 (Plate IX). The colours are largely faded from the sign, which features the image of the heads of three men. A logo appears in the top right of the sign, which symbolises the New Patriotic Party (NPP) and the political party's tagline 'DEVELOPMENT IN FREEDOM'. The two men either side of the middle were the NPP's candidates for the general election in both 2008 and 2012. Nana Akufo-Addo was the NPP presidential candidate and Mahamud Bawumia the vice-presidential candidate. The data from Rafa's portfolio reveals an understanding of literacy embedded in different literacy materials in the community, of which the signs she encountered daily are one example. On the other hand, IMG0202 (Plate IX) is a photograph of a torn piece of paper, on the ground, grasped between the thumb and finger of Rafa's left hand. The piece of paper appears to be from a mathematical textbook, with numbers, addition signs, and instructions visible. It is one of the few photographs from Botingli that indexed a page from a book that was not a CBE textbook.

> Rafa: I just saw it. It had something to do with counting and numbers so I took it and then I took a picture.
>
> Brendan: Why did you decide to take it?
>
> Rafa: Because it has something to do with reading
>
> (Personal interview, 20 March, 2015).

Rafa also produced IMG0211, which is a photograph of a coin, with the words 'GHANA' and 'FREEDOM AND JUSTICE' inscribed around an image of two Adowa drums. IMG0212 is the reverse side of the coin. Inscribed on the reverse side is the value '500 CEDIS' and the date 1998. Today, 500 Ghanaian Cedi is equivalent to AU$173. However, this coin is not part of

the contemporary currency system, and represents the so-called 'Second Cedi'. In 2007, redenomination was implemented due to inflation, and the new Ghanaian Cedi (the Third Cedi) was equivalent to 10,000 'Second Cedis' or old cedis. At times, shopkeepers and people selling goods at the market quote a price in old cedis. Although no longer legal tender, the old currency continues to play a role in people's discourse and is apparently still physically present as evident by Rafatu's photograph. Rafa knew it was a coin because she asked her CBE teacher what it was, and he indicated that it "used to be money in the past" (personal interview, 20 March, 2015).

Although Rafa's negotiation of literacy materials such as a torn piece of paper and an old coin in out-of-school contexts in Botingli is somewhat unique, the data reveals that Bunglung participants also understood literacy mediated by signs. All the signs are in English, and take the form of both large outdoor signs similar to those in Botingli and indoor posters. Bunglung participants produced 58 photographs that indexed signs, 30 (51.7%) of which are in Soma's portfolio. A sign photographed by four of the Bunglung participants is exemplified by IMG1002 (Plate IX), by Ibrahim, which is a photograph of a sign erected by World Vision Ghana. The sign's colours are those of the World Vision brand: orange, white, and black. It lists the interventions that the organisation implements in Bunglung, but is very general and non-specific. Ibrahim indicated, "It is a guide for people to know where they are" (personal interview, 19 March, 2015). In Yakubu's photograph of the same sign, he focused on the word 'BUNGLUNG', which dominates the framing (IMG0063). In another example from Soma's portfolio, IMG0037 is a photograph of a sign in Bunglung that instructs its audience to 'PROTECT SHEA TREES'. There is also an image on the sign of a figure cutting down a tree and a red line through it. At the bottom of the sign is text that informs the audience which organisations support this message. NOGCAF is the Northern Ghana Community Action Fund, 'ox fam Gh.' is Oxfam Ghana, and Tungteiya. Although Somatu could not decode the text, he understood the meaning of the image.

Brendan: What about the image?

Somatu: A man cutting a tree.

Brendan: What does the image mean?

Somatu: It tells us that felling trees isn't good

(Personal interview, 26 March, 2015).

This theme is continued by IMG0451, which is a photograph of another sign in Bunglung that references the previous sign. The sign announces the presence of Tungteiya, the official name of which is Tungteiya Shea Butter Extraction Women's Association, as indicated on the sign. A mobile number is also listed, and a supporter's name is again indicated. More information about this organisation in Bunglung is revealed through Somatu's photographs. IMG0091 (Plate IX) is a photograph of a wall with English text written and highlighted on it. The text says, 'BODYSHOP PROJECT SUPPORTED BY NOGCAF/TUNTEIYA ASSOCIATION'. Soma verbally pronounced 'Tunteiya' and knew it was a group, but he was unaware of its function. I saw this same sign in Jisonayili, the community in Tamale where I was living during the fieldwork period, the only difference being the name of the community on the sign.

Tungteiya acts as a supplier of shea butter for companies such as The Body Shop UK under the international company's Community Fair Trade program. The association comprises 640 women from across 11 communities in and around Tamale, including Bunglung. According to the company's website, the commercial partnership is economically and social beneficial for families in the association, impacting the lives of 49,000 people (The Body Shop, 2020). "Money from their trade has been used to fund water pipes and wells, and provide access to medical care, better housing and education" (The Body Shop, 2020). The website also states that benefits accrue to communities as well. "These community projects include building 7 schools that educate 1,200 students and enabling access for the community to safe water and health centres" (The Body Shop, 2020). Lily Cole, an actor and ambassador for The Body Shop, visited Bunglung in 2012 and featured in a Guardian photograph essay (Thompson, 2012) about the partnership. Two photographs were taken in Bunglung, which is spelt "Bunlung" in the captions. According to captions under the photographs, one of Bunglung's water tanks was constructed under a social premium paid to the association, which is invested directly in communities. This water tank is most likely the same photographed by Asana and others (see Plate IX, IMG1690). Both Bunglung and Botingli positioned different literacy materials in how the participants understand literacy, in which local contexts are not sealed but through which English and organisations appear and with which participants negotiated and mediated meaning.

5.1.3 "I learn English from the writing": mediation of school-based literacy actions in out-of-school contexts

This data section shows the differences and similarities in how the communities positioned out-of-school literacy actions in regards to the participants' understanding of literacy. In Bunglung, the children's homes mediated literacy actions, which the data reveals to be the ability to learn and make meaning of written text, usually English and usually embedded in school-based practice. In addition, the children represented their understanding of a connection between out-of-school writing and texts, and school-based practice. Literacy actions occurred both in the home and community contexts, but with less frequency than in school contexts. This does not indicate less significance in terms of their understandings represented, but analytically a lower co-efficient of co-occurrences. The data analysis shows that the most significant co-efficient is for home contexts and student writing at 0.07, followed by home contexts and wall writing at 0.06 (see Table 10). Indeed, the home represents the most number of co-occurrences with writing events and actions in out-of-school contexts. Some of these actions were captured at the moment of photography and others were temporally located at different points.

	Home	Community	Religious	Farm
Student writing	61 – 0.07	3 – 0.00		
Teacher writing			2 – 0.00	
Wall writing	36 – 0.06	14 – 0.02	3 – 0.00	
Numeracy	9 – 0.01	4 – 0.00		
Literacy in action	24 – 0.05	4 - 0.00		

Table 10: Co-occurrences of literacy actions and out-of-school contexts

In Bunglung, student writing and wall writing are evident in the portfolio of Asana, who is 8 years old and lives with her parents and five siblings. She has never attended primary school and does not attend Qur'anic Arabic classes. Asana produced 569 photographs across a range of school and out-of-school contexts, but mostly out-of-school (see Figure 23). In addition, only 12.4% of her photographs indexed Dagbanli and 14.5% English language. Similar to other participants in Bunglung, very few photographs (2.6%) indexed CBE

textbooks, especially when compared to participants in Botingli. However, Asana's individual photographs produced in out-of-school contexts indexed her understanding of literacy as embodied in actions in the home context (this has also been previously discussed in section 5.1.1 with regards to Yakubu and Soma's portfolios).

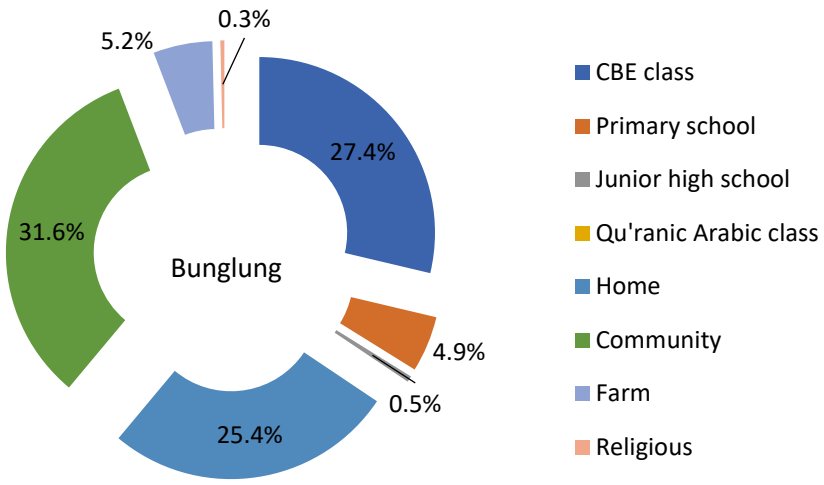


Figure 23: Asana's contexts of production

For example, IMG1765 (Plate X) is of a wall in a room of Asana's family's home. A section of the wall is covered in numbers and upper case letters of the English alphabet. When asked about the writing, Asana indicated that she wrote the numbers and letters at some point in the past. Indeed, other photographs from Asana's portfolio reveal the extent to which the walls of the home are inscribed with pictures, numbers, and letters (IMG1988, 1761). Asana also photographed one of her sisters, who also attended CBE, tracing over the numbers on the wall using blue chalk (IMG1863). IMG1990 is the same sister, looking at the family's mobile phone. When asked about using literacy outside of the classroom, a few participants referenced family members requesting their help to find a person's contact information in a mobile phone. Phone numbers are also recorded and listed on the walls of families' homes, and indexed in photographs (see for example IMG0470 by Rafa and CIMG1428 by Siisu in Botingli).

The data also reveals differences in how Bunglung positioned literacy in action with regard to the participants' understanding of literacy. That is, literacy in action in out-of-school contexts indexed formal primary schooling rather than CBE. For example, in IMG0197 (Plate X), Amina produced a photograph of a page of an exercise book on the ground of her home.

The page features a student's writing in English. Under the heading of 'ENGLISH GRAMMAR', the first sentence says, 'The bag is on the table'. According to Amina, she saw these sentences written on a blackboard in a primary school classroom. She decided to copy them. "I learn English from the writing", she responded to a question about what she is learning from the book (personal interview, 27 March, 2015). This photograph and subject matter is similar to IMG0210, produced by Yakubu. IMG0210 is also of a page from an exercise book. The page is dated 21 October 2014. The sentences are almost identical. 'The pen is on the t[able].'

> Yakubu: When I used to attend formal school that is when I was given these books.
>
> Brendan: So they are your books?
>
> Yakubu: Yes.
>
> Brendan: Do you ever use them today?
>
> Yakubu: Yes.
>
> Brendan: What do you do with them?
>
> Yakubu: I read them together with the books given by School for Life
>
> (Personal interview, 26 March, 2015).

Participants in Bunglung engaged in school literacy actions that are both defined by participants' schooling history and by their non-attendance of primary school. Although the Bunglung participants attended CBE, they negotiated and mediated their literacy through school-based actions connected to formal schooling. In addition, IMG1982 by Asana is one of a series of 31 photographs produced in her home that indexed a primary school English language-learning textbook. IMG1962 provides further evidence with an opened exercise book in frame, and a pile of other exercise books in the background. The first sentence in the exercise book, written by a student, states 'Today is my first day in primary 3' and is accompanied by a tick from a teacher. These actions of copying and reading English texts were also duplicated in CBE classes and in their photographs of such actions, for which these participants did not distinguish between, but rather communicated their understanding of them as similar. Although the purpose, curricula, textbooks, and language

of primary school and CBE are very different, the pedagogical intent behind the literacy actions in both school and out-of-school contexts were similar if not the same and was negotiated by Bunglung participants as part of their literacy practice.

On the other hand, Botingli participants did not negotiate and mediate their understanding connected to primary schooling, but to CBE class and in one case to junior secondary school. There were 24 photographs in the anthology coded as literacy in action in home contexts, of which 14 where produced by Botingli participants. For example, IMG1137 (Plate X) by Siisu is an outlier in that it does not feature CBE textbooks but rather is a photograph taken in his family's compound of the lottery numbers for the week written on a blackboard. For Siisu, these numbers were associated with his current practice.

> Siisu: I learned how to [read] lotto numbers
>
> Brendan: So why did you take this photograph?
>
> Siisu: Because numbers are part of our learning
>
> (Personal interview, 18 March, 2015).

This photograph also represents out-of-school literacy actions that have been taken and will be taken. The dimensions of these actions have certain spatio-temporal aspects: the buying of lottery tickets across different categories at a certain point in a given week; the recording of the week's lottery numbers on this blackboard; the checking of a lottery ticket against the numbers record. These actions are most likely completed by men in the community. They require particular decoding and cross-referencing skills. The blackboard features seven words, one of which is written in Dagbanli and the others in English. The lottery is a service provided by the National Lottery Authority (NLA), and the seven words on the blackboard refer to the various draws held each week by the NLA. 'Mounday' is the Monday Special, 'Lucky' is Lucky Tuesday, 'MIDWEEK' is the MidWeek draw, 'Fortune' is Fortune Thursday and 'Friday' is Friday Bonanza. 'NATIONALA' is the National Weekly Lotto draw, which has been in existence since 1962. In contrast, Sulemana produced the only four photographs that were coded as literacy in action and the community context. IMG0979 (Plate X) is of three young men sitting on a raised platform, with the young man third from the right reading a book. IMG0984 and 0983 are of the same young man, and reveal that he is reading a junior secondary school social studies textbook in English, the second photograph,

which is of the book opened at page 196 to a section about festivals in Ghana.

The other photographs that indexed literacy in action in Botingli are literacy selfies produced in the home contexts, and which show how Botingli participants Siisu, Rafa, and Fata negotiated out-of-school literacy actions. They were often CBE-based literacy actions, and materials, and described as homework by participants during collaborative viewing. For example, in a series of five photographs (Plate X, IMG0082, 0084, 0087, 0089, 0104) produced in her home, Rafa took literacy selfies, each one different in composition. IMG0082 is a photograph of a piece of paper, a small green pencil held between three fingers of her right hand. The photograph was taken with her left hand, looking back at the page.

> Rafatu: The teacher gave us homework. I went home and did the homework. I decided to take a picture of what I'd written
>
> Brendan: What was the homework?
>
> Rafatu: There were names of two places. Naya is on the side and Karaga on this side.
>
> (Personal interview, 20 March, 2015).

She was in the midst of writing two names, one a person's name and the other a place name. 'Naya' was already written when the photograph was taken, and the 'Ka' of 'Karaga' was written. These two names are some of the first words found in the first chapter of their CBE textbook. The first chapter is entitled 'Vaawuli kumsi', or 'to speak vowels'. IMG0084 is a photograph of the same page, pencil, and fingers but different in composition. It is more of a point of view (POV), with the camera and Rafa looking down the length of the pencil. It was produced at a different point in time (and in a different space), and Rafa had continued to write 'Karaga'. IMG0087 (Plate X) is the same POV, showing more of the exercise book, which continues to be placed on a mat covering part of the floor. Rafa had just completed writing what appears to be one word, but are, in fact, four separate words forming part of a sentence. IMG0089 is a photograph of the same page, more similar in composition to IMG0084. Rafa had continued writing the sentence, omitting spaces between words. It reads as one long word, but is copied from the CBE textbook in chapter six of the book. It is a question asked of students at the beginning of the new chapter, referring to the image

that opens the chapter. Translated from Dagbanli, the sentence asks, 'What things are you able to identify in the image?' The image usually contains characters, objects, and themes relevant to chapter and acts as a pre-reading exercise.

The last image in the series, IMG0104 (Plate X), is a similar POV photograph. Rafa appears to be in the act of writing with the pencil pushed against the paper. The first three letters are visible, 'Low'. The brand of the camera case that she was given for the research period was Lowepro. Siisu also produced a series of literacy selfies at his home, reading from his CBE textbook while he used his left arm to take the photographs (for example CIMG1348), and similarly Fata produced two literacy selfies in which she is reading the same page from her CBE exercise book at home (for example IMG0769). Botingli participants understand literacy as mediated through CBE-based actions in out-of-school contexts, but used that understanding occasionally to make connections and meaning of other texts. On the other hand, Bunglung participants negotiated a range of non-CBE literacy actions in their homes and communities, which were embedded in formal schooling and English.

5.1.4 "I wanted to learn about those things I was taking pictures of": emerging out-of-school literacy actions and everyday worlds

The data section shows the Botingli participants used their digital cameras as pedagogic devices as part of emerging literacy actions. This is evident in the portfolio of Sulemana, who is 10 years old and lives with his parents and eight siblings. He has never attended primary school, but attends Qur'anic Arabic classes. Sulemana produced 463 photographs across a range of school and out-of-school contexts, notably in the home and community, for which it was an outlier in Botingli. He produced 250 photographs in out-of-school contexts, which represent 53.4% of his portfolio (see Figure 23). Sulemana understands literacy is materialised in different tools and devices, and sought to use the digital camera to make meaning. For example, IMG1087 (see Plate XI) is a photograph of the back of a school exercise book. It is not clear whether it is an exercise book for formal school or for CBE. Sulemana said that it is a CBE exercise book. When asked about this photograph, Sulemana said, "When you're writing and you make a mistake, you can use an eraser to rub out and then rewrite" (personal interview, 18 March, 2015). It is the back cover of an exercise book that is heavily branded, with various education supply companies advertising their products.

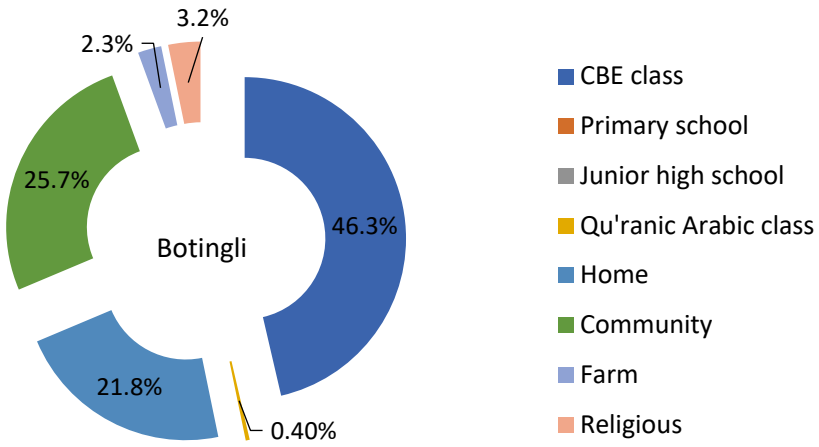


Figure 24: Sulemana's contexts of production

The data also reveals how Sulemana used other functions of the camera to make meaning. For example, IMG0921 (Plate XI) is a photograph of the LCD screen of one of the other participant's camera. The screen was in view mode, and Siisu was showing a photograph he produced of a classmate. I asked why he captured this photograph. Sulemana responded that they were learning knowledge (baŋsim) and that "while we were learning, I saw what was in Siisu's camera. I wanted what was in his camera in my own" (personal interview, 18 March, 2015). Sulemana took six photographs of the LCD screen of Siisu's camera. He also took one photograph of one of the other camera's LCD screen, which appears to be Rafa's (IMG0802). The participants had been shown how to use the view function on their cameras during the training session.

The data reveals that the participants and other audiences in both Botingli and Bunglung viewed the photographs through the LCD screens, and that this was itself a literacy action that emerged during course of the research period (see for example IMG0891 by Sulemana). Photography during the research period was an out-of-school literacy action, during which the participants experimented and in which they engaged with intent. It also involved others in and around the community, as 402 photographs were produced in out-of-school contexts that featured people, sometimes posing for the camera and at other times caught in the moment of their activity. There were differences in each community in how people were positioned and featured in the participants' understanding of literacy in out-of-school contexts (see Figure 25). Botingli participants indexed people in out-of-school contexts in

10.7% of their photographs (with a range of 4.2% to 15.8%). Bunglung participants indexed people in 9.4% (with a range of 1.5% to 21.3%).

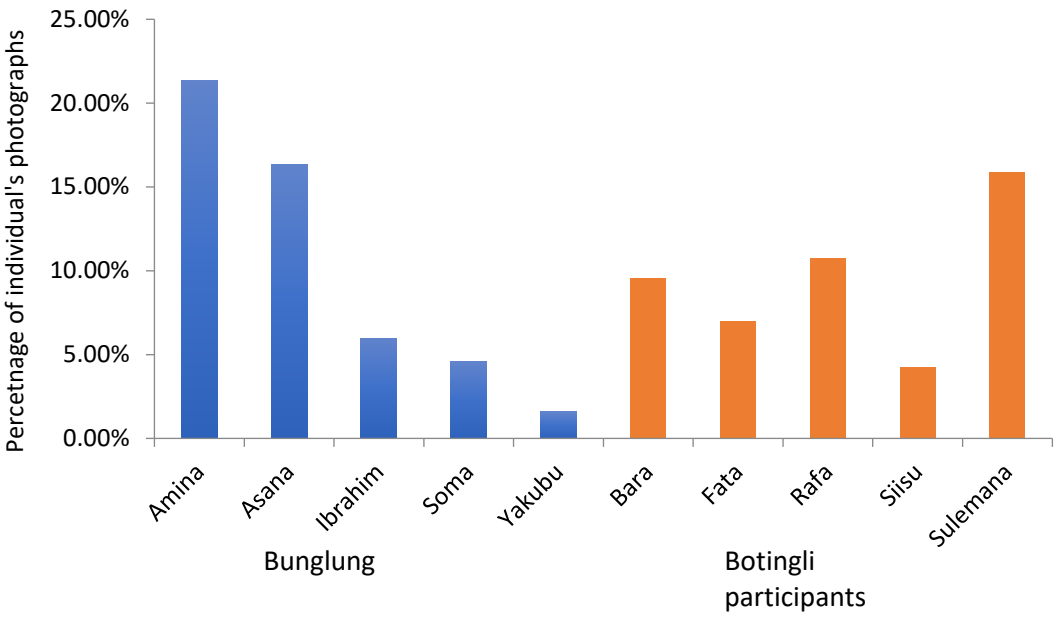


Figure 25: Occurrence of people in out-of-school contexts in participants' portfolios

In Bunglung, this is exemplified in the portfolios of Amina and Asana, whose portfolios indexed people in contrast to those of Soma, Yakubu, and Ibrahim. For example, 21.3% of Amina's portfolios indexed people, including a range portraits and close ups, people working, and everyday life around the community (see Plate XI, IMG0452, 0383, 0393). Asana's portfolio also indexed people around the community with similar portraits and photographs of everyday life (see IMG1710, 1937, 1994, 1828). This data section also recalls the previous discussion in section 5.1.2 on the gender roles in household labour and how they were indexed in girls' understanding of literacy in both communities.

The data reveals the difference in how Botingli positioned people with less variation across the participants' portfolios, with Sulemana the only boy to significantly index people from the community. Similarly, his photographs show children and adults posing for the camera or caught in the moment in everyday life around Botingli (see IMG0976, 0987). Across all the Botingli participants' portfolio are people and places captured in moments, including children (IMG0976), young men (IMG0987, 0900), community elders (IMG0810; CIMG1236, 1075), and home compounds (IMG0794, 0323; CIMG1076). In both Bunglung and Botingli, participants documented everyday life in their homes and communities (with the exception

of the three boys in Bunglung), which helps the viewer understand the context in which their literacy practice is embedded.

The data also reveals that in addition to documenting everyday life and people within their community, the Botingli participants also used photography as a pedagogic literacy action. This is evident in IMG0684 (Plate XI) by Sulemana, which is a photograph of one of the three signs in Botingli. Unlike Bunglung, it is one of the few English language materials in the community. It refers to an agricultural intervention called 'Africa RISING', which was delivered by a joint partnership between state and non-state actors and through which research has also been undertaken in Botingli and published (Kuivanen, Alvarez, Michalscheck, Adjei-Nsiah, Descheemaeker, Mellon-Bedi and Groot, 2016). When asked about this photograph, Sulemana responded, "there are some words in Dagbanli that we learned [in the image]". When asked for an example, he pointed to a word on the sign that was neither English nor an acronym. "Botingli", he said (personal interview, 18 March, 2015).

Fata also took a photograph of the same sign, but from the other side (IMG0645). The text, layout, and logos are identical. The sign is located on the right-hand side of the road as you enter Botingli. It is the first sign to be seen. The sign is then on the left-hand side of the road as you leave Botingli. It is visible both to those entering and leaving. Fata has a similar reason for producing this photograph of the sign, indicating that it was useful as she recognised the vowels and consonants in the English alphabetic letters and connected them to Dagbanli. Rafa took a photograph of the 'Africa RISING' sign as well (IMG0091), and discussed what it referred to after asking someone about its meaning.

> Rafatu: That is a signpost. They come to do some farming. It's a kind of group that meets and this is a sign of the group. They do some soybean farming
>
> Brendan: Why did you decide to take it?
>
> Rafatu: I took the picture to learn about it. It will help me sometime.
>
> Brendan: How did you know this was a sign of a farming group?
>
> Rafatu: I asked someone
>
> (Personal interview, 20 March, 2015).

As discussed previously in section 4.1.5, this data section further reinforces the differences between the two communities in how the camera itself was positioned in regards to how the participants captured and documented their understanding of literacy. It is evident that the Botingli participants used the digital camera to make meaning and document their everyday worlds in and around their community. On the other hand, it is evident that only Amina and Asana used the camera is a similar way, documenting the people and places that are a part of their everyday worlds.

5.1.5 "Someone was drawing and I wanted a picture of the action and the image as well": mediation of multimodality in out-of-school contexts

This data section shows the differences between the communities in how multimodality was positioned in regards to the participant's understanding of literacy. Multimodal literacy occurred both in the home and community contexts, but with far less frequency than in school contexts. The most significant co-efficient is for the codes home and images at 0.11, the majority of co-occurrences for which are found in Bunglung participants' portfolios. In Bunglung, the participants understand literacy in out-of-school contexts as multimodal, an understanding that was also evident within school contexts. A code that was not significant in terms of frequency, but highlights moments of multimodal literacy out-of-school is that of electronics, for which television was a specific item. The data reveals that multimodal literacy was indexed infrequently in Amina and Asana's portfolios, at 10.2% and 12.6% respectively, but this compares to the range in Botingli of 0.4% to 12.2%. This is in contrast to Ibrahim, Soma, and Yakubu, in which multimodal literacy was indexed in 51.3%, 40.9%, and 30.3% respectively in their portfolios in both school and out-of-school contexts. Asana and Amina also produced the majority of their photographs in out-of-school contexts, usually either the home or community contexts and both produced photographs of televisions.

The data reveals that Bunglung positioned multimodality in out-of-school contexts through electronic devices such as mobile phones and televisions, a key difference between the communities being that Bunglung has access to electricity utilities. Amina and Asana were the only participants to show an understanding of literacy mediated by television. Asana produced three photographs that indexed a television, and Amina produced four photographs. For example, IMG1604 (Plate XII) by Asana is a GoldStar brand television on

top of a small table. Two remote controls sit in front of the television, and a cable running into a power socket is visible to the right of the photograph. A closer look reveals two other electronic objects: a My Leadder brand MO3D DVD player and a radio.

> Asana: It's a TV and radio
>
> Brendan: Do you watch TV and listen to the radio?
>
> Asana: Yes
>
> Brendan: What do you watch? What do you listen to?
>
> Asana: I see people. I see writings in the TV
>
> Brendan: What do you listen to on the radio?
>
> Asana: I hear them say on the radio that there are so many water borne diseases. So before you eat wash your hands clean
>
> (Personal interview, 27 March, 2015).

Similarly, IMG0328 (Plate XII) by Amina shows a television sitting almost in the entirety of the frame. The television is switched on, and the event being broadcast can be identified. The photograph was produced on 6 March 2015, the same day as Ghana's Independence Day. Celebrations were being broadcast live from Black Star Square in Accra. The three other photographs of the television show different scenes from the celebrations. The last photograph in this series, IMG0331, is focused on the text at the bottom of the screen. 'LIVE FROM BLACK STAR SQAURE'. Amina was unaware of what event was being broadcast, and described it as "a drama on TV" (personal interview, 27 March, 2015).

The data also reveals other forms through which participants understood out-of-school literacy, such as drawings on the walls of homes. Quantitatively, there are not many differences between the two communities, with the data revealing different but small numbers of indices. In Bunglung, Asana perhaps unintentionally indexed the use of walls in her home as a space for multimodal literacy. For example, IMG1983 by Asana is a photograph that shows a young girl in the foreground with a hand-held sweeping object in her hands. In the background behind her is a wall covered in words, numbers, and drawings of different colours. On the other hand, it is evident that the Bunglung participants transferred school-based multimodal literacy actions into out-of-school contexts. Yakubu

produced three photographs of a person drawing a house in the home context. For example, IMG0049 (Plate XII) by Yakubu is a photograph of a person's right arm drawing a building on the inside wall of a house. The building has a door, and the arm is in the process of completing the building's roof. Of the photograph, Yakubu said, "Someone was drawing and I wanted a picture of the action and the drawing as well" (personal interview, 26 March, 2015). IMG0050 is a photograph of the completed drawing, which has been labelled 'HOUSE' in English. This drawing is similar to the drawing captured by Yakubu (IMG0147 in Plate VI) from a blackboard in Bunglung's primary school.

Although it was not evident that the Botingli participants understand literacy as embedded in multimodality as clearly as those in Bunglung, there are a few similar examples in the out-of-school context that indexed drawings and electronics. For example, IMG0829 (Plate XII) by Sulemana is a photograph of a wall inside his home. The photograph shows a mirror, which covers a photograph hanging on the wall. To the left of the photograph is a drawing of a face on the wall. Sulemana indicated that he drew the face next to the mirror and said he liked drawing on walls of the house and in books. Similar to Asana's photograph from the discussion above, Fata's photograph (IMG0810) of two men sitting outside on a bench perhaps unintentionally indexed drawing and other inscriptions on the outside wall of a house. However, both Bara and Fata also indexed their family's AM/FM radio in separate photographs (IMG1968 and IMG8007). Electree produce Sonitec radios in Guangdong, China and the company was established in 2014.

The data reveals similarities between the communities in how multimodality in out-of-school contexts are constrained and indexed only a small number of times in regards to the children's understanding of literacy. However, it is evident that some of the participants understand out-of-school literacy practice to be embedded and materialised in multimodal materials such as televisions and radios. It is also evident that children in both communities use drawings to make meaning and communicate, with at least one Bunglung participant transferring school-based practice into the home.

5.1.6 "We learn Arabic to pray": out-of-school contexts away from the camera

This data section shows there were elements of literacy practice in out-of-school contexts that were intentionally not indexed in the anthology. It is evident that there are similarities and differences in how school contexts, CBE, and formal school education, are positioned in

Bunglung and Botingli with regard to the participants' understanding of literacy. However, this did not extend to include Qur'anic education, which emerged as a religious, out-of-context of production. However, the participants, with the exception of Sulemana, did not provide access to this context, as it was perhaps not positioned with regard to their understanding of literacy. In the collaborative viewing with Sulemana of his portfolio, he referred to some photographs he produced of his jiliŋgbaŋ (prayer mat), mulifee (Islamic Taqiyah cap), and what he called Islamic books (see Plate XIII, IMG0654, 0653, 0656). When asked about it, Sulemana said that he uses the prayer mat and cap to pray, and that he can read the Qur'anic text (personal interview, 18 March, 2015). He indicated that he has been learning Qur'anic Arabic for five years, and that the way they are taught Dagbanli and Qur'anic Arabic are similar. Sulemana's father indicated that he wanted Sulemana to learn literacy in both Dagbanli and Qur'anic Arabic. He differentiated between Qur'anic Arabic education and primary school education, saying that he was taught Qu'raic Arabic by his father and now he is teaching it to his children.

Sulemana produced the only two photographs from the context of Qur'anic education, coded as a religious, out-of-school context (IMG0688, 0693). Although all participants in Botingli were attending Qur'anic Arabic class, in addition to their CBE class, these are the only two photographs that refer to this context and these classes. IMG0688 is the same blackboard, in the same room, used for their CBE classes. It has Qur'anic Arabic on it, most likely written by the teacher of the class, who travels from Tamale to teach each class. IMG0693 is an image of the same blackboard, but at a closer distance. When asked why he learns Qur'anic Arabic, Sulemana replied, "We learn Arabic to pray" (personal interview, 18 March, 2015). This was an understanding also expressed by Siisu, but he described the learning of Qur'anic Arabic as different from the learning of Dagbanli. He characterised it as learning by memorisation and recitation. Four of the Bunglung participants also attended Qur'anic Arabic classes, usually in the evenings and at least five times per week. Overall, the data reveals that Qur'anic education is not strongly positioned by either community with regards to the participants' understanding of literacy.

5.1.7 Collaborative viewing photographs through community exhibitions

The participants' understandings of literacy are not only accessible to the researcher, but also by others as digital photography offers the opportunity to invite others as viewers. As

part of this study's methodology, and to involve others in the viewing and celebration of the photographs, exhibitions were organised in both communities in Ghana and in Melbourne, Australia. A total of three exhibitions were curated in 2015 and 2016. At the end of the fieldwork period, two community exhibitions were curated, one in Bunglung and one in Botingli. Parents, guardians, children, community members, local government representatives, UNICEF staff, and other NGO staff were invited to both exhibitions.

The participants were each given physical copies of their photographs, and they selected ten each to display. Each participant stood next to their displayed photographs, as people moved around the classroom to view the photographs. Adults interacted with the participants, asking questions of and viewing the photographs. During the exhibitions, the other children attending CBE classes in Bunglung and Botingli, who were not directly participating in this study, were invited to use the digital cameras. The photographs produced were not included in this study, and this was an opportunity to enable all children attending CBE to use a camera.

At both community exhibitions, attendees viewed the photographs in similar ways, walking around in one direction, stopping at different photographs to inspect and consider what they were viewing. Attendees would gesture at photographs with their hands, discuss various aspects with peers, and move onto the next. These were common ways of viewing photographs that did not rely on reading text/s, although attendees at the community exhibitions (particularly the men) attempted to read the Dagbanli text captured in photographs. Attendees were able to view any and/or all of the photographs displayed without hindrance, which allowed me to share and invite others into the interpretation of the data (but without necessarily including those interpretations in this study).

5.2 Summary

This data analysis chapter showed that the participating children's understanding of literacy practice was also embedded in out-of-school contexts, particularly within their homes and respective community. Similar to the previous chapter, it is evident that the participants used the digital cameras to intentionally (and sometimes unintentionally) capture and represent their perceptions and understandings of out-of-school literacy. It is also evident that the choice of object/s, subject/s, context, and composition involved a consideration of what literacy means in their everyday lives outside of school. This differed across the two

communities in regards to how literacy was positioned out-of-school, in which the participants demonstrated an understanding of literacy not confined to karimbu ka sabbu within their CBE classes. The participants used their emerging and sometimes dormant understanding of school-based literacy to make meaning of and document the languages, materials, actions, and multimodalities of their practice. However, they also documented their everyday lives, especially the girls in both communities, revealing the extent to which unpaid household labour and work are part of their out-of-school practice.

This data analysis chapter showed that their understandings of literacy in out-of-schoo contexts are materialised predominantly within the confinement of their homes and community. However, it is evident that those contexts in both Botingli and Bunglung were not sealed off from school contexts or from outside the communities. The Botingli participants understood literacy to also be embedded outside of CBE, but materialised in CBE-based practice that they transferred into their everyday lives and also in new and emerging encounters with literacy. The Bunglung participants understood literacy to be embedded in formal school-based practice in their homes and communities, from which some variation was demonstrated by the two girls Amina and Asana who documented their understanding as embedded in their everyday lives within the community. Within these two communities, the data revealed differences and similarities in how languages, literacy materials, literacy actions, multimodalities, and Qur'anic education were understood and how they shaped participants' literacy practice in out-of-school contexts.

6. Discussion

This chapter discusses three broad findings from the data analysis, mindful of the two key research questions motivating this study. Namely, examining how participating visual methodological approaches can be developed to access literacy practice, and then how out-of-school children understand and practise literacy in their everyday worlds. First, this chapter will discuss the finding that the children understand literacy *in* practice. It focuses on the pedagogic and orthographic configurations, the materiality, and the out-of-school understandings of literacy in practice. Second, it will discuss how the participants reconciled global and local provision of literacy education, and the implications of such for understanding their literacy in practice. Third, it will discuss emerging findings of implementing collaborative digital photography in literacy education, including the process of audiencing in photography, photography as literacy pedagogy, and reflections on key ethical considerations.

6.1 Literacy in practice

Bunglung and Botingli are two small, rural and remote Dagomba communities in northern Ghana, with less than two kilometres of sparse savannah separating them. In both communities, Dagomba housing compounds cluster together, each compound a mixture of traditional round buildings with thatched roofing and modern rectangular buildings with corrugated metal roofing. In each community there is a jiŋli (mosque), the river to the east and a building in which to hold Complementary Basic Education (CBE) classes. Both communities are recipients of international aid and development agriculture, education, health, sanitation, and other programs. However, there are also differences between the two communities referenced mainly by infrastructure and education services. Bunglung is the larger of the two, and is spilt into two by the main road between Savelugu and Nanton, the joint district capital. It has access to utilities such as electricity and water, and each compound has been assigned a property number. Bunglung also has primary school and junior secondary school buildings.

Similarities and differences in both communities are also positioned in how the participants understand literacy in practice in their everyday worlds. In section 2.1, the theoretical framework outlined literacy practice as the way a person makes meaning and

communicates through a range of available reading, writing, verbal, and multimodal actions and materials across different contexts. However, this study found that Dagomba children in Botingli and Bunglung understand literacy in practice. This is not merely the addition of a preposition, but an important signifier. It is an index of a relationship in space and time between karimbu ka sabbu and different configurations in how, where, when and what. That relationship is represented in the anthology produced by the children in the two communities, which was in community and rarely outside of community. The anthology was at times seamlessly across school and out-of-school contexts, perhaps rendering the dichotomy meaningless based on the children's own experiences and understandings of literacy. This section discusses the findings of the children's understanding of literacy in practice, focusing on three relationships: the configurations of literacy in community; the materiality of literacy; and literacy of being out-of-school.

6.1.1 Configurations of literacy in community

In analysing the anthology, the data revealed a dynamic sense of practice within the communities, and movement between different contexts including school, CBE, home, farm, and in-between. It is significant that in both communities, CBE classes are not the only contexts of production given that at the time this the non-government program being delivered in both communities to provide teaching and learning in Dagbanli. The children went beyond CBE classes, and visually indexed their understanding in a range of literacy materials, actions, things, and multimodalities across contexts within their respective communities. It is evident that in each community there is "a variety of *configurations* of literacy, a *plurality of literacies*" (Szwed, 1981, p. 16). The analysis of the photographs identified three primary configurations of literacy: ʒilɛli; pedagogic; and transitory. The different configurations of literacy were positioned in both communities differently in how they shaped and were negotiated by the participants. This section discusses those configurations of literacies across contexts from the perspectives of the Bunglung and Botingli participants.

6.1.1.1 ʒilɛli configurations

Rather than school or out-of-school, the participants demonstrated understandings of literacies that are configured in ʒilɛli. 'Community' in Dagbanli is "ʒilɛli", which comes from

the verb "ʒi", meaning to inhabit or to reside. The viewing and analysis of the anthology provides an annotated and intimate profile of each community, and the different ways in which literacy resides in each to configure the participants' understandings. The participants' understandings of literacy resided in community, confined to the places in and around their respective communities, Botingli or Bunglung. There are only a few instances in which participants documented practice outside of either community, such as in which Somatu from Bunglung went to the primary school at Kpachilo or when Rafa was at a market stall in a nearby town. Within both communities, 'school' was the most significant index of literacy and in which the children understood their practice.

