THE GHANA SCHOOL FEEDING PROGRAMME, HOME ENVIRONMENT AND LEARNING OUTCOMES

BY

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DECLARATION

I, Emefa Akua Amponsah, do hereby declare that except for references cited, which have been duly acknowledged, this work, **'The Ghana School Feeding Programme, Home Environment and Learning Outcomes',** is the result of my own research. It has not been presented anywhere, either in part or in whole for the award of any degree.

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DEDICATION

This thesis is dedicated to the Almighty God for being with me through it all. I also dedicate this thesis to my parents Mr and Mrs Siabi-Mehsah who taught me the value of education. Notwithstanding, I dedicate it to my husband Edward Kyere Amponsah, thank you for everything. To my children, Sucxel Kwaku Amponsah, Ama Sekyiwa Eyram Amponsah, Edward Kwame Kyere Amponsah and Abena Nhyiraba Emefa Amponsah for their unflinching support.

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ABSTRACT

Although School Feeding Programmes (SFP) is seen as an essential aspect of child growth and holistic development, evidence suggests that SFP's alone cannot determine educational outcomes of school children. Studies have identified a strong relationship between home environment factors and school children's learning outcomes. In Ghana, the School Feeding Programme targets children from poor and vulnerable households who attend Government public schools. Evidence on school feeding in Ghana tends to be limited to quasi-experimental and descriptive studies, which are usually not on a nationwide level. These studies do not examine the impact of feeding on learning outcomes while at the same time considering the effect the child, home and school environment factors have on learning outcomes.

Evidence on the effects of SFP on school-age children and learning outcomes in Ghana is scarce and limited to small sample studies. There exists little evidence on the Ghana School Feeding Programme and educational outcomes tested through randomized control trials in Ghana. Likewise, there exists a wealth of evidence on the child, home and school characteristics and how they influence academic performance. Few studies that identified the impacts of GSFP on learning outcomes did not assess the effects of the child, home and school factors on learning outcomes

Using a mixed methods approach, this study examines how school feeding and home environment factors influence learning outcomes of public school children in Ghana. Quantitative data for the study was obtained from a randomized controlled evaluation conducted during the period 2012-2016 by ISSER and other institutions (ISSER/NMIMR/PCD datasets). The study uses a child, household, school level and caterer level data for school children between the ages of 3-20 years in Ghana. Qualitative data was

collected from key actors of the programme to help draw inferences and understand the underlying effects the programme has on learning outcomes specifically attendance, absenteeism, mathematics test, English Literacy test, Cognitive ability tests. Simple descriptive statistics and the difference-in-difference with covariates model was adopted to determine the association between school feeding, home environment factors and then learning outcomes.

The qualitative study identified that coordination among programme actors is weak. This has a direct linkage to the provision of resources required to promote learning. Apart from the Desk Officers who are the main implementers of the programme, the allied officers of the programme, had little knowledge of the processes involved in the programme implementation, and the programme activities. There also existed confusion on the roles of specific officers on the programme, which bred mistrust among implementing officers. Other challenges outlined include delays in payments, poor quality food, limited monitoring visits which were specific to schools located around the district capitals and political interference in the implementation procedure of the programme. The findings also suggest that improving school resources does improve learning outcomes. As such, the coordinating actors must work at improving the relationships and work together to be able to improve school resources.

When controlled for the child, home and school effects, Ghana's school feeding programme reveals some impacts for key educational outcomes such as absenteeism, reduces grade repetition and improves Mathematics test scores. Findings from the study confirm Bronfenbrenner's ecological systems theory, which indicates that the environment a child lives and operates in has an effect on their outcomes. A child's innate abilities can influence the likelihood of a child performing well in school or not. The poor home environment

conditions of the children from poor and vulnerable households do not encourage a child to perform well academically. Poor home environment conditions tend to influence the learning outcomes in a negative way, whiles the school environment factors to some extent improve learning outcomes. The findings suggest that home environment factors explain to some extent the learning outcomes of children from poor and vulnerable households on the feeding programme. Parents irrespective of their socio-economic status should be encouraged to take active roles in the education of their children. They play a role in determining the learning outcomes of their school children and must be helped to improve these outcomes.

TABLE OF CONTENTS

CONTENT **PAGE**

DECLARATION i
DEDICATION ii
ACKNOWLEDGEMENT iii
ABSTRACT iv
TABLE OF CONTENTS vii
LIST OF TABLES xiii
LIST OF FIGURES xv
ACRONYMS xvi

CHAPTER ONE 1
INTRODUCTION 1
1.1 Background to the Study 1
1.2 Problem Statement 7
1.3 Study Objectives 11
1.4 Justification of the Study 12
1.5 Structure of the thesis 13

CHAPTER TWO 15
LITERATURE REVIEW OF SCHOOL FEEDING PROGRAMMES 15
2.1 Introduction 15
2.2 School Feeding Programmes 15
2.3 Types of School Feeding Programmes 15
2.3.1 In-school or onsight Feeding Programmes 16
2.3.2 Take home rations 17
2.4 Standards for guiding the sustainability of School Feeding Programmes 18
2.5 Models of the School Feeding Programme 19
2.6 Countries and types of Feeding Programme being operated 22
2.6.1 Botswana's School Feeding Programme 23
2.6.2 India's School Feeding Programme 25
2.6.3 Chile's School Feeding Programme 25
2.6.4 Kenya's School Feeding Models 29
2.6.5 Ghana's School Feeding Programme 30