It is important to be mindful that the Bunglung and Botingli participants were considered out-of-school at the time of fieldwork. To qualify for enrolment in School for Life's nine-month CBE program, a child had to be out-of-school. That is, not enrolled and not attending formal primary school. Although at the time of fieldwork, none of the children, including their 40 classmates in the two communities, were attending primary school, they had different school histories and were engaged in two types of education in community. That is, the CBE classes provided by School for Life and the Qur'anic education resided in the community. They are not separate, but inhabit the community. This finding moves the notion of literacy contexts beyond the dichotomy of school and out-of-school.

This does not suggest that community is a contained context nor is that how the children experience or perceive literacy in practice. The children drew on available actions and materials to make meaning and practise their literacy in community. Some children produced more photographs than others in certain contexts, and they visited many of the same places within their respective community. Bunglung and Botingli are not large communities. However, using different compositions and focusing on different subjects, objects, places and patterns, each participant inhabited the same contexts with nuanced perspectives of literacy. These findings build on ethnographic accounts of what literacy is from the perspective of those encountering and negotiating practice in their communities (Szwed, 1981).

The five participants from Botingli, Bara, Fata, Rafa, Siisu and Sulemana, have never attended primary school. The closest primary school was in Bunglung, two kilometres to the south. They had started CBE classes in October 2014, six months before I arrived. Before

beginning CBE, all five children were attending Qur'anic Arabic classes, in the Botinglu Nurudeen Islamic School building located just outside the community. It was the only building located outside the cluster of housing compounds in the community. This was the same building used for CBE classes. They continued to attend Qur'anic Arabic and CBE classes simultaneously. However, with the exception of the two photographs produced by Sulemana (see Plate XIII, IMG0688, 0693), there are no other photographs in the 1,671 taken by the Botingli participants that indexed Qur'anic education. The dominant site of understanding resided in CBE classes. The Botingli participants' perspectives of karimbu ka sabbu resided in their ʒilɛli, and were commonly materialised and embodied within CBE-based languages, objects, actions, and multimodalities.

The five participants from Bunglung, Amina, Asana, Ibrahim, Somatu and Yakubu, had variations in their schooling history with only Ibrahim and Asana having never attended primary school and Somatu having completed primary school. They also started CBE class in the same month and year as Botingli participants, and only Amina was not attending Qur'anic Arabic classes. These classes were not held in the primary school buildings, but it was not confirmed where in the community they were held. There were no photographs that indexed Qur'anic education. The dominant community context of understanding for these participants did not reside in CBE. For the three boys, Ibrahim, Somatu and Yakubu, their understanding of literacy resided in the primary school, and was configured by English language and (future) learning opportunities. On the other hand, Amina's understanding resided across in CBE, primary school, and community, and Asana's understanding did not reside in school in Bunglung but rather in the community more broadly. The Bunglung participants' perspectives of karimbu ka sabbu also resided in their ʒilɛli, but compared to Botingli they demonstrated diffuse configurations embedded and materialised in school-based and non-school based languages, objects, actions, and multimodalities.

The role and influence of the community has long been recognised and explored in literacy and education research, including further advances in understanding the everyday worlds of children and their practice relationship to schooling (Subero et al., 2016). Recent literacy research of young South African children's literacy practice suggests the home as the predominant literacy context (Sibanda and Kajee, 2019), and the concept of "community-based" is often associated with organisations working within communities (Thériault, 2016)

and health or health literacy (Gartaula, Patel, Shukla and Devkota, 2020). In both communities, the findings show breaks in the spatial and temporal demarcation between school and out-of-school contexts, but also suggests that the home and community may not always be a predominant site of literacy practice. This builds on literacy research on how community exerts an influence on the understanding and negotiation of literacy practice (Kral and Schwab, 2016), but suggests that out-of-school children do not understand literacy as confined to either school or out-of-school contexts.

The findings also challenge the notion that these children are out-of-school, a label of deficiency embedded in the global context of international development and the mediation of the concept of literacy (UNICEF, 2012). Similar to approaches to the study of literacy as a social practice that have mediated local data of out-of-school contexts, international development policies have mediated understandings of literacy through transnational datasets grounded in a singular, school-based notion of literacy (UNICEF, 2012; UNESCO, 2018). This study's findings suggest that children's perspectives and understanding of literacy can be accessed to form a more nuanced and complex view of literacy and schooling thresholds, which move beyond binary notions and acknowledge the everyday worlds of children and their literacy practice. Although both communities appeared to have community boundaries around practice, within the communities the participants documented their understanding with schooling, whether CBE and/or primary school, configuring community inhabited practice. These findings, particularly those from Bunglung, complement research in other African contexts that found adult learners perceive English as the "language of power" (Papen, 2005 p.11). However, it also suggests that the participants do not necessarily conflate schooling with learning, but use their pedagogic and orthographic understandings of literacy in their everyday lives to negotiate their practice through different types of education whether formal schooling, CBE, Qur'anic classes, or within the community.

The understanding of the participants also challenges the mismatch hypothesis between school and out-of-school contexts (Luke, 2004), as the demarcation between school and out-of-school contexts disappear to be replaced community (Kral and Schwab, 2016). The limitations of status and singular concepts of context (school or out-of-school) and time (events) are revealed (Leander, 2001). The participants moved across different sites within

their respective communities (rarely beyond), demonstrating an understanding of literacy that is defined by configurations of languages, activities, objects, and multimodalities. However, the findings also show that certain community contexts are sometimes more closely indexed in languages, materials, actions, and multimodalities than others, and there is a temptation to draw boundaries around these indices. In Bunglung, out-of-school contexts are configured by the orthography of English, materialised in signs, products, objects, inscriptions, and books, in which the notion of a local context becomes compromised as the participants sought to document an understanding of literacy that was plural; including both literacy in Dagbanli and English. In Botingli, on the other hand, the school contexts are configured by the orthography of Dagbanli, materialised in the one classroom with a single blackboard and the children's engagement with pencils, textbooks, and exercise books.

This analysis across correlations and emerging themes shows that there are two signifiers within the anthology that reference the children's understandings of literacy in practice. Across languages, materials, events and actions, and multimodalities, the children's understandings are embodied in pedagogies and orthographies of literacy practice. These are concepts that bridge different contexts of production, and help define the participant's community inhabited understanding of literacies. The individual portfolios provide nuance, showing the different configurations of pedagogies and orthographies.

6.1.1.2 Pedagogic configurations

To a certain extent, in both communities, Dagbanli literacy practice resides in school contexts, embodied in the blackboard, textbooks, and the teacher. The participants' understanding of it in literacy practice is pedagogic, and entwined with English. Pedagogies refer to the relationships between teaching and learning as experienced through teaching content, learning experiences, and knowledge (Loughran, 2006). Although the participants see their Dagbanli literacy practice as a gateway to English, the pedagogies of CBE share similarities to those of the primary school in Bunglung. In analysing the participants' photographs of Dagbanli and English languages in school contexts, pedagogical similarities are apparent and were recognised and understood by the participants in both communities. In Bunglung, the participants' pedagogic negotiation was shaped by the primary school, and some of the participants' history of schooling, reinforced through their engagement with

materials throughout the community. Whereas, in Botingli participants used their emerging literacy to negotiate and make meaning of the signs in the community, the English orthography of which they matched to Dagbanli orthography given that the latter adapted the former through the modified Westermann script.

In Botingli, the participants focused on the CBE class blackboard, filled with word lists and short paragraphs of written text from their textbook. In Bunglung, the participants focused on the primary school blackboards, each one with different texts in English (and sometimes Dagbanli) covering various curriculum subjects, including science, mathematics, and Ghanaian language learning. In both contexts, explicit pedagogical instruction is embodied in the blackboards, and indexed repeatedly in literacy actions both inside and outside the classroom. In viewing these photographs, both with the children and independently, their understanding of literacy is embodied in these pedagogies. These school-based pedagogies were usually characterised by actions such as reading aloud, copying text from a book or the blackboard, drawing images, practising writing individual letters, and writing on the blackboard. This notion of pedagogic configuration extends on ethnographic research that has found in other African contexts the significance of the role of the teacher and pedagogy in shaping young children's literacy practices (Prinsloo and Stein, 2004; Dixon et al., 2008). However, this study's findings do not necessarily suggest a gap between the school and out-of-school contexts, but rather a bridge formed by the participants themselves within the community. This furthers our understanding of the relationship between schooling and communities in literacy education, but from the perspective of the children rather than adults (Green, 2017).

In Bunglung, these pedagogies extend beyond the CBE classroom into the primary school as the participants, particularly the three boys, sought to practise a future state of schooling and language learning. Less than one-quarter of the Bunglung participants' photographs were produced in the context of CBE classes. The primary school building in Bunglung, and the literacy materials, books, and other items associated with it, exerts an influence on the literacy practice of the participants from Bunglung. In analysing the anthology, there are few indices to English language in Botingli (less than 8% of the Botingli participants' photographs), and virtually none within the CBE classroom. Botingli does not have a primary school, but is only two kilometres from Bunglung. Although this may not seem far as an

absolute distance, there were no instances of the children from Botingli taking photographs in Bunglung, and vice versa. There are photographs produced in contexts outside the communities, but not in one another's. This suggests and reinforces the concept that the children understand their literacy practice to reside in community, and more precisely, their own community.

This builds on our understanding of perceptions of literacy and language learning. Research on parent and guardians' view on language of instruction in urban African communities has found preferences toward English, where choice is seen as more than a pedagogic issue (Msila, 2014; Ansre and Klu, 2017). However, this study found from the children's perspective, a duality in the participants' perspectives and understanding of literacy. The Bunglung primary school building is indexed frequently in the understanding of Bunglung participants, not least because the CBE class takes place in one of the school's classrooms after-hours. However, more significantly, it was the past destination for some of the participants, and the future destination that they would like to enter/return to in order to continue their education to learn English. On the other hand, in Botingli, almost two-thirds of the participants' photographs were produced in the context of CBE classes. The CBE classroom in Bunglung, and the limited amount of literacy materials, objects, and blackboards, exerts the same sort of influence on the literacy practice of the participants from Botingli as the primary school building does in Bunglung. However, there was a lack of duality in the CBE classroom. In Botingli, these pedagogies were confined to the CBE classroom, but extended upon as the participants captured moments of literacy in action both of themselves through selfies and of others as they engage in meaning making through Dagbanli. The Botingli participants understand literacy to be embedded in school-based pedagogies of CBE and Dagbanli.

The analysis shows the context of production as a key indicator for understanding the children's perceptions and understanding of literacy. Collaboratively and individually, with the focus on languages, materials, actions, and multimodalities, the children indexed their understanding of literacy as school-based pedagogies confined to their community. The findings show strong influence not only in the configuration of a classroom but also in how the school exerts an influence on the children's literacy practice particularly children who are considered out-of-school. Furthermore, it is not only the school as a singular entity but

the type of school, and how the children negotiate their experiences of different types of schooling and education through pedagogies.

6.1.1.3 Transitory configurations

The findings show that some of the participants in both communities understand literacy as a configuration of time and space. The context of production of their literacy practice was not always a 'here and now', but transitory (Brandt and Clinton, 2002). In both Bunglung and Botingli, some participants understand literacy to be situated beyond the here and now contexts both physically and temporally in their community. Although digital photography suggests, through its materiality and permanency with the present, which is captured and stored, the participants used it to move beyond the present. Some of the participants' understandings do not necessarily inhabit nor are confined to the contexts in which they were documented, but reside in temporally dynamic contexts. However, there were differences between the communities in the nature of this transitory understanding. Prior literacy and language research in out-of-school contexts has focused on understanding school children's practice and the boundaries between schools and homes (Song, 2016) or on the experiences of young adults (Kral and Schwab, 2016). This study builds on this research, demonstrating the complex socio-cultural and material understanding and practice of out-of-school children, and not only the fluidness of boundaries within remote, rural communities but also transitory configuration of their practice.

In Bunglung, some of the participants understand literacy not only as occurring in the present tense, but also in the past and future. In particular, the three boys, Yakubu, Ibrahim and Somatu, moved across different school-based contexts, revisiting historical literacy actions from their past schooling experiences, while also projecting their practice into the future, making a connection between their current practice and that available in the future. The two girls, Amina and Asana, on the other hand, did not confine their understanding of literacy to only one place in the community. They moved through their community, beyond the CBE and primary school classrooms and buildings, searching for different subjects, objects, and places in which they understood literacy practice to reside. Although literacy research has revealed to a certain extent the fluidness between school and out-of-school contexts, it is not always strongly evident or visible due to a reliance on orthodox research methods (Pahl and Rowsell, 2006).

In Botingli, although there were more similarities than variations between the participants, there were nuances within but also differences between the communities. The Botingli participants did not necessarily reference historical actions from the past, as they did not have the same past schooling experiences as Bunglung participants. However, some of the participants did seek to use photography to produce new knowledge and new understandings of literacy. They photographed signs, texts and, objects in anticipation of having a discussion with me about the photographs. At the same time, the Botingli participants showed a more 'here and now' understanding of literacy through their capturing of literacy in action and literacy selfies both inside and outside the classroom. In particular, the literacy selfies are a statement to bear witness to the participant's abilities to read and write Dagbanli. These are strong indexical statements that invite the viewer to see the children's literacy first-hand, creating connections across time and space.

This has implications for considering the context of production, and whether context is a static concept, particularly the notion of local context. From the perspectives of the children, literacy is not static, nor is its practice in context. The participants produced photographs across community contexts through transitory configurations. Literacy as transitory is also situated in global contexts, or rather the community contexts of Bunglung and Botingli are not sealed off from global contexts. This is evident in the analysis of the children's photographs and of the historical and policy context of Ghana and international development education. The children's understandings are shaped by the broader contexts of the orthographies of Dagbanli, universal primary schooling, and CBE provision. There is a confluence of local and global contexts in both communities, and how out-of-school children negotiate their understanding within and between these contexts in their communities. The development of Dagbanli's orthographies, and Ghana's policy commitment to achieving universal primary schooling through CBE, are historical traces that influence the children's understandings of literacy practice. The modified script that Dagbanli uses is historically traced back to the proselytising activities of Christian missionaries. The children understand a connection between Dagbanli and English that is based on the similarity in orthographies. Their attendance in CBE classes is partially a result of historical and national policy developments toward universal primary education. Although not necessarily directly visible in the photographs, or referenced by the children,

the historical contexts, events, and policies leave materials traces and partial connections (Burnett et al., 2014).

While this is an understanding available to myself as a researcher, it may not be available to the participants or the communities. These are traces that I identify, and are accessible in the participants' generation of data but not necessarily in their own perspectives and understanding. These traces too are transitory. The key difference is that what is captured in the participants' photographs are durable visual statements of literacy knowledge and of attainment. They are the participant's own visual statements, produced for this study, but with intention, purpose, and ownership. The understandings demonstrated by the children challenge concepts of what it means for children to be considered out-of-school and non-literate.

6.1.2 Materiality of literacy

In both communities, the participants' understandings of literacy are materialised in a range of contexts and objects in the community. Not only are their understandings of literacy embodied in school-based pedagogies and orthographies, but also in literacy materials and objects. The photographs insist on an understanding that considers the role of matter in literacy (Burnett et al., 2014; van Enk et al., 2005). Furthermore, when viewing the photographs, and taking into account the digital cameras, the role of matter cannot be ignored. The photographs were produced via a process described in the chapter three, in which light is converted into matter. Across the anthology, from the equipment to the photographed objects, the children's understandings of literacy are mediated and embodied in matter. This finding builds on ethnographic accounts of people's literacy practice that explored the materiality of literacy (Bartlett, 2008; Juffermans, 2011) to further examine the role of matter in practice (Burnett and Merchant, 2020), particularly out-of-school children's practice.

The notion of plurality extends to understanding what literacy is to the participants (Szwed, 1981). In particular, what literacy practice is, as the term 'practice' in literacy research has remained relatively unchanged since it was introduced by Scribner and Cole (1981b). It was defined as a "recurrent, goal-directed sequence of activities using a particular technology and particular systems of knowledge" (1981b, p. 236) embedded in social contexts. This study extends the type of technology used by participants in literacy activities with the

introduction of a digital camera. This section discusses the materiality of the children's literacy practice and uses the concepts of intramateriality and intermateriality to consider how the children's understandings and perceptions of literacy are materialised in the communities. Recent research has shown the materialisation of language and literacy practice in writing technologies, including instant messaging (Hass et al., 2011) and remittances (Vieira, 2016). Similarly, this study found that the participants' literacy practice is materialised in different modes and media, with a difference being these materials and objects emerged from documentation by the participants rather than by the researcher.

The introduction of the digital camera into the research contexts added a new technology to consider in the children's literacy practice and supported them to produce new knowledge. Scribner and Cole's definition of practice focused on the use of technology in literacy practice, and recently Burnett and Merchant (2020) have considered the concept of a literacy event within materiality. Literacy research, particularly New Literacy Studies, has largely dematerialised literacy, although there is a renewed interest in the materiality of literacy, particularly as digital technology has become widely available and accessible (Burnett and Merchant, 2020). The photographs produced by the participating children, through digital photography, insist on matter, not only from the perspective of the practice but also from the perspective of the children. The different configurations of their literacy practice across contexts of production also reveal their understanding of literacy as materiality. The participating children, through their photography, were communicating their understanding and perspectives of literacy, for which things and actions were perhaps of greater significance than the sites. There were different contexts in which literacy resides, such as CBE, primary school, and home, but often the focus of their understanding was on things within these places. The way these children created pictures of their understanding of literacy builds on research revealing how digital technology shapes, and in turn is negotiated, by children in their literacy practice (Jokinen and Murris, 2020).

In the participants' understanding of literacy, it is not the abstract idea of literacy that takes primacy, but the materiality. The participants captured the thingness of literacy, and the various materials it can reside in and constitute (Jokinen and Murris, 2020). There are patterns across the anthology between the two communities, and within individual portfolios, between different materials. To further the discussion of this study's findings, it is

useful to consider three different concepts that are emerging in other disciplines in thinking about materiality: intermateriality and intramateriality (Bocancea, 2010; Kirschenbaum, 2005; Munster, 2014; Smith, 2015). These concepts overlap, intersect, and reconfigure to produce a literacy of things. They may also serve as useful concepts to develop to describe the materiality of literacy, particularly when documented or enacted through digital photography. Bocancea (2010) defined intramateriality as a reference to objects within the same category of material or medium, and intermateriality as a reference to objects across or between materials or media. Intermateriality represents meanings created between actors, both material and immaterial, but also between materials, such as those between the camera and the object both captured (the scene) and produced (the physical or digital photograph). Intramateriality represents meanings created and relations between materials in the same category.

6.1.2.1 Intramateriality

As discussed previously, the findings demonstrate that the participants' understanding of literacy is embodied in pedagogies and orthographies that reside in community. The children's understanding of literacy embodied in pedagogies are materialised in literacy things, including classrooms, blackboards, textbooks, school building walls, paper, pencils, and other literacy objects. The meanings created and communicated within these objects perhaps point to intramateriality, in which the relations between the objects of the same category are pedagogic. These objects photographed in community embodied the children's understandings of literacy as instructional and classroom-based. In Bunglung, the participants encountered and negotiated English language texts and multimodalities across their community. In Botingli, the participants encountered predominantly Dagbanli language texts inside the classroom and some English language text outside. In both communities, many of the Dagbanli or English texts they encountered are to be read aloud and/or copied as instructed by their CBE teacher or by another teacher who is not necessarily present. These pedagogic references are made repeatedly in both communities, materialised in a range of things and in the photographs as indexical of the participants' understandings.

From the participants' perspectives, literacy is also embodied in these things in which the relations are orthographic. There are different orthographies, usually either Dagbanli or

English, but also Arabic and non-alphabetic text such as numerals. In Bunglung, there were references between English and Dagbanli orthographies, in which the learning of the former was seen to be useful for the learning of the latter. In addition, particular signs and words were photographed because they were recognised by participants in both communities, such as the name of their community on an English-language sign. The Bunglung participants also went beyond print-based textual pedagogies and orthographies, to communicate understandings of literacy embodied in multimodalities such as images, drawings, television, signs, and photographs. Although these understandings resided predominantly in Bunglung this was not exclusive as all children had at least one photograph representative of an understanding of literacy as multimodal.

This challenges the previously discussed notion of intramateriality between objects as being pedagogic and orthographic, which assumed print text. The relations between these categories of objects demonstrate and communicate the children's understanding of literacy beyond print text, and beyond the classroom. Although the configuration of participants' understandings of literacy in both communities is pedagogic and orthographic, they are also nuanced and varied, embodied in a range of objects throughout the communities. The objects repeatedly referenced one another across both communities and across the anthology, insisting on the materiality of literacy configured by pedagogies and orthographies, and demonstrating an increasingly sophisticated and community-based understanding of literacy.

6.1.2.2 Intermateriality

The meanings created and communicated by the participants within the objects photographed also point to intermateriality, in which there are references and meanings across objects of different modes and media. The intermateriality of literacy practice first references the meaning created between the digital camera and the object photographed and the digital photograph produced. This concept is useful in understanding the relations and meaning created between the photographer, the photographed, and the photographic object and/or subject, which has been discussed previously in reference to indexicality. The very act of taking a digital photograph immediately creates a material connection and reference between the photographer, the photographed, and the photographic object

and/or subject (Seppänen, 2017). It leaves a trace - a trace that has been collected and analysed for the purposes of this study.

Every time one of the participants took a photograph, their action initiated a dynamic process in which light was converted into matter and stored digitally. This process enabled a number of things to happen. First, it enabled the participants to view the photographs they produced using the same cameras, involving others in their viewing. In Botingli, participants took photographs and viewed them using the LCD screens with others, events that were captured by other participants. This is not evident in the Bunglung participants' portfolios but does not mean they did not engage in the same practice. Second, it enabled me to transfer their photographs onto my laptop for cataloguing, storing, and analysis. I had access to all the photographs and could repeatedly view them for the purposes of this study. Third, I was able to print, share, transfer, and code the photographs using my laptop and other devices, such as coding software and printers. Both the children and myself were able to create and view intermaterial understandings of literacy.

For example, I was able to print the photographs for the participating children to share with them and organise local community exhibitions. I was also able to upload all the photographs to Atlas.ti to analyse them. The photographs, as matter, were in a constant state of change and could be edited, resized, downloaded, uploaded, printed, stored, and shared at any time. It is within this constant state of metastasis that they were being interpreted, analysed, and discussed in their representation of children's literacy practice in two communities. Every contact with the photographs left a trace (Kirschenbaum, 2005), perhaps almost uncountable, sometimes material and sometimes immaterial.

It is the intermateriality of digital photography, particularly within this study's methodology, that underpins the children's capability to communicate their perceptions and understandings of literacy through digital photography. Although matter is in a constant state of change, Whitelaw (2012) argued that digital materials are also specific, "always subject to the local conditions of its instantiation" (p.231). Each participant produced a portfolio under different, precise local conditions including time of day, location, composition, framing, and purpose. The local condition in which each photograph was produced cannot be changed in the past, however, repeated viewings, sharing, and transfers reconfigure not only the matter of the photograph but also potentially the

meanings and indices. It is within these local conditions that each participant's understanding of literacy was produced and captured, and those local conditions resided in the community.

The intermateriality of the literacy practice, referenced in the relations between the photographer, the photographed, and the photographic object and/or subject, was predominantly pedagogic and orthographic in both communities. In Botingli, for example, almost half of Barachisu's portfolio contains the single, small blackboard from her CBE class. This blackboard was supported by two single wooden legs on either side of the frame and leaned against the wall. Otherwise, it was always filled with word lists, sentences and instructions written in Dagbanli, with the date posted in the top right-hand corner. Her understanding of literacy was embodied in the pedagogies of her teacher and CBE, in which the teacher is photographed standing at the blackboard instructing, reading, or writing in Dagbanli (see Plate IV, IMG2060). There is a rich intermateriality at play in her photographs, which exhibit a pattern, between herself, the camera, and the blackboard. When asked about her understanding of literacy in the collaborative viewing session, Barachisu replied, "I want to be familiar with writing. Writing is learning" (personal interview, 19 March, 2015). The photography was both a method for her to become more familiar with sabbu and to also communicate her understanding of literacy as sabbu.

In Bunglung, on the other hand, less than 10% of Somatu's portfolio indexed a blackboard, which in Bunglung were located in the primary school classrooms. These blackboards dominated the entire wall, at least four metres in length. The Bunglung participants often produced photographs of different blackboards throughout the primary school, which indexed the various subjects that were taught through the writing on the blackboards. English was the dominant orthography in Somatu's portfolio, the text of which is often accompanied with images from primary school contexts. Somatu had completed formal primary school and had decided to leave the first year of junior high school to be able to attend CBE to learn Dagbanli. When asked about why he wants to learn Dagbanli, Somatu responded, "I want to use Dagbanli as a tool to understand English" (personal interview, 26 March, 2015). Somatu's portfolio reveals how print English indexes this understanding, materialised in literacy objects and photographs that show a complicated interplay between pedagogies, orthographies, and schooling for future possibilities.

The intermateriality of literacy in Somatu's understanding references a range of different materials and media onto which writing is inscribed, and which he hoped to be able to read in the future. Somatu produced photograph after photograph of painted English words on the rough exterior of the old primary school building. Each word was usually accompanied by an image to help communicate meaning (see Plate I, IMG0284). Yakubu and Ibrahim in Bunglung indexed some of the same words and images, such as the drawing of a house on a blackboard or the wall of a home (see Plate XII, IMG0049, 0050). Written in the middle of the drawing is 'HOUSE' in English, a similar image to that which appears in Somatu's portfolio as a coloured painting on the wall of a primary school building with the phrase 'A HOUSE' written in black underneath (see Plate XII, IMG0235). Although there are differences between the communities in how literacy is materialised, there are similarities in how the participants understood and positioned references between the same category of objects and then between themselves as photographers and their subjects and/or objects.

The findings also demonstrate the intermaterial relations between the participants, the photographed, and the photograph were realised in an understanding of literacy encountered in their community. That is, it was more than pedagogic and orthographic, but also defined and shaped by the people, places, and activities of their everyday worlds. In Bunglung, Amina and Asana took photographs of family and community members in their homes and around the community engaging in different activities. In Botingli, all the participants took photographs of family and community members, sometimes as portraits and at other times in the moment of undertaking household tasks. Their understanding of literacy in practice is not disconnected from their everyday worlds, and digital photography enabled those relations to be captured and communicated visually. It also establishes a new relationship with the viewer/s, and particularly with myself as researcher, providing access to places and people in their lives that may not have been accessible through observation. This visual knowledge helps build our understanding of what out-of-school literacy practice and contexts are from the participants' perspectives.

6.1.3 Literacy of being out-of-school

The findings show that in both communities the participants transferred their understanding of the pedagogies and orthographies of literacy outside the classroom, into their homes and into their community. While it is suggested that the configurations of their

understanding and practice are predominantly reside in community, it is instructive to demarcate between school and out-of-school contexts for the purposes of discussing similarities and differences between and within Bunglung and Botingli. It must also be acknowledged that these children at the time were considered out-of-school and non-literate, and their right to a full primary school education was not being upheld despite access to CBE and Qur'anic Arabic classes. However, the perspectives of the children challenge what it means to be out-of-school, and the schooling available to communities and how children and their families negotiate schooling. In both communities, literacy was not confined to school-based pedagogies or the orthographies of Dagbanli. Indeed, it is significant that in two communities where there were significant numbers of out-of-school children (at least 25 in each community), there were a range of different ways in which literacy and education were positioned, accessed, and understood.

Despite literacy research that has shown what those considered non-literate accomplish with literacy (Prinsloo and Breier, 1996), the durability of a deficit view, particularly of out-of-school children, continues to be evident in global development discourses, policies, and programs. The findings extend on NLS research that have redefined literacy thresholds, and demonstrates from out-of-school children's perspectives, what they can accomplish. The findings also redefine and reshape the concept of out-of-school literacy practice, focusing on not necessarily a space but the cohort of children who are considered out-of-school and the spaces they occupy, encounter, and negotiate in their everyday worlds (Kral and Schwab, 2016).

Research has shown how literacy in out-of-school contexts differs from that in school contexts, in which the former is not reflected or valued in the latter. Research has also documented out-of-school literacy practice, particularly of adults and of children and young people who attend formal schooling. This study has found similarities between the two contexts, as documented and perceived by the participating children themselves who do not attend formal schooling, in which the distance between the two is collapsed. The practice of literacy is not only mediated by the presence of schooling and literacy education, but by the children themselves as they encounter and negotiate the familiar and unfamiliar within their community (Barton, 1991). The children built a rich understanding of the

community in which they reside, and in which their literacy practice resided, helping us to reconsider the relations between sites of schooling and community (Green, 2017).

The findings provide important accounts of how out-of-school children perceive, experience, and practise literacy in their everyday worlds, which builds on the knowledge of literacy in out-of-school contexts and helps further refine the relationship between school and out-of-school contexts (Street, 1984). It also demonstrates the importance of opportunities for out-of-school children to not only access literacy education, but to account for their perspectives and knowledge. The participants in both communities, but particularly in Bunglung, understood literacy to not be confined to CBE and Dagbanli. In putting aside the primary school context in Bunglung, overall, at least 60% of the anthology was produced in contexts other than CBE class. However, there are significant differences between the communities. In Bunglung, three-quarters of the photographs were produced outside of CBE. In Botingli, only around one-third of photographs were outside of CBE. In Botingli, in out-of-school contexts, the participants understand literacy practices similar to those within their CBE class, such as copying text from their textbook into an exercise book. In Bunglung, in out-of-school contexts, the participants' understood literacy practice as negotiated through their encounters with signs, primary school books, walls, and objects around and outside the community. However, rather than these practices being similar to those within their CBE class, they were more similar to those experienced in the past or otherwise in primary school.

At the same time, the participants in both communities understand literacy practice that was not embodied in school-based pedagogies or orthographies. From the collaborative viewing sessions with the children, it was found that these activities were non-school based pedagogies. In particular, the Botingli participants mediated literacy practice that, together with the digital camera and act of photography, led to knowledge and understanding through practice. Indeed, the act of photography became a new part of their literacy practice introduced through the research process. These literacy actions also went beyond print text, as the participants engaged with multimodal objects and materials. The practice they developed further disrupts a static notion of local context and show the relations of Bunglung and Botingli across and beyond the district, the region, and the country. These included: a television broadcasting a live event from Accra in celebration of Ghana's

Independence Day; the English-language signs in both communities, erected by international NGOs such as World Vision, announcing the programs being implemented; the results of Ghana's national lottery for the week in Botingli; and a multimodal warning sign in the Bunglung primary school classroom providing readers with instructions on preventive measures against Ebola. Although the school context, whether CBE and/or primary school, exerted an influence, there were other non-local contexts, the influence of which was materialised in objects and negotiated by participants in both communities.

The participating children made connections across school and out-of-school contexts, between their understandings of literacies as school-based pedagogies and the opportunities to practise and demonstrate non-school based pedagogies. Although the opportunities appear limited, a single photograph referencing Siisu's engagement with a blackboard showing the results of Ghana's national lottery is significant. Indeed, any single photograph can be something about their understanding of literacy. Most of the participating children viewed themselves as non-literate, or rather, in the process of becoming literate. Rafatu, when asked if she considers herself literate, responded in the affirmative. "When my teacher teaches me, I understand what I am taught and I go and practice what I've been taught", she said (personal interview, 20 March, 2015). A single photograph challenges a deficiency-based perspective and label of these children as out-of-school, showing the viewer/s their literacy in practice in their community.

6.1.3.1 Liminality

The anthology is the reclamation of the participants' literacy practice, each photograph an announcement by the participant saying, 'Here!', 'This!', or 'That!'. Each of their photographs challenges a deficiency view of children being out-of-school, demonstrating a liminal stage through which the children are progressing in their practice. Liminal situations are fluid and malleable, creating moments and events that enable new practices or institutions to be created (Thomassen, 2009). The children demonstrated their intentional use of the digital cameras, as an out-of-school practice, to document their understandings of literacy, crossing new thresholds, discovering new knowledge, and creating new contexts of literacy.

However, such liminal situations and events are not necessarily easily understood, as the relationship between the material and immaterial is complex (Burnett and Merchant, 2020). Thomassen (2009, p. 5) characterised liminality as a "world of contingency", where events can be moved in different directions. Viewers of these digital photographs make meaning each time they are viewed and meaning can change through repeated viewings. The participating children involved different viewers throughout the fieldwork period, as they shared their photographs with classmates, family, and other community members. During the community exhibitions, up to 100 people from Bunglung, Botingli, Savelugu, and Tamale viewed the photographs, and hundreds more who attended the Melbourne exhibition from around Australia and beyond. You, the reader, are also involved in the viewing. Each viewing of a photograph can be conceptualised as a literacy action itself, and so to the act of photography by the participating children. This concept is similar to Kullman's (2012) notion of "ongoingness", in which knowledge produced from children's photography did not have a fixed spatial or temporal point.

The liminality of photography in this study prompts questions of when an activity, event, or action becomes literacy (Burnett and Merchant, 2020). In this study, and in relation to the research questions, it could be framed around when the participants decide to capture a photograph. The instruction to the participants was to take photographs of their understanding and perceptions of 'karimbu ka sabbu'. Therefore, any photograph taken indexes literacy, and the act of photography itself is a literacy action or perhaps literacy-as-event (Burnett and Merchant, 2020). However, the traditional notion of a literacy event does not complement the materiality of literacy or the concept of liminality. Indeed, there was perhaps an uncountable number of literacy actions observed or undertaken by the participating children, of which only a sample were photographed.

It is perhaps more useful to conceptualise literacy events as "eventing", adapted from Whorf (1956) and Hoijer (1951), which signifies the connection of motion to verb categories. Photographs do not necessarily capture literacy events or actions, but rather literacy eventings. This is defined as the connection of movement between literacy actions, photography, photographic object/s, and the viewer/s. Liminality and eventing represent the opportunity and challenge of collaborative digital photography, particularly in literacy research. Relations between things are not easily resolved and can constantly change

(Jokinen and Murris, 2020). However, they suggest that the children's understandings of literacy practice are characterised by ongoing negotiation and configuration. Digital photography not only supported showing this, but also supported negotiation and reconfiguration.

The dualities of photographing literacy and mediating literacy through photography emerged in exploring the participants' understandings. The children used the digital camera interchangeably between photographing literacy actions and developing their knowledge and practise of literacy through photography. The latter was most noticeable in their photographs produced in out-of-school contexts in the communities. The participants sought to photograph multimodal materials and objects outside of the CBE classroom. They wanted to both demonstrate their understanding and seek understanding of literacy from the research process, which was just one of a number of different configurations of literacy in practice in their community.

6.2 At the intersection of local and global contexts of literacy

The community as context was not contained or sealed off, and both Bunglung and Botingli sat at the intersection of global and local contexts. The participants, in their understanding of literacy in practice in their communities, reconciled this intersection as part of their practice. In contrast to Qur'anic education, CBE was reconciled not as complementary to primary schooling but as competitive. It is seen as a form of *pre*-school or *para*-school in the sense that parents, carers, and children are taking the opportunities afforded by CBE before moving into or returning to primary or secondary schooling. The Government of Ghana, and international aid donors, frame CBE as temporary and not an alternative to formal schooling. Despite the policy intent being otherwise, the regulation and policy of CBE has created another education system in CBE, which families are choosing as an option for both in-school and out-of-school children.

Research on non-formal education service provision and international development have explored young people and adults' experiences, highlighting how pedagogical choices and practices are influenced by context and perceptions of learners (Sichula and Genis, 2019; Vega and Bajaj, 2016). More specifically, limited research on CBE in Ghana found competing adult perspectives of CBE provision within communities (Mfum-Mensah, 2011). This study's

findings provide detailed accounts not only on the community and children's perceptions of CBE (DeStefano and Moore, 2010), it shows how CBE provision within a community is negotiated by children and family members as a form of literacy education and its influence on children's literacy practice.

Although since its inception CBE has been provided by NGOs, the CBE Policy Framework (MoE, 2013) represents a collaborative attempt to regulate the education services delivered under it. Section 2.2.1 of the Framework defines CBE as "a Government-led programme implemented by Government approved non-state CBE providers". However, financing for CBE has predominantly been provided by external donors, and more recently by agencies such as UNICEF, the United Kingdom Department for International Development, and the United States Agency for International Development (DeStefano and Moore, 2010). This collapses the global and local contexts of literacy in Bunglung and Botingli through the provision of CBE, in which out-of-school children encountered and negotiated their literacy practice.

Although the participants also share the perception of CBE as temporary, it is seen as a temporary alternative to formal schooling. This reinforces findings from Malcolm's (2009) study of CBE in Malawi, which conceptualised CBE as a transitory education space for progression onto formal schooling. However, this study found that the literacy teaching and learning program afforded to children and families by CBE, in which Dagbanli is the language of instruction, competes with primary schooling, in which Dagbanli is also nominally the medium of instruction in the first three grades. The CBE curriculum, as evident in the children's photographs, is not focused on subject content but on culturally relevant content through which to mediate the teaching of literacy and numeracy. Although the children's perspectives of literacy practice may reside in CBE, especially in Botingli, it does not always dominate. The participating children have differentiated understandings of literacy in their everyday worlds, in which CBE is one context in their community. This challenges the dominative narrative of CBE framed around achievement and transition to formal schooling, providing nuanced and detailed accounts of children's experiences and perspectives of CBE and beyond (Longden, 2013). This study's findings also reinforce this discourse of CBE as transitory and temporary in Ghana, particularly in consideration of the Bunglung participants' understanding of literacy practice.

The representation of the participants' understandings of literacy practice shows the translation of not only the CBE Policy Framework (MoE, 2013) but also Ghana's language in education policy. These translations start at a higher level as well, with the photographs and interview responses indexing global education policies, histories, and initiatives aimed at literacy and schooling. For example, functional literacy can be traced within these communities, as it is a notion expressed by the parents and carers during the interviews about the purpose of formal schooling. Literacy in English and primary schooling is seen through the lens of economic functionality, connected to employment and future prospects. For Ibrahim, Somatu, and Yakubu from Bunglung, for whom the primary school is present in their photographs, CBE is a pathway into formal schooling. Amina said that she wants to go to primary school and wants to be educated. School for Life represents an opportunity to attend formal schooling, an opportunity that is expressed in the policy intent of the CBE Policy Framework.

6.2.1 Qur'anic education

The findings identified other configurations through historical traces that shape the children's understanding of literacy practice. Although the participants and their peers were considered out-of-school, they were accessing two different forms of schooling simultaneously during the fieldwork period. As discussed above in the previous sections, the configurations of primary school and CBE pedagogies and orthographies are inscribed in their understanding of literacy. However, the configuration of Qur'anic education is noticeable in its absence in the participants' understanding of literacy, despite nine out of the ten participants attending Qur'anic Arabic classes. Although there is some research on the lived experiences of children attending Qur'anic boarding schools (Doris, Mangotiba, Caroline and Francisca, 2015), there are few studies that reveal to what extent non-formal Qur'anic education is embedded in rural communities in Ghana and to what extent it influences literacy practice (Street, 1984). The findings of this study reveal the perspectives of both children and their parents or guardians towards Qur'anic education and its relationship to their understanding of literacy.

The children's participation in Qur'anic Arabic classes is historical in context. The importance of Islam in Dagomba societies has been documented through written texts since at least the 18th Century (Wilks, 1965). Oral traditions recount the history of Islam in Dagomba societies

back to the 16th Century. There are few modern studies of Islam in northern Ghana and on Qur'anic Arabic teaching and learning (Boyle, Seebay, Lansah and Boukamhi, 2007; Boyle, 2017; Diallo, 2012; Iddrisu, 2005; Ware, 2014). Boyle (2017, p. 2) characterised the purpose of Qur'anic schools as "to ensure that children memorize some of the holy Qur'ān". The tradition of learning Qur'anic Arabic in makaranta in northern Ghana, and particularly in Dagbon, dates to at least the 18th Century and has interacted with, and changed over the course of the introduction and development of, formal secular schooling (Iddrisu, 2005). The curriculum of Qur'anic schools is the study of the Qur'an, in which students are expected to recite and read the Qur'an, and this is a common model across communities in different societies (Anzar, 2003).

The participants chose not to produce photographs in the context of Qur'anic education. Connections were made between Dagbanli and English, across contexts, but not with Qur'anic Arabic. In their everyday practice of literacy in different contexts, physically and temporally, Qur'anic Arabic is absent. Although they were attending these classes simultaneously to CBE classes, and for those in Botingli in the same building, only Sulemana produced photographs that indexed Qur'anic Arabic classes. From the interviews with the parents and guardians, further information was provided about Qur'anic Arabic classes in both communities. The photographs produced by Sulemana prompted interview questions about these classes, from which it was revealed that most of the participants attend in addition to their CBE classes. The learning of Qur'anic Arabic was embedded in social practice and traditions.

The main purpose communicated by parents and carers was religious education, but it was not necessarily seen as distinct from formal schooling but rather complementary. According to Somatu's father, "the purpose of Qur'anic school is almost the same as formal school except that in the Qur'anic school they teach the children morals" (personal interview, 24 March, 2015). When the participating children were asked about the Qur'anic Arabic classes, they responded that their purpose was religious. In particular, they cited their learning of the Arabic alphabet through memorisation and using the language in order to recite prayers. These attitudes towards Qur'anic Arabic classes are similar to those found by Boyle (2017) across West Africa, and in northern Ghana.

The key difference is that, from the perspective of the participating children, Qur'anic Arabic is not seen as part of their literacy practice. However, it may be that they were instructed by the community or the ulamā not to take photographs, perhaps given the religious nature of their learning, as it was not deemed appropriate. From the perspectives of their parents and guardians, it is a form of education complementary to formal schooling and CBE classes. Previous research has also found that traditional Qur'anic education can be accommodated with secular formal schooling, and considered preparation for primary schooling (William and Amer, 1988). It is perhaps then representative of the interactions between three forms of schooling and their associated literacy practice that the children are mediating in their community. .

It confirms, to an extent, that the things captured in the children's photography are representative of their perspectives of literacy. In the absence of Qur'anic Arabic classes as a context of production, is the presence of literacy practice across different contexts. The participants' perspective of Qur'anic Arabic was similar to that of formal schooling and CBE class. It is a form of education, which is complementary, but different in terms of purpose, pedagogies, and orthographies. For example, Siisu stated that both the alphabet and teaching of Qur'anic school are different from those of CBE. "You learn Qur'anic Arabic by memorising and then when you recite it, the teacher guides you", said Siisu (personal interview, 18 March, 2015). This is in contrast to the children's understanding of literacy as school-based pedagogies, which they take ownership of in their practice.

The memorisation of text and script in Qur'anic Arabic classes was not considered to be a literacy activity by the children, with perhaps the exception of Sulemana. For Sulemana, the teaching and learning of Qur'anic Arabic and Dagbanli are the same. The photographs in Bunglung also revealed the curriculum of primary education, in the classroom schedule written on the inside wall of Somatu's home, which indicated a subject in 'RMT' or religious and moral teaching. Although part of the curriculum, primary schooling was not considered to be religious education, as this was reserved for Qur'anic Arabic schooling. The participating children reconciled the different contexts in which they understood literacy to occur and take place. There were instances of both symmetry and asymmetry between the different school contexts, defined by pedagogies and orthographies.

These understandings are not necessarily situated in the chronological immediacy of the photograph, but transit across past, present, and future literacy activities. Literacy is not something that resides in one context or one time. However, the school-based pedagogies of CBE and primary schooling shape the participants' understandings, which are both considered separate from Qur'anic education. The latter is a form of education, but not a context of literacy. The former are forms of schooling and contexts of literacy practice, which the children take with them outside of school into their homes and communities. The absence of Qur'anic Arabic schooling, with the exception of at least two explicit photographs by Sulemana, suggests that its teaching and learning is not indicative of literacy from the perspectives of the children. However, in Botingli, it is not necessarily absent from the photographs. The CBE classes take place in the Botingli Nurudeen Islamic School building, which was built for makaranta. Each photograph produced in the context of CBE classes in Botingli is also occurring in the same building and classroom for Qur'anic Arabic classes. This suggests the children hold nuanced and dynamic understandings of the contexts in which they practise and use literacy, both physically and temporally. They perceived a difference between types of education and whether literacy resides within them, which is dependent on school-based pedagogies and orthographies.

6.3 Collaborative digital photography in literacy practice

The findings have implications for the design and implementation of participatory visual research methods in literacy education, and the production of visual knowledge of literacy practice. As discussed, findings show that the participants engaged with the instructions given to them, and produced photographs that indexed and referenced their perceptions and understandings of 'karimbu ka sabbu'. However, to what extent those photographs are visual knowledge and representative of literacy practice requires further discussion. Dagbanli has a number of proverbs regarding knowledge (yɛm), one of which states, "A person who hides knowledge is a fool" (Inusah and Issahaku, 2019). This proverb illustrates that it is important to share knowledge with others. Collaborative digital photography offered a way for the participating children to not only document and share their knowledge but also engage in new literacy practice. The following section discusses audiencing, photography as pedagogy, and reflects on the ethical considerations of this methodology and study.

6.3.1 Audiencing photographs of literacy practice

Intent was demonstrated through an analysis of the photographs and complemented in the collaborative viewing of the photographs with the participants. The analysis found that the participants produced photographs across different contexts of production, contexts in which they understand literacy practice to be embodied and embedded. The participants meaningfully engaged in the act of photography, using it to share and create yɛm. Audiencing is a term that has been used in early cultural studies and is again being used to understand different forms of audience participation and collaboration across social media, television, and live streaming (Fiske, 1992; Pink, 2003). Audiencing suggests that a photograph is not just an effect of the audience, but of multiple audiences, who participate in meaning making with the photograph and with the photographer (Fiske, 1992). It is relevant to photography-based research, as the intent within photography, and specifically within this study, is to produce photographs to be viewed.

The participants expressed intent in two ways. First, in the material production of photographs achieved by holding the camera, framing the image the participants wanted to take, and clicking the button to capture what they wanted. This occurred every time they took a photograph and occurred 4,017 times in the anthology. The act of photography, of producing photographs, in and of itself cannot be overlooked or underestimated in a consideration of the findings. Each of those photographs were produced for various audiences, whether for themselves, their peers, family members, me, and/or unknown others (such as the viewers/readers of this study). When asked about participating in the research using photography, Rafatu said, “I was curious about the pictures I was taking and hoping that I could answer any questions you would ask me about the pictures” (personal interview, 20 March, 2015).

Second, the participants communicated intent during the collaborative viewing sessions. In the training sessions with the participants and their parents and carers, I communicated to them that we would view their photographs together and would be asking questions about their photographs. During collaborative viewing sessions, each participant referenced this, saying that they want to make sure they could answer questions about each photograph. The participants’ audiencing was the process of producing photographs that referenced their understanding, knowledge, and perception of karimbu ka sabbu. A relationship had

been established with me through photography and the viewing of the photographs. However, there were also others involved in this relationship. In Bunglung, the CBE teacher's audiencing involved reminding the participants that, whilst they were taking photographs, they should be aware of questions I might ask. In Botingli, Siisu remarked that he thought the photographs would be printed and showed to him, his family, and community members (personal interview, 18 March, 2015).

I was also audiencing the photographs as part of the research process through viewing, quantifying, interpreting, and sharing. This is a dynamic process that is non-linear, as I keep returning to view the photographs again and again. Indeed, one of the main audiencing strategies I employed was the coding framework and process, which sought to codify, quantify, and understand the photographs. However, I also brought my own experiences to constructing meaning in the photographs and found that I was drawn to particular photographs as creative and somewhat more illustrative of their literacy than others. For example, my favourite photograph is IMG0676 by Fata in Botingli (see Plate VII). The participants often described their photographs as 'viɛlli' or beautiful. This is a photograph that I consider beautiful.

Similar to eventing, audiencing suggests movement and connections, and is useful in understanding intention. The participants engaged different audiences in their photography, including themselves, classmates, family members, their teacher, and the researcher. The photographs have also been viewed by known and unknown others, during the photography exhibitions. The children experimented with an expanded range of different compositions and framing, referencing different contexts, materials, events and actions, and multi-modalities through which they understood literacies. However, for some individual participants, the range was reduced, either to a particular context such as CBE classes or an object such as a blackboard. Although I was a primary audience, the photographs also show other audiences, as they indexed the children viewing their own photographs using the LCD screens and showing their digital photographs to others. The children wanted to share their knowledge, and also create new knowledge, of literacy using the digital cameras.

6.3.2 Photography as literacy pedagogy

The concept of audiencing also considers analysis and reflections of the photographs beyond the contexts of production to the contexts of photographic viewing. That is, before,

during, and after the act of photography. This is useful in understanding the participants' engagement with photography for this study, in particular, in understanding not only photography as documenting literacy practice, but also photography as a literacy action. The analysis revealed that the digital camera acted as a pedagogical device for the participants (Komaie, Gilbert, Arroyo and Goodman, 2018), while at the same time documenting the children's understanding of literacy as configured by school-based and non-school based pedagogies in community.

There were other moments of audiencing, which are visible in some photographs, as they used the LCD screens to show their classmates and others photographs that they had taken. The participants shared their knowledge not only with me as the researcher, but also with others in and outside of their community. Through the photography exhibitions, many of these viewers would have been unknown to the participants. Indeed, when asked about many of the photographs and why they were taken, the participants responded that there was knowledge (yɛm) in the photographs.

This notion of photography as literacy pedagogy adds further consideration to the discussion of when an action becomes a literacy action. From the perspectives of the children, and their participation in this study, there are dualities in photographing literacy. The act of photographing their understanding of literacy is a literacy action. However, this literacy action does not end with the production of a photograph, but continues through audiencing and viewing the photographs, which are also literacy actions. At the community exhibition in Botingli, the participants stood next to the photographs they had chosen to display. Attendees at the exhibition spoke to the participants about their photographs, gesturing at their photographs, engaging with them to understand and make meaning.

6.3.3 Ethical considerations and reflections

Collaborative digital photography has ongoing ethical implications to consider, which is a critical element to participatory visual research methodologies. In addressing the research questions, ethics play a central role throughout the research process. Visual research, especially digital photography, requires reflexivity and attention to issues of confidentiality, ownership, and informed consent. Indeed, consideration of ethical issues is significant to understanding the relations between the photographer, the photographed, the

photographic object/s, and the viewer/s. This section discusses, and revisits, significant ethical issues in light of the data analysis and findings.

6.3.3.1 Positional power to design and conduct research

In this section, I offer a critical reflection and self-awareness of my position as researcher, and what my positional power has afforded me through the study and the ongoing implications for the data analysis and findings, the participants, and non-participants. Indeed, it is impossible to ignore my position in this study. I appear in a number of the children's photographs. The children were aware of my presence when I was observing CBE classes, as I am photographed at times hunched over my notebook writing or talking with their teacher. There are also photographs of me coming and going in the car I took each day to drive to either Bunglung or Botingli from Tamale. Not only am I a viewer of their photographs in the relations outlined above but I am present in their photographs as a researcher. Seeing myself in their photographs made me further reflect on to what extent the participants may have acted in efforts to satisfy and/or respond in ways that are socially desirable (Lavrakas, 2008). Although the concept of satisficing and social desirability generally are situated in survey design methodology, they are relevant in collaborative digital photography and not adequately discussed in the research literature.

The photographs also made me more aware of my ability to come and go, and the impermanence of my time in the communities, and of how I was coming into these children's lives and the communities only briefly. I have the privilege, economic means, and freedom to conduct this research, which will presumably accrue professional and personal benefits. Although the poverty rate in Ghana has reduced since the 1990s, poverty is still experienced in people's everyday lives throughout the country. The Northern Region remains one of the poorest in Ghana, with an average poverty incidence of 44% (GSS, 2015). I maintained positional power throughout this study not only as a researcher, but also as a white, Australian male. I have been afforded multiple opportunities through which to undertake this research, travel to Ghana, and live in Tamale, which are opportunities that may never be afforded to the participants or their families. I constantly reflect on the photographs taken by the Basel missionary Rudolf Fisch when he travelled through Savelugu-Nanton in 1910 documenting Dagbanli for a German-Dagbanli word list. It was one of the first efforts that would lead to the first Dagbanli orthography. I am aware of the

potential for this research to be exploitative of the children, their families, and the communities, in which knowledge and representation are transacted for my benefit.

In order to manage the risk of exploitation and tokenistic participation, I paid attention to the research design and methodology, seeking ways to secure meaningful collaboration and authentic representation for the participating children. This included how much time I spent in the communities observing CBE classes and conducting more researcher-centric ethnographic work. I wanted to remove myself, as much as possible, from the fieldwork, even if this is not entirely possible for the whole research. In completing the ethics application for this study, although I followed the standard ethical procedures required by my institution and presented the research proposal to community members in accordance with those procedures, I never imagined that I would be denied access. As a white male from Australia, who had worked previously in these communities, I was in a privileged position of power to pursue this study's research questions and methodology. Although at the outset, the methodological approach was to collaborate, transferring social and power positions between participants and me would never equate to equilibrium.

6.3.3.2 Power and control in viewing photographs

Indeed, in reflecting on the data analysis and audiencing, there are ongoing questions of control, agency, and to what extent the photographs reference the perspectives and understandings of these children in their everyday worlds. Practically, I control and have ownership over the photographs, and post-fieldwork, am able to analyse, interpret, and disseminate. Although I have attempted to reduce the distance between the participants and the research process through collaborative digital photography, this distance has widened post-fieldwork. Although to an extent, the children acted with intention in their photography of literacy, and participated in collaborative viewing to support analysis, the ongoing analysis, interpretation, and discussion of the photographs sits with me in Australia.

The methodological approach is an imposition of my own research interests and priorities, for which there may not be any realised benefit for those involved. The "production, reading, and description" of any single photograph during my research is embedded within my own values (Hirsch, 1997, p. 1), although positions may shift over time, as participants also become viewers of the photographs and non-participants (supervisors, other

researchers, viewers) become viewers. Unknown viewers and readers, who will bring their own values to the viewing of photographs, will view the digital photographs in this study, and subsequent publications.

Viewers will see and describe the photographs within their own moral and ethical framework. Viewing of the photographs may prompt reflexive action within the viewer, whether intended or unintended. However, this is not to dismiss the moral and agential intention of the participating children as photographers. The photographer has, at least mechanically, control of what to photograph and how to photograph. Although I created the parameters and gave instructions, the cameras were in the hands of the participants with no interference from myself. Although they may be guided by reflective thinking and by the interference of others on what to photograph, it was in their control to choose how to photograph subjects and objects. However, this may have ongoing implications for informed consent, confidentiality, and privacy as discussed below.

6.3.3.3 Empowerment through photography

It was not possible to guarantee complete anonymity, and indeed, the participating children, in particular, expressed little interest in anonymity. It was contrary to their reasons for participating in the research. They adopted the identity of a photographer during the research period and wanted their names to be attached to the photographs produced. However, it is challenging to balance their desire for self-determination in this process and protecting them as out-of-school children. There was always the risk that the children could have photographed illegal activity or something or someone that put them at risk and harm. On reflection, I believe that collaborative digital photography, where possible, should involve the use of only digital cameras and enable participants to produce as many or as few photographs as they want. Limiting the amount of photographs participants can produce is unnecessarily constraining and curtails efforts to empower. This study found that this is both feasible and practical, even in remote settings where there is a lack of familiarity with camera devices.

It is often a stated aim of participatory visual research to empower participants (Banks, 2001; Pink, 2003). Indeed, it is assumed that participation in visual research is axiomatically empowering. Banks (2001) and Pink (2003) argued that the collaboration and trust between

researcher and participant nurtures empowerment. Furthermore, collaboration can then also be a means to empower participants to represent themselves intentionally and comment on images (Wiles et al., 2008). However, I found, and continue to find, these assumptions troubling and presumptive. It assumes that either the researcher and/or the mechanical device can bestow empowerment, which runs contrary to the concept. In addition, it perhaps unintentionally assumes that the audience also bestows empowerment through their viewing. Empowerment becomes a meaning-making device, an artifice created by digital photography. On reflection, I am unsure as to whether the participants were empowered or felt empowered through their collaboration as part of this research.

In relation to confidentiality, anonymity does not preclude empowerment. Participants can feel empowered as photographers and research participants without their identities being revealed. In this study, the participating children were willing to be identified as the photographers, taking pride in their capabilities to learn a new practice and share their new knowledge. These issues also make assumptions about the very ontological nature of photographs as images, and narrow conceptions of the location of visual research. Pink (2006) argued that collaboration could lead to participants being shown and commenting on images prior to dissemination. I believe that holding the community exhibitions and providing an opportunity for the participants to select photographs they want to display is an important part of the process, and can help address issues of confidentiality. However, my collaboration with the communities is time-bound, as I do not have regular and unimpeded access to participants or their communities. I continue to make translations and movements of the images, but am making intentional efforts to critically understand and communicate the possible implications of identifiable images of individuals moving around digitally and physically (Wiles et al., 2008).

Participatory visual research that devolves almost complete autonomy of data production to participants can easily infringe laws regarding privacy. Therefore, confidentiality and privacy issues become issues addressed purposefully in the course of data management, archiving, and dissemination. I assumed that those who appear in the photographs gave their verbal consent to be photographed but cannot assume that they are sufficiently informed regarding the use of these images. It is important to consider the agency of those photographed, as it cannot be assumed that they are passive and without agency. There is a

relationship created between the photographer, camera, and the subject/s that is ethically and morally complex.

6.3.3.4 Identification and representation of place

The findings of this study also have implications for understanding the relations between composition, confidentiality, and place, which have not been adequately discussed in the research literature. The breaking of anonymity achieved through such photographs as selfies can also be extended to images of place, whether private or public (Wiles et al., 2008). Images and accompanying descriptions make places and locations potentially identifiable, and community members may not necessarily be satisfied with representations of their community (Crow and Wiles, 2008). I did not explicitly or directly notice this from community members, however, my position may have made revealing any dissatisfaction by members as undesirable. In addition, there are challenges in anonymising place in visual research. In this study, the participants produced photographs of signs, buildings, locations, and people, which make both people and places identifiable. For this study, there are many stakeholders who know the names and location of the two research sites including staff of School for Life and UNICEF, my supervisors, and others. Some are more familiar than others. Anonymity of place cannot be guaranteed, but should be carefully considered in visual research for its implications.

Wiles et al. (2008) discussed how images of place act as an accomplice to power, potentially playing on stereotypes about certain places. Wang and Redwood-Jones (2001) identified four types of invasion of privacy in photovoice, including framing it as an intrusion into private spaces. This is a particular concern for this study and research sites, as both communities are economically poor and live in traditional Dagomba housing. Images of the buildings and communities may perpetuate stereotypes about Ghana and Africa, poverty, and living standards. The children captured and identified many places in their communities through photographs, including inside their homes. At the same time, the images may challenge stereotypes and the affective intention of participants in taking photographs of place may come from a sense of pride. The production of a photograph of one's home may be powerful, giving participants an opportunity to express what they value. It is also intrusive, as the children may be able to enter places that I would not and document those places in photographs, which I can later view. At the time of fieldwork, the participants did

not raise any concerns about the identification or representation of their communities in photography. At the same time, I am unsure as to what extent they comprehended implications of creating a digital visual record of place (or to what extent I sufficiently understood the implications at the time).

The photographs the children took have challenged my preconceptions of and assumptions about their understanding and about their communities. However, individual viewers will bring their own values to viewing the photographs, which includes their own photography practices, assumptions about literacy, stereotypes about Ghana and Africa, and a range of other factors. It is important within these reflections to not lose sight of the children's agency as photographers, and the intention and purpose to which they took to the task as research participants.

6.4 Summary

This chapter discussed three broad findings of the data analysis. First, the participating children understand literacy in practice, configured by and materialised in the pedagogies and orthographies they encountered in and around their community. There were differences between the communities of Bunglung and Botingli, despite the similarities in regards to the education services available in CBE and Qur'anic schooling, the socio-cultural contexts and the relative short distance from one community to the other. Although different types of schooling exerted an influence on the participants' understanding, it was individual and differentiated. The participants' understanding in both communities was also non-schooled and exhibited out-of-school practice that inhabited and resided in different physical and temporal places. This finding develops and deepens our knowledge and understanding of what children who do not attend formal schooling accomplish with literacy, and how practice is situated and un-situated across local and global contexts of education service provision. This finding also demonstrates there is not a clear demarcation between school and out-of-school contexts, but fluidness across the community that does not filter beyond the community. The participating children moved across different community contexts, choosing what they wanted to index through photography and what they did not want to index. They thought about the instructions of the research, and made deliberate choices in how they wanted to produce visual knowledge of their understanding of literacy.

Second, the participating children reconciled the literacy practice afforded to them by the provision of different local and global education services, particularly Complementary Basic Education, formal primary school, and Qur'anic Arabic classes. It is also within their perspectives and understandings that we witness the translation of historical, cultural, and economic policies and discourses within Bunglung and Botingli, and how children and families negotiate the currents and understand literacy in their community. This finding shows how CBE in particular, but also formal primary schooling and Qur'anic education, interact with the communities they reside in, building our knowledge of out-of-school children's schooling experiences from the children's own perspectives.

Third, the participating children wanted to share their knowledge and understanding of literacy with different audiences and, at the same time, create new knowledge and new understandings of literacy. They used the digital camera as a pedagogical device through which to document and create literacy practice. Photography offered a way to share this knowledge with me and with others of their literacy. Although collaborative digital photography requires on going and reflexive approach to ethical considerations, it enables access to out-of-school children's perspectives and understandings of literacy through the mediation and creation of traces of visual knowledge.

7. Conclusions

7.1 Introduction

This study sought to pursue equity and justice for out-of-school children who have otherwise been marginalised in policy, teaching and learning programs, and research. Through this pursuit, it critically examined what role participatory visual research can play in creating opportunities for out-of-school children to document and share their understandings and perspectives of literacy practice. The study aimed to establish a participatory visual methodological approach to create these opportunities to better understand how out-of-school children understand and practise literacy in their everyday worlds.

Two research questions were posed and addressed in this study to achieve the stated aims. First, it asked how participatory visual methodological approaches could be developed to access children's perspectives of literacy. Second, it asked how out-of-school children understand and practise literacy in their everyday worlds. A collaborative digital photography methodology was designed and implemented with ten out-of-school children and their parents and carers in two communities in northern Ghana. The children were asked to document their understanding and perspective of karimbu ka sabbu, which translates to reading and writing in Dagbanli. Over a three-week period, the children produced 4,017 digital photographs, which indexed their individual and collective understandings of literacy in practice, embodied in pedagogies and orthographies across their communities.

Participatory visual methodologies can be and should continue to be developed to access out-of-school children's perspectives of literacy. This study demonstrated that collaborative digital photography provides a new ethnography of communication. It requires a transparent and robust approach to research design, in which the participants are given as much control over the production and analysis of the data as possible. Collaborative digital photography enables children to reclaim their role and perspectives in the research process. However, this approach also requires an ongoing commitment to reflexivity and consideration on ethical issues. This is significant for research in the 21st Century, in which digital technologies become further embedded in people's everyday worlds.

The findings of this study, in relation to the first research question, demonstrate that the digital camera is not just a tool for data production. The act of digital photography embodies pedagogies of literacy, in which each photograph indexes a combination of things, people, and places into an original composition. It provides the opportunity for children, especially out-of-school children, to visually communicate their understandings and knowledge, which have otherwise been marginalised, ignored, or overlooked. Digital photography provides an almost unlimited potential to access not only out-of-school children's perspectives of literacy but also their perspectives of their everyday worlds. It produces a visual trace of indexical material of knowledge, which can be analysed with research participants but also with unknown numbers of other viewers.

This study demonstrates that out-of-school children have individual and collective understandings of literacy in their everyday worlds. Cultural, religious, and social institutions that offer different experiences of schooling shape their everyday worlds in different ways. Each schooling experience - Qur'anic, CBE, and formal – reference different parts of their everyday worlds spatially and temporally. It is through these experiences that the children mediate their literacy in practice. Although shaped and influenced by histories, institutions, and policies, each of the children's literacy practice is reconfigured and renegotiated daily with their peers, with their CBE teacher, and with themselves.

The children understand they are on the continuum of literacy, which includes reading and writing, and have a sense of moving towards achievement. In mediating their understanding and perspective of literacies, the participating children challenged explicit and implicit assumptions about the idea of literacy as reading and writing. The orthodox thresholds for literacy defined globally are not durable based on the findings of this study. Literacy is seen as more than reading and writing, as these children referenced an expanded understanding of literacy in practice as material and multimodal.

This also disrupts the notion of out-of-school children, and the limitation of indexing literacy to formal education and school. The ten participating children, although not attending formal schooling at the time of fieldwork, were attending at least two different forms of schooling. The findings of this study suggest that the children are not out-of-school, but are learning and practising literacy in their everyday worlds through both schooling and non-schooling experiences in their communities. Furthermore, the literacy of out-of-children, of

those living in rural and remote communities in northern Ghana, is not confined to print text or local contexts. The participating children understand literacy practice to be embodied in multimodal texts, objects, and contexts, connected to places and things outside of their communities. The findings of this study disrupt the dichotomies of local and global contexts and of school and out-of-school, showing that out-of-school children have complex, nuanced, and differentiated understandings of literacy in their communities. Although their schools are their everyday worlds, their literacy practice connects them to worlds beyond their communities.

7.2 Contributions

This study contributes to a number of theoretical and pragmatic areas in global education policy and programs, literacy theory and development, and visual research methodology. First, this study contributes to our understanding and knowledge of what out-of-school children can not only do with literacy, but how they understand and perceived literacies in their everyday worlds. In particular, the study contributes to our understanding and knowledge of children from contexts and communities often overlooked in the research literature, particularly in the literacy research literature.

This is significant to understanding literacy in the context of a current global education climate as defined as one of a learning crisis, in which there are a reported 63 million out-of-school children. The findings of this study address an urgent research and policy gap in our understanding of out-of-school children's literacy learning. These findings can be used to better inform the development of education programs, such as CBE, particularly in their pedagogical, curriculum, and assessment approaches. Taking into account children's understandings, knowledge, and practices of literacy can strengthen CBE and other interventions for out-of-school children.

Second, this study contributes to the study of literacy as a social practice research, offering a new ethnography of communication. The approach designed and implemented for this study actively includes children in the data collection and analysis, moving beyond ethnographically observable contexts and adult-mediated methods. It demonstrates that children's perspectives should and can be taken seriously in literacy research, and that

appropriately designed methodologies can access their perspectives using visual methods such as digital photography.

Third, this study offers a transparent and replicable methodological and analytical framework for designing participatory visual research. This type of methodology is pertinent for further literacy research, in which it is no longer adequate to exclusively consider and examine text as data. The production and analysis of participant-generated visual data offers different ways into research questions, and into understanding the everyday worlds of children, young people, and adults. It also offers different means of disseminating and sharing research data, not only with the participants but also with others for who the data is meaningful.

Fourth, this study contributes to the theoretical development of literacy, in particular an understanding of literacy as a social practice and the materiality of literacy. It demonstrates the limitations of static concepts within which research of literacy as a social practice has developed, such as literacy events, and dichotomies such as school and out-of-school contexts. It advances the notion that the demarcation between school and out-of-school contexts are not clearly or statically defined within communities. This study also shows how research participants can be actively involved in the documentation of literacy practices, and how this can contribute to our understanding of digital technology and literacy.

In uncovering the traces of indexical literacy materials, this study offers different concepts to understand the relations between the material and immaterial in literacy. This study shows that literacies are embodied in materials and objects, and simultaneously, technology is used to mediate literacy practices. To better understand children's everyday worlds, literacy research needs to account for materiality. Furthermore, this study advances the theoretical development of photography theory as it applies to methodology, offering an understanding of the materiality of photography and photographs and how this complements literacy theory.

7.3 Limitations

This study has a number of limitations, some of which have been discussed previously in chapter six particularly around methodology and ethical considerations. In particular, it has limitations around research design, generalisability of findings, and scope of research. These

are important to understand in consideration of the findings and conclusions of this study. The research design included ten participating children from two communities in collaborative digital photography and photograph viewing. This sample excluded the other 40 children from the two communities, who were also attending CBE classes, and therefore, does not account for their understanding or perspectives of literacies. As an exploratory, mixed research case study using an innovative visual research design, a small sample was considered appropriate and adequate in addressing the research questions.

In addition, this study's methodological approach relied on digital photographic data. Although this study sought to enable the participating children to control the production and contribute to the analysis of the visual data, I maintained control overall of the research. Collaborative visual research with children cannot overcome certain positional power imbalances, particularly in contexts such as that of Bunglung and Botingli. Due to the geographic distance and separation between the participants and myself, and the lack of access to digital technology to enable ongoing communication and language barriers, I am not able to continue the collaboration with the participants. This was also constrained by the scope of this study's timeframe, which was relatively short and constrained.

The findings of this study cannot be generalised to make conclusions and comparisons about out-of-school children's perspectives of literacy. In examining the understandings and perspectives of ten out-of-school children from two communities in northern Ghana, the data was produced at a certain point in time, under certain conditions, during which the participating children were attending CBE classes. This study offers a rich and detailed documentation and examination of these children's literacy practices, and a methodology and approach that can be adapted to further explore out-of-school children's literacies. In the next section, future directions for research will be suggested as potential ways to overcome these limitations.

7.4 Future directions for research

This study offers future directions into which to take both literacy research and participatory visual research methodology. Future research into further documenting and examining the literacy practices of out-of-school children is required to support their education and advancing literacy theory and practice. This includes those so-called out-of-

school children who attend temporary programs such as CBE classes. This research could seek out additional sites across the world in which such programs are being delivered, and also further explore the influence of government policy and service delivery on access to different forms of education and the development of children's literacy practices.

To design more inclusive and collaborative visual research methodologies with children, further research can test innovative approaches that utilise digital technology. Further research can seek to validate and extend the collaborative digital photography approach designed and implemented in this study, and contribute to our understanding of visual data across a range of topics and disciplines. This could include establishing long-term research partnerships with communities, local organisations, and national universities, in which the research agenda is negotiated and determined with partners.

To better understand how out-of-school children's understandings of literacies change over time, future research designs could seek to be longitudinal in scope. This could also include other education contexts, such as non-formal Qur'anic education, and how children and families negotiate the different education opportunities. Using digital technology to explore children's understandings of literacy across community contexts over a long timeframe could identify and examine the durability of patterns, and examine the different activities, objects, and institutions that shape and influence children's literacy development in rural communities.

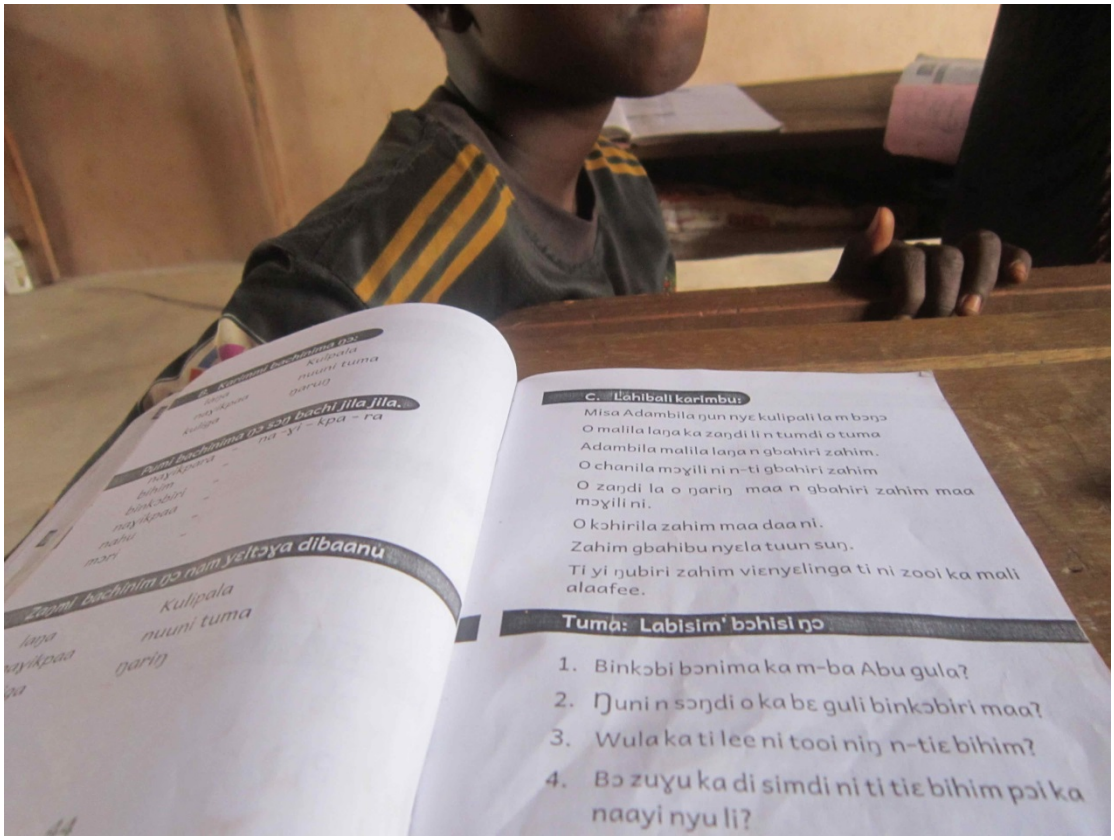
Literacy research can further explore the materiality of children's literacy practices to better understand how relations between material and immaterial are mediated and configured. As the use of digital technology increases in not only literacy and education, but in people's everyday worlds, there is a need to explore, document, and examine these interactions, in particular, the materiality of literacy practices in rural communities in countries that are under-researched and overlooked. The use and role of digital technology is growing globally, including in low- and middle-income countries such as Ghana. There are opportunities to ensure literacy theory and practice development is not confined to orthodox research sites or methodologies, and inclusive of different education sites, hybrid theoretical designs, and collaborative visual methodologies.

In order to achieve the acceleration of the goal to achieve universal primary education and literacy targets, education policy and implementation efforts need to have a deep and

nuanced understanding of the everyday worlds of out-of-school children. As a starting point, it should not be assumed that these children are non-literate or that they are not attending and participating in a form of schooling within their community. Studies, such as this one, have the potential to provide a rich, visual account of the literacy practices of a community.