2.7 Malnutrition, children's cognition, and academic performance 42
2.8 Educational access in Ghana 43
2.9 Home environment and educational outcomes 44
2.10 Home environment, School Feeding and educational outcomes 46
2.11 School Feeding, school environment and academic performance 48
2.12 Child, school, home environment and learning outcomes 49
2.13 Impact of School Feeding on access to education 50
2.14 Impact of School Feeding on cognition and test scores 52
2.15 Programme challenges 53
2.16 Conclusion 54

CHAPTER THREE 55
THEORETICAL AND CONCEPTUAL FRAMEWORK 55
3.1 Introduction 55
3.2 Theoretical Framework 55
3.2.1 Human Capital Theory 55
3.2.2 Bronfenbrenner's (1979) ecological systems theory 57
3.2.3 The sociological institutional theory 60
3.3 Conceptual Framework 61
3.4 Summary of the chapter 65

CHAPTER FOUR 66
METHODOLOGY 66
4.1 Introduction 66
4.2 Ghana country context 66
4.3 Methodological procedure 67
4.3.1 Rationale for the type of evaluation method 68
4.3.2 Philosophical orientation of the study 69
4.3.3 Challenges with mixed methods 70
4.4 Population sampling and data description 70
4.4.1 School selection 75
4.5 Research instruments 75
4.6 Data collection, validation and ethical consideration 76
4.7 Re-organisation of the secondary quantitative data 76

4.8 Methods used to Address Research Objectives 80
4.9 Analytical Framework for the Quantitative Work 80
4.10 Definition of Variables in the Study 85
4.10.1 Dependent Variable 86
4.10.1.1 The Ravens Progressive Matrix 87
4.10.1.2 The Wechsler Intelligence Scale for Children (WISC) Forward and Backward Digit Span Test Scores 87
4.10.2 Independent Variable 88
4.10.2.1 Covariates 88
4.11 The Qualitative Study 89
4.12 Qualitative Sampling - Selection of Districts, Schools and Communities for Qualitative Study 90
4.12.1 Focus Group Discussions 91
4.12.2 In-Depth Interview 91
4.13 Interview Methods for the Qualitative Study 92
4.14 Qualitative Analysis 93
4.15 Conclusions 94

CHAPTER FIVE 95
SCHOOL FEEDING, HOME ENVIRONMENT AND ACCESS TO EDUCATION 95
5.1 Introduction 95
5.2 GSFP and educational outcomes for public school children between the ages of 3 and 20 Years 95
5.2.1 Characteristics of school children and their households 97
5.2.2 Economic activity of household heads 99
5.2.3 Composition of household members who bear the most cost of education 99
5.3 Description of school characteristics by survey period 100
5.3.1 Water and Sanitation in schools 101
5.3.2 Distance to the Water Source from School by a Wave 102
5.3.3 Availability and conditions of sanitary facilities 103
5.3.4 Availability of classrooms with writing boards 106
5.3.5 Learning in a Classroom Environment 107
5.4 School Management Committees (SMC) 108
5.5 Characteristics of a Caterer on the School Feeding Programme 110

5.6 School Feeding and children's access to basic education in Ghana 111
5.6.1 Impact of School Feeding on Attendance controlling for Child, Home and School Environment Factors 113
5.6.2 Impact of School Feeding on Absenteeism controlling for Child, Home and School Environment Factors 118
5.7 Discussion of Results 123
5.7.1 Child Characteristics 125
5.7.2 Home Environment Factors 125
5.7.3 School Environment Factors 128
5.8 Conclusion 129

CHAPTER SIX 131
SCHOOL FEEDING, HOME ENVIRONMENT AND ACADEMIC PERFORMANCE 131
6.1 Introduction 131
6.2 School Feeding and learning outcomes 132
6.2.1 Impact of School Feeding on Class Repetition controlling for Child, Home and School Environment Factors 132
6.2.2 Impact of School Feeding on Mathematics Test scores controlling for Child, Home and School Environment Factors 138
6.2.3 Impact of School Feeding on English Literacy Test controlling for Child, Home and School Environment Factors 142
6.3 School feeding and Cognition 146
6.3.1 Impact of School Feeding on Digit Span Test controlling for Child, Home and School Environment Factors 146
6.3.2 Impact of School Feeding on Ravens Test score controlling for Child, Home and School Environment Factors 151
6.4 Discussions on the Effects of School Feeding on Learning Outcomes 155
6.4.1 Child Characteristics 155
6.4.2 Home Environment Factors 156
6.4.3 School Environment Factors 159
6.5 Conclusion 159

CHAPTER SEVEN 162
IMPLEMENTATION CHALLENGES CONFRONTING THE SCHOOL FEEDING PROGRAMME 162
7.1 Introduction 162
7.2 The Ghana School Feeding Programme 162
7.3 Actors of the GSFP Implementation Procedure 163
7.3.1 Actors' Knowledge, Roles and Responsibilities on the Programme 163
7.4. Implementation Challenges of the GSFP 170
7.4.1 Coordination, School Resources and Expected Outcomes 170
7.4.2 Change in Oversight Ministry 171
7.4.3 Delays in Payment 173
7.4.4 Composition of the District Implementation Committee, the School Implementation Committee and their Activities 174
7.4.5 The Challenge of Poor Hygiene 175
7.4.6 Timing of the School Meals 175
7.4.7 High Enrolment and Attendance 176
7.4.8 Poor Quality of Food 177
7.4.9 Limited Monitoring Visits 178
7.4.10 Political Interference 178
7.4.11 Mistrust among Implementing Officers 179
7.5 Perceptions of households on programme 180
7.6 Benefits of the School Feeding Programme 181
7.6.1 Reduction of hunger 181
7.6.2 Improved attendance 182
7.6.3 Increased Interest of Some Parents in the Education of their children 182
7.6.4 Improved Class Participation 183
7.6.5 Improved Retentive Memory 183
7.7 Sustainability of Programme 184
7.8 School Feeding, Home Environment and Learning Outcomes 186
7.9 School Feeding, school environment and learning outcomes 187
7.10 Conclusion 188

CHAPTER EIGHT 190
SUMMARY CONCLUSIONS AND RECOMMENDATIONS 190
8.1 Introduction 190
8.2 Summary of the Study 190
8.3 Conclusions 194
8.4 Policy Recommendations 195
8.5 Theoretical Contribution 200
8.6 Significance and Future Direction of the School Feeding Programme 201

REFERENCES 203

APPENDICES 221
Appendix 1: Qualitative Research Instruments 221
Appendix 2: Summary table of School feeding models in 6 countries 230

LIST OF TABLES

Table 4.1: Proportion of students who did not comply with the randomization protocol .. 78

Table 4.2: Main indicators of the study 79

Table 4.3: Summary of the methods used to address the research objectives 80

Table 4.4: Variables of interest and a priori expectation 85

Table 5.1 Description of the child, home and school level variables used in the analysis . 96

Table 5.2 Percentage of school children by treatment arm, survey period and current grade (%) 98

Table 5.3: Percentage of educational levels of adult household members by treatment arms (%) 98

Table 5.4: Percentage of main economic activity of households members by treatment arm (%) 99

Table 5.5: Percentage of teacher characteristics by survey period (%) 101

Table 5.6: Percentage of teacher qualification by survey period (%) 101

Table 5.7: Percentage of type water resources, by treatment arm and survey period (%) 102

Table 5.8: Percentage of children by type of toilet facilities available in schools (%) 104

Table 5.9: Selected characteristics of School Management Committees 110

Table 5.10: Caterer Characteristics (%) 111

Table 5.11: School feeding and attendance, controlling for the child, home environment and school environment factors 115

Table 5.12: School feeding and Absenteeism controlling for the child, home environment and school environment factors 121

Table 6.1: School feeding and class repetition controlling for the child, home environment and school environment factors 134

Table 6.2: School feeding and Mathematics test score, controlling the for child, home environment and school environment factors 140

Table 6.3: School feeding and Literacy controlling for the child, home environment and school environment factors 144

Table 6.4: Impact of school feeding on Digit Span test controlling for the child, home environment and school environment factors 149

Table 6.5: School Feeding and Raven's test score controlling for the child, home environment and school environment factors 152

Table 7.1: Caterer responses on Payment 173

LIST OF FIGURES

Figure 2.1: Programme actor relationships 37

Figure 3.1: Conceptual Framework depicting the relationship between School Feeding, and learning outcomes and how the child, home and school level factors influence the relationship. 63

Figure 5.1: Percentage of students, by treatment arm, sex and survey period 97

Figure 5.2: Composition of household members who bear the most cost of education (%) 100

Figure 5.3: Distance children cover from their schools to the nearest water source on a daily basis (%) 103

Figure 5.4: Percentage of children by type of urinal facilities available in Schools (%) . 105

Figure 5.5: Provision of textbooks by government/school (%) 106

Figure 5.6: Availability of classrooms with writing boards (%) 107

Figure 5.7: School children learning environment in a school in the Northern Region .. 108

ACRONYMS

Acronym	Entity
BECE	Basic Education Certificate Examination
CAADP	Comprehensive African Agricultural Development Programme
CSOs	Civil Society Organizations
DA	District Assembly
DAAD	German Academic Exchange Service
DCE	District Chief Executive
DDO	District Desk Officer
DEOC	District Education Oversight Committee
DIC	District Implementation Committee
DID	Difference-In-Difference
DPCU	District Planning Coordinating Unit
EMIS	Education Management Information Systems
ESPR	Education Sector Performance Report
ESR	Education Sector Review
FAO	Food and Agriculture Organisation
FBOs	Farmer-Based Organizations
FCUBE	Free Compulsory Universal Based Education
GES	Ghana Education Service
GOG	Government of Ghana
GSFP/SFP	Ghana School Feeding Programme/School Feeding Programme
HGSF	Home-Grown School Feeding
IFPRI	International Food Policy Research Institute
ISSER	Institute of Statistical Social and Economic Research

JHS	Junior High School
KVIP	Kumasi Ventilation Improvement Pit
MDGs	Millennium Development Goals
MMDAs	Metropolitan/Municipal/District Assemblies
MOA	Ministry of Agriculture
MOE	Ministry of Education
MOGCSP	Ministry of Gender Children and Social Protection
MOH	Ministry of Health
NMIMR	Noguchi Memorial Institute for Medical Research
MoLGRD	Ministry of Local Government and Rural Development
NGOs	Non-Governmental Organizations
PCD	Partnership for Child Development
PTA	Parent-Teacher Association
RCT	Randomized Control Trial
SDG	Sustainable Development Goals
SIC	School Implementation Committee
SMC	School Management Committee
WFP	World Food Programme

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Education is one of the tools that aid economic development. Developing countries such as Ghana aims at ensuring that all children have an equal opportunity to acquire at least the basic form of formal education. Countries have made efforts to increase primary school enrolments and attendance by some 82 million pupils since 1990, with 44 million more girls in school in 1998 than in 1990 (UNESCO, 2010 p. 13). Despite the educational achievements over the years, many children are still out of school globally (UNESCO, 2010). Several measures such as the School Feeding Programme (SFP) have been put in place to keep school children in school.