Plates

Plate I



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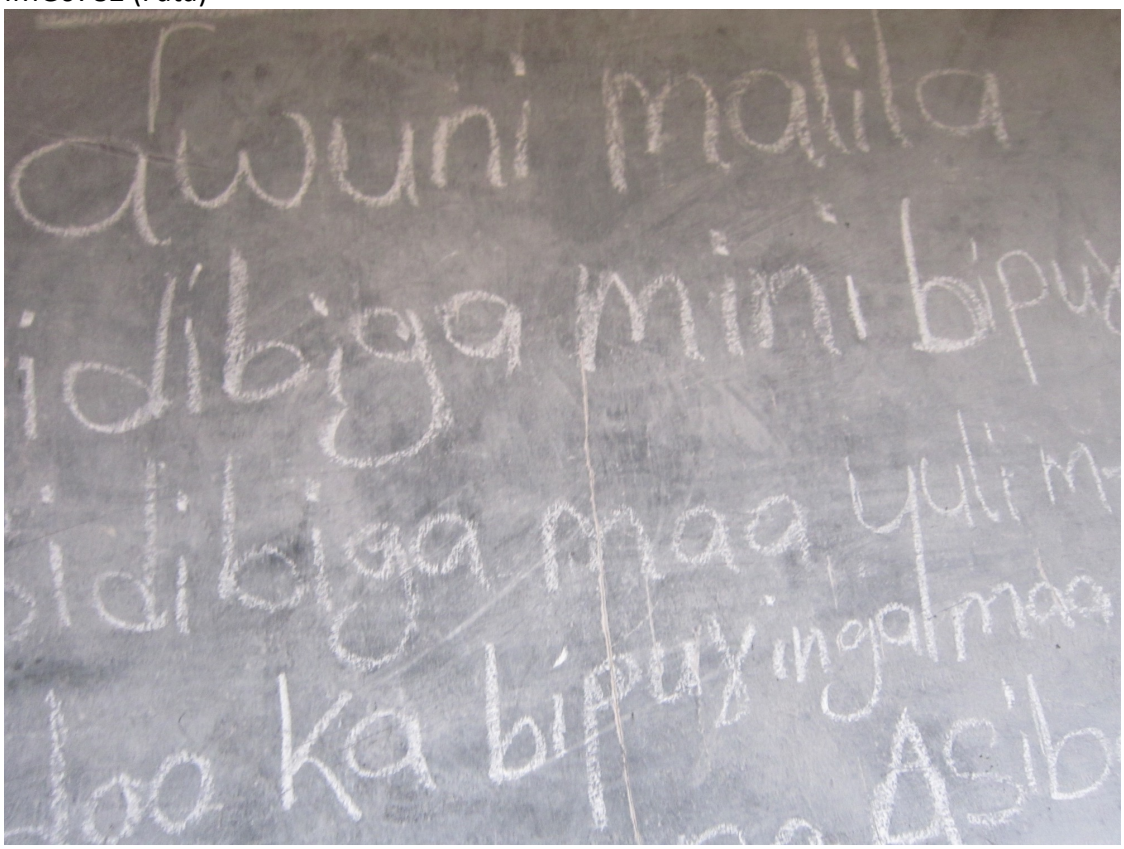

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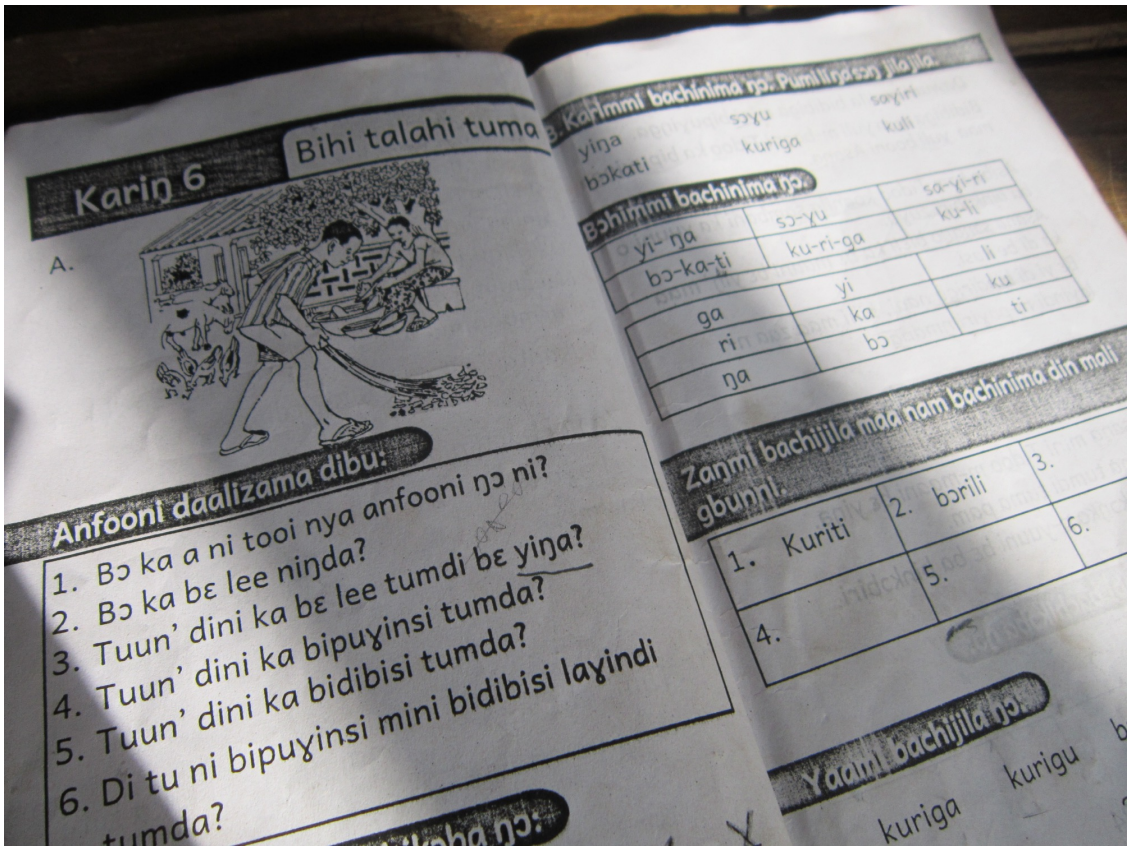

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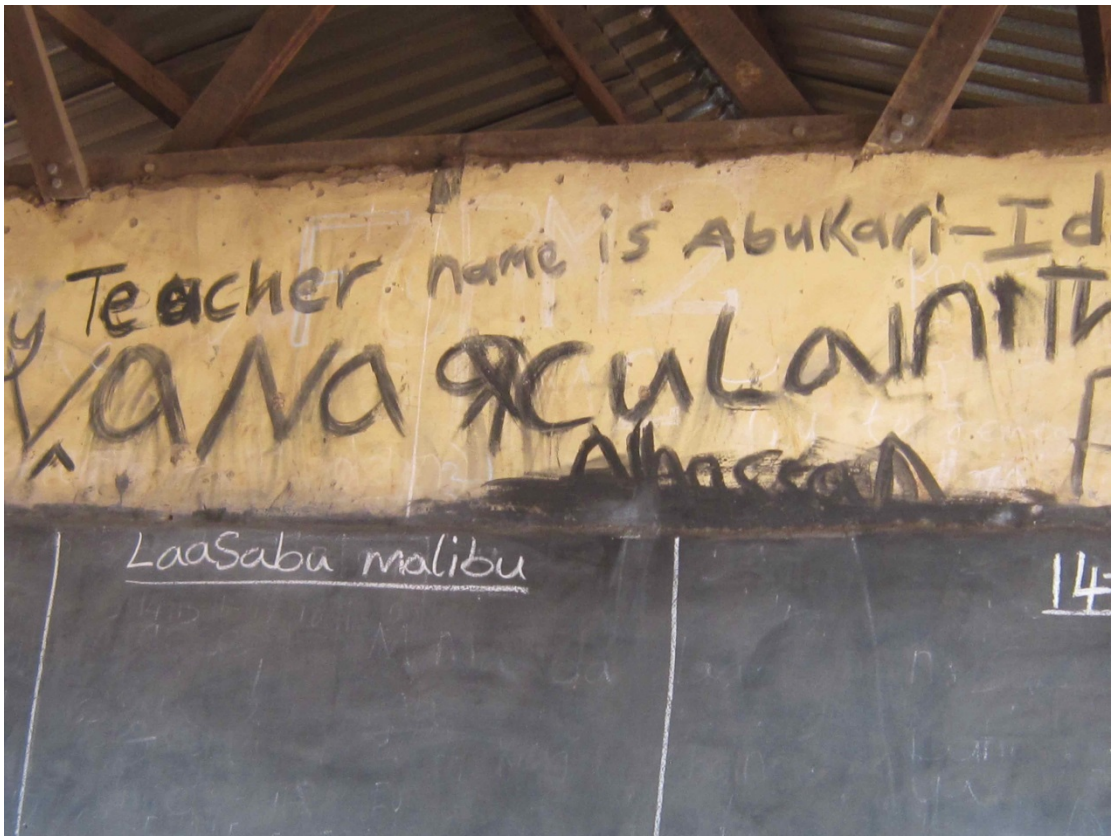
Plate II



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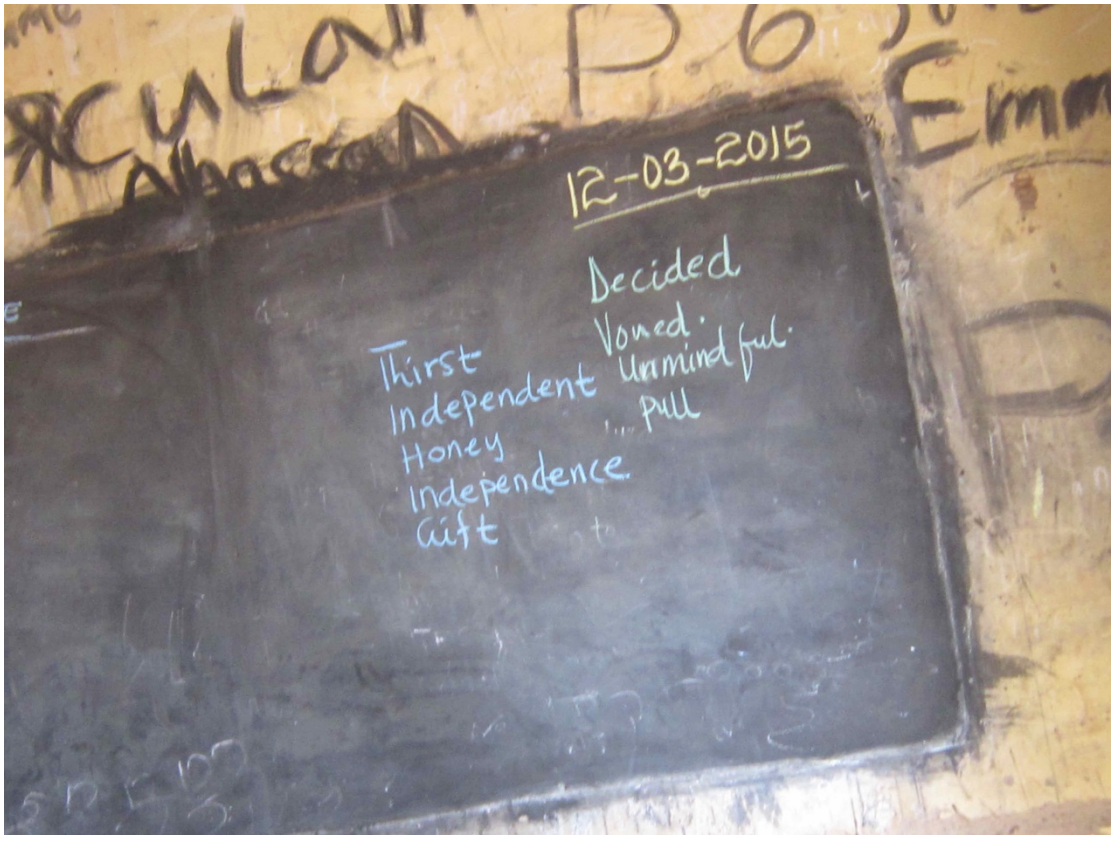

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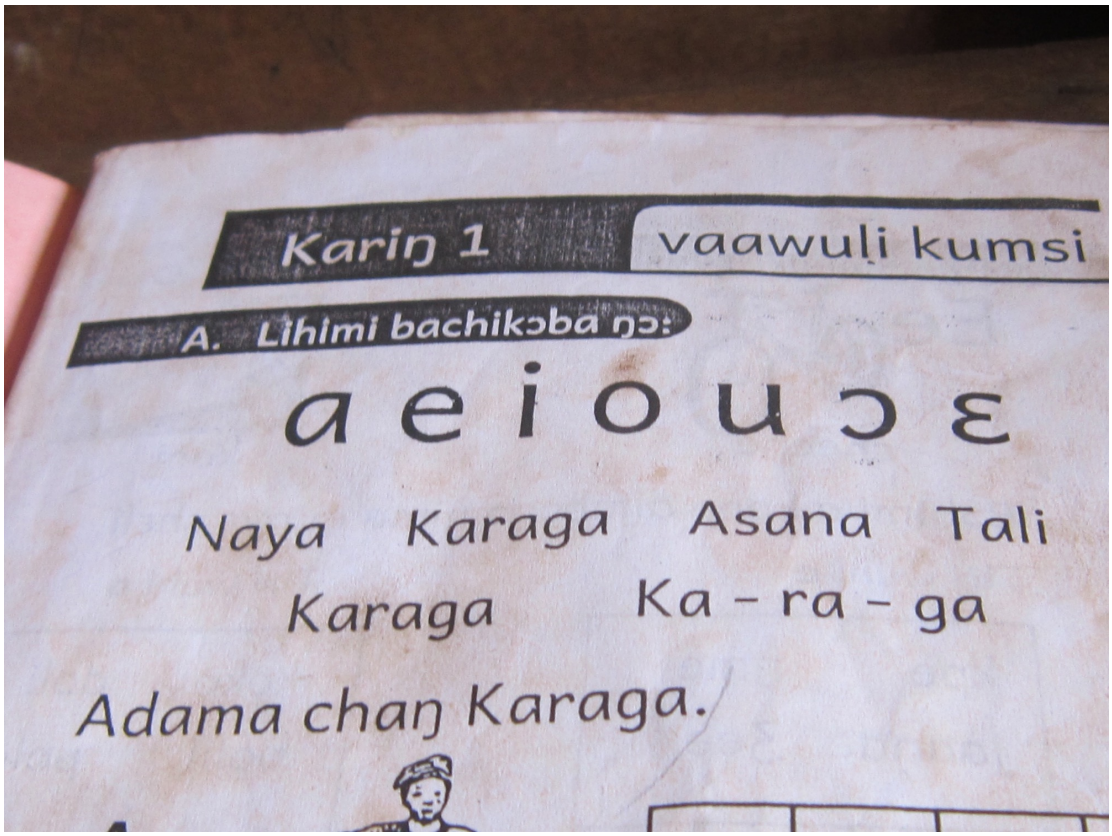

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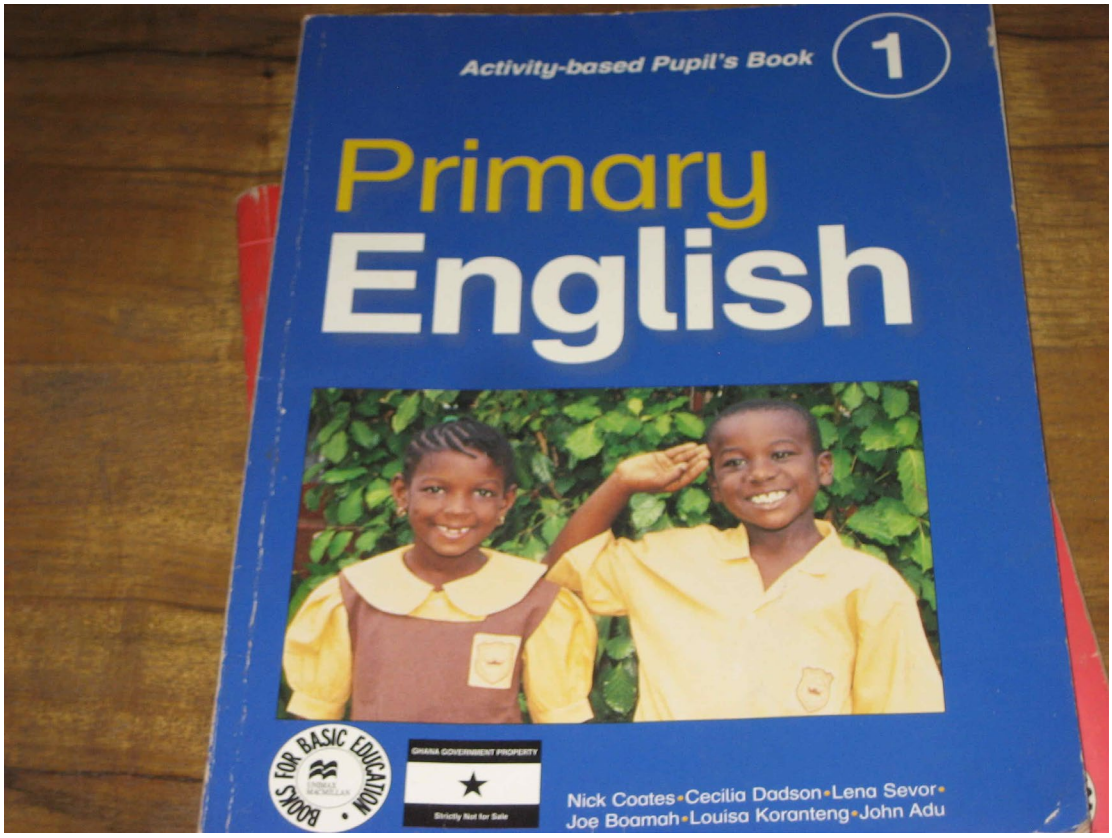

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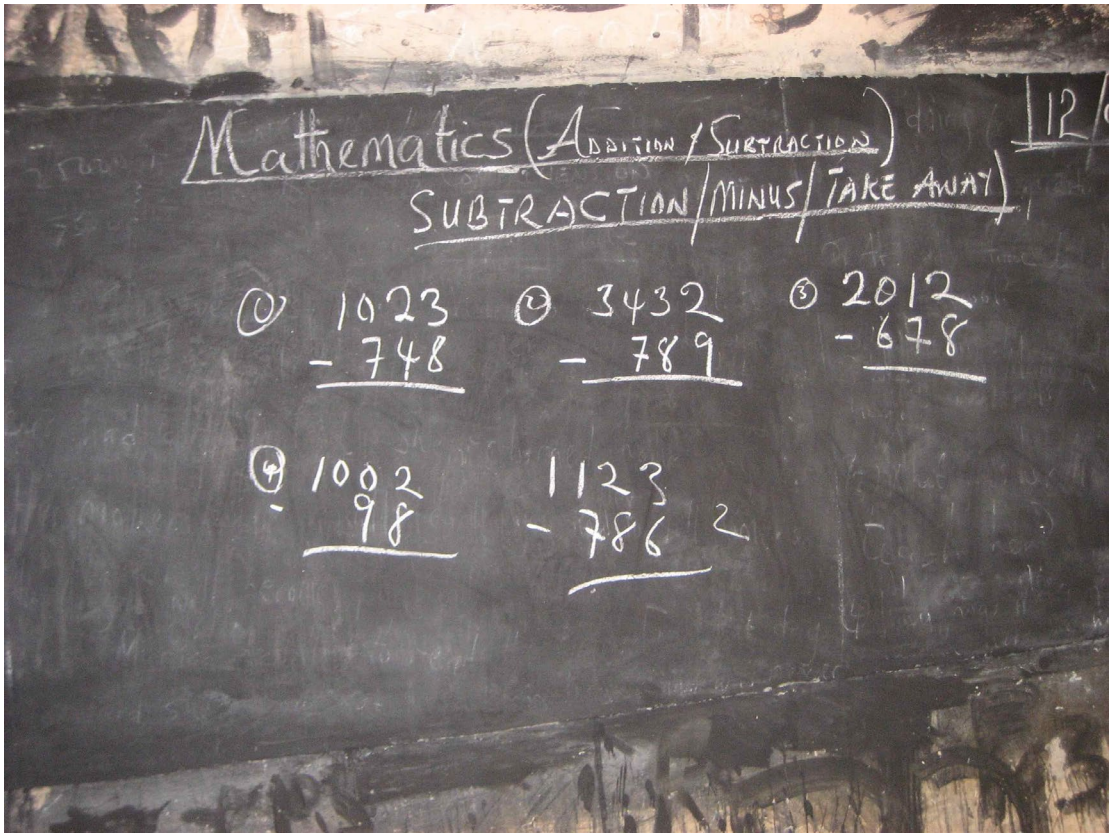

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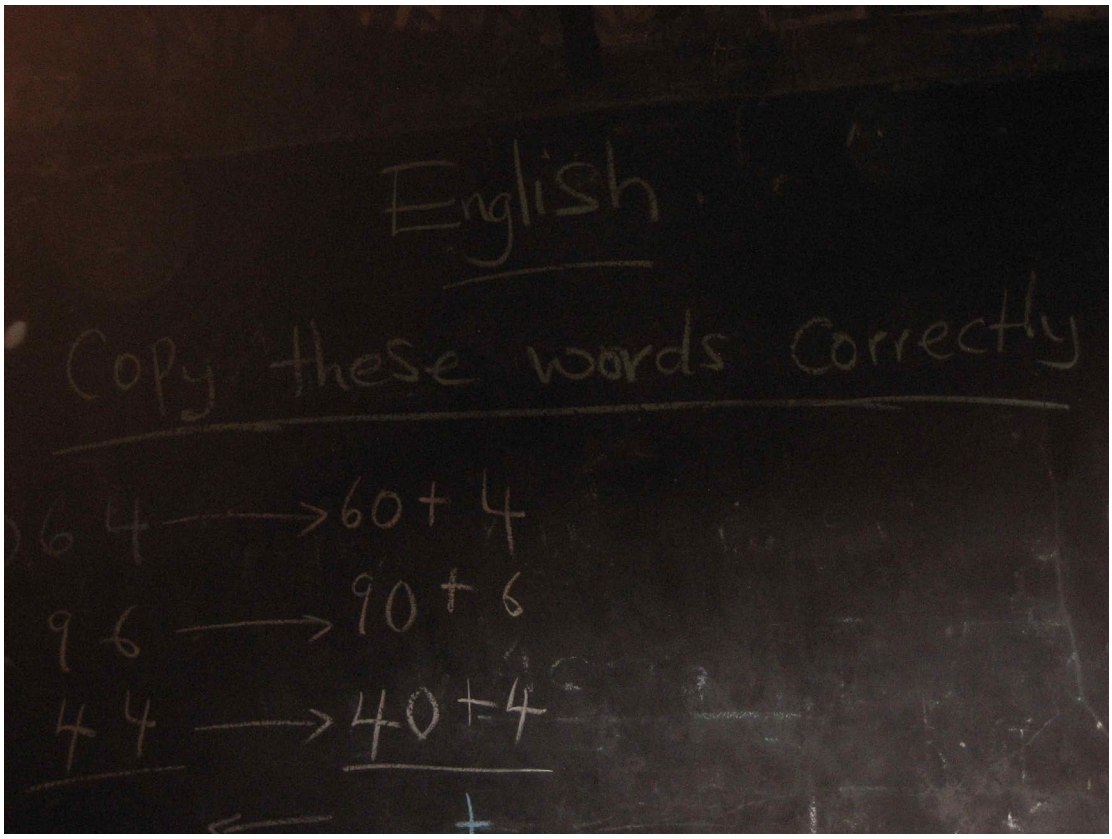

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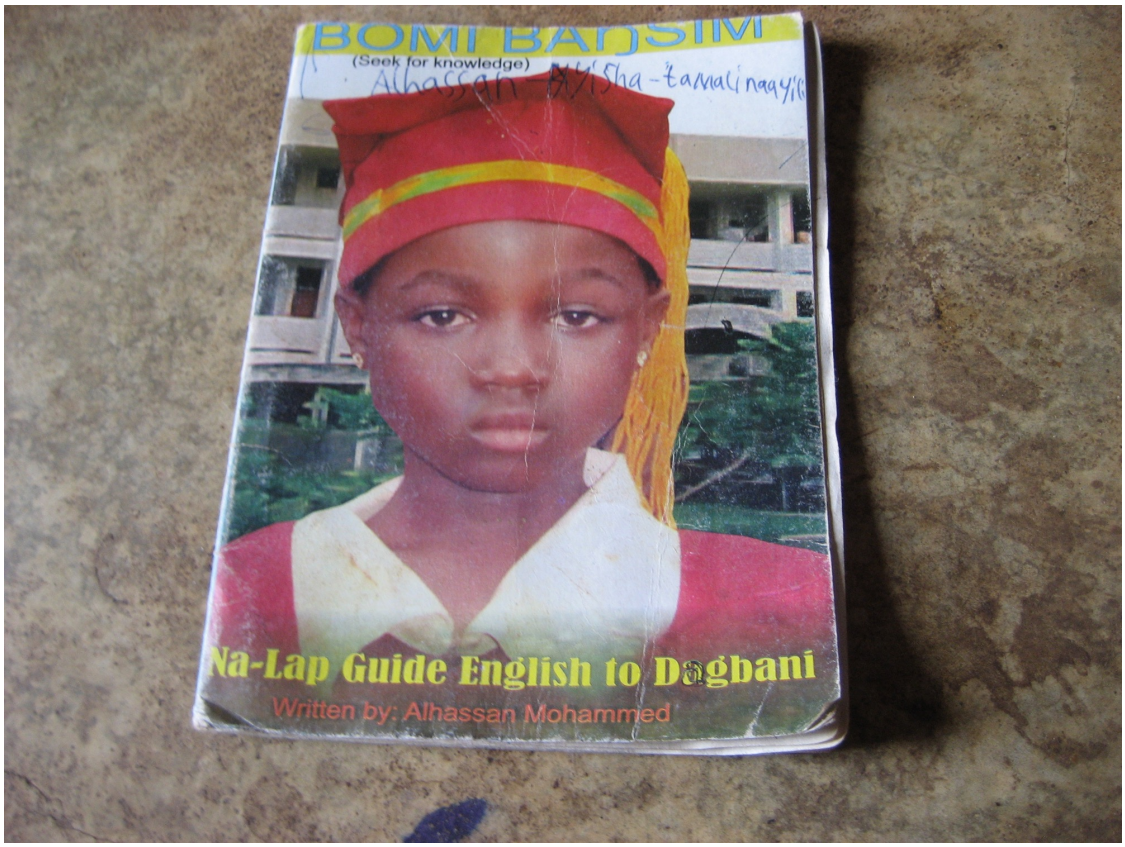

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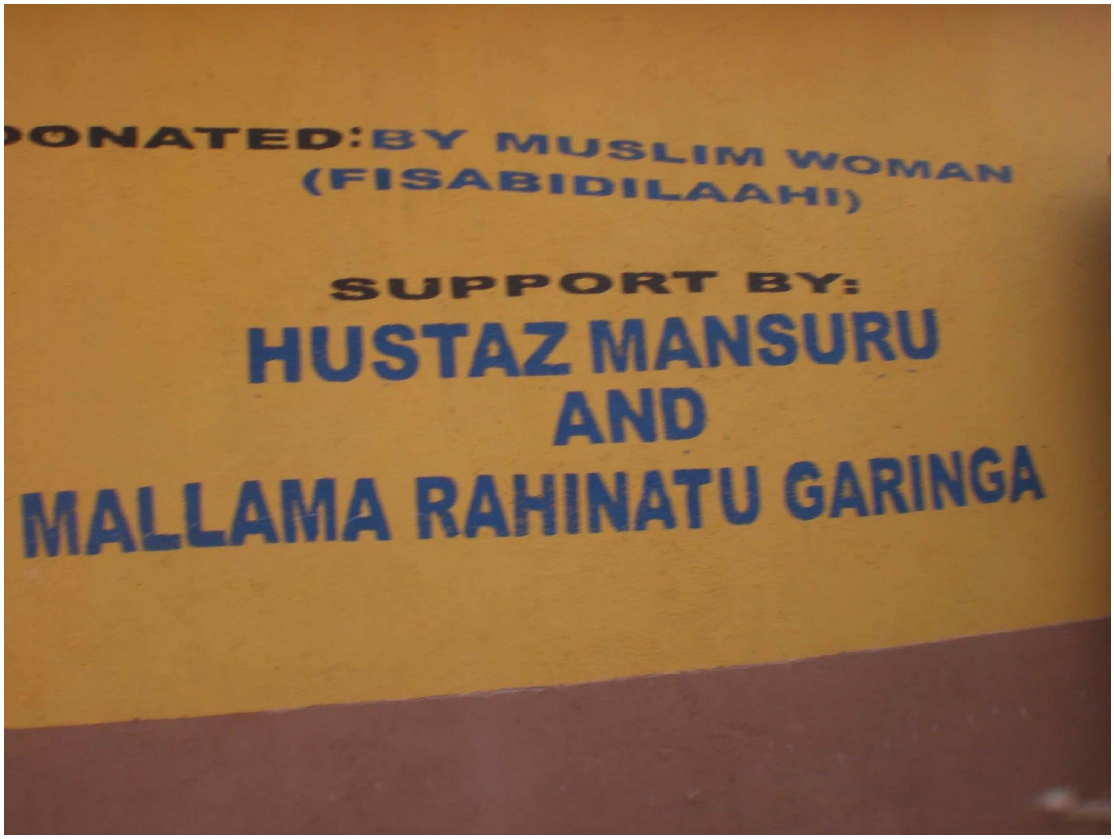

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Plate III

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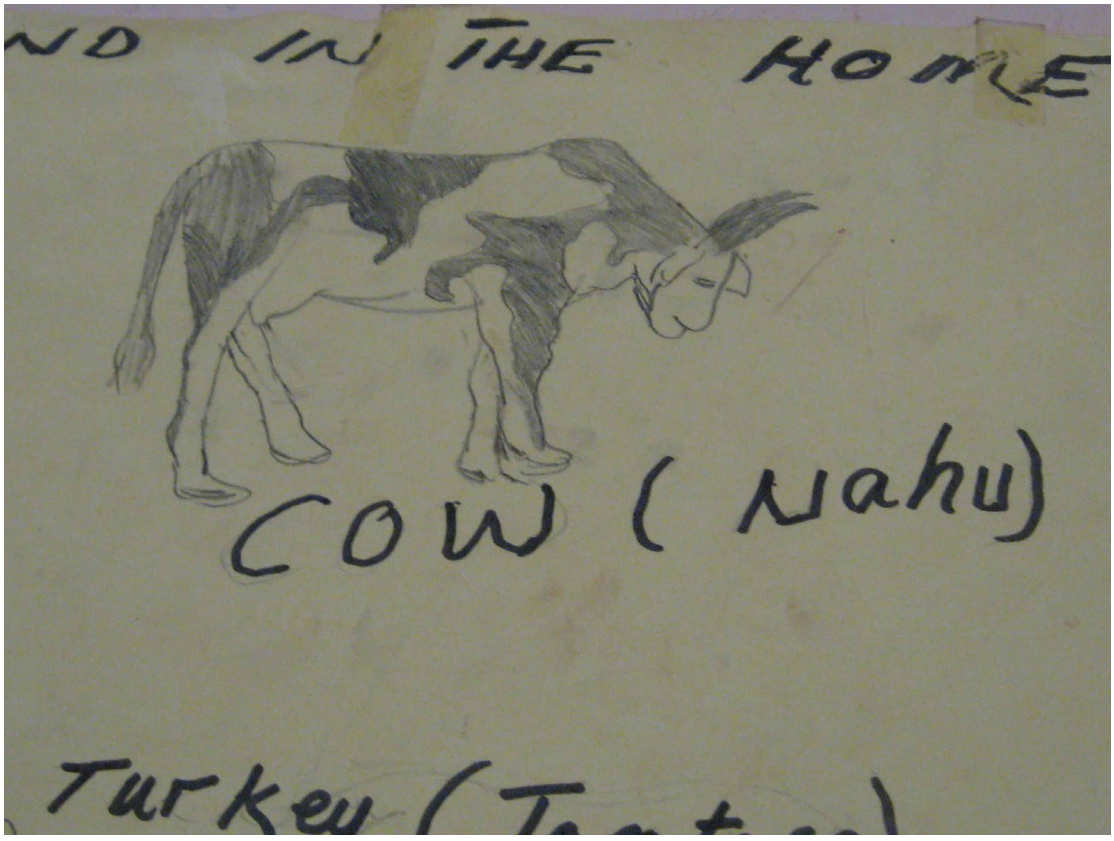

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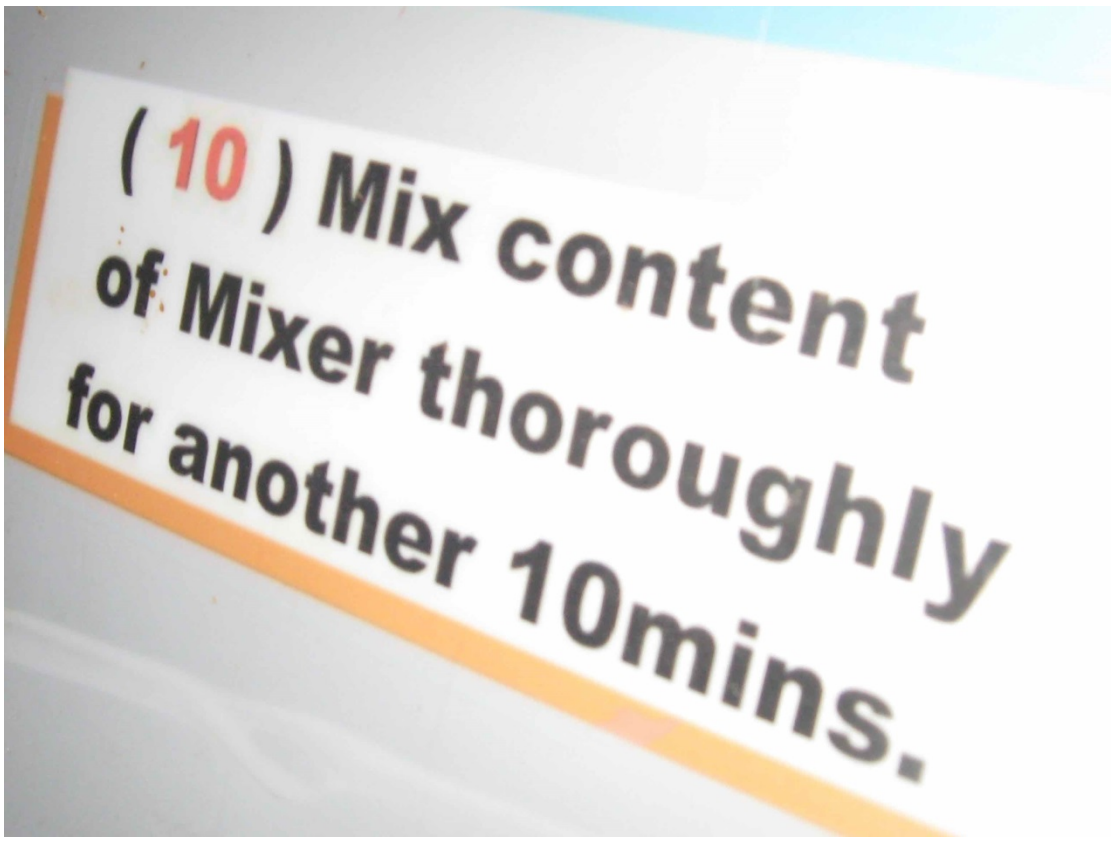

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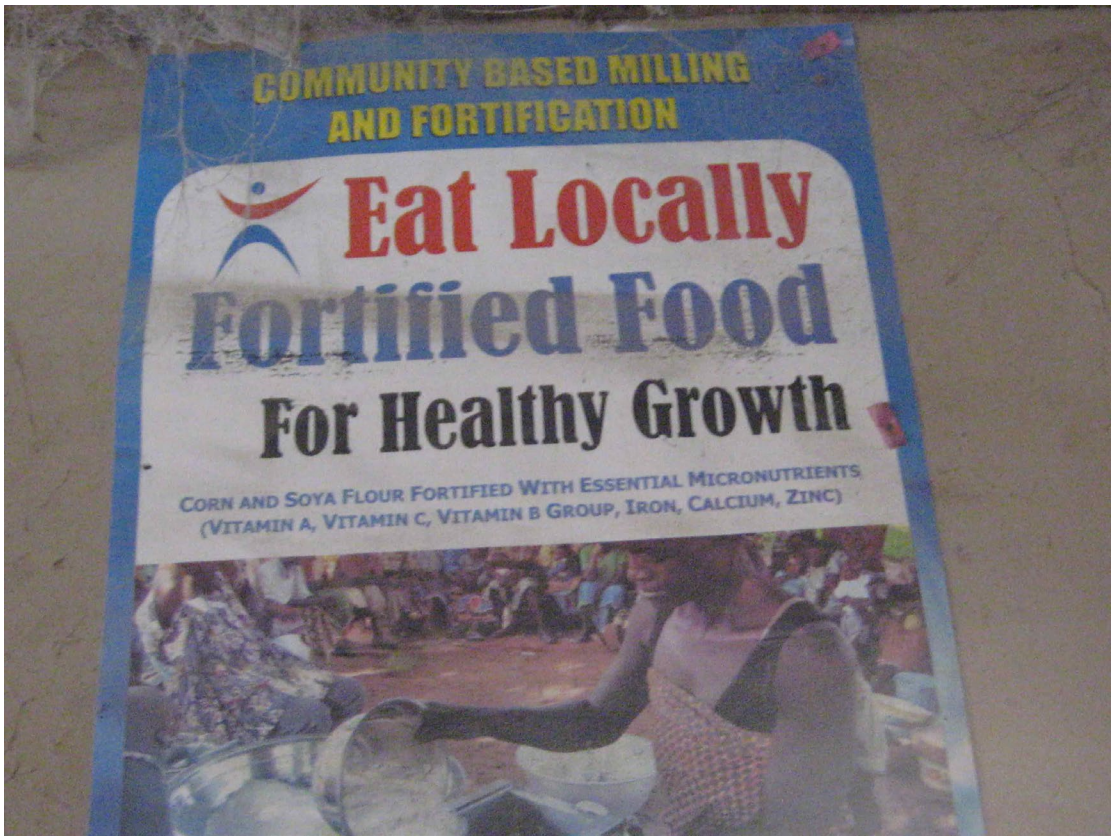

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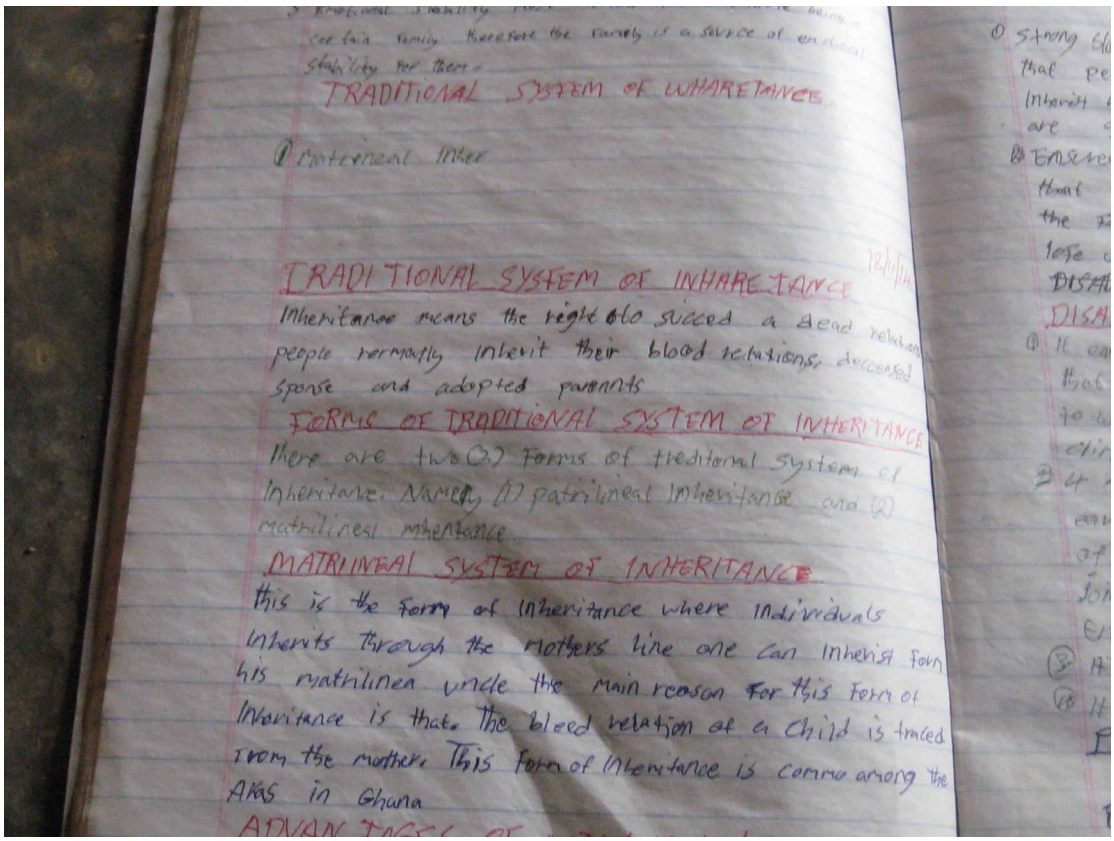

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Plate IV

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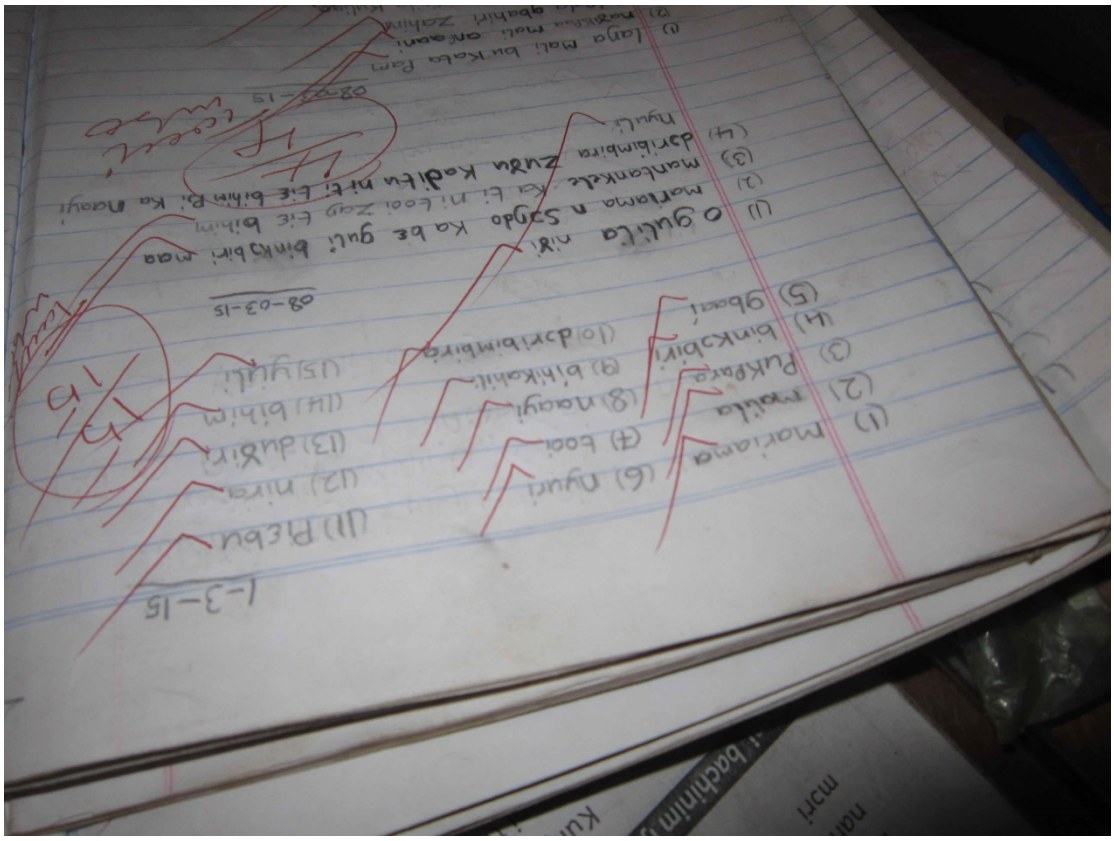