School feeding is seen as a development tool that seeks to reduce hunger and vulnerability as well as improve health, nutrition and educational outcomes. Studies by Afridi, Bidisha and Rohini (2013) and Glewwe, Jacoby and King (2001) have identified that school feeding improves academic achievement. The World Food Programme (WFP) sampled 169 countries and realized that about 368 million school children are fed daily (WFP, 2002). The face of school feeding changed in 2009 when the World Bank, World Food Programme and the Partnership for Child development encouraged countries to use School Feeding Programmes as a safety net with a multifaceted purpose of improving education, health and agriculture production (WFP, 2012). The State of food security and nutrition in the world 2017, a report by the Food and Agriculture Organization (FAO, 2016) indicates that countries as of 2017 are still struggling with ways of improving education, health (reducing malnutrition and improving nutrition) with an integrated way of improving sustainable

agriculture production to improve food security. School Feeding Programmes exist in most of the high and middle-income countries.

The World Food Programme supports about 70 of the 108 low-income countries in the world with food aid and technical support on the provision of school meals. School Feeding Programmes usually have strong political support from both international and local governments and is seen as one of the strategic tools to achieve the desired levels of developments that are related to education, health and agriculture (WFP, 2009). With the second Sustainable Development Goal (SDG 2) calling for countries to end hunger, achieve food security, improve education, nutrition and promote sustainable agriculture by 2030, a more comprehensive innovative and aggressive policy approach that targets especially the poor and vulnerable in society is required. Ghana and Nigeria have made steady strides to reduce hunger and malnutrition (Food and Agriculture Organization, 2016) when compared to other countries even though it can be further reduced.

The Government of Ghana, (2015), Ministry of Education, (2015) and World Bank, (2014; 2012) indicates that Ghana has made remarkable efforts in increasing attendance rates, especially at the primary level over the years. Ghana has been able to meet its MDG 2 goal of achieving universal primary education goal as of 2015. Several policy efforts by the education ministry in collaboration with their partner ministries have achieved this feat. Interventions such as the Education Strategy Plan (ESP) 1 and 2; the Free Compulsory Universal Basic Education Programme (FCUBE); the abolition of school fees (Capitation Grant); expansion of Early Childhood Development Services, promotion of measures to improve gender parity and the Ghana School Feeding Programme (GSFP) have helped to meet the MDG. Now the country aims at achieving the United Nations Sustainable Development Goals (SDG), which include ensuring healthy lives, promoting well-being,

ensuring the inclusion of equitable access to quality education, and promoting lifelong learning opportunities for all. These policies, programmes and goals will not achieve the desired effect if the right environment is not created for the child to develop. Ghana as a country has its primary school education highly subsidized (MOE, 2012) with the view of making primary education available and accessible to all children of school going age. Although primary education is free, other indirect costs of education can dissuade and prevent the poorest families from sending their wards to school. These costs, depending on the home environment conditions can discourage education in the poorest of homes. Creating the right environment that encourages and promotes the education of a child can serve as an incentive to promote child development.

The UNESCO (2000) suggested that an estimated 88 million children, who were mostly in Africa and Southern Asia were out of school as of 2010. The Food and Agriculture Organization of the United Nations (FAO) estimated that nearly one billion people in the world are undernourished (FAO, 2010). Studies on school feeding by Afridi (2011); Bundy et al. (2009); FAO (2010); Kazianga et al. (2014) indicated that each country assessed realized the need to do something to address the hunger and malnutrition problem and improve educational outcomes among school children. The United Nations, the World Bank, the World Food Programme and other agencies encourage countries to use the School Feeding Programme to address the poverty, health and education challenges countries face (Bundy et al., 2009).

School Feeding Programmes serve as multi-purpose safety nets that target providing health and education benefits to poor and vulnerable children and their families (Abotsi, 2013; Drake et al., 2016; Jomaa, McDonnell and Probart, 2011). The School Feeding Programmes have the ability to improve access, increase attendance, reduce absenteeism, and ensure

some level of food security at the household level (Afridi, 2011; Kazianga, de Walque and Alderman, (2009); World Food Programme, 2013). School Feeding Programme globally is a tool that has helped to achieve the United Nations Millennium Development Goals (MDG's) and now Sustainable Development Goals (SDG's). The MDG's sought to reduce extreme hunger and poverty, to achieve universal primary education, equality of gender and enhance women empowerment, among others (World Bank, 2014). In 2013, the WFP reported that about 368 million school children in the world receive food in schools of which India (114 million), Brazil (47 million), the United States (45 million), China (26 million) with children in Bermuda and Iran receiving smallest coverage of about 3,000 school children. According to Drake et al. (2016), Ghana feeds about 1,693,698 school children in 4481 schools every school day across the country. As countries use the programme as a poor and social indicator (Gelli and Suwa, 2014) they tend to transition from a donor-supported programme into a country owned programme. The ability to transition encourages countries to link their programme to local agriculture development, a term adopted as the Home-Grown School Feeding (HGSF) programme. Ghana has the traditional school feeding running concurrently with the HGSF programme.