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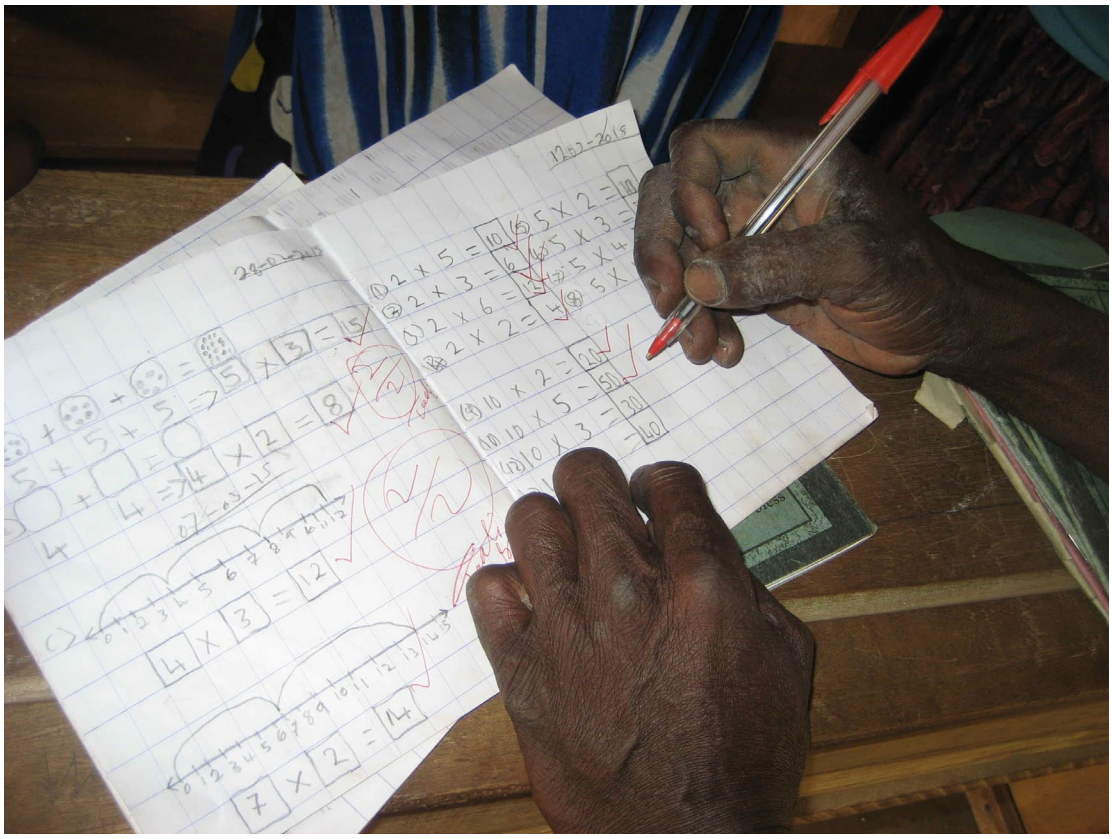

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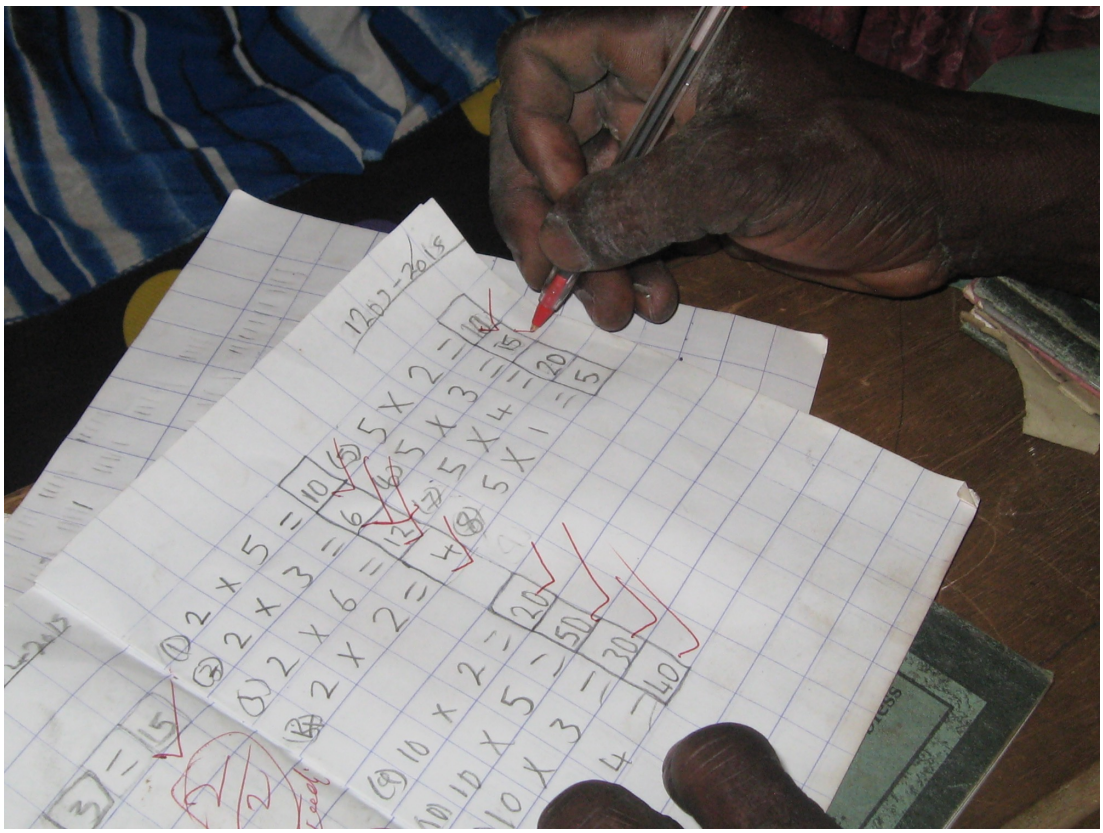

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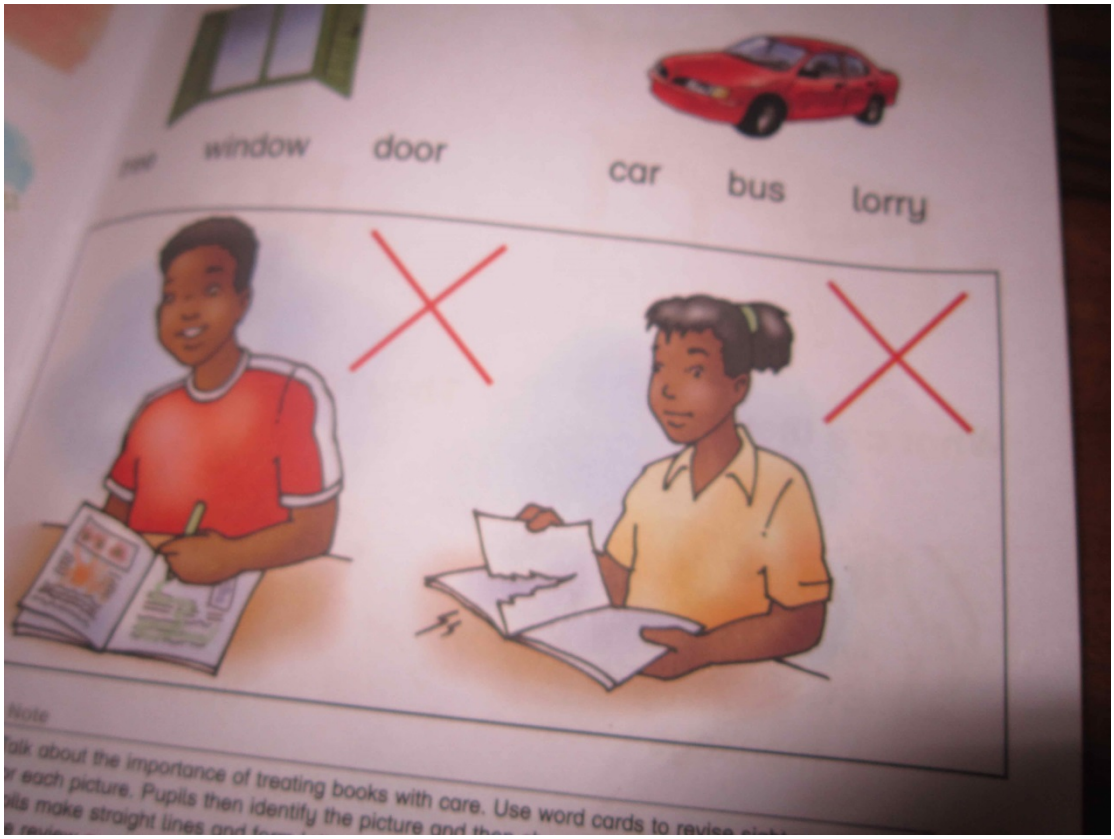

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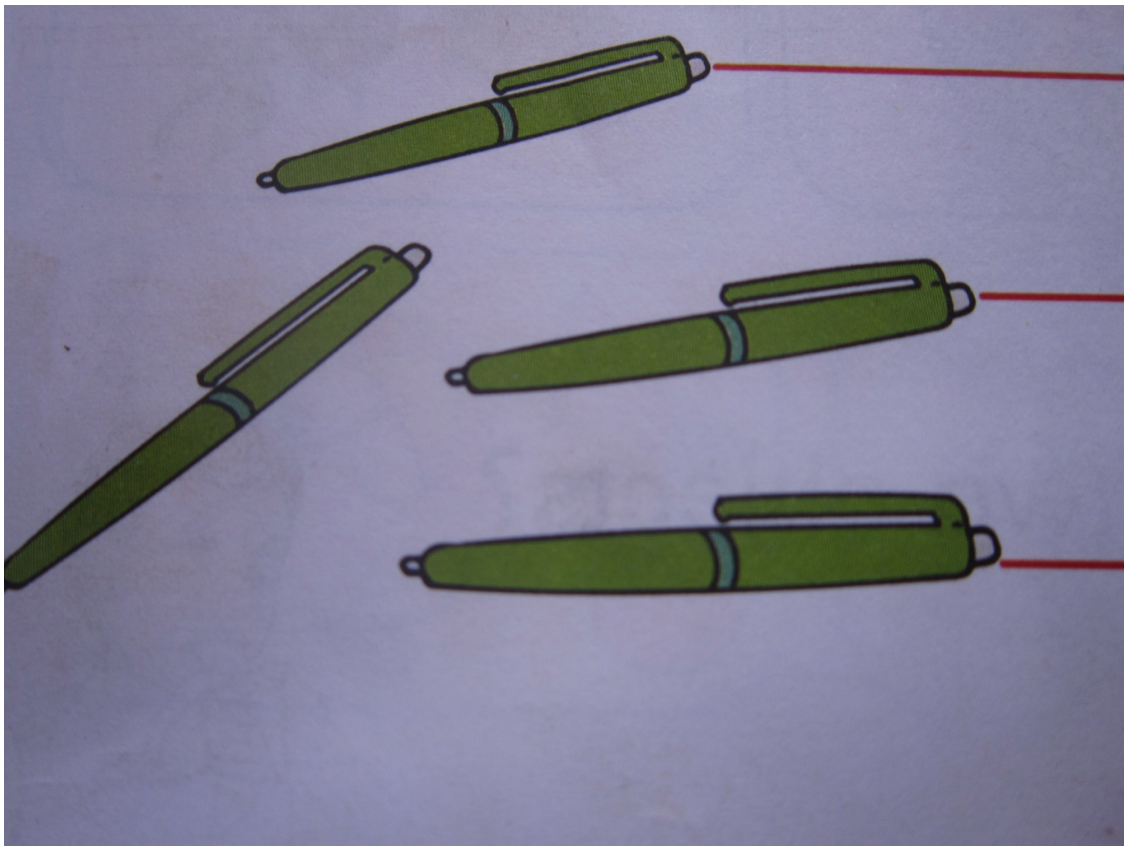

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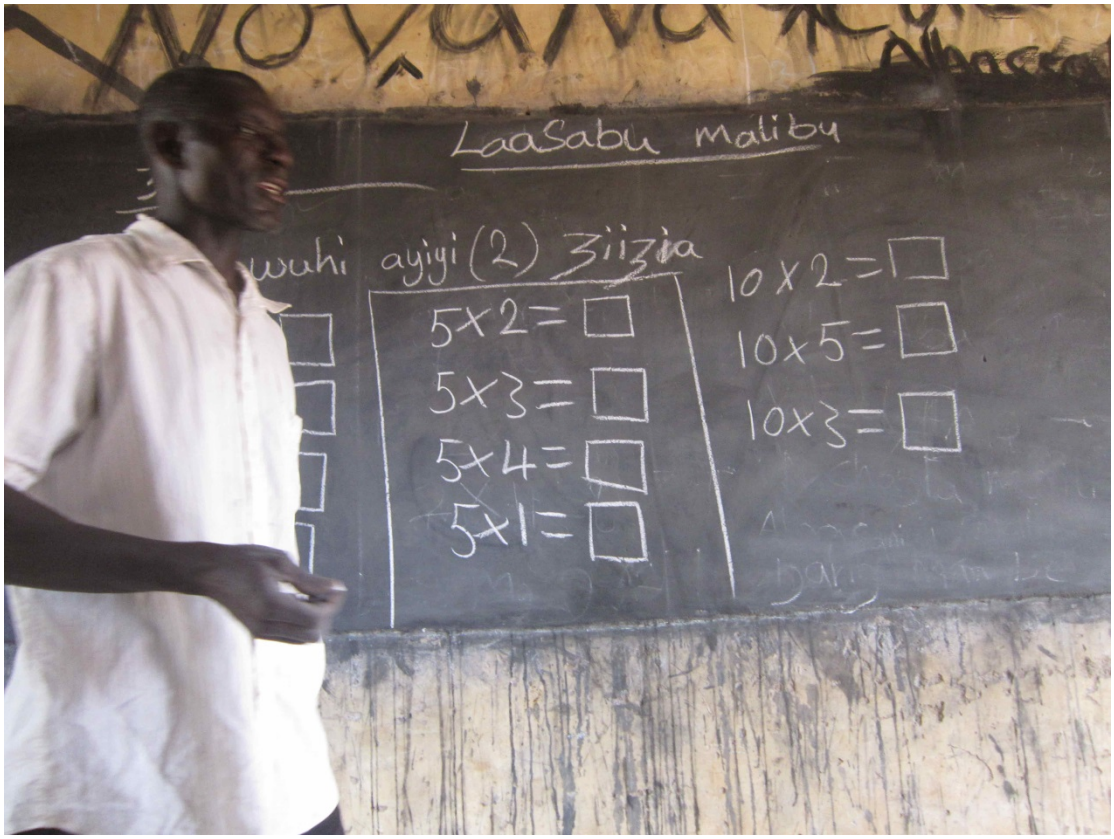

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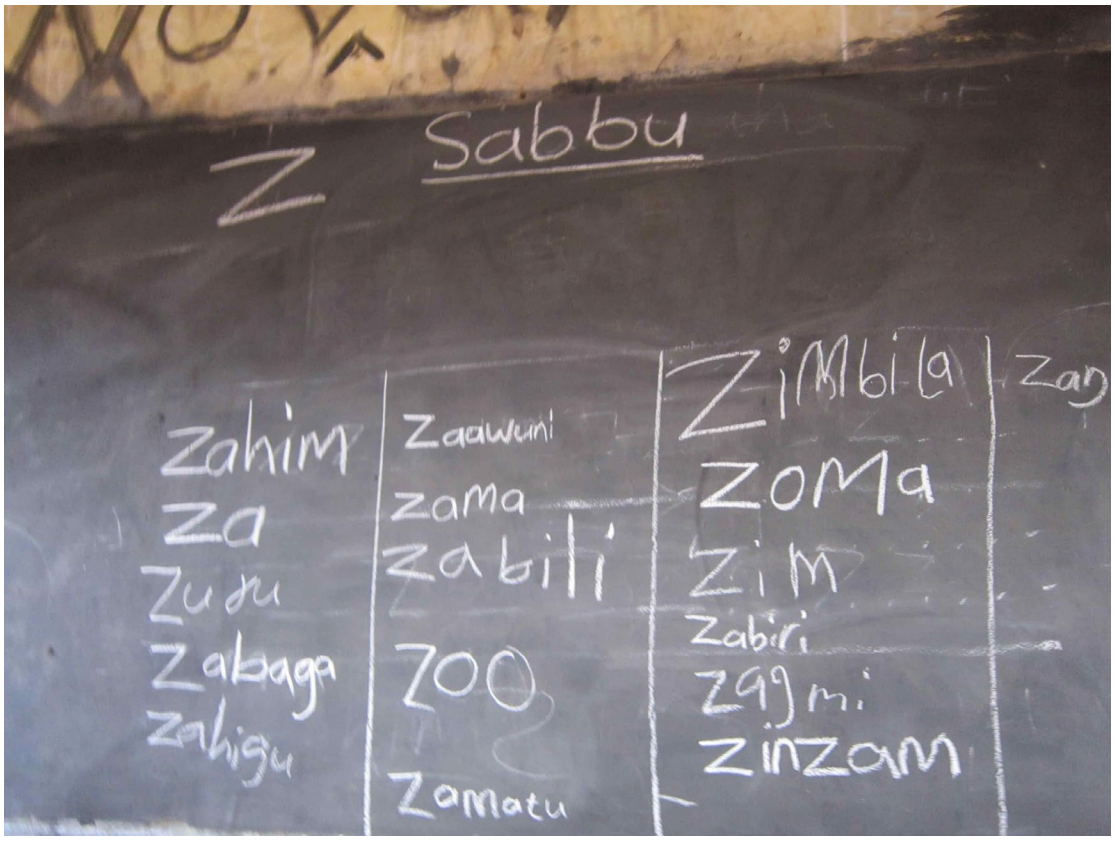

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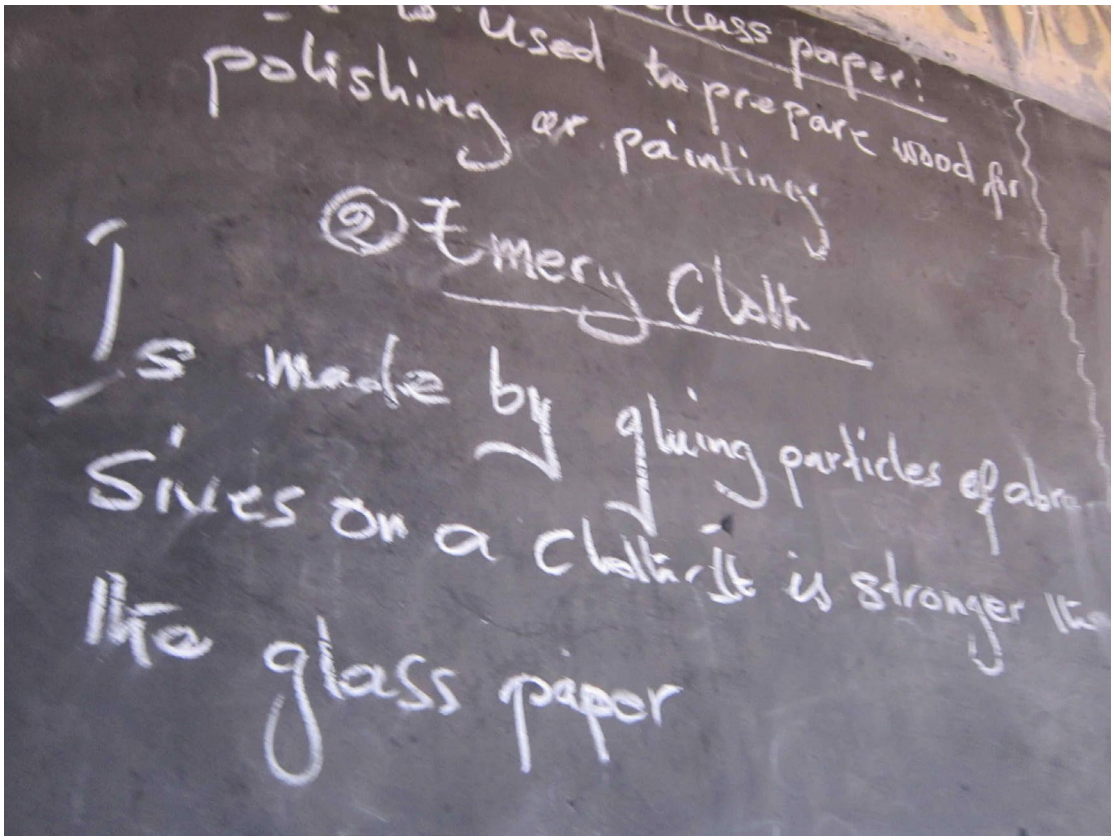

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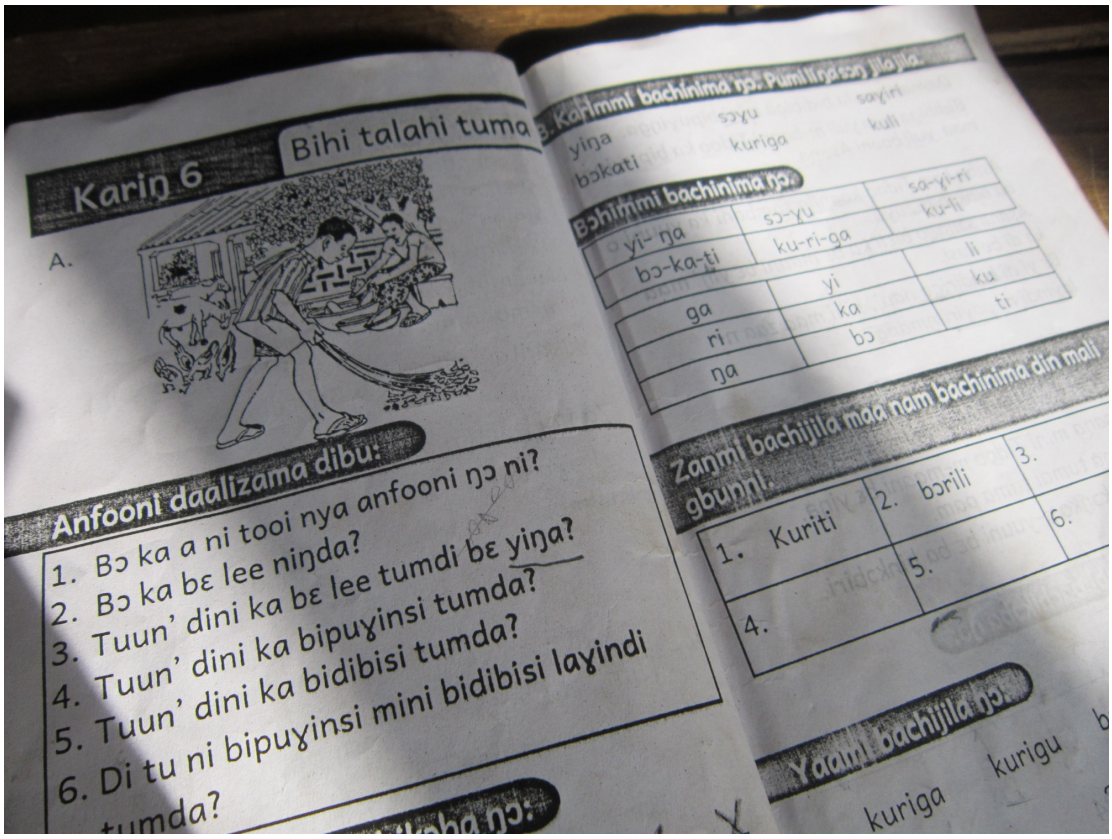

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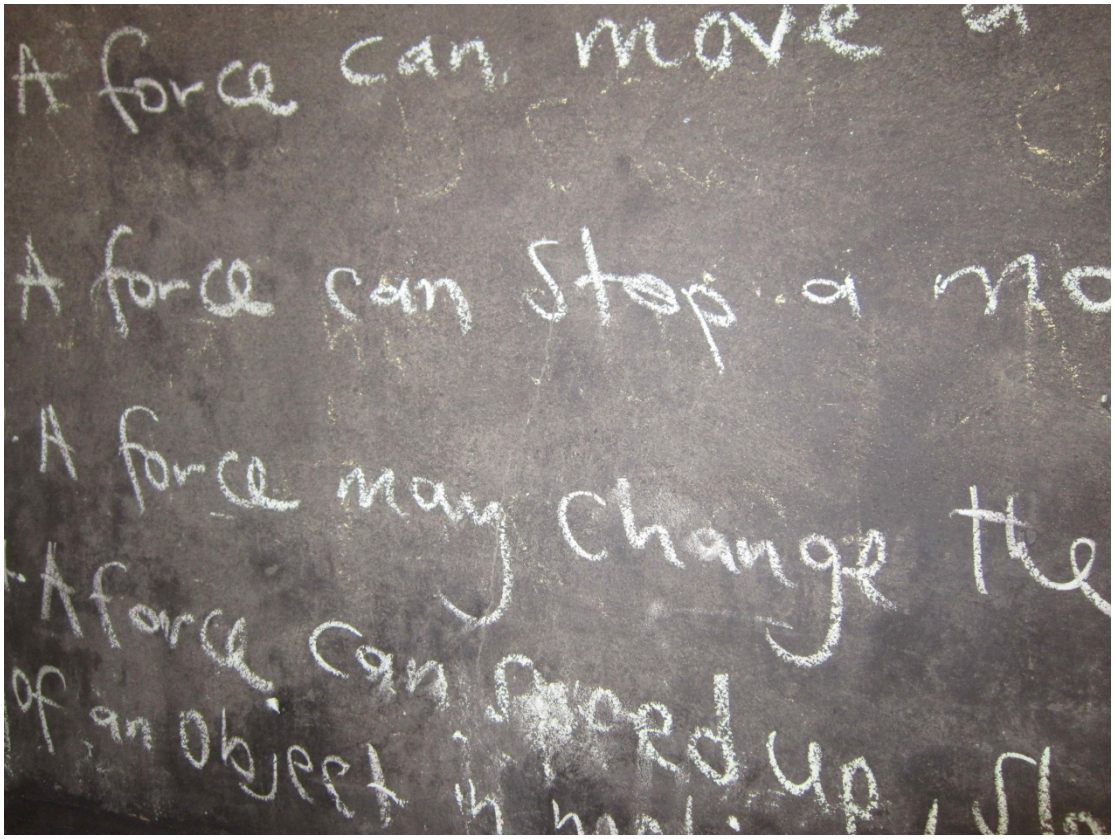

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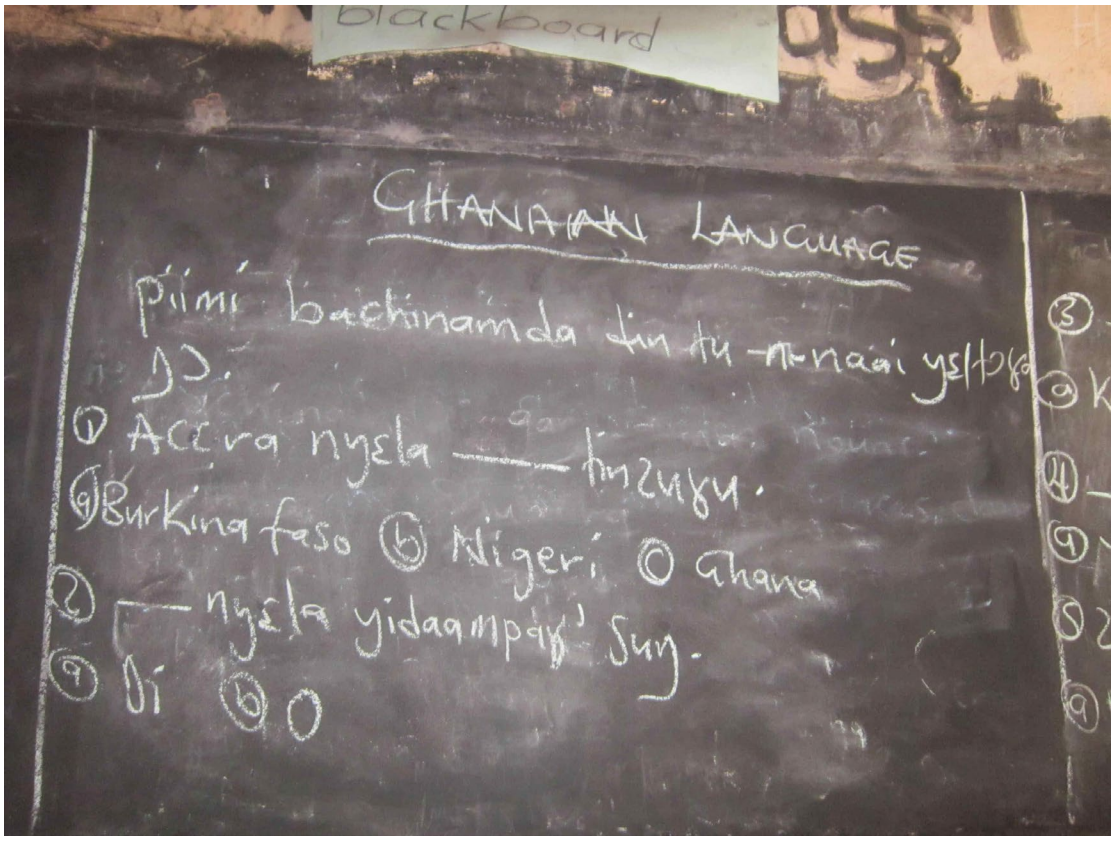

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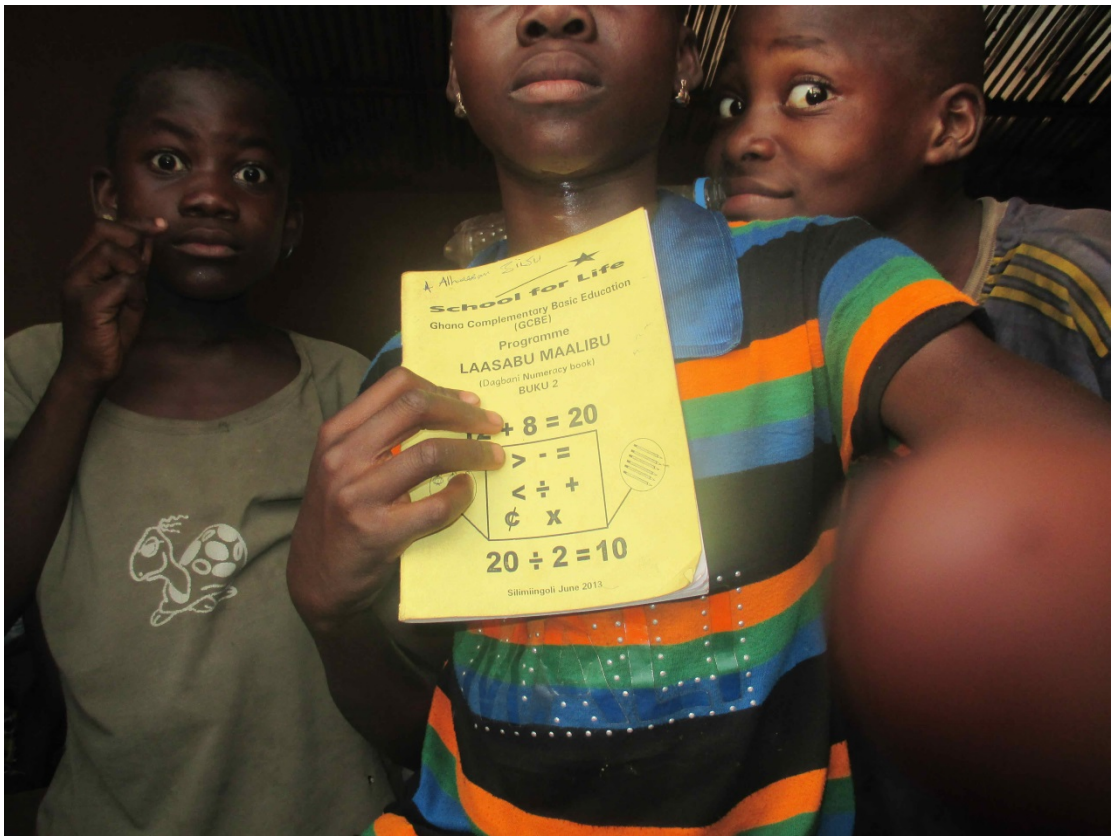
Plate V



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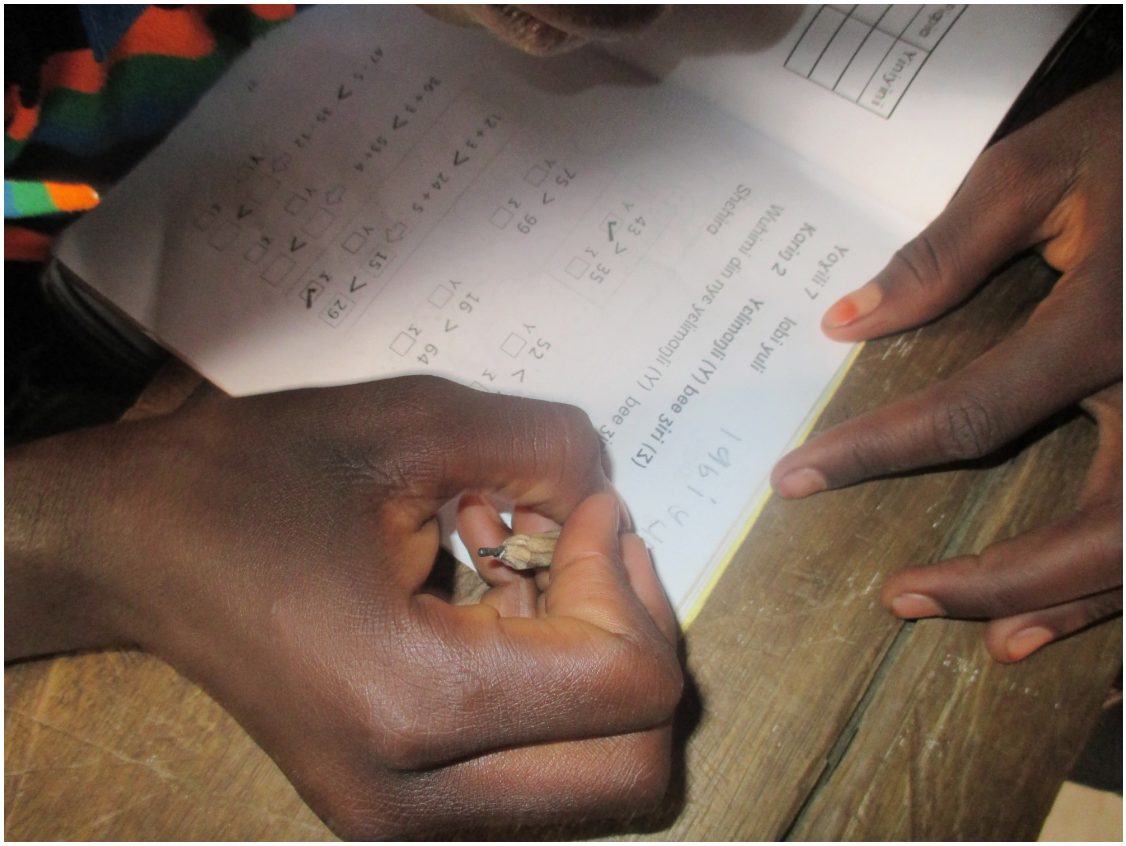

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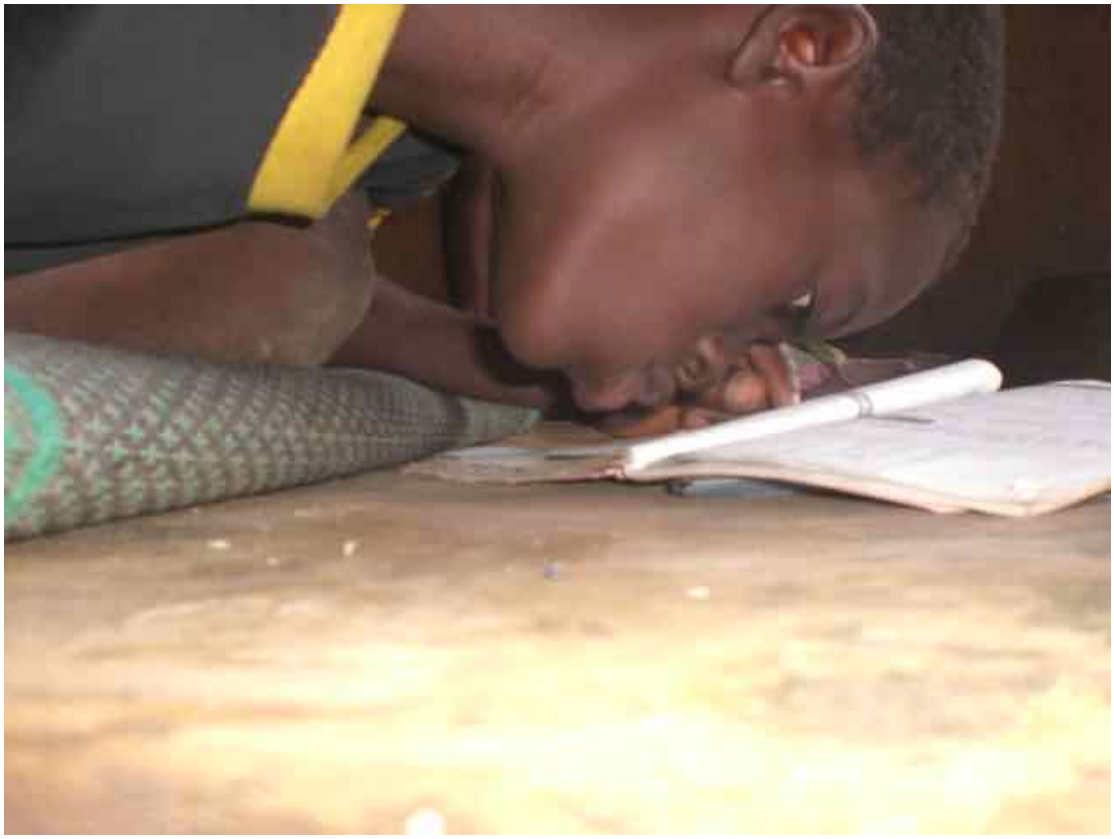

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Plate VI

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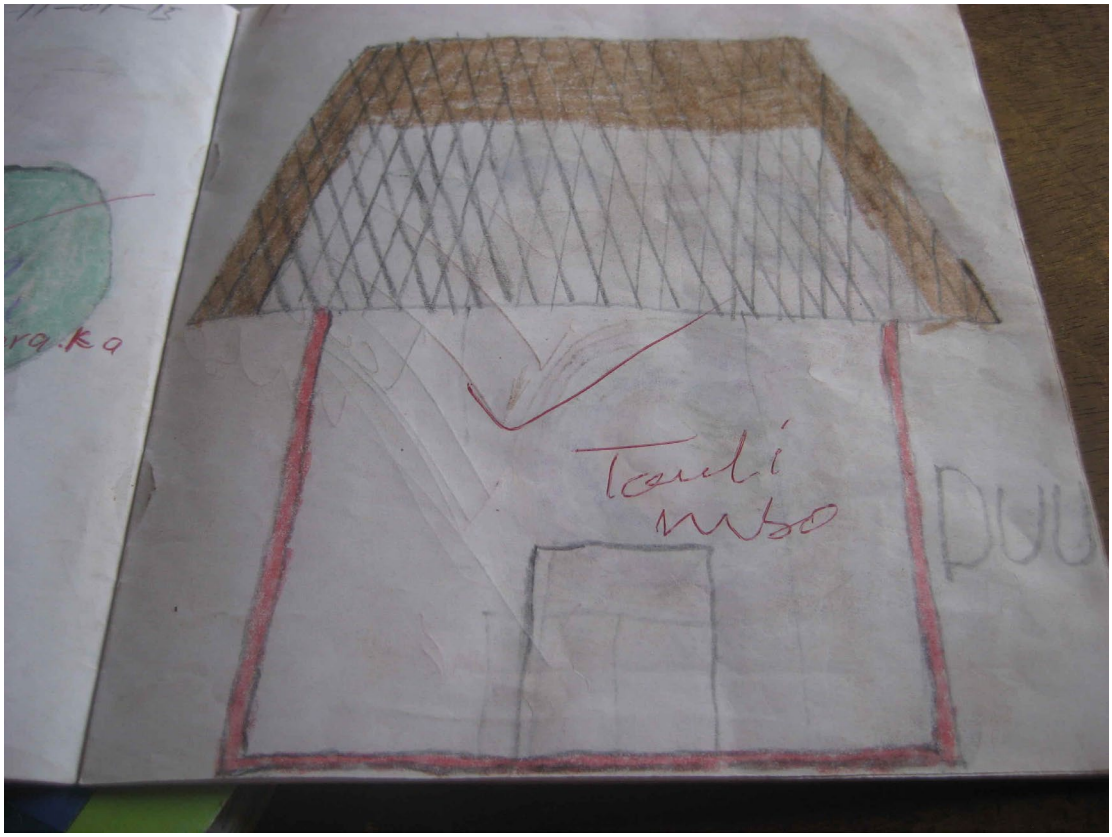