Ghana's School Feeding Programme started in 2005 as a nationwide programme with the objective of providing one hot nutritious meal to poor and vulnerable school children to improve their health and educational outcomes. Since 2005 the School Feeding Programme coverage has been steadily increasing over the years. The School Feeding Programme attempts to address problems of access to education and improve some educational and health outcomes. Ghana's School Feeding Programme is implemented at the basic level of education (Government of Ghana, 2006, 2010). Ghana transitioned from the externally supported School Feeding Programme to a nationally owned programme. Several evaluations and assessments were carried out on the school feeding effects and impacts. One

of such evaluations by Ernst and Young (2012) recommended the need to create pathways for which local agriculture would be linked with the programme to boost farmer's income, improve relations with caterers, provide readily available markets for food produced, and improve education, nutrition and health of the school children. This created the platform for which the HGSF, an innovative capacity-building component, was incorporated into the GSFP (Afoakwa, 2014). The HGSF was piloted to integrate community-level activities to enhance the impact of the programme on education, health and nutrition and agriculture outcomes (Drake et al., 2016).

There have been ongoing debates about what constitutes the right environment for a child to develop and perform well in society. This environment must constitute a blend of the various environment the child relates to, especially the child's home and school environment working together to influence the child's development. The learning environment can be both in the home environment, the school and the community environment setting. Some authors explain the learning environment to be an environment in which a whole range of components and activities that encourages all forms of learning to take place (Ahmad, Shaari, Hashim & Kariminia, 2015; Anders et al., 2012; Parker, Boak, Griffin, Ripple, & Peay, 1999). Learning can occur in environments where teachers teach, instruct and supervise; the family supports, and children are motivated by the environment and other incentives such as a meal in school to participate in school activities (Anders et al., 2012; Fairbrother, Curtis, & Goyder, 2016; Parker et al., 1999). Although the school is the formal environment where learning occurs, children from vulnerable homes and communities may have other reasons apart from learning to attend school. Bundy, Burbano, Grosh, Gelli, Jukes, and Drake (2009) indicate that some children are motivated to acquire a formal education because it is their basic right, but Kazianga, de Walque, and Alderman (2014) show that other children are motivated to attend school because of the school meals that are

provided at the school. According to Afridi (2011), children from poor and vulnerable communities and homes generally find it difficult at times to attend and participate in school activities. They contend with fighting for basic survival needs such that the meal becomes the primary reason to acquire education.

The context within which the School Feeding Programme exists makes its survival critical. Since hungry school children will find some food to eat when they go to school, the school meal offered by the GSFP becomes the incentive for improving access to basic education. Parents of children from vulnerable and poor home are motivated to send their children to school. According to Williams (2004) and Epstein (1998) the home symbolizes a multitude of meaning within the context of personal identity, family support and general well being and development. Sulemana et al. (2013) argue that household decision to enrol and encourage a child to attend school regularly is influenced by many factors. The availability of resources in school and the provision of a school meal is known to reduce the parent's cost of sending children to school (Kazianga et al., 2014). To some parents, the perceived value of education, the availability of employment opportunities after completion, the direct and indirect costs of schooling, and the availability and quality of school facilities and the school meal does influence the decision to send children to school (Sulemana et al., 2013). The meal ensures regular attendance, instruction, which translates into improved learning outcomes over time. The school meal programme serves as multi-purpose health, education and development function. While encouraging access to education, it also provides a nutritious meal to these students so they do not miss obtaining some required nutrients during their period of development that is often overlooked by their parents. Alderman et al. (2010) argue that the school meal fortified with the micronutrients powders or highly fortified biscuits given to the school children have the capacity to boost learning and cognitive development.

The Ghana government together with the World Bank, Partnership for Child Development (PCD) and the World Food Programme (WFP) have worked together to develop the implemented cost-effective, sustainable Home Grown School Feeding Programme in Ghana (Gelli and Masset, 2013). The introduction of the HGSF necessitated the need for a nationwide baseline of the Ghana School Feeding Programme in 2012 for which future assessments on programme impacts can be made. It created the room to organize an experiment on the School Feeding Programme in Ghana.

1.2 Problem Statement

The use of experimental data in programme assessments presents a better measure of programme impact. Since the inception of the Ghana School Feeding Programme in 2005, very few experimental studies on the causal impact of the GSFP on educational outcomes have been conducted on a nationwide scale (Gelli et al., 2016). Several studies reported programme effects on different outcomes measured in different parts of Ghana. These studies served as the basis for the need for a nationwide experimental study to determine the impact of the School Feeding Programme on educational, health, agriculture and smallholder farmers' income. Most studies on school feeding in Ghana lack rigorous theory-based impact evaluations that are able to match treatment and control groups in their assessment. The non-experimental studies on school feeding usually have inconsistent results (Simeon, and Grantham-McGregor, 1989; Osei-Fosu, 2011; Omwami, Neuman and Bwibo, 2011 and Danquah, Amoah, Steiner-Asiedu & Opare-Obisaw, 2012). These studies did not control for the initial characteristics of the children and their households as well as differences in the analytic approaches. Interestingly, Gelli et al. (2016) in their Random Control Trial (RCT) evaluation of alternative School Feeding Programmes in Ghana indicated that significant differences were found in the means of a number of outcome and control variables across the intervention groups. For which they indicated that the random

allocation process at the baseline did not achieve a statistically comparable treatment group. Gelli at al. (2016) recommended the need for an in-depth analysis of the baseline data set to control for these differences in outcomes. Their study also recommended the need for control variables across the groups when estimating treatment effects. This will help to determine the associations between the School Feeding Programme and the key outcomes variables

Despite these recommendations, Gelli et al. (2016) found a significant effect of the school feeding programme in Ghana on education, health and nutrition of school children from low-income households. These findings are consistent with studies by Powell, Walker, Chang, & Grantham-McGregor, (1998) and Afridi (2013) who identified that giving daily breakfast or a meal to children in school improves academic achievement through attention to tasks, cognitive functions and improved nutritional status. Vermeersch, and Kremer (2005); Omwami et al. (2011); Powell at al. (1998) and Chandler, Grantham-McGregor, Connolly & Grantham-McGregor (1995) indicated that there may be some other confounding factors like low socioeconomic status, poor social backgrounds, poor school performance and poor programme implementation process that can influence the child's learning outcomes which need to be investigated.

Studies by Pollitt, Leibel, & Greenfield, (1981) and Pollit et al. (1982) indicated that studies conducted on School Feeding programmes lacked rigorous data and well-defined hypothesis, variables, and generated inconclusive results on the programme in the long term. According to Powell et al. (1998), School Feeding Programmes have been implemented in many countries but very few rigorous evaluations on it have been conducted. There exist empirical studies (Powell et al., 1998; Kazianga, et al., 2014; and Gelli et al., 2016) that show that School Feeding Programmes impacts on education, agriculture and health

outcomes but only a few of these studies have been conducted in Ghana. Other quasi-experimental studies by Osei-Fosu (2011); Danquah, Amoah, Steiner-Asiedu & Opare-Obisaw (2012); Abotsi (2013); and Essuman and Bosumtwi-Sam (2013) show the programme's effect on education and health outcomes especially in relation to Ghana but little exists on the challenges of programme implementation.

Evidence shows that school feeding helps to improve the performance of school children in school, (Kristjansson et al., 2007; Afridi, 2010; WFP, 2013; Gelli et al., 2016) but little is known about the effects of the home and school environment in these studies. Kristjansson et al. (2009) contend that school feeding can lead to a reduction in absenteeism especially in countries with chronic poverty and hunger. The meals are given on a daily basis and it is strategically served at lunchtime to motivate the students to stay in school and learn. Studies by Gelli et al. (2016); Ahmed (2004); Kristjansson et al. (2007); Jomaa et al. (2011) and Sidaner et al. (2013) have drawn causal relationships between school feeding and education performances. But their studies did not relate to the role the home environment plays in the learning outcomes of the children studied. These studies also determined some positive impacts of school feeding on educational outcomes (attendance and reducing absenteeism). Interestingly, Kristjansson et al. (2006); Neumann et al. (2007); and Ahmed (2004) found significant impacts on enrolment and attendance but yielded inconclusive results on retention and academic achievement tests (Mathematics, English, and Cognition).

Studies on school feeding in Ghana (Abotsi, 2013; Danquah, Amoah, Steiner-Asiedu, & Opare-Obisaw, 2012; Essuman & Bosumtwi-Sam, 2013; Osei-Fosu, 2011) focused on the School Feeding Programme but could not draw causal inferences on programme impacts. Gelli et al. (2016) drew causal inferences on the impact of school feeding on learning outcomes but shed little light on the effect of home environment factors. Osei-Fosu (2011);

Danquah, Amoah, Steiner-Asiedu & Opare-Obisaw (2012); Abotsi (2013); Essuman & Bosumtwi-Sam (2013) and Gelli et al. (2016) have studied the effects of school feeding on school access and learning outcomes and challenges of the programme but provided very little evidence of the role the child, school and home environment play in determining the learning outcomes of their wards.

With the implementation of the Ghana School Feeding Programme, several studies on programme effect have been conducted. Non-experimental studies (Abotsi, 2013; Danquah, Amoah, Steiner-Asiedu and Opare-Obisaw, 2012) focussed on programme effect on educational and health outcomes in Ghana. Their studies did not consider the mediating effect of the child, home and school environment have on the programme outcomes. Interestingly, there exists little empirical evidence on programme impacts on a nationwide scale (Gelli et al., 2016; Vermeersch & Kremer, 2005). There also exist very little studies on how the inherent unobserved heterogeneous factors such as the home environment factors of school children from poor and vulnerable households and their school environment factors affect academic achievement performance (Davis-Kean, 2005; Glewwe, 2002; Glewwe, 2011; and Chung, 2015). Very few studies link the school feeding programme to the child, home and school environment factors to determine their effect on school children learning outcomes. For Fantuzzo, Mcwaynes & Perry (2004) the focus was on pre-schoolers' education for low and vulnerable groups and these children were not beneficiaries of the School Feeding Programme. There exists a gap in knowledge on the impact of school feeding on learning outcomes in Ghana. There also exists a gap in knowledge on the effects of child, home and school environment factors on the academic performance of primary school children from poor and vulnerable backgrounds who attend public schools.