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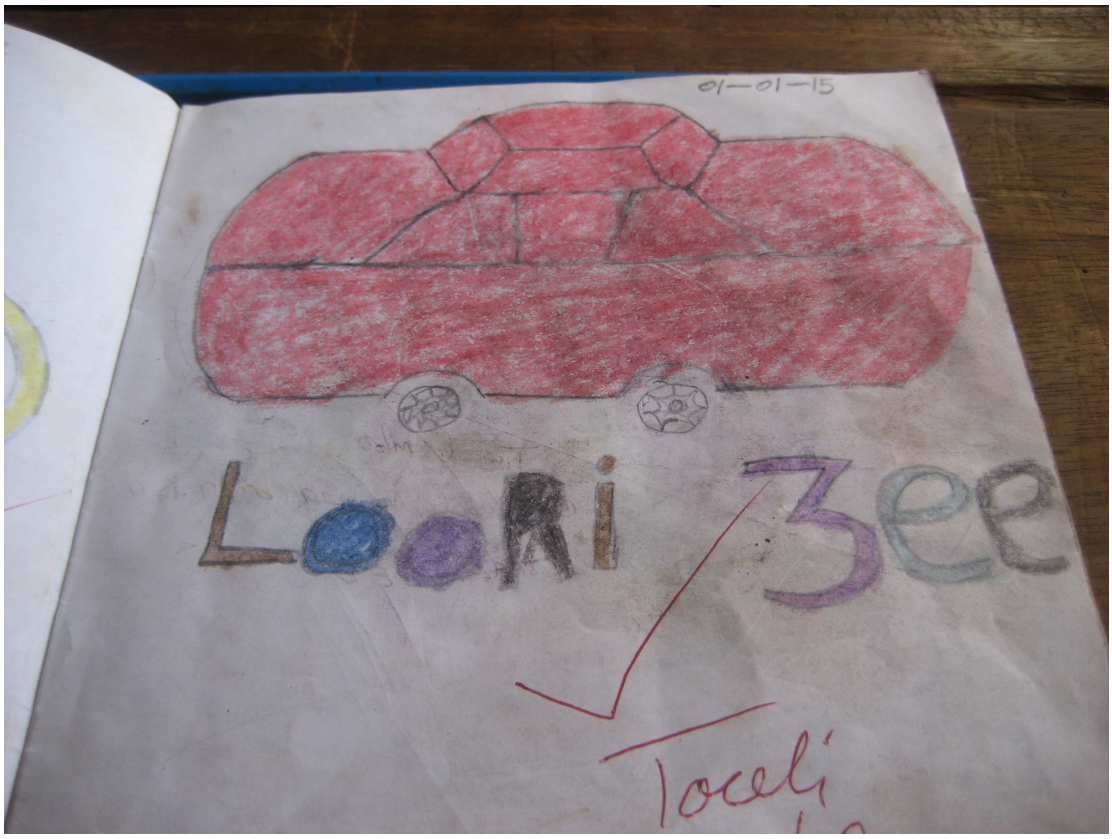

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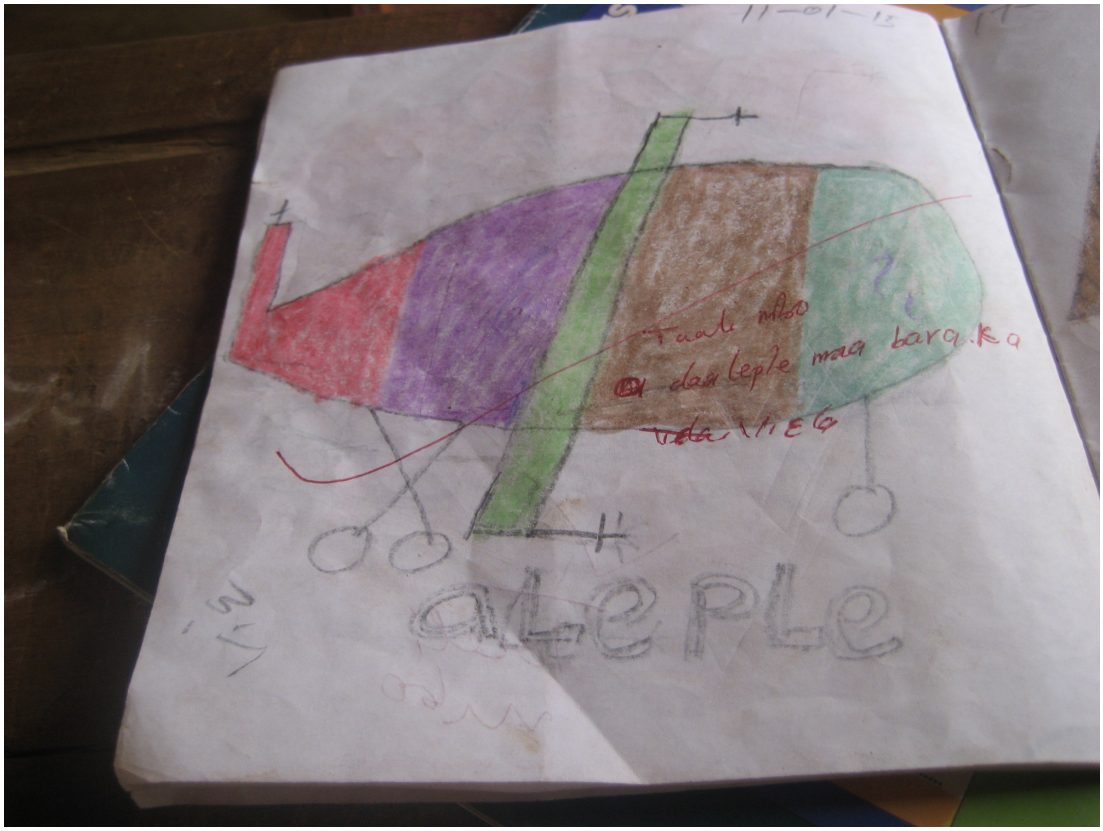

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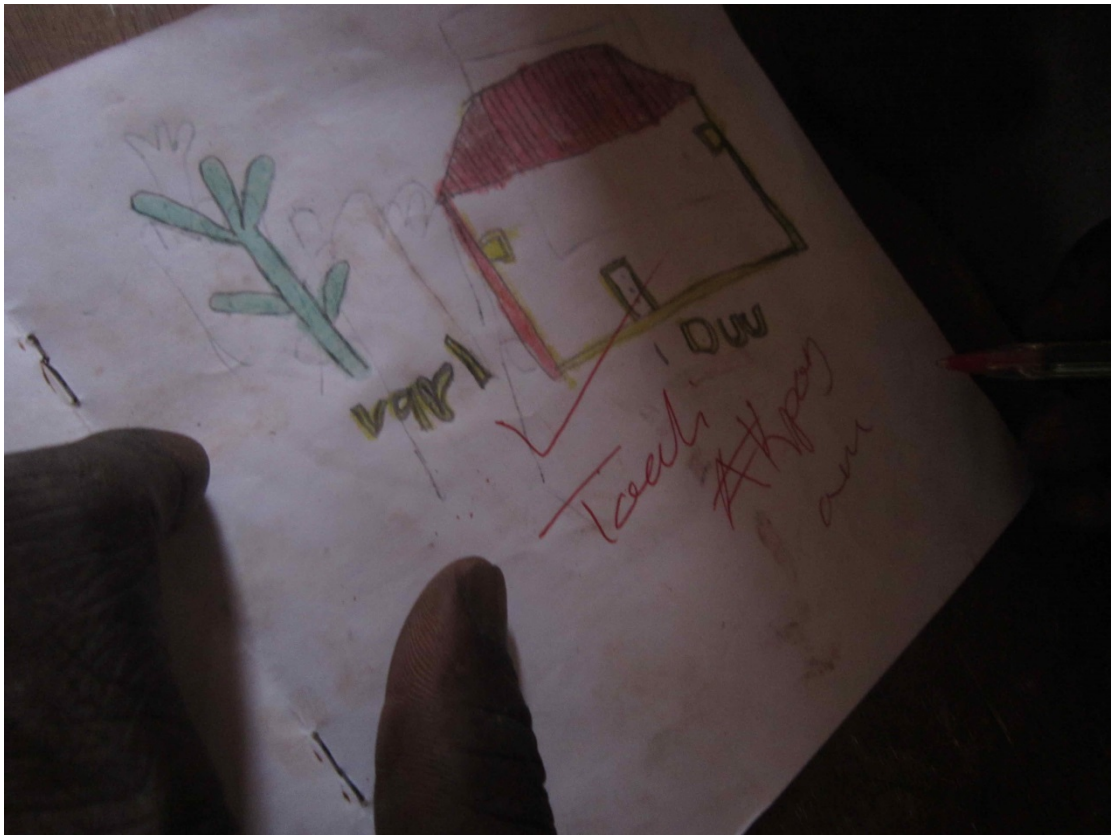

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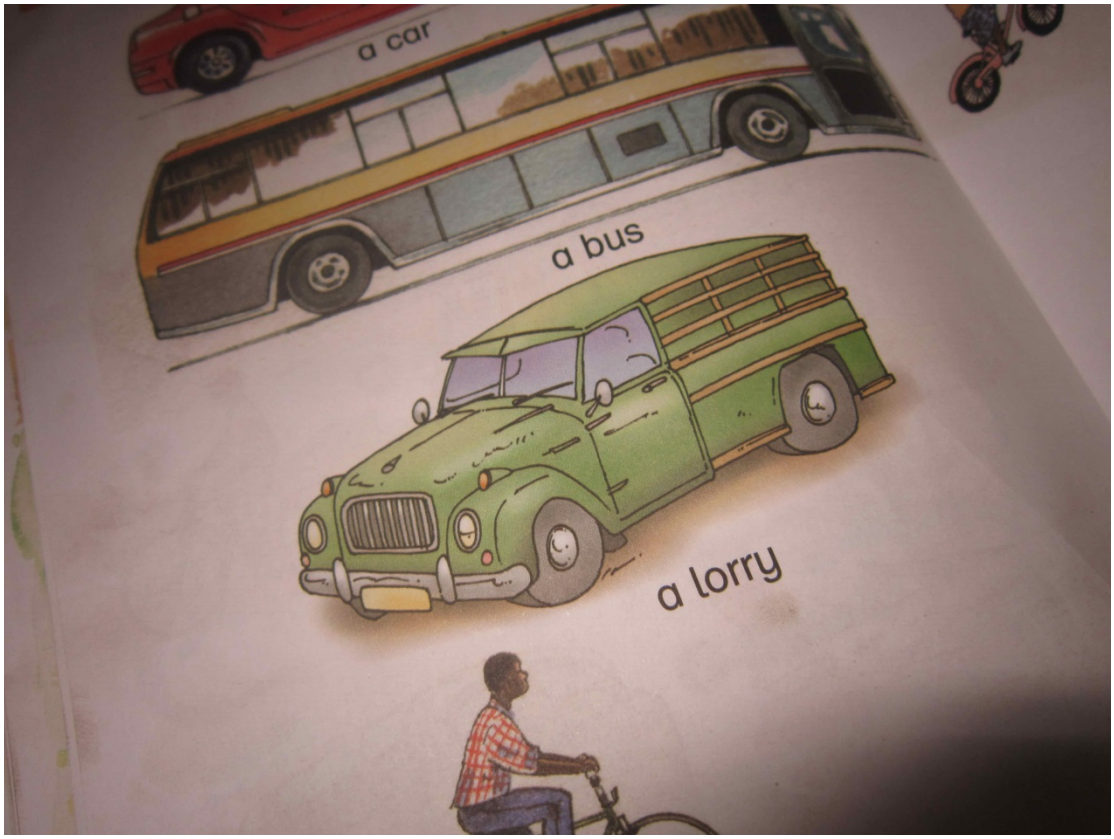

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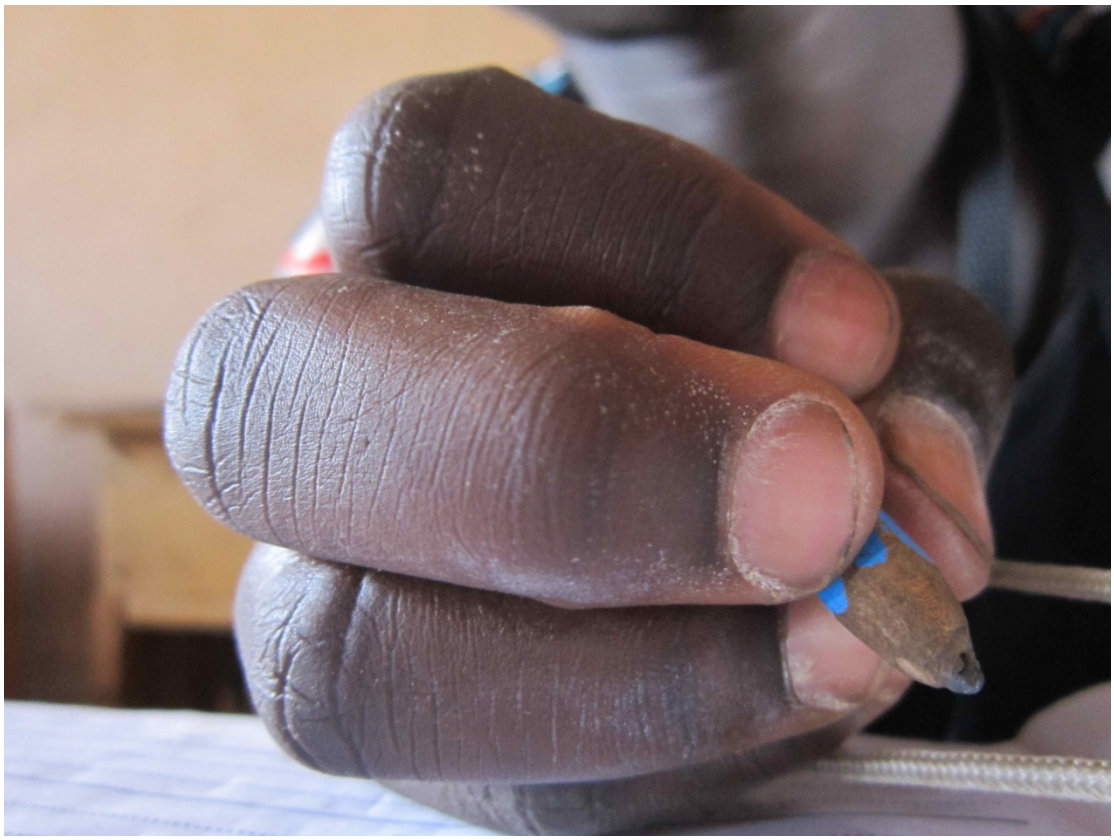

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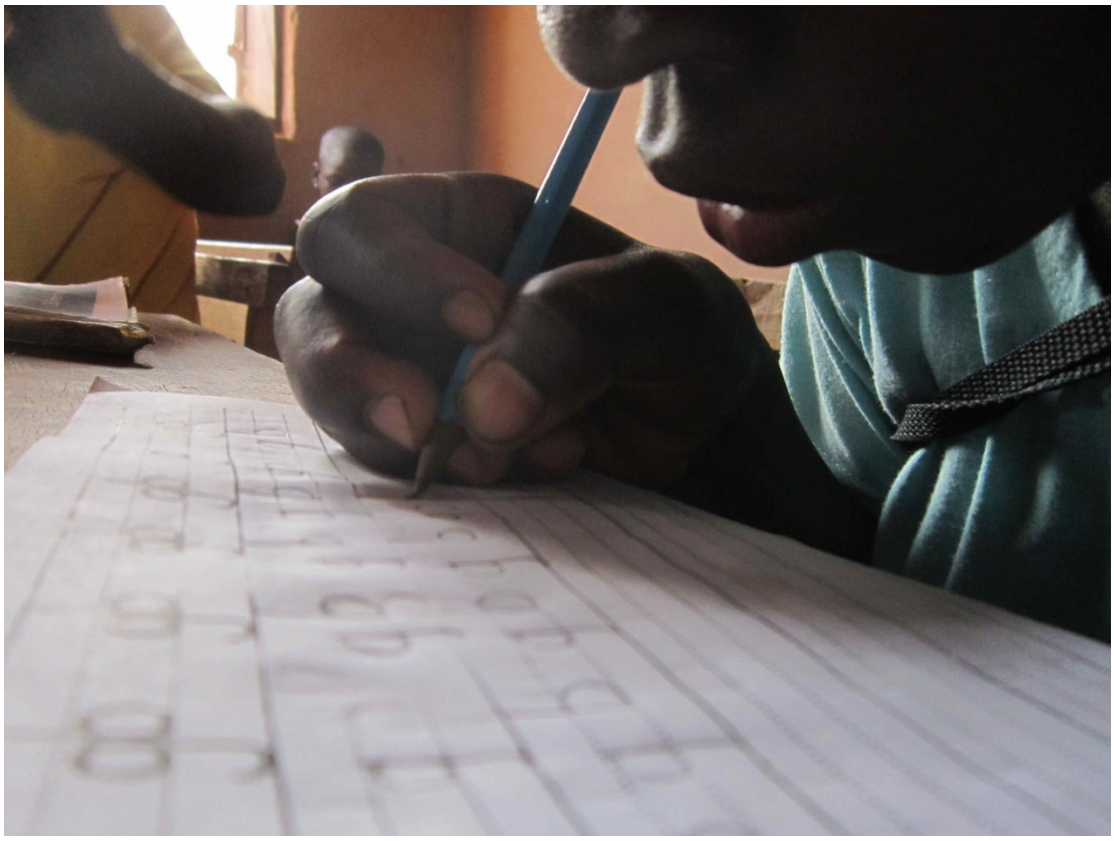

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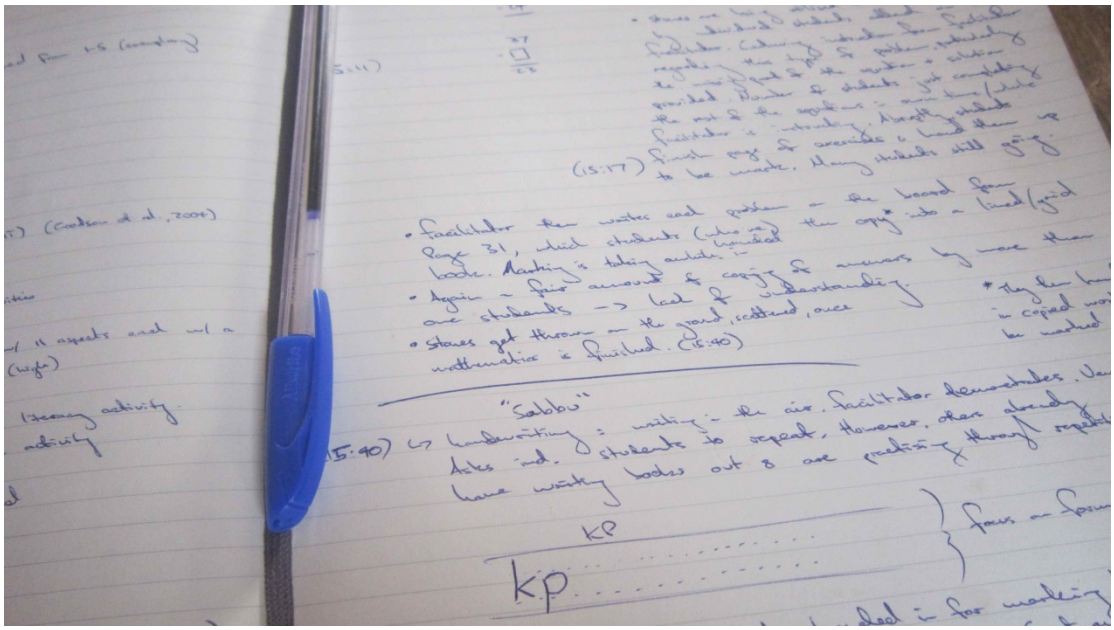

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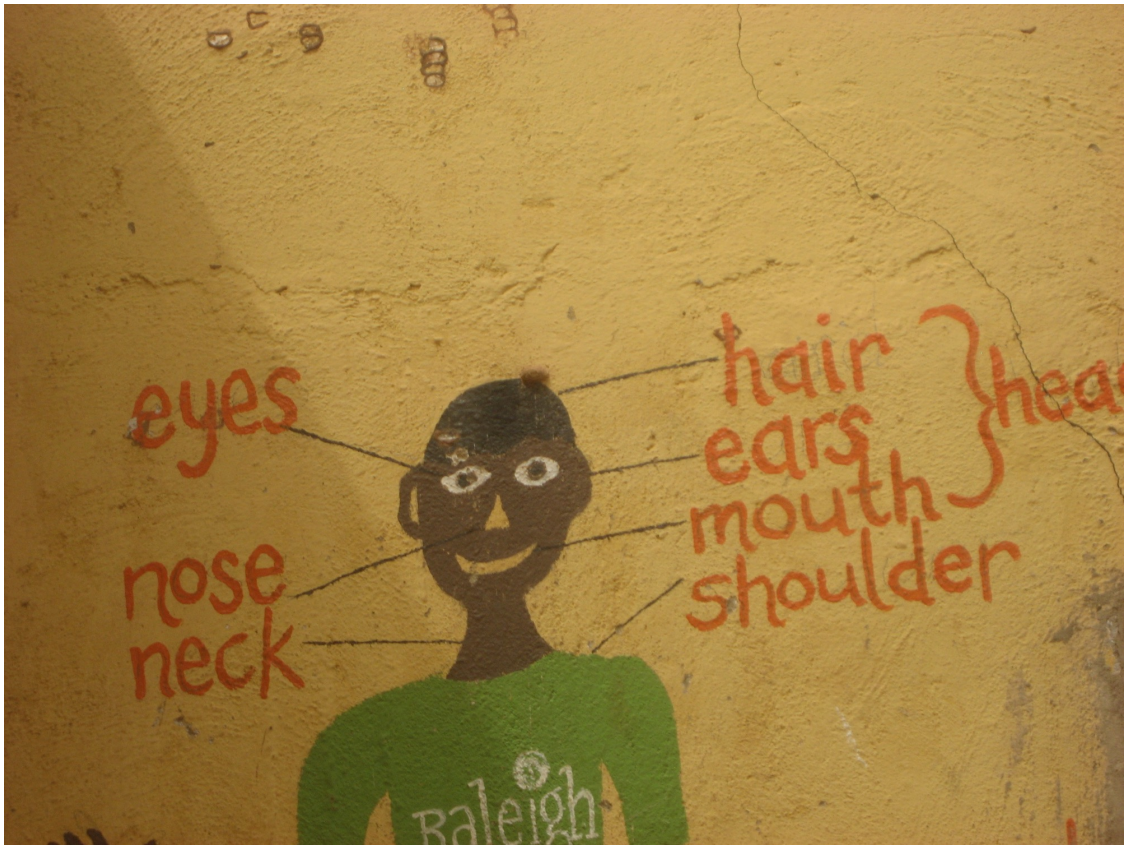

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Plate VIII

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IMG0359 (Soma)

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IMG2132 (Asana)

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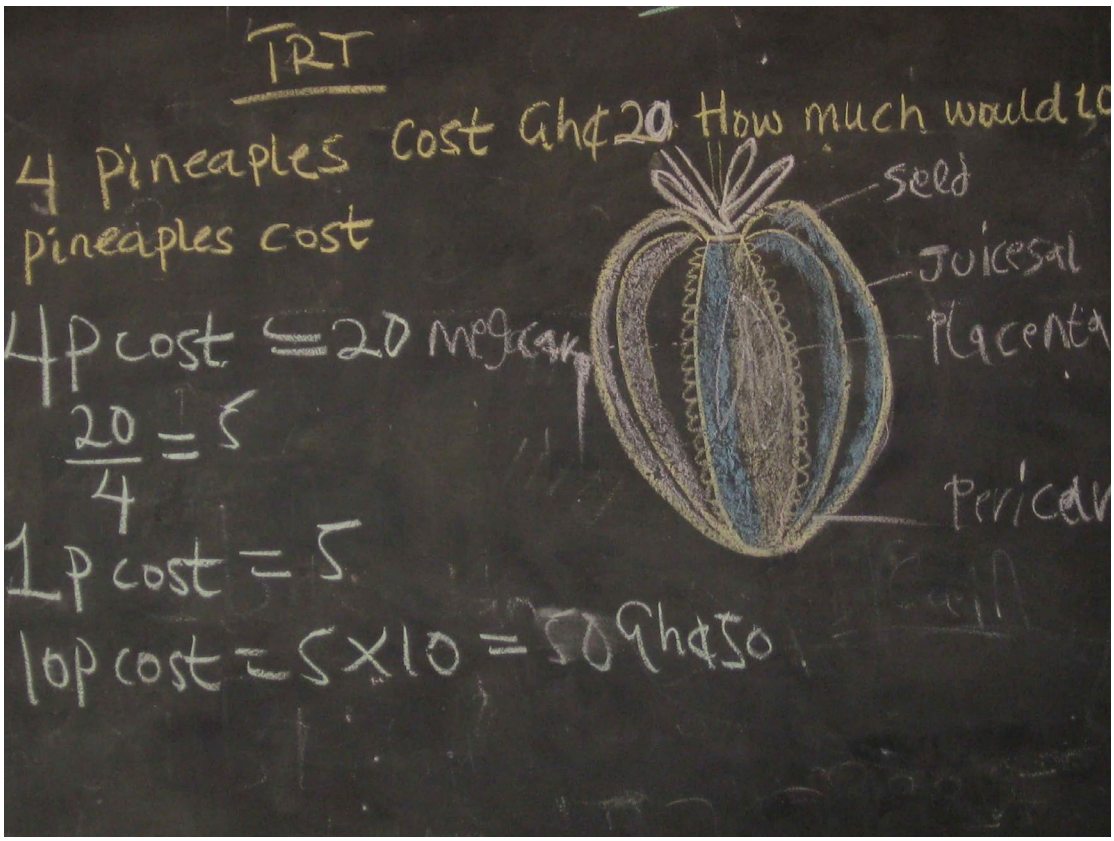

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Plate IX

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IMG0446 (Rafa)

IMG0449 (Amina)

IMG1780 (Asana)

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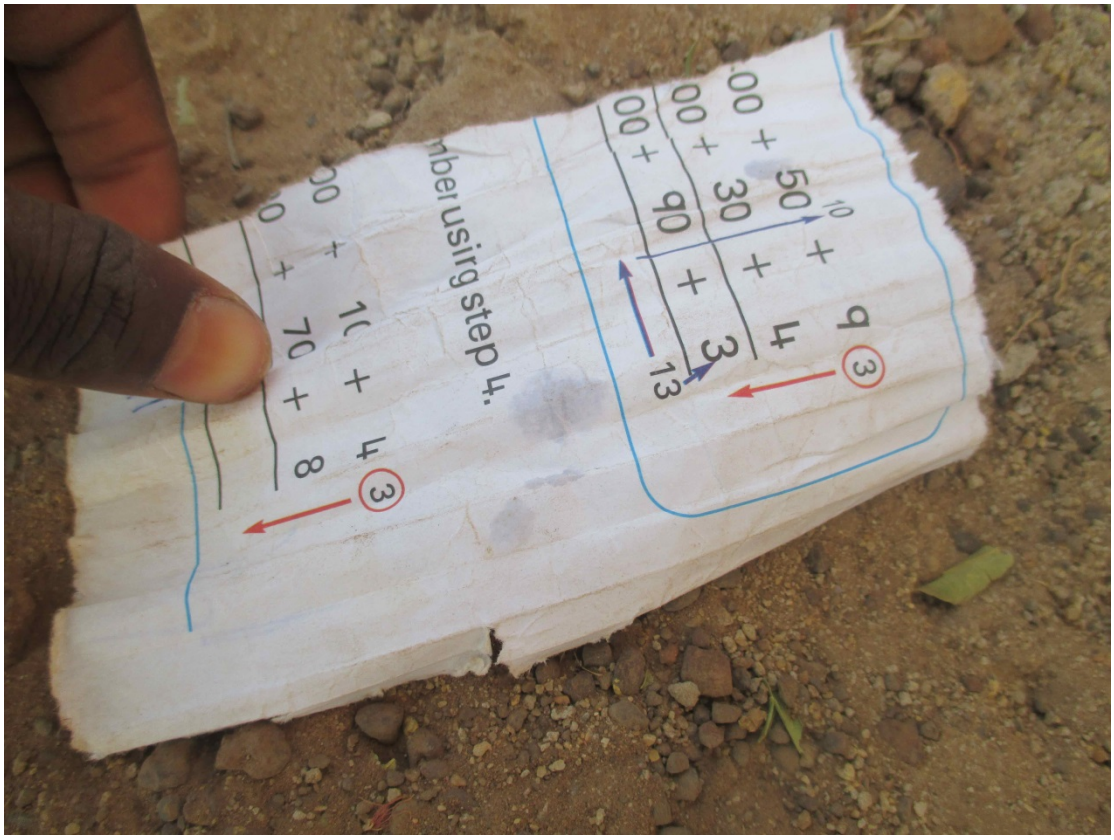

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IMG0037 (Somatu)

IMG0451 (Somatu)

IMG0091 (Somatu)

Plate X

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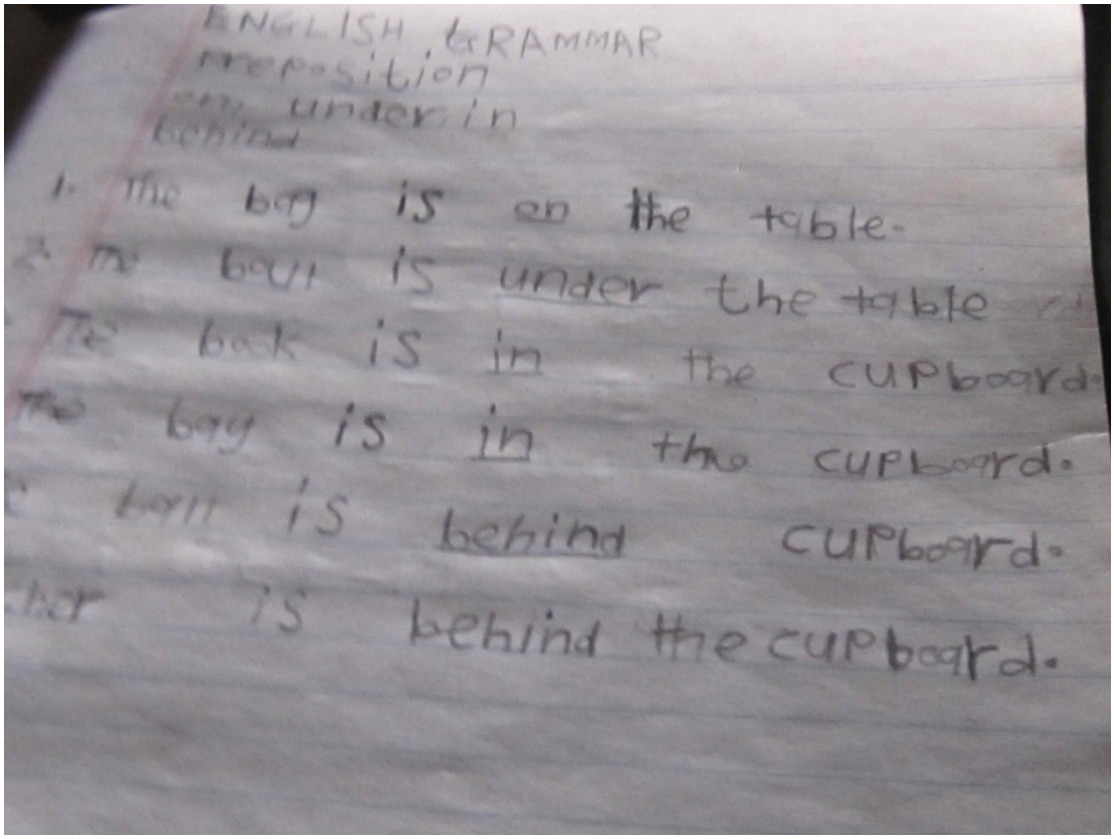

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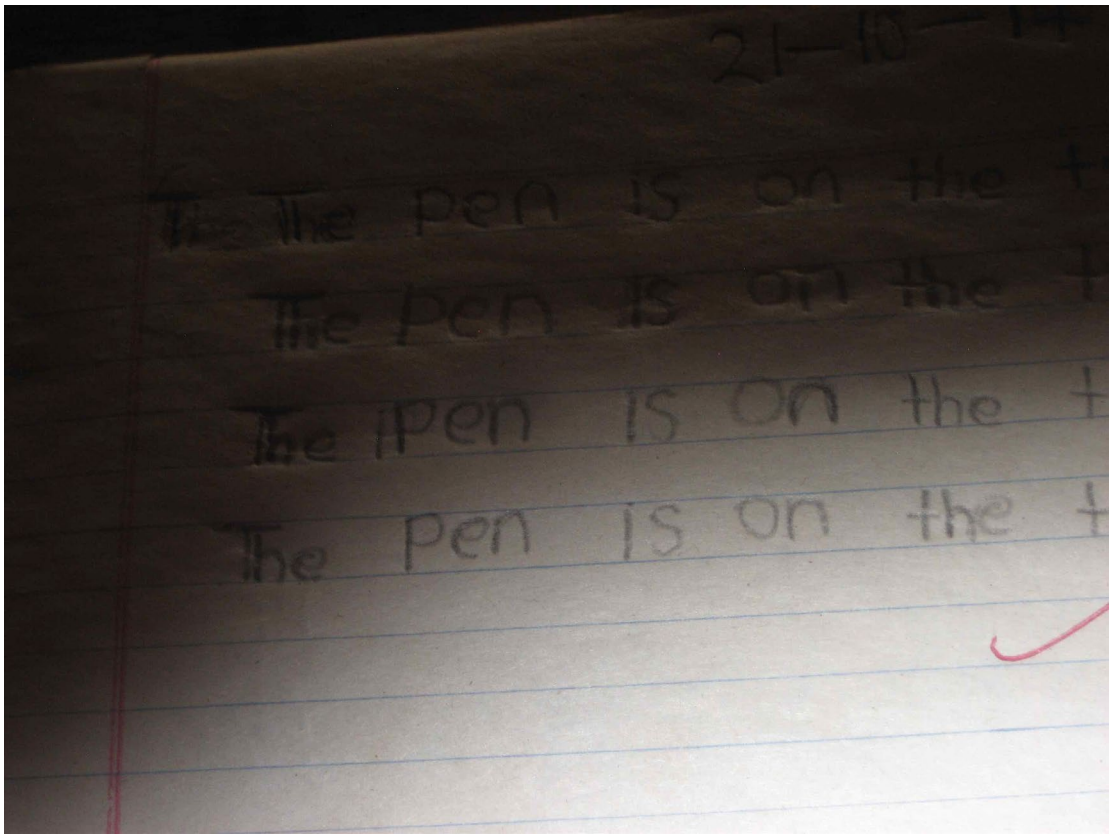

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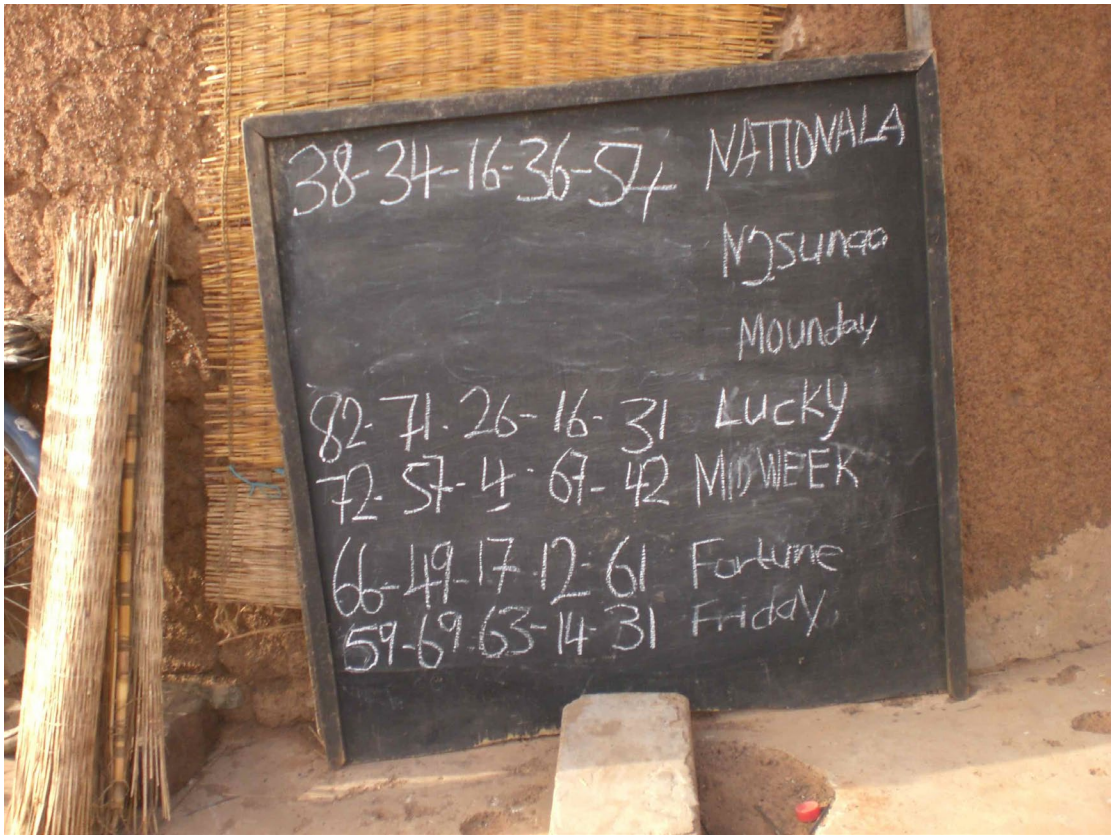

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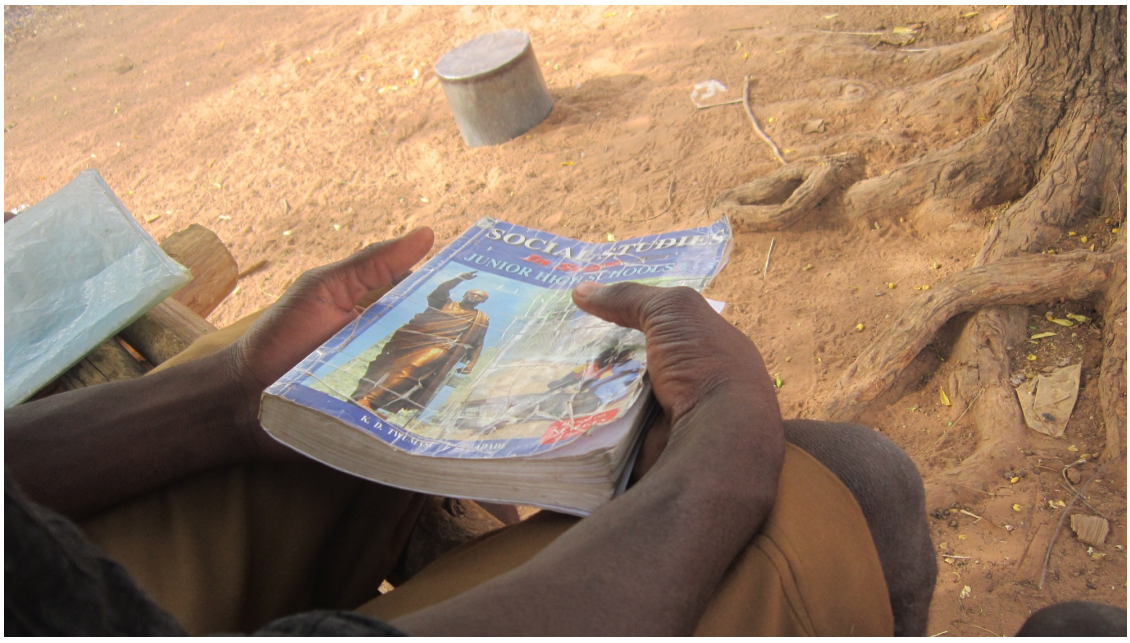
IMG0979 (Sulemana)



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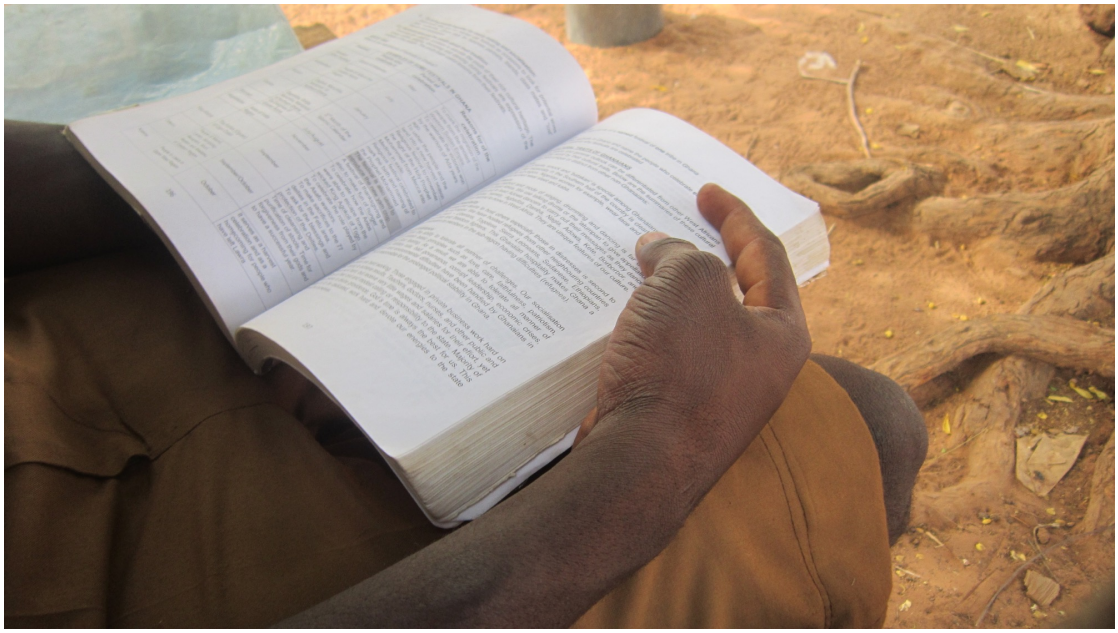

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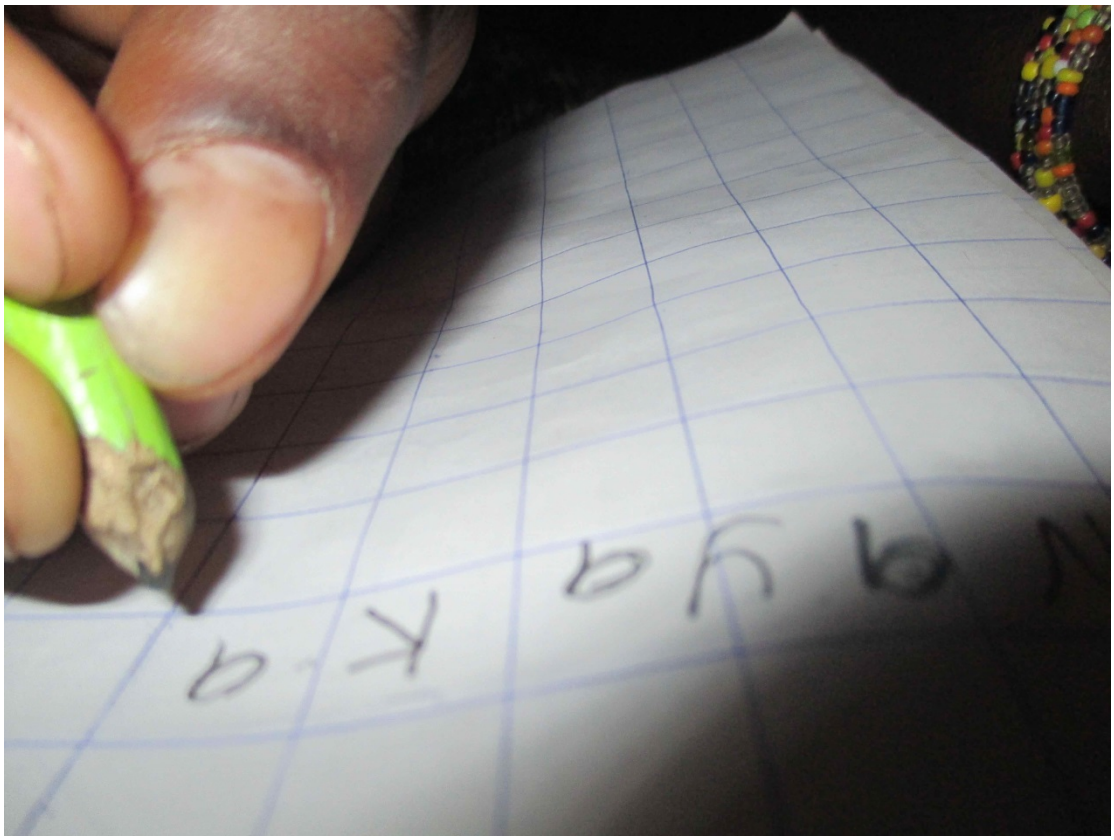

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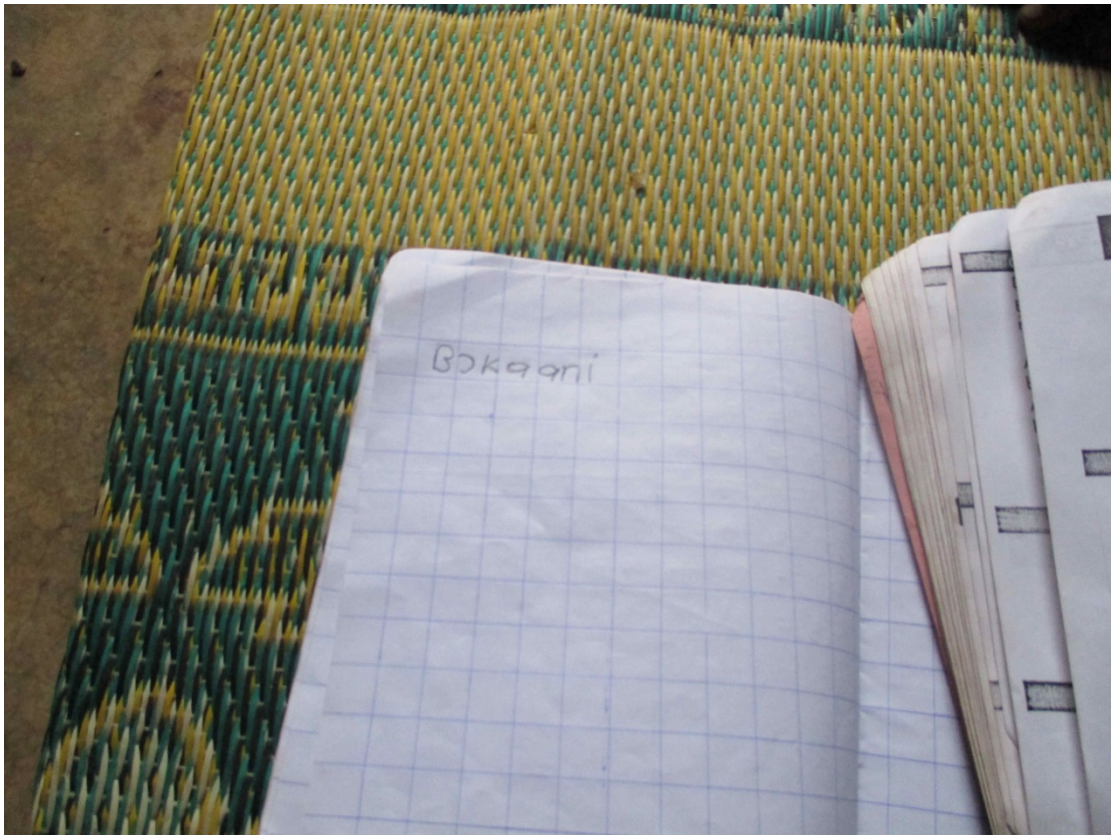

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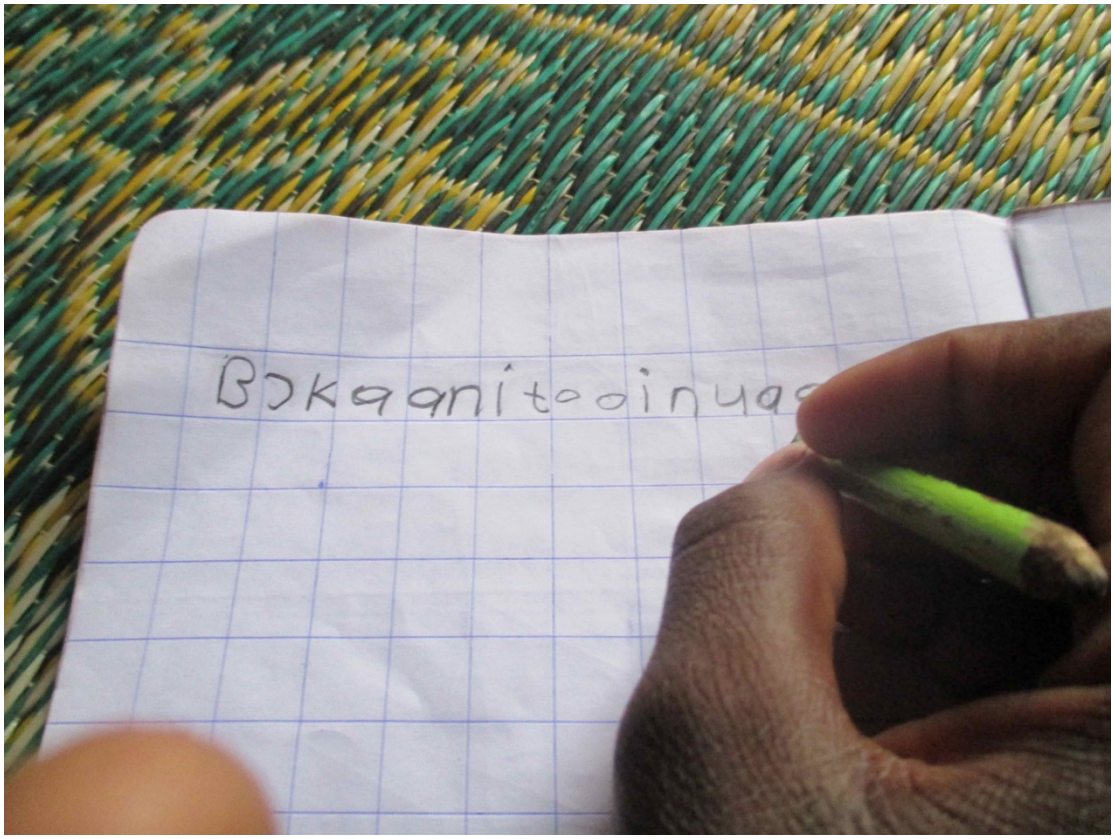

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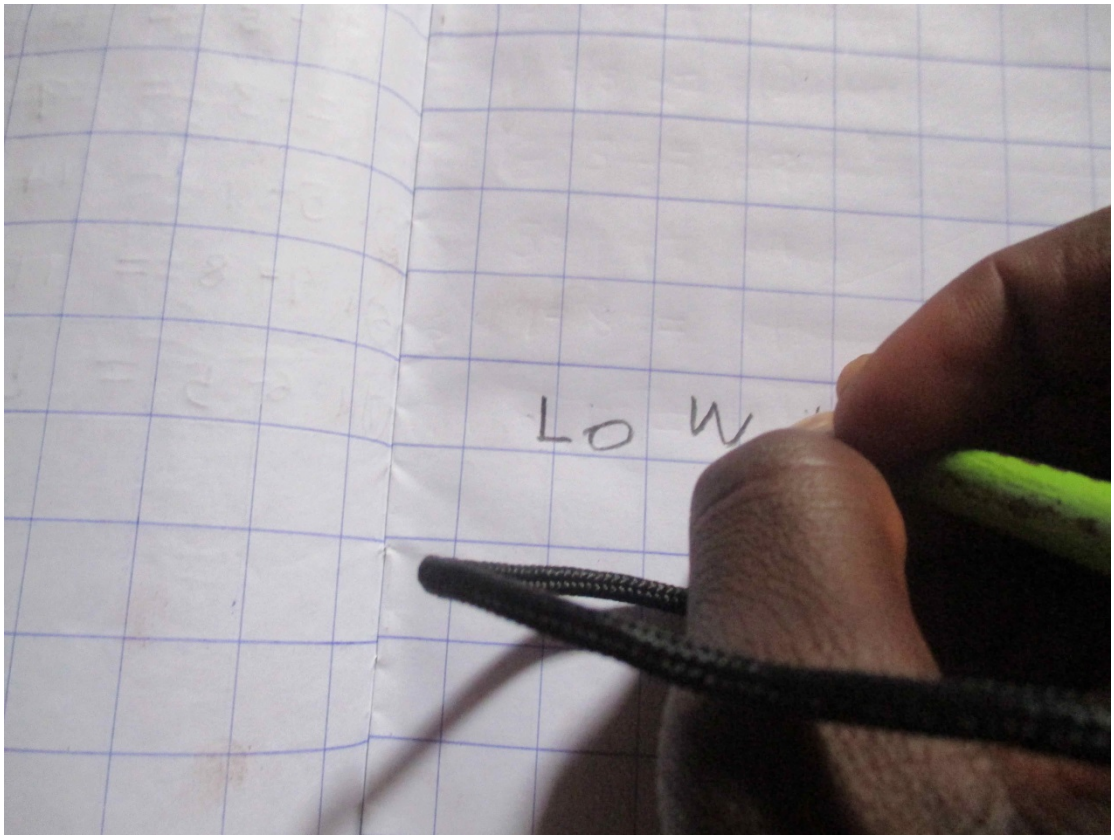


IMG0104 (Rafa)

CIMG1348 (Siisu)

IMG0769 (Fata)

Plate XI

IMG1087 (Sulemana)

IMG0921 (Sulemana)

IMG0802 (Sulemana)

IMG0891 (Sulemana)

IMG0452 (Amina)

IMG0383 (Amina)

IMG0393 (Amina)

IMG1710 (Asana)

IMG1937 (Asana)

IMG1994 (Asana)

IMG1828 (Asana)

IMG0976 (Sulemana)

IMG0987 (Sulemana)

IMG0090 (Bara)

IMG0810 (Fata)

CIMG1236 (Siisu)

CIMG1075 (Siisu)

IMG0794 (Fata)

IMG0323 (Rafa)

CIMG1076 (Siisu)

IMG0684 (Sulemana)

IMG0645 (Fata)

IMG0091 (Rafa)

Plate XII

IMG1604 (Asana)

IMG0328 (Amina)

IMG0331 (Amina)

IMG1983 (Asana)

IMG0049 (Yakubu)

IMG0050 (Yakubu)

IMG0235 (Somatu)

IMG0829 (Sulemana)

IMG0810 (Fata)

IMG1968 (Bara)

IMG0807 (Fata)

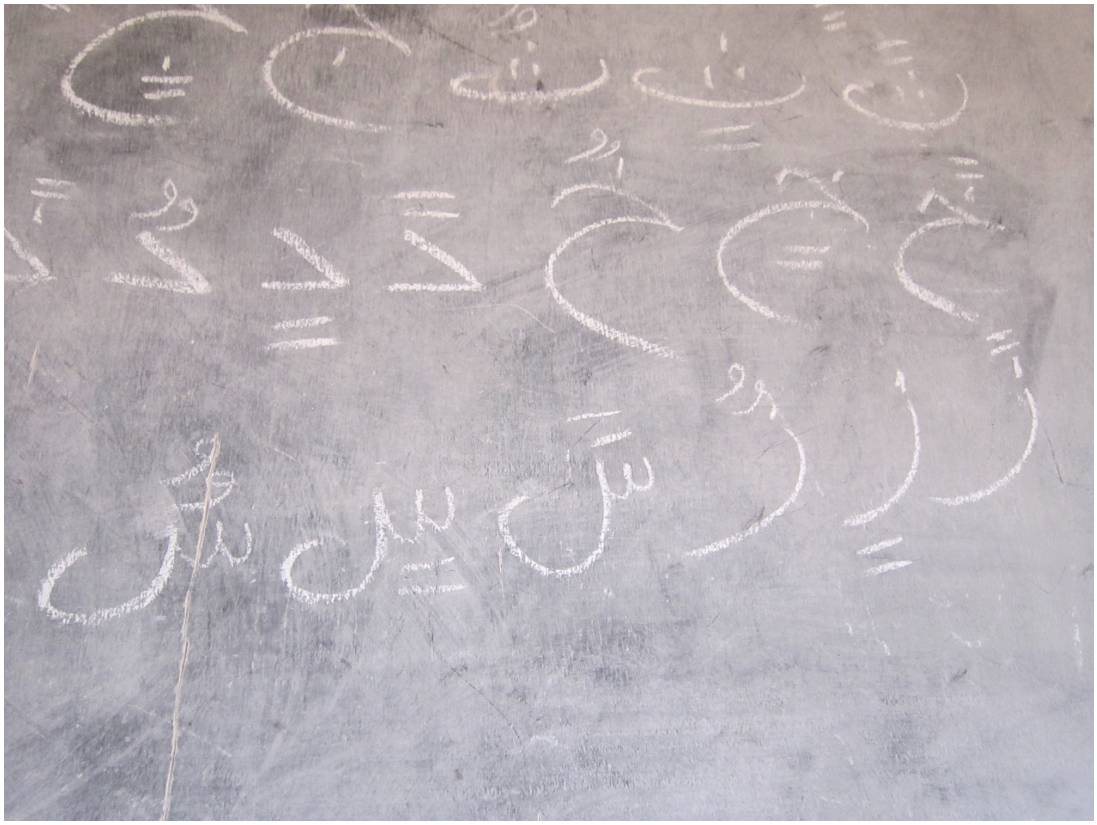
Plate XIII

IMG0654 (Sulemana)

IMG0653 (Sulemana)

IMG0656 (Sulemana)

IMG0688 (Sulemana)



IMG0693 (Sulemana)

References

Abu-Shomar, A. (2013). The politics of education and critical pedagogy: considerations from the English literary tradition in 'post-colonial' academic contexts. *Postcolonial Directions in Education, 2*(2), 263-313.

Abutaleb, Y. (2016). Instagram's user base grows to more than 500 million. *Reuters*. Retrieved from https://www.reuters.com/article/us-facebook-instagram-users/instagrams-user-base-grows-to-more-than-500-million-idUSKCN0Z71LN

Adams, J., Parulski, K., & Spaulding, K. (1998). Color processing in digital cameras. *IEEE micro, 18*(6), 20-30.

Adamson, J. W. (1929). The Extent of Literacy in England in the Fifteenth and Sixteenth Centuries: Notes and Conjectures. *The Library, 4*(2), 163-193.

Adler, P. A., & Adler, P. (1987). *Membership roles in field research*. Thousand Oaks: Sage Publication.

Agblorti, S. K. M. & Tanle, A. (2011). Child fostering and education in Ghana. *Society, Biology & Human Affairs, 76*(1), 53-70.

Aitken, S. C., & Wingate, J. (1993). A preliminary study of the self-directed photography of middle-class, homeless, and mobility-impaired children. *The Professional Geographer, 45*(1), 65-72.

Aktinson, P., & Hammersley, M. (1998). Ethnography and participant observation. In N. K. Denzin & Y. S. Lincoln (Eds.), *Strategies of Qualitative Inquiry* (pp. 248-261). Thousand Oaks: Sage Publications.

Alderson, P., & Morrow, V. (2004). *Ethics, social research and consulting with children and young people*. Ilford: Barnardos.

Aning, E. K., & Abdallah, M. (2013). Islamic radicalisation and violence in Ghana. In J. Gow, F. Olonisakin, & E. Dijxhoorn (Eds.), *Militancy and Violence in West Africa* (pp. 110-144). New York: Routledge.

Ansre, M., & Klu, E. (2017). Views of parents on mother-tongue medium of instruction in early years of school: evidence from Adentan Municipality in the Greater Accra of Ghana. *Gender and Behaviour, 15*(2), 8655-8664.

Arnove, R. F. (1980). Comparative education and world-systems analysis. *Comparative Education Review, 24*(1), 48-62.

Au, K. H. (1998). Social constructivism and the school literacy learning of students of diverse backgrounds. *Journal of Literacy Research, 30*(2), 297-319.

August, D., & Shanahan, T. (2017). *Developing literacy in second-language learners: Report of the National Literacy Panel on Language-Minority Children and Youth*. New York: Routledge.

Australian Government (2007). *Australian Code for the Responsible Conduct of Research*. Retrieved from https://www.nhmrc.gov.au/about-us/publications/australian-code-responsible-conduct-research-2007 - block-views-block-file-attachments-content-block-1

Baker, G. (1996). Photography between narrativity and stasis: August Sander, degeneration, and the decay of the portrait. *October, 76*, 73-113.

Balwanz, D., Moore, A.-M. S., & DeStefano, J. (2006). *Complementary education programs in ADEA countries*. Paper presented at the Association for the Development of Education in Africa, Libreville, Gabon.

Bananuka, T., & John, V. M. (2014). Picturing community development work in Uganda: fostering dialogue through photovoice. *Community Development Journal, 50*(2), 196-212.

Barad, K. (2003). Posthumanist performativity: Toward an understanding of how matter comes to matter. *Signs: Journal of women in culture and society, 28*(3), 801-831.

Barker, J., & Weller, S. (2003). 'Never work with children?': Geography of methodological issues in research with children. *Qualitative research, 3*(2), 207-227.

Barrett, T. (1986). Teaching about photography: Photographs and contexts. *Art Education, 39*(4), 33-36.

Barthes, R. (1964). Éléments de sémiologie. *Communications, 4*(1), 91-135.

Barthes, R. (1977). *Image Music Text* (S. Heath, Trans.). London: FontanaPress.

Barthes, R. (1993). *Camera Lucida: Reflections on Photography* (R. Howard, Trans.). London: Vintage.

Bartlett, L. (2008). Literacy's verb: Exploring what literacy is and what literacy does. *International Journal of Educational Development, 28*(6), 737-753.

Barton, C., & Douglas, G. (1995). *Law and Parenthood*. Cambridge: Cambridge University Press.

Barton, D. (2001). Directions for literacy research: Analysing language and social practices in a textually mediated world. *Language and Education, 15*(2-3), 92-104.

Barton, D., Hamilton, M., Ivanic, R., Ormerod, F., Padmore, S., Pardoe, S., & Rimmershaw, R. (1994). Photographing literacy practices. *Changing English: Studies in Culture and Education, 1*(1), 127-140.

Basel Mission Archive (2018). Basel Mission / Mission 21. Retrieved from http://www.bmarchives.org/browse/#q=Rudolf fis&tf=1909&tt=1918

Basso, K. (1974). The ethnography of writing. *Explorations in the ethnography of speaking, 425*, 432.

Basu, K., Maddox, B., & Robinson-Pant, A. (2008). Literacies, identities and social change: Interdisciplinary approaches to literacy and development. *Journal of Development Studies, 44*(6), 769-778.

Bate, D. (1993). Photography and the colonial vision. *Third Text, 7*(22), 81-91.

Bateson, G., & Mead, M. (1942). *Balinese Character: A Photographic Analysis*. New York: New York Academy of Sciences.

Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The qualitative report, 13*(4), 544-559.

Behrend, T. S., Sharek, D. J., Meade, A. W., & Wiebe, E. N. (2011). The viability of crowdsourcing for survey research. *Behavior research methods, 43*(3), 800-813.

Bening, R. B. (1990). *A history of education in Northern Ghana, 1907-1976*. Accra: Ghana Universities Press.

Benjamin, W. (1972). A short history of photography. *Screen, 13*(1), 5-26.

Benson, C. (2005). *Bilingual schooling as educational development: From experimentation to implementation*. Paper presented at the Proceedings of the 4th International Symposium on Bilingualism.

Bergold, J., & Thomas, S. (2012). Participatory research methods: A methodological approach in motion. *Historical Social Research, 37*(4), 191-222.

Bhatt, I., & de Roock, R. (2013). Capturing the sociomateriality of digital literacy events. *Research in Learning Technology, 21*.

Bialystok, E. (2018). Bilingual education for young children: review of the effects and consequences. *International Journal of Bilingual Education and Bilingualism, 21*(6), 666-679.

Blaug, M. (1966). Literacy and economic development. *The School Review, 74*(4), 393-418.

Blench, R. (2004). *Dagbabi-English Dictionary*. Retrieved from https://www.rogerblench.info/Language/Niger-Congo/Gur/Dagbani%20dictionary%20CD.pdf

Bloomfield, L. (1927). Literate and illiterate speech. *American speech, 2*(10), 432-439.

Bloomfield, L. (1933). *Language*. London: University of Chicago Press.

Boakye-Boaten, A. (2010). Changes in the concept of Childhood: Implications on Children in Ghana. *Journal of International Social Research, 3*(10), 104-115.

Bocancea, E. (2010). Material Matters: 'Intramateriality', 'Intermateriality', and Neolithic Figurines. Retrieved from https://www.brown.edu/Departments/Joukowsky_Institute/courses/archbodyperform10/10148.html

Boli, J., Ramirez, F. O., & Meyer, J. W. (1985). Explaining the origins and expansion of mass education. *Comparative education review, 29*(2), 145-170.

Bourdieu, P. (1965). *Un art moyen: essai sur les usages sociaux de la photographie*. Paris: Ed. de Minuit Paris.

Brandt, D., & Clinton, K. (2002). Limits of the local: Expanding perspectives on literacy as a social practice. *Journal of literacy research, 34*(3), 337-356.

Brock-Utne, B. (2018). Using a narrative approach to researching literacy and non-formal education in Africa and Asia. *International Review of Education, 64*(6), 701-711.

Burnett, C., & Merchant, G. (2020). Literacy-as-event: Accounting for relationality in literacy research. *Discourse: Studies in the cultural politics of education, 41*(1), 45-56.

Burnett, C., Merchant, G., Pahl, K., & Rowsell, J. (2014). The (im) materiality of literacy: The significance of subjectivity to new literacies research. *Discourse: Studies in the Cultural Politics of Education, 35*(1), 90-103.

Burnett, C., & Myers, J. (2002). “Beyond the frame”: exploring children’s literacy practices. *Reading, 36*(2), 56-62.

Byers, P. (1966). Cameras don’t take pictures. *Columbia University Forumieal 9*, 27-31.

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological bulletin, 56*(2), 81-105.

Canon Science Lab (ND). CCD Sensors. Retrieved from https://global.canon/en/technology/s_labo/light/003/04.html

CARE. (2003). *Reaching Underserved Populations with Basic Education in Deprived Areas of Ghana: Emerging Good Practices*. Retrieved from https://www.eldis.org/document/A12338

Casely-Hayford, L., & Hartwell, A. (2010). Reaching the underserved with complementary education: lessons from Ghana's state and non-state sectors. *Development in Practice, 20*(4-5), 527-539.

Castles, A., Rastle, K., & Nation, K. (2018). Ending the reading wars: Reading acquisition from novice to expert. *Psychological Science in the Public Interest, 19*(1), 5-51.

Catalani, C., & Minkler, M. (2010). Photovoice: A review of the literature in health and public health. *Health education & behavior, 37*(3), 424-451.

Chalfen, R. (1974). Photoanalysis studies in the anthropology of visual communication'. *Anthropology and Education Quarterly, 5*, 57-59.

Chambers, R. (1994). The origins and practice of participatory rural appraisal. *World development, 22*(7), 953-969.

Clanchy, M. T. (1981). Literate and illiterate; Hearing and seeing: England 1066-1307. In H. Graff (Ed.), *Literacy and social development in the West: A reader* (pp. 14-45). London: Cambridge University Press.

Cohen, L., Mannion, L., & Morrison, K. (2011). *Educational Methods in Research*. London: Routledge.

Collier, J. (1957). Photography in anthropology: A report on two experiments. *American anthropologist, 59*(5), 843-859.

Collier, J., & Collier, M. (1986). *Visual anthropology: Photography as a research method*. Albuquerque: University of New Mexico Press.

Coole, D., & Frost, S. (2010). Introducing the new materialisms. In D. Coole & S. Frost (Eds.), *New materialisms: Ontology, agency, and politics* (pp. 1-43). London: Duke University Press.

Coombs, P. H., & Ahmed, M. (1974). *Attacking rural poverty: How nonformal education can help*. London: The Johns Hopkins University Press.

Cope, B., & Kalantzis, M. (2009). “Multiliteracies”: New literacies, new learning. *Pedagogies: An international journal, 4*(3), 164-195.

Corbin, J., & Strauss, A. (2014). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Thousand Oaks: Sage Publications.

Cox, S., Drew, S., Guillemin, M., Howell, C., Warr, D., & Waycott, J. (2014). *Guidelines for Ethical Visual Research Methods*. Retrieved from https://artshealthnetwork.ca/ahnc/ethical_visual_research_methods-web.pdf

Creese, A., Bhatt, A., Bhojani, N., & Martin, P. (2006). Multicultural, Heritage and Learner Identities in Complementary Schools. *Language and Education, 20*(1), 23-43.

Creese, A., & Martin, P. (2006). Interaction in Complementary School Contexts: Developing Identities of Choice – An Introduction. *Language and Education, 20*(1), 1-4.

Cremin, T., Mottram, M., Collins, F. M., Powell, S., & Drury, R. (2015). *Researching literacy lives: building communities between home and school*. New York: Routledge.

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Los Angeles: University of Nebraska–Lincoln.

Creswell, J. W., Clark, V. L. P., & Garrett, A. L. (2003). *Handbook of mixed methods in social and behavioural research*: Sage Publications.

Croghan, R., Griffin, C., Hunter, J., & Phoenix, A. (2008). Young people's constructions of self: Notes on the use and analysis of the photo-elicitation methods. *International journal of social research methodology, 11*(4), 345-356.

Cummings, J. N., & Kiesler, S. (2005). Collaborative research across disciplinary and organizational boundaries. *Social studies of science, 35*(5), 703-722.

Cummings, S., McLaughlin, T., & Finch, B. (2018). Examining preadolescent children's engagement in out-of-school literacy and exploring opportunities for supporting literacy development. *The Australian Journal of Language and Literacy, 41*(2), 103-116.

Dados, N. & Connell, R. (2012). The global south. *Contexts, 11*(1), 12-13.

Damico, S. B. (1985). The two worlds of school: Differences in the photographs of black and white adolescents. *The Urban Review, 17*(3), 210-222.

David, M, Edwards, R. & Alldred, P. (2001). Children and school-based reseach: 'informed consent' or 'educated consent'? *British Education Research Journal, 27*(3), 347-365.

Dennis, C., & Fentiman, A. (2007). *Alternative Basic Education in African Countries Emerging from Conflict; Issues of Policy, Co-ordination and Access*. Retrieved from https://assets.publishing.service.gov.uk/media/57a08bda40f0b652dd000f26/EducationPaperNo67.pdf

Denzin, N. K., & Lincoln, Y. S. (2011). *The Sage Handbook of Qualitative Research*. London: SAGE Publications.

Derrida, J. (1968). Differance. *Bulletin de la Société française de philosophie, LXII*(3), 73-101.

DeStefano, J., & Moore, A.-M. S. (2010). The roles of non-state providers in ten complementary education programmes. *Development in Practice, 20*(4-5), 511-526.

Desyllas, M. C. (2014). Using photovoice with sex workers: The power of art, agency and resistance. *Qualitative Social Work, 13*(4), 477-501.

Deutsch, K. W. (1961). Social mobilization and political development. *American political science Review, 55*(3), 493-514.

Dixon, K., Place, J., & Kholowa, F. (2008). In (sites): Examining early literacy practices at home and school in rural Malawi and South Africa. *Southern African Review of Education with Education with Production, 14*(3), 5-21.

Doane, M. A. (2007). The indexical and the concept of medium specificity. *Differences, 18*(1), 128-152.

Dockett, S., & Perry, B. (2003). Children's views and children's voices in starting school. *Australasian Journal of Early Childhood, 28*(1), 12-17.

Doris, F. A., Mangotiba, A. R., Caroline, T., & Francisca, B. T. (2015). The lived experiences of quranic boarding school pupils in the Bawku Municipality, Ghana. *International Journal of Community Development, 3*(2), 79-92.

Drew, S. E., Duncan, R. E., & Sawyer, S. M. (2010). Visual storytelling: A beneficial but challenging method for health research with young people. *Qualitative health research, 20*(12), 1677-1688.

Dyer, C. (2008). Literacies and discourses of development among the Rabaris of Kutch, India. *The Journal of Development Studies, 44*(6), 863-879.

Edu-Buandoh, D. F. (2016). Identity and representation through language in Ghana: the postcolonial self and the Other. *International Journal of Society, Culture & Language, 4*(1), 34-44.

Edu-Buandoh, D. F. & Otchere, G. (2012). "Speak English!" A prescription or choice of English as a lingua franca in Ghanaian schools. *Linguistics and Education, 23*(3), 301-309.

Eichholzer, E. (2012). Missionary Linguistics on the Gold Coast: Wrestling with Language. In P. Harries & D. Maxwell (Eds.), *The Spiritual in the Secular: Missionaries and*

Knowledge about Africa (pp. 72-99). Grand Rapids, Michigan: Eerdmans Publishing Co.

Einarsdottir, J. (2005). Playschool in pictures: Children's photographs as a research method. *Early child development and care, 175*(6), 523-541.

Emmel, N. (2013). *Sampling and Choosing Cases in Qualitative Research: A Realist Approach*. Retrieved from https://methods.sagepub.com/book/sampling-and-choosing-cases-in-qualitative-research

Erlandson, D. A., Harris, E. L., Skipper, B. L., & Allen, S. D. (1993). *Doing naturalistic inquiry: A guide to methods*. Thousand Oaks: Sage Publication.

Farrell, J. P., & Hartwell, A. (2008). *Planning for successful alternative schooling: a possible route to Education for All*. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000159851

Farrell, J. P., & Mfum-Mensah, O. (2002). *A Preliminary Analytical Framework for Comparative Analysis of Alternative Primary Education Programs in Developing Nations*. Paper presented at the Annual Meeting of the Comparative and International Education Society, Orlando, Florida.

Fenwick, T., & Edwards, R. (2010). *Actor-network theory in education*. London: Routledge.

Ferguson, C. A. (1959). Diglossia. *Word, 15*, 325-340.

Fiala, R., & Lanford, A. G. (1987). Educational ideology and the world educational revolution, 1950-1970. *Comparative education review, 31*(3), 315-332.

Finlay, L. (2002). Negotiating the swamp: the opportunity and challenge of reflexivity in research practice. *Qualitative research, 2*(2), 209-230.

Finlay, L., & Gough, B. (2008). *Reflexivity: A practical guide for researchers in health and social sciences*. Oxford: Blackwell Science.

Fisch, R. (1910). Muhamedanischer Lehrer mit seinen Schülern in Savelugu. Retrieved from http://www.bmarchives.org/items/show/57368

Fisch, R. (1913). *Dagbane-Sprachproben*. Hamburg: Gräfe & Sillem.

Fishman, J. A. (1965). Who Speaks What Language to Whom and When? *La Linguistique, 1*, 67-88.

Fortes, M. (1949). The web of kinship among the Tallensi: The second part of an analysis of the social structure of a Trans-Volta tribe. London: Routledge.

Foster, N. (2008). Photography and the gaze: The ethics of vision inverted. *Parallax, 14*(2), 78-92.

Fowler, C., & Harris, O. J. (2015). Enduring relations: Exploring a paradox of new materialism. *Journal of material culture, 20*(2), 127-148.

Frank, A. G. (1967). *Capitalism and underdevelopment in Latin America*. New York: Monthly Review Press.

Freire, P. (1996). *Pedagogy of the oppressed* (revised). New York: Continuum.

Freire, P., & Macedo, D. (2005). *Literacy: Reading the word and the world*. London: Routledge.

Frosh, P. (2015). The gestural image: The selfie, photography theory, and kinesthetic sociability. *International Journal of Communication, 9*, 1607-1628.

Gallagher, M., Haywood, S. L., Jones, M. W., & Milne, S. (2010). Negotiating informed consent with children in school-based research: a critical review. *Children & Society, 24*(6), 471-482.

García, O., & Lin, A. M. Y. (2017). Translanguaging in bilingual education. In O. García, A. M. Y. Lin, & S. May (Eds.), *Bilingual and multilingual education* (pp. 117-130): Springer.

Gartaula, H., Patel, K., Shukla, S., & Devkota, R. (2020). Indigenous knowledge of traditional foods and food literacy among youth: Insights from rural Nepal. *Journal of Rural Studies, 73*, 77-86.

Gee, J. P. (1990). *Social Linguistics and Literacies*. London: Falmer Press.

Gee, J. P. (2012). *Situated language and learning: A critique of traditional schooling*. London: Routledge.

Gerring, J. (2006). *Case study research: Principles and practices*. Cambridge: Cambridge University Press.

Ghana (1992). Constitution of the Republic of Ghana.

Ghana (1998). Act No.560 of 1998, Children's Act.

Ghana Ministry of Education (2013). *Complementary Basic Education Policy Framework*.

Ghana Statistical Service (2015). *Ghana Poverty Mapping Report*. Retrieved from http://www2.statsghana.gov.gh/docfiles/publications/POVERTY MAP FOR GHANA-05102015.pdf

Ghezzi, A., Gabelloni, D., Martini, A., & Natalicchio, A. (2018). Crowdsourcing: a review and suggestions for future research. *International Journal of Management Reviews, 20*(2), 343-363.

Gilmour, R. (2007). Missionaries, Colonialism and Language in Nineteenth-Century South Africa. *History Compass, 5*(6), 1761-1777.

Golden, H. H. (1955). Literacy and Social Change in Underdeveloped Countries. *Rural Sociology, 20*(1), 1-7.

Gómez Cruz, E., & Meyer, E. T. (2012). Creation and control in the photographic process: iPhones and the emerging fifth moment of photography. *Photographies, 5*(2), 203-221.

Goody, J., & Watt, I. (1963). The consequences of literacy. *Comparative studies in society and history, 5*(3), 304-345.

Gough, N. (2002). Ignorance in environmental education research. *Australian Journal of Environmental Education, 18*, 19-26.

Graham, A., Powell, M., Taylor, N., Anderson, D., & Fitzgerald, R. (2013). *Ethical Research Involving Children*. Florence: UNICEF Office of Research Innocenti.

Graham, B. E. (2010). Mother tongue education: necessary? Possible? Sustainable? *Language and Education, 24*(4), 309-321.

Graham, C. K. (1971). *The History of Education in Ghana: From the Earliest Times to the Declaration of Independance*: Routledge.

Gravetter, F. J., Wallnau, L. B., Forzano, L.-A. B., & Witnauer, J. E. (2020). *Essentials of statistics for the behavioral sciences*. Boston: Cengage Learning.

Green, T. L. (2017). From positivism to critical theory: School-community relations toward community equity literacy. *International Journal of Qualitative Studies in Education, 30*(4), 370-387.

Greenfield, P. M. (1972). Oral or written language: The consequences for cognitive development in Africa, the United States and England. *Language and speech, 15*(2), 169-178.

Gregory, E., & Kenner, C. (2013). The out-of-school schooling of literacy. In J. Larson & J. Marsh (Eds.), *The SAGE handbook of early childhood literacy* (pp. 161-174). London: SAGE Publications.

Guillemin, M., & Drew, S. (2010). Questions of process in participant-generated visual methodologies. *visual studies, 25*(2), 175-188.