The GoG (2015) Draft School Feeding Policy Document reiterates that school meals and School Feeding Programmes have provided consistent and reliable channels to address school children's nutritional and educational issues and are known to offer livelihood and food crop marketing opportunities. The GSFP has been able to increase enrolment, reduce short-term hunger in school and provide nutrition. The policy document outlines various challenges to include public perceptions of a programme plagued with political partisanship, manipulation and expediency. These and other challenges have the ability to affect the sustainability of the programme. Drake et al. (2016), in their publication on Global School Feeding Sourcebook: lessons from 14 countries indicated that the sustainability and outcomes of an intervention programme depend on the programme implementation procedure and the management of the associated challenges. They established that School Feeding programmes face several challenges that influence how they are implemented across different countries. These challenges are heightened where there exists little in terms of rigorous data, limited literature and extensive studies on how inherent unobserved factors such as the home and school factors interact with the schooling system. This study uses rigorous school-based and household data to answer the central research question of how does the GSFP interrelate with home environment factors to influence students' academic achievements in public schools in Ghana?

1.3 Study Objectives

The purpose of this thesis is to study the nature of the relationship between home environment factors and the Ghana School Feeding Programme and examine its effects on learning outcomes. Specifically, the study will seek to achieve the following objectives:

1. To estimate the impact of GSFP on educational access (attendance and absenteeism) whiles examining the effects of child, home and school level factors

2. To estimate the impact of GSFP on academic performance whiles examining the effects of child, home and school level factors; and
3. To investigate the challenges confronting the implementation of the GSFP

1.4 Justification of the Study

Generally, the GSFP has been able to improve access to education especially in the vulnerable and deprived communities of the country. This thesis provides evidence on the impact of school feeding on learning outcomes and the effects of child, home and school environment factors and school feeding on this relationship. The study contributes to the literature on causal relationships between school feeding, home environment factors and learning outcomes of school children from poor and vulnerable backgrounds. This study adds to the literature on school feeding through a randomized control trial experiment by comparing different school feeding modalities (traditional Ghana School Feeding Programme and the innovative arm of the programme known as the Home-Grown School Feeding). It contributes to the literature on impact evaluations by explicitly addressing implementation challenges through the construction of a counterfactual using difference-in-difference with covariates. This thesis suggests ways in which the School Feeding Programmes and home environment factors could help improve learning outcomes.

It is anticipated that the findings of this study can help provide information to the parents, teachers, implementers and allied agents of the School Feeding Programme on the gaps identified in the programme implementation process and how these gaps affect education quality. The study identifies some measures that address these gaps. It assists the teachers, caterers and household members on the measures to adopt to help improve the School Feeding Programme and education quality generally.

The study also helps policymakers, development partners, researchers and the Programme implementers on the programme on ways of improving the programme to benefit children from these vulnerable and deprived environments. It helps to formulate policies, which focuses on addressing the challenges identified and make policies that will make the school meal programme and other related social protection programmes more effective.

The study shows how the School Feeding Programme has influenced access to education. It shows how the children's home environment factors influence their ability to participate in learning at the school level and how the programme influences the children's learning outcomes. The study seeks to identify, improve and fill up the existing gaps in the programme implementation. The research has a considerable ability to recommend solutions to the implementation challenges of School Feeding Programmes in Ghana specifically and the world over generally.

1.5 Structure of the thesis

Chapter 1 gives a brief overview of how School Feeding Programmes and home environment factors influence learning outcomes. It covers the purpose and corresponding research questions to be addressed, the scope and operational definitions of terms. Chapter 2 reviews related literature under the School Feeding Programmes, types of School Feeding Programmes, models of school feeding and some case study programmes implemented in different countries of the world. Chapter 3 looks at the theoretical and conceptual frameworks that guide the study. Chapter 4 describes the methods employed in answering the research questions and achieving the research objectives. The aspects discussed include the research design, study population, sample selection, measurement of the independent and dependent variables, data collection, ethical considerations, and methods adopted for data analysis. Chapter 5 examines the School Feeding Programme, the home environment

and how they influence school children's access to education. Chapter 6 examines the School Feeding Programme, the home environment and how they influence school children's learning outcomes. Chapter 7 looks at the implementation challenges associated with the Ghana School Feeding Programme. Chapter 8 is the conclusion and recommendation chapter. It summarizes the study results and makes some policy recommendations on measures that can be undertaken to improve the Ghana School Feeding Program to enhance access to education, academic performance and its implementation process.

CHAPTER TWO

LITERATURE REVIEW OF SCHOOL FEEDING PROGRAMMES

2.1 Introduction

The chapter reviews the literature on school feeding programmes. It looks at different implementation modalities of school feeding programmes in the world. It specifically looks at the Ghana School Feeding Programme. It discusses the educational system in Ghana and shows the linkage between the Ghana School feeding programme and learning outcomes.

2.2 School Feeding Programmes

School Feeding Programmes are identified as a food-based welfare system that offers well-structured, nutritious food support, in cash or in-kind, to the targeted poor and vulnerable school children and their households. These programmes are provided to promote attendance, reduce drop-out rates and improve educational outcomes generally. Bundy et al. (2009) describe these meals as incentives to promote food security among the vulnerable people, increasing their resilience to shocks by helping them to survive the situations that can push them below the minimum level of food security. Studies by Bundy et al. (2009), Gelli et al. (2014) and Drake et al. (2016) explain that School Feeding Programmes provide a hot meal (breakfast or lunch), snacks or biscuits, and take-home rations; or any combination of these modalities on a regular basis to school children free.