Gutiérrez, K. D., Morales, P. Z., & Martinez, D. C. (2009). Re-mediating literacy: Culture, difference, and learning for students from nondominant communities. *Review of research in education, 33*(1), 212-245.

Haas, C., Takayoshi, P., Carr, B., Hudson, K., & Pollock, R. (2011). Young people's everyday literacies: The language features of instant messaging. *Research in the Teaching of English*, 378-404.

Hall, K. A., Özerk, K., Zulfiqar, M., & Tan, J. E. C. (2002). 'This is Our School': provision, purpose and pedagogy of supplementary schooling in Leeds and Oslo. *British Educational Research Journal, 28*(3), 399-418.

Hamilton, M. (2000). Expanding the new literacy studies: using photographs to explore literacy as social practice. In D. Barton, M. Hamilton, & R. Ivanic (Eds.), *Situated literacies: Reading and writing in context* (pp. 16-34). London: Routledge.

Hamilton, M. (2001). Privileged literacies: Policy, institutional process and the life of the IALS. *Language and Education, 15*(2-3), 178-196.

Hanks, W. F. (2005). Explorations in the deictic field. *Current anthropology, 46*(2), 191-220.

Harper, D. (2002). Talking about pictures: A case for photo elicitation. *visual studies, 17*(1), 13-26.

Hart, R. A. (1992). *Children's participation: from tokenism to citizenship'*. Retrieved from https://www.unicef-irc.org/publications/100-childrens-participation-from-tokenism-to-citizenship.html

Hatt, T., James, H., & Lucini, B. (2017). *Country overview: Ghana - Driving mobile-enabled digital transformation*. Retrieved from https://www.gsmaintelligence.com/research/?file=986feba592e4e9c07ff793916212eb66&download

Havelock, E. A. (1976). Origins of Western Literacy. Four Lectures delivered at the Ontario Institute for Studies in Education, Toronto, March 25-28, 1974. Monograph Series No. 14.

Heath, S. B. (1980). The functions and uses of literacy. *Journal of Communication*, 123-133.

Heath, S. B. (1982). What no bedtime story means: Narrative skills at home and school. *Language in Society, 2*, 49-76.

Heath, S. B. (1983). *Ways with words: Language, life and work in communities and classrooms*. Cambridge: Cambridge University Press.

Hill, M., Davis, J., Prout, A. & Tisdall, K. (2004). Moving the participation agenda forward. *Children & Society, 18*, 77-96.

Hjorth, L., & Pink, S. (2014). New visualities and the digital wayfarer: Reconceptualizing camera phone photography and locative media. *Mobile Media & Communication, 2*(1), 40-57.

Hogan, S. (2012). Ways in which photographic and other images are used in research: An introductory overview. *International Journal of Art Therapy, 17*(2), 54-62.

Honig, M-S., (2009). How is the child constituted in childhood studies? In J. Qvortrup, W. A. Corsaro, & M-S. Honig (Eds.), *The Palgrave Handbook for Childhood Studies* (pp.62-77). London: Palgrave Macmillan.

Hoppers, W. (2005). Community schools as an educational alternative in Africa: A critique. *International Review of Education, 51*, 115-137.

Hoppers, W. (2006). *Non-formal education and basic education reform: A conceptual review*. Paris: UNESCO International Institute for Educational Planning.

Hornberger, N. H. (1989). Continua of biliteracy. *Review of educational research, 59*(3), 271-296.

Hornberger, N. H. (2005). Heritage/community language education: US and Australian perspectives. *International Journal of Bilingual Education and Bilingualism, 8*(2-3), 101-108.

Hornberger, N. H., & Skilton-Sylvester, E. (2000). Revisiting the continua of biliteracy: International and critical perspectives. *Language and Education, 14*(2), 96-122.

Horner, R. (2020). Towards a new paradigm of global development? Beyond the limits of international development. *Progress in Human Geography, 44*(3), 415-436.

Huisman, J., & Smits, J. (2009). *Keeping Children in School: Household and District-level Determinants of School Dropout in 363 Districts of 30 Developing Countries*. NiCE Working Paper 09-105. Nijmegen, The Netherlands.

Hull, G., & Schultz, K. (2001). Literacy and Learning Out of School: A Review of Theory and Research. *Review of educational research, 71*(4), 575-611.

Hull, M. S. (2012). *Government of paper: The materiality of bureaucracy in urban Pakistan*. London: University of California Press.

Hunter, D., & Pierscionek, B. K. (2007). Children, Gillick competency and consent for involvement in research. *Journal of Medical Ethics, 33*(11), 659-662.

Hunter, L., & Leahey, E. (2008). Collaborative research in sociology: Trends and contributing factors. *The American Sociologist, 39*(4), 290-306.

Hymes, D. (1964). Introduction: Toward Ethnographies of Communication. *American anthropologist, 66*(6), 241-267.

Hymes, D. (1972). Editorial introduction to Language in Society. *Language in Society, 1*, 1-14.

Hymes, D. (1977). Qualitative/quantitative research methodologies n education: A linguistic perspective. *Anthropology & Education Quarterly, 8*(3), 165-176.

Hymes, D. (1980). *Language in education: ethnolinguistic essays*. Language and Ethnography Series. Washington D.C.

Illich, I. (1971). *Deschooling society*. New York: Harper & Row.

Ilon, L., & Kyeyune, R. (2002). *Cost evaluation of complementary basic education programs in Uganda*. Retrieved from https://www.researchgate.net/profile/Lynn_Ilon/publication/242591515_COST_EVALUATION_OF_COMPLEMENTARY_BASIC_EDUCATION_PROGRAMS_IN_UGANDA/links/54346d020cf2dc341daf4068.pdf

Imam, H. A. (2015). State and non-state actors in land appropriation: Colonial land policy and the role of the Tindana in Northern Ghana. *Research on Humanities and Social Sciences, 5*(4), 126-140.

Inter-Agency Commission (1990). *World Conference on Education for All: Meeting Basic Learning Needs*. Retrieved from http://www.unesco.org/education/pdf/11_93.pdf

Iversen, M. (1994). What is a photograph? *Art History, 17*(3), 450-464.

Jenkins, E. L. (2018). Missionary photography: The Liberian archive of Doctor Georgia Patton. *Visual Resources, 34*(3-4), 293-314.

Jenkins, P. (1993). The earliest generation of missionary photographers in West Africa and the portrayal of indigenous people and culture. *History in Africa, 20*, 89-118.

Jenkins, P., & Geary, C. (1985). Photographs from Africa in the Basel mission archive. *African Arts, 18*(4), 56-100.

Jere, C. M. (2012). *Alternative approaches to education provision for out-of-school youth in Malawi*. Retrieved from https://people.uea.ac.uk/en/publications/alternative-

approaches-to-education-provision-for-outofschool-youth-in-malawi(030a3f0c-7ea9-4796-82f7-4052806292e6).html

Jewitt, C. (2008). Multimodality and literacy in school classrooms. *Review of research in education, 32*(1), 241-267.

John-Steiner, V. (1985). *Notebooks of the mind: Explorations of thinking*. Oxford: Oxford University Press.

Johnson, R. B. (1997). Examining the validity structure of qualitative research. *Education, 118*(2), 282.

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2004). Mixed methods research: A research paradigm whose time has come. *Educational researcher, 33*(7), 14-26.

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of mixed methods research, 1*(2), 112-133.

Jokinen, P., & Murris, K. (2020). Inhuman hands and missing child: Touching a literacy event in a Finnish primary school. *Journal of Early Childhood Literacy, 20*(1), 44-68.

Jones, P. W. (1990). UNESCO and the politics of global literacy. *Comparative Education Review, 34*(1), 41-60.

Jones, P. W. (1999). Globalisation and the UNESCO mandate: Multilateral prospects for educational development. *International Journal of Educational Development, 19*(1), 17-25.

Juffermans, K. (2011). The old man and the letter: repertoires of literacy and languaging in a modern multiethnic Gambian village. *Compare: A Journal of Comparative and International Education, 41*(2), 165-179.

Kankpeyeng, B. W. (2009). The slave trade in northern Ghana: Landmarks, legacies and connections. *Slavery and Abolition, 30*(2), 209-221.

Kaplan, I., & Howes, A. (2004). 'Seeing through different eyes': exploring the value of participative research using images in schools. *Cambridge Journal of Education, 34*(2), 143-155.

Karlsson, J. (2001). Doing visual research with school learners in South Africa. *Visual Sociology, 16*(2), 23-37.

Kim, M. H., & Morrison, F. J. (2018). Schooling effects on literacy skills during the transition to school. *AERA Open, 4*(3), 1-15.

Kirschenbaum, M. G. (2008). *Mechanisms: New media and the forensic imagination*. London: The MIT Press.

Kobo, O. (2009). The development of wahhabi reforms in Ghana and Burkina Faso, 1960–1990: Elective affinities between Western-educated Muslims and Islamic scholars. *Comparative studies in Society and History, 51*(3), 502-532.

Komaie, G., Gilbert, K. L., Arroyo, C., & Goodman, M. S. (2018). Photovoice as a pedagogical tool to increase research literacy among community members. *Pedagogy in Health Promotion, 4*(2), 108-114.

Kral, I., & Schwab, R. G. (2016). A space to learn: A community-based approach to meaningful adult learning and literacy in remote Indigenous Australia. *Prospects, 46*(3-4), 465-477.

Krauss, R. (1977). Notes on the index: Seventies art in America. *October*, 68-81.

Kress, G. R. (2005). Gains and losses: New forms of texts, knowledge, and learning. *Computers and Composition, 22*(1), 5-22.

Kress, G. R., & Van Leeuwen, T. (1996). *Reading images: The grammar of visual design*: Psychology Press.

Kuivanen, K., Alvarez, S., Michalscheck, M., Adjei-Nsiah, S., Descheemaeker, K., Mellon-Bedi, S., & Groot, J. C. (2016). Characterising the diversity of smallholder farming systems and their constraints and opportunities for innovation: A case study from the Northern Region, Ghana. *NJAS-Wageningen Journal of Life Sciences, 78*, 153-166.

Kullman, K. (2012). Experiments with moving children and digital cameras. *Children's Geographies, 10*(1), 1-16.

Kuyini, A. B., Alhassan, A. R., Tollerud, I., Weld, H., & Haruna, I. (2009). Traditional kinship foster care in northern Ghana: the experiences and views of children, carers and adults in Tamale. *Child & Family Social Work, 14*(4), 440-449.

Kwame, A. (2018). SEGMENT DELETION AS A MORPHO-PHONOLOGICAL PROCESS IN DAGBANI COMPOUND WORD FORMATION. *Journal of West African Languages, 45*.

Landau, P. S. (2002). Empires of the visual: photography and colonial administration in Africa. In P. S. Landau & D. D. Kaspin (Eds.), *Images and empires: visuality in colonial and postcolonial Africa* (pp. 141-171). London: University of California Press.

Lather, P. (1986). Research as praxis. *Harvard educational review, 56*(3), 257-278.

Lather, P. (2006). Foucauldian scientificity: Rethinking the nexus of qualitative research and educational policy analysis. *International Journal of Qualitative Studies in Education, 19*(6), 783-791.

Latour, B. (1986). Visualization and cognition: Thinking with eyes and hands. *Knowledge and Society: Studies in the Sociology of Culture Pastand Present, 6*, 1-40.

Lavrakas, P. J. (2008). Encyclopedia of Survey Research Methods. Retrieved from https://methods.sagepub.com/reference/encyclopedia-of-survey-research-methods

Law, J., & Urry, J. (2004). Enacting the social. *Economy and society, 33*(3), 390-410.

Leander, K. M. (2001). "This is our freedom bus going home right now": Producing and hybridizing space-time contexts in pedagogical discourse. *Journal of literacy Research, 33*(4), 637-679.

Leander, K. M. (2003). Writing travelers' tales on new literacyscapes. *Reading Research Quarterly, 38*(3), 392-397.

Leander, K. M., & Rowe, D. W. (2006). Mapping literacy spaces in motion: A rhizomatic analysis of a classroom literacy performance. *Reading Research Quarterly, 41*(4), 428-460.

Lerner, J. S. (1995). Protecting home schooling through the Casey Undue Burden standard. *The University of Chicago Law Review, 62*(1), 363-392.

Levine, K. (1982). Functional literacy: Fond illusions and false economies. *Harvard educational review, 52*(3), 249-266.

Lewin, K. M. (1993). *Education and Development: The Issues and the Evidence*. Retrieved from https://eric.ed.gov/?id=ED400385

Li, W. (2006). Complementary Schools, Past, Present and Future. *Language and Education, 20*(1), 76-83.

Liebenberg, L. (2009). The visual image as discussion point: Increasing validity in boundary crossing research. *Qualitative research, 9*(4), 441-467.

Liebenberg, L., Didkowsky, N., & Ungar, M. (2012). Analysing image-based data using grounded theory: the Negotiating Resilience Project. *visual studies, 27*(1), 59-74.

Limage, L. J. (2009). Multilateral cooperation for literacy promotion under stress: governance and management issues. *Literacy and Numeracy Studies, 17*(2), 4-34.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Thousand Oaks: SAGE Publications.

Lippard, L. R. (1997). *Six years: the dematerialization of the art object from 1966 to 1972*: University of California Press.

Lloyd, C. B., & Hewitt, P. (2009). Educational inequalities in the midst of persistent poverty: Diversity across Africa in educational outcomes. *Journal of International Development, 21*(8), 1137-1151.

Lodge, C. (2009). About face: Visual research involving children. *Education 3–13, 37*(4), 361-370.

Longden, K. (2013). *Accelerated learning programmes: What can we learn from them about curriculum reform*. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000225950

Luke, A. (2004). On the material consequences of literacy. *Language and Education, 18*(4), 331-335.

Luttrell, W. (2010). 'A camera is a big responsibility': A lens for analysing children's visual voices. *visual studies, 25*(3), 224-237.

MacDonald, A. (2012). Young children's photographs of measurement in the home. *Early Years, 32*(1), 71-85.

MacSwan, J. (2017). A multilingual perspective on translanguaging. *American Educational Research Journal, 54*(1), 167-201.

Maddox, B. (2007). What can ethnographic studies tell us about the consequences of literacy? *Comparative Education, 43*(2), 253-271.

Maddox, B. (2008). What good is literacy? Insights and implications of the capabilities approach. *Journal of Human Development, 9*(2), 185-206.

Malcolm, A. (2009). *Second Chances: A Study of Rural Malawian Youth in a Complementary Basic Education Programme.* (Master of Arts). University of Toronto, Canada.

Mannay, D. (2013). 'Who put that on there… why why why?'Power games and participatory techniques of visual data production. *visual studies, 28*(2), 136-146.

Marsh, J. (2003). One-way traffic? Connections between literacy practices at home and in the nursery. *British Educational Research Journal, 29*(3), 368-382.

Masny, D. (2006). Learning and creative processes: A poststructural perspective on language and multiple literacies. *International Journal of Learning, 12*(5), 147-155.

Masny, D., & Waterhouse, M. (2011). Mapping territories and creating nomadic pathways with multiple literacies theory. *Journal of Curriculum Theorizing, 27*(3), 287-307.

Maxwell, J. (1992). Understanding and validity in qualitative research. *Harvard educational review, 62*(3), 279-301.

Maxwell, J. A. (2016). Expanding the history and range of mixed methods research. *Journal of mixed methods research, 10*(1), 12-27.

McKim, C. A. (2017). The value of mixed methods research: A mixed methods study. *Journal of mixed methods research, 11*(2), 202-222.

McLean, K. (2017). Literacy, technology and early years education: Building sustainable practice. In C. McLachlan & A. Arrow (Eds.), *Literacy in the Early Years. International Perspectives on Early Childhood Education and Development.* (pp. 239-257). Singapore: Springer.

Metzger, G. E. (1994). Unburdening the Undue Burden Standard: Orienting Casey in Constitutional Jurisprudence. *Columbia Law Review, 94*, 2025-2090.

Meyer, B. (2002). Christianity and the Ewe nation: German Pietist missionaries, Ewe converts and the politics of culture. *Journal of religion in Africa, 32*(2), 167-199.

Meyer, C. B. (2001). A case in case study methodology. *Field methods, 13*(4), 329-352.

Mfum-Mensah, O. (2003). Fostering educational participation in pastoral communities through non-formal education: the Ghanaian perspective. *International Journal of Educational Development, 23*(6), 661-677.

Mfum-Mensah, O. (2011). Education collaboration to promote school participation in northern Ghana: A case study of a complementary education program. *International Journal of Educational Development, 31*(5), 465-471.

Miller-Grandvaux, Y., & Yoder, K. (2022). *A literature review of community schools in Africa*. Support for Analysis and Research in Africa (SARA). Washington, D.C.

Mizen, P. (2005). A little 'light work'? Children's images of their labour. *visual studies, 20*(2), 124-139.

Mizen, P., & Ofosu-Kusi, Y. A. W. (2010). Unofficial truths and everyday insights: understanding voice in visual research with the children of Accra's urban poor. *visual studies, 25*(3), 255-267.

Moore, D. S., McCabe, G. P., & Craig, B. A. (2016). *Introduction to the practice of statistics.* London: Macmillan Learning.

Morrow, V., & Richards, M. (1996). The ethics of social research with children: an overview. *Children & Society, 10*, 90-105.

Moss, G. (2001). Seeing with the camera: Analysing children's photographs of literacy in the home. *Journal of Research in Reading, 24*(3), 279-292.

Msila, V. (2014). "Mama does not speak that (language) to me": indigenous languages, educational opportunity and black African preschoolers. *South African Journal of Childhood Education, 1*(1), 48-67.

Munster, A. (2014). Materiality. In M.-L. Ryan, L. Emerson, & B. J. Robertson (Eds.), *The Johns Hopkins Guide to Digital Media* (pp. 327-330). Baltimore: The Johns Hopkins University Press.

Musante, K., & DeWalt, B. R. (2010). *Participant observation: A guide for fieldworkers*. Walnut Creek: Rowman Altamira.

Naden, T. (2014). *Dagbani Dictionary*. Tamale: GILLBT Press.

Nakassis, C. V. (2013). Materiality, materialization. *HAU: Journal of Ethnographic Theory, 3*(3), 399-406.

Nath, S. R. (2000). *Continuation of BRAC non-formal school graduates of 1995 in formal school education*. Retrieved from http://research.brac.net/new/educationtag/continuationschoolgraduates

New London Group (1996). A Pedagogy of Multiliteracies: Designing Social Futures. *Harvard educational review, 66*(1), 60-92.

Newfield, D., Andrew, D., Stein, P., & Maungedzo, R. (2003). 'No Number Can Describe How Good It Was': Assessment issues in the multimodal classroom. *Assessment in Education: Principles, Policy & Practice, 10*(1), 61-81.

Noss, A. (1991). *Education and adjustment: a review of the literature*. Retrieved from http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/1991/06/01/000009265_3961001132438/Rendered/PDF/multi_page.pdf

Nyerere, J. K. (1967). Education for self-reliance. Retrieved from https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1758-6623.1967.tb02171.x?saml_referrer

Olson, D. (1977). From utterance to text: The bias of language in speech and writing. *Harvard educational review, 47*(3), 257-281.

Onwuegbuzie, A. J., & Johnson, R. B. (2006). The validity issue in mixed research. *Research in the Schools, 13*(1), 48-63.

Opoku-Amankwa, K., Edu-Buandoh, D. F. & Brew-Hammond, A. (2015). Publishing for mother tingue-based bilingual education in Ghana: politics and consequences. *Language and Education, 29*(1),

Orellana, M. F., & Peer, K. (2010). Methodologies of early childhood research. In J. Larson & J. Marsh (Eds.), *Handbook of Early Childhood Literacy* (pp. 633-652). London: SAGE Publications.

Ouane, A., & Glanz, C. (2005). *Mother tongue literacy in sub-Saharan Africa*. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.493.1371&rep=rep1&type=pdf

Pacheco, M. B., & Miller, M. E. (2016). Making meaning through translanguaging in the literacy classroom. *The Reading Teacher, 69*(5), 533-537.

Packard, J. (2008). 'I'm gonna show you what it's really like out here': The power and limitation of participatory visual methods. *visual studies, 23*(1), 63-77.

Pahl, K., & Rowsell, J. (2006). *Travel Notes from the New Literacy Studies: Instances of Practice*. Clevedon: Multilingual Matters.

Papen, U. (2005). Literacy and development: what works for whom? or, how relevant is the social practices view of literacy for literacy education in developing countries? *International journal of educational development, 25*(1), 5-17.

Papen, U., & Tusting, K. (2019). Using ethnography and 'real literacies' to develop a curriculum for English literacy teaching for young deaf adults in India. *Compare: A Journal of Comparative and International Education*, 1-19.

Patton, M. Q. (2014). *Qualitative research & evaluation methods: Integrating theory and practice*: Sage Publications.

Pauwels, L. (2015). 'Participatory' visual research revisited: A critical-constructive assessment of epistemological, methodological and social activist tenets. *Ethnography, 16*(1), 95-117.

Peirce, C. S. (1867). *On a New List of Categories.* Paper presented at the Proceedings of the American Academy of Arts and Sciences.

Peirce, C. S. (1885). On the algebra of logic. *American journal of mathematics, 7*(2), 180-196.

Perry, K. H. (2012). What Is Literacy?--A Critical Overview of Sociocultural Perspectives. *Journal of Language and Literacy Education, 8*(1), 50-71.

Pink, S. (2001). More visualising, more methodologies: on video, reflexivity and qualitative research. *The Sociological Review, 49*(4), 586-599.

Pink, S. (2003). Interdisciplinary agendas in visual research: re-situating visual anthropology. *visual studies, 18*(2), 179-192.

Prinsloo, M., & Breier, M. (1996). *The social uses of literacy: Theory and practice in contemporary South Africa*. Cape Town: John Benjamins Publishing.

Prinsloo, M., & Stein, P. (2004). What's inside the box? Children's early encounters with literacy in South African classrooms. *Perspectives in education, 22*(2), 67-84.

Prosser, J. (1996). What constitutes an image-based qualitative methodology? *visual studies, 11*(2), 25-34.

Punch, S. (2002). Research with children: the same or different from research with adults? *Childhood, 9*(3), 321-341.

Pyo, J. (2016). Bridging In-School and Out-of-School Literacies. *Journal of Adolescent & Adult Literacy, 59*(4), 421-430.

Rattray, R. S. (1931). The tribes of the Ashanti hinterland:(Some results of a two-years anthropological survey of the Northern Territories of the Gold Coast). *Journal of the Royal African Society, 30*(118), 40-57.

Rayner, K., Foorman, B. R., Perfetti, C. A., Pesetsky, D., & Seidenberg, M. S. (2001). How psychological science informs the teaching of reading. *Psychological science in the public interest, 2*(2), 31-74.

Robertson, L. H. (2006). Learning to Read 'Properly' by Moving Between Parallel Literacy Classes. *Language and Education, 20*(1), 44-61.

Robins, R. H. (1957). Dionysius Thrax and the Western Grammatical Tradition. *Transactions of the Philological Society*, 67-106.

Robins, R. H. (1996). The Initial Section of the Techne Grammatike. In P. Swiggers & A. Wouters (Eds.), *Ancient Grammar: Content and Context* (pp. 3-15). Paris: Leuven.

Robinson-Pant, A. (2000). *Why Eat Green Cucumber at the Time of Dying? Exploring the Link between Women's Literacy and Development: A Nepal Perspective*. Retrieved from http://uil.unesco.org/literacy/women/why-eat-green-cucumber-time-dying-exploring-link-between-womens-literacy-and

Robinson-Pant, A. (2008). 'Why literacy matters': Exploring a policy perspective on literacies, identities and social change. *The Journal of Development Studies, 44*(6), 779-796.

Rogers, A. (2004). *Looking again at non-formal and informal education – towards a new paradigm*. Retrieved from http://infed.org/mobi/looking-again-at-non-formal-and-informal-education-towards-a-new-paradigm/

Rogers, A. (2014). *The base of the iceberg: Informal learning and its impact on formal and non-formal learning*. Opladen: Barbara Budrich.

Rogers, A., & Street, B. (2011). Using ethnographic approaches for understanding and teaching literacy: perspectives from both developing and western contexts. *Viden om Læsning (Knowledge About Reading) special issue, Jorden læser (Literacy Around the World), 10*, 38-47.

Rose, G. (2001). *Visual methodologies*. London: SAGE Publications.

Rose, J. (2006). *Independent review of the teaching of early reading*. Retrieved from https://dera.ioe.ac.uk/5551/2/report.pdf

Rose, P. (2009). NGO provision of basic education: alternative or complementary service delivery to support access to the excluded? *Compare, 39*(2), 219-233.

Rowe, K. (2005). *Teaching reading: literature review: a review of the evidence-based research literature on approaches to the teaching of literacy, particularly those that are effective in assisting students with reading difficulties*. Retrieved from https://research.acer.edu.au/tll_misc/32/

Ruby, J. (1976). In a pic's eye: Interpretive strategies for deriving significance and meaning from photographs. *Afterimage, 3*(9), 5-7.

Sandberg, J. (2005). How do we justify knowledge produced within interpretive approaches? *Organizational research methods, 8*(1), 41-68.

Sapir, E. (1929). The status of linguistics as a science. *Language*, 207-214.

Saussure, F. D. (1975). *Course in General Linguistics, translated from the French (1916) by Wade Baskin*. London: Peter Owen.

Savelugu-Nanton Municipal Assembly Assembly (2018). *Composite budget for 2018-2021: Programme based budget estimates*. Retrieved from https://www.mofep.gov.gh/sites/default/files/composite-budget/2018/NR/Savelugu.pdf

Seppänen, J. (2017). Unruly Representation: Materiality, indexicality and agency of the photographic trace. *Photographies, 10*(1), 113-128.

School for Life (2007). *The Leap to Literacy and Life Change in Northern Ghana: An Impact Assessment of School for Life (SfL)*. Retrieved from http://www.web.net/~afc/download2/Education/complimentary_edu_abridged.pdf

Schramm, K. (2016). Slave route projects: Tracing the heritage of slavery in Ghana. In F. de Jong & M. Rowlands (Eds.), *Reclaiming Heritage: alternative imagineries of memory in West Africa* (pp. 71-98). London: Routledge.

Schultz, K., & Hull, G. (2008). Literacies in and out of school in the United States. In N. H. Hornberger (Ed.), *Encyclopedia of language and education* (pp. 646-657). Boston: Springer.

Schultz, T. W. (1960). Capital formation by education. *Journal of political economy, 68*(6), 571-583.

Schwartz, M. (2018). Preschool bilingual education: Agency in interactions between children, teachers, and parents. In M. Schwartz (Ed.), *Preschool Bilingual Education* (pp. 1-24). Boston: Springer.

Scribner, S., & Cole, M. (1978). Literacy without schooling: Testing for intellectual effects. *Harvard educational review, 48*(4), 448-461.

Scribner, S., & Cole, M. (1981). *The psychology of literacy*. Cambridge: Harvard University Press.

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2001). *Experimental and quasi-experimental designs for generalized causal inference*. Boston: Houghton Mifflin.

Sharples, M., Davison, L., Thomas, G. V., & Rudman, P. D. (2003). Children as photographers: An analysis of children's photographic behaviour and intentions at three age levels. *Visual communication, 2*(3), 303-330.

Sheehan, K. B. (2018). Crowdsourcing research: data collection with Amazon's Mechanical Turk. *Communication Monographs, 85*(1), 140-156.

Shohel, M. M. C., & Howes, A. J. (2008). Informality of teaching and learning in nonformal schools: socio-cultural processes as mesosystems of student development. *Education 3-13, 36*(3), 293-309.

Sibanda, R., & Kajee, L. (2019). Home as a primary space: Exploring out-of-school literacy practices in early childhood education in a township in South Africa. *South African Journal of Childhood Education, 9*, 1-10.

Sichula, N. K., & Genis, G. (2019). Pedagogical practices in non-formal adult literacy classes in Zambia. *International Review of Education, 65*(6), 879-903.

Sinclair, R. (2004). Participation in practice: Making it meaningful, effective and sustainable. *Children & Society, 18*(2), 106-118.

Singleton, T. (1999). The slave trade remembered on the former gold and slave coasts. *Slavery & Abolition, 20*(1), 150-169.

Skutnabb-Kangas, T. (1984). Why aren't all children in the Nordic countries bilingual? *Journal of Multilingual & Multicultural Development, 5*(3-4), 301-315.

Smith, B. (2016). Turning language socialization ontological: Material things and the semiotics of scaling time in Peruvian Aymara boyhood. *Language & Communication, 46*, 42-50.

Smyth, J. A. (2005). *UNESCO's International Literacy Statistics 1950–2000.* Background Paper Prepared for the Education for All Global Monitoring Report 2006. Literacy for Life.

Song, K. (2016). "Okay, I will say in Korean and then in American": Translanguaging practices in bilingual homes. *Journal of Early Childhood Literacy, 16*(1), 84-106.

Sontag, S. (1977). *On Photography*. London: Penguin.

Spencer, T., Knobel, M., & Lankshear, C. (2013). Researching Young Children's Out-of-School Literacy Practices. In J. Larson & J. Marsh (Eds.), *The SAGE Handbook of Early Childhood Literacy* (pp. 133-161). Londond: SAGE Publications.

Staniland, M. (1975). *The Lions of Dagbon: political change in northern Ghana*. Cambridge: Cambridge University Press.

Stanley, G. E. (1970). Some notes on African language grammars and dictionaries written between 1850 and 1900. *Anthropological Linguistics*, 98-102.

Stanovich, K. E., & Cunningham, A. E. (1992). Studying the consequences of literacy within a literate society: The cognitive correlates of print exposure. *Memory & Cognition, 20*(1), 51-68.

Stein, P., & Mamabolo, T. (2005). Pedagogy is not enough: Early literacy practices in a South African school. In B. V. Street (Ed.), *Literacies across educational contexts: Mediating, learning and teaching* (pp. 25-42). Philadelphia: Caslon.

Strawn, C., & Monama, G. (2012). Making Soweto stories: Photovoice meets the new literacy studies. *International Journal of Lifelong Education, 31*(5), 535-553.

Street, B. (2009). The future of 'social literacies'. In M. Baynham & M. Prinsloo (Eds.), *The future of literacy studies* (pp. 21-37). New York: Palgrave Macmillan.

Street, B. V. (1984). *Literacy in Theory and Practice*. Cambridge: Cambridge University Press.

Subero, D., Vujasinović, E., & Esteban-Guitart, M. (2017). Mobilising funds of identity in and out of school. *Cambridge Journal of Education, 47*(2), 247-263.

Sulemana, A. A. I. (2013). Ka Adibo Dali La? What of the Battie of Adibo? Interrogating German Rule in Dagbon. In W. Apoh & B. Lundt (Eds.), *Germany and Its West African Colonies: "Excavations" of German Colonialism in Post-colonial Times* (pp. 173-185). Berlin: LIT Verlag.

Sutton-Brown, C. A. (2014). Photovoice: A methodological guide. *Photography and Culture, 7*(2), 169-185.

Szwed, J. (1981). The ethnography of literacy. *Writing: The nature, development, and teaching of written communication, 1*, 13-23.

Tamakloe, E. F. (1931). *A brief history of the Dagomba people*. Accra, Ghana: Gold Coast Government Printing Office.

Taylor, K., & Silver, L. (2018). Smartphone Ownership is Growing Rapidly Around the World, but Not Always Equally. *Pew Research Center*. Retrieved from https://www.pewresearch.org/global/2019/02/05/smartphone-ownership-is-growing-rapidly-around-the-world-but-not-always-equally/

Teddlie, C., & Tashakkori, A. (2006). A general typology of research designs featuring mixed methods. *Research in the Schools, 13*(1), 12-28.

The Body Shop (2020). Benefits of shea butter. Retrieved from https://www.thebodyshop.com/en-gb/ingredient/shea?clear=true

Thériault, V. (2016). Literacy mediation as a form of powerful literacies in community-based organisations working with young people in a situation of precarity. *Ethnography and Education, 11*(2), 158-173.

Thomas, R. G. (1974). Education in northern Ghana, 1906-1940: a study in colonial paradox. *The International Journal of African Historical Studies, 7*(3), 427-467.

Thompson, H. (2012). Lily Cole visits the Ghanaian producers of The Body Shop's shea butter. *Guardian*. Retrieved from https://www.theguardian.com/environment/gallery/2012/jun/18/lily-cole-body-shop-shea-butter

Tikly, L. & Bond, T. (2013). Towards a postcolonial research ethics in comparative and international education. *Compare, 43*(4), 422-442.

Tupas, R. (2015). Inequalities of multilingualism: Challenges to mother tongue-based multilingual education. *Language and Education, 29*(2), 112-124.

United Nations (1976). *International Covenant on Economic, Social and Cultural Rights*.

United Nations (1989). *Convention on the Rights of the Child*.

United Nations (2000). *United Nations Millennium Declaration*.

UNESCO (1953). *Progress of literacy in various countries: A preliminary statistical study of available census data since 1900*. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000002898

UNESCO (1957). *World illiteracy at mid-century: A statistical study*. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000002930

UNESCO (1975). *Declaration of Persepolis*. Retrieved from http://www.unesco.org/education/pdf/PERSEP_E.PDF

UNESCO (1977). *Statistics of Educational Attainment and Illiteracy, 1945-1974*. ERIC Clearinghouse, Washington D.C.

UNESCO (2004). *The plurality of literacy and its implications for policies and programmes*. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000136246

UNESCO (2005). *EFA Global Monitoring Report: Literacy for life*. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000141639

UNESCO (2014). *Teaching and Learning: Achieving quality for all*. Retrieved from https://en.unesco.org/gem-report/report/2014/teaching-and-learning-achieving-quality-all

UNESCO (2016). *Leaving no one behind: How far on the way to universal primary and secondary education*. Retrieved from https://en.unesco.org/gem-report/leaving-no-one-behind-how-far-way-universal-primary-and-secondary-education

UNESCO (2018). *One in five children, adolescents and youth is out of school*. Retrieved from https://en.unesco.org/news/one-every-five-children-adolescents-and-youth-out-school-worldwide

UNESCO-UIS & Brookings Institution (2013). *Toward universal learning: Recommendations from the Learning Metrics Task Force*. Retrieved from

https://www.brookings.edu/wp-content/uploads/2016/06/LTMF-RecommendationsReportfinalweb.pdf

UNESCO-UIS & UNICEF (2012). *Global Initiative on Out-of-School Children: Ghana Country Study*. Retrieved from http://unescoghana.org/wp-content/uploads/2017/08/Global-OOSC-Ghana-Report.pdf

UNICEF (2007). *Achieving unviersal primary education in Ghana by 2015: A reality of a dream?* New York: Division of Policy and Planning Working Papers.

van der Aa, J., & Blommaert, J. (2011). Ethnographic monitoring: Hymes's unfinished business in educational research. *Anthropology & Education Quarterly, 42*(4), 319-334.

van der Riet, M. (2008). Participatory research and the philosophy of social science: Beyond the moral imperative. *Qualitative inquiry, 14*(4), 546-565.

van Enk, A., Dagenais, D., & Toohey, K. (2005). A socio-cultural perspective on school-based literacy research: Some emerging considerations. *Language and Education, 19*(6), 496-512.

Vega, L., & Bajaj, M. (2016). The right to education in protracted conflict: teachers' experiences in non-formal education in Colombia. *Globalisation, Societies and Education, 14*(3), 358-373.

Lager Vestberg, N. (2008). ARCHIVAL VALUE: On photography, materiality and indexicality. *Photographies, 1*(1), 49-65.

Vieira, K. (2016). Writing remittances: Migration-driven literacy learning in a Brazilian homeland. *Research in the Teaching of English*, 422-449.

Vygotsky, L. S. (1962). *Language and thought*. Ontario, Canada: Massachusetts Institute of Technology Press.

Wagner, D. A. (2011). What happened to literacy? Historical and conceptual perspectives on literacy in UNESCO. *International Journal of Educational Development, 31*(3), 319-323.

Wang, C., & Burris, M. A. (1994). Empowerment through photo novella: Portraits of participation. *Health education quarterly, 21*(2), 171-186.

Wang, C., & Burris, M. A. (1997). Photovoice: Concept, methodology, and use for participatory needs assessment. *Health education & behavior, 24*(3), 369-387.

Watkins, K. (2012). *The power of circumstance. A new approach to measuring education inequality*. Washington, DC: Brookings Institution.

Webb, R. K. (1950). Working class readers in early Victorian England. *The English Historical Review, 65*(256), 333-351.

Weiss, H. (2001). European images of Islam in the Northern Hinterlands of the Gold Coast through the early Colonial Period. *Sudanic Africa, 12*, 83-110.

Welmers, W. E. (1970). Language Change and Language Relationsips in Africa. *Language Sciences, 12*, 1-8.

Wenczel, N. (2007). The optical camera obscura II: images and texts. In W. Lefevre (Ed.), *Inside the Camera Obscura-Optics and Art under the Spell of the Projected Image*: Max Planck Institute for the History of Science.

Westermann, D. (1929). The linguistic situation and vernacular literature in British West Africa. *Africa, 2*(4), 337-351.

Westermann, D., & Ward, I. C. (1933). *Practical phonetics for students of African languages*. London: Routledge.

Whitelaw, M. (2012). Transmateriality: Presence Aesthetics and the Media Arts. In U. Ekman (Ed.), *Throughout: Art and Culture Emerging with Ubiquitous Computing* (pp. 223-236). London: The MIT Press.

Whitney, W. D. (1860). On Lepsius's standard alphabet. *Journal of the American Oriental Society, 7*, 299-332.

Whitney, W. D. (1880). Logical consistency in wiew of language. *The American Journal of Philology (1880-1910), 1*(3), 327-343.

Wiles, R., Prosser, J., Bagnoli, A., Clark, A., Davies, K., Holland, S., & Renold, E. (2008). Visual ethics: Ethical issues in visual research. Retrieved from http://eprints.ncrm.ac.uk/421/1/MethodsReviewPaperNCRM-011.pdf

Wilks, I. (1971). The Mossi and Akan States, 1500-1800. *History of West Africa, 1*, 344-386.

Willinsky, J. (1990). *The New Literacy: Redefining reading and writing in schools*. London: Routledge.

Wilson, S. J., Dickinson, D. K., & Rowe, D. W. (2013). Impact of an early reading first program on the language and literacy achievement of children from diverse language backgrounds. *Early Childhood Research Quarterly, 28*(3), 578-592.

Winton, A. (2016). Using photography as a creative, collaborative research tool. *The qualitative report, 21*(2), 428-449.

World Bank (2003). *World Development Report 2004: Making services work for poor people*. Retrieved from https://openknowledge.worldbank.org/handle/10986/5986

World Bank (2018). *LEARNING to Realize Education's Promise*. Retrieved from https://www.worldbank.org/en/publication/wdr2018

Worth, S. (1980). Margaret Mead and the Shift from" Visual Anthropology" to the" Anthropology of Visual Communication". *Studies in Visual Communication, 6*(1), 15-22.

Worth, S., & Adair, J. (1972). *Through Navajo Eyes: An Exploration of Film Communication and Anthropology*. Bloomington: Indiana University Press.

Wray, D., Bloom, W., & Hall, N. (1989). *Literacy in action*. London: The Falmer Press.

Wray, K. B. (2002). The epistemic significance of collaborative research. *Philosophy of Science, 69*(1), 150-168.

Yamada-Rice, D. (2010). Beyond words: An enquiry into children's home visual communication practices. *Journal of Early Childhood Literacy, 10*(3), 341-363.

Yates, L. (2010). The story they want to tell, and the visual story as evidence: Young people, research authority and research purposes in the education and health domains. *visual studies, 25*(3), 280-291.

Yin, R. K. (2011). *Applications of case study research*. London: Sage Publications.

Young, L., & Barrett, H. (2001). Adapting visual methods: action research with Kampala street children. *Area, 33*(2), 141-152.

Zachariah, M. (1985). Lumps of clay and growing plants: Dominant metaphors of the role of education in the Third World, 1950-1980. *Comparative education review, 29*(1), 1-21.