2.3 Types of School Feeding Programmes

Generally, there are two types of School Feeding Programmes. Bundy et al. (2009) classify them based on their modalities as In-School Feeding and Take-Home Rations Programmes or in some cases both (Alderman and Bundy, 2011). Depending on the objective and the beneficiaries that the programme aims at reaching, a particular programme type is

developed. Jacoby's (2002) concept of intra-household flypaper effect was used to determine how much of the food 'sticks' to the actual beneficiary of the food. His study identified that not only the beneficiary but also other household members benefit from the food brought in from school. Studies in Bangladesh and the Philippines by Jacoby (2002) and Ahmed (2004) showed that the actual beneficiaries and their younger siblings benefit from the take-home rations. This highlighted the need for a more targeted approach to reach the more vulnerable.

2.3.1 In-school or onsight Feeding Programmes

Within the programme, the in-school or onsight feeding programme requires that a child is given a balanced meal or a fortified high energy biscuit or snack in school. The objective of the onsite/in-school meal is that the child is fed on the condition that the child is present at school. McEwan (2010) is of the view that the in-school meals induce parents to enrol their children in school and encourage regular school attendance. School Feeding Programmes provide either breakfast, snack, lunch, or combine these meals for the children in school to achieve the programme objective (WFP, 2009). In-school meals act as an incentive to increase school access. It has been observed that in some cases families transfer their wards from non-school feeding schools to feeding school thereby increasing the cost of the programme (Vermeersch and Kremer, 2005; He, 2010; McEwan 2010). School meals, depending on the context, can be prepared in school kitchens or in the community by local caterers, or from centralized kitchens as has been noted in case of India (Afridi, 2010; 2011). For programmes that include the use of micro-nutrient powder in meals, it can be an important source of micronutrients (Alderman et al., 2011; Bundy et al., 2009) to boost learning and concentration effectiveness. Lawson (2012) and Aliyar, Gelli and Hamdani (2015) indicate that school meals have the added benefit of being fortified with other necessary nutrients required for the child's development (Micro Nutrients Powder) which

may not be available in the local diets. School Feeding Programmes target all children irrespective of their socio-economic status and are a good tool to ensure equality and equity.

2.3.2 Take home rations

Bundy et al. (2009) classify take-home rations as conditional cash transfers. He explains that take-home rations are food rations given to families on the condition that their children are enrolled and attend school regularly. The mode of delivery depends on the country and the context within which the food is being provided. Take home rations are rations, staples or food items given to students within a given period of time on condition that the student is able to maintain a certain specified attendance rate during the school term (Kazianga et al., 2014; 2009). Rations are usually given to families once a month or once a school term or semester. They are conditional such that if a child should miss school for a certain number of days, that child may not be given the meal. Since the families of these poor and vulnerable school children may require the meals they are motivated to participate and ensure that the children attend school. Lawson (2012) explains that take-home rations are useful for targeting a specific group of children and they do not take away from learning time since the time and place for sharing the food may be different from the school. The food often is cereals, grains and oils, and in very poor home conditions, the whole family may benefit from it.

Depending on the policy objective of the country and the context within which the programme is implemented, the country may decide to implement either an in-school meal or a take-home ration or both to address the policy objective. Kazianga et al. (2014) highlight three main objectives of both in school and take-home rations. They indicate that School Feeding Programmes have the capacity to motivate parents to enrol their school-age children to attend school regularly. School Feeding Programmes according to Kazianga et al. (2014)

in his Burkina Faso study helped to improve the nutritional status and reduce short-term hunger of school-aged children over the time span of the programme. His study also concluded that School Feeding Programmes helped to improve cognitive function and academic performance of school-aged children through a reduction in absenteeism and increased attention and concentration.

2.4 Standards for guiding the sustainability of School Feeding Programmes

School Feeding Programmes worldwide motivate and encourage vulnerable and poor families to make some form of investments in the education of their children. This creates an opportunity for these children to attend school and stay in school (Afridi, 2011). For a School Feeding Programme to be effective and sustainable, Bundy et al. (2009); Gelli et al. (2014) and Drake et al. (2016) identified five standards that must be adhered to. Firstly, the programme must have a national policy framework guiding its operations; secondly, there must be sufficient institutional capacity to aid implementation and coordination. In addition, the programme must have stable funding from national and international sources; the programme must have sound design and implementation plan and process and lastly, there must be room for the local community to own and participate in the programme.

School Feeding Programmes are linked with the development agenda of implementing countries (MDG's, SDG's). The objectives of the feeding programmes are interrelated with the other sectors of the country such as health, education, and agriculture (Bundy, et al., 2009; Drake, et al., 2016; World Food Programme, 2013). Most School Feeding Programme design indicates an institutional framework that cuts across different sectors and levels of governance, which has its implementation modelled along with the decentralization system of governance. Drake et al. (2016) found that countries like Malawi, Kenya, India, Chile and Ghana have well-structured institutional frameworks that indicate how the programme

is managed, who the main actors are, and what their roles are. Although these programmes are well structured, direct feeding cost tends to take over eighty percent of the cost of funding the programmes especially across Africa (Drake et al., 2016; Gelli et al., 2014; Bundy et al., 2009). These countries have implemented the programmes over a given period and are expected to have gained some experience over the years on the programme implementation procedure. Stable funding seems to be a struggle for some of the countries that are implementing the programme. It has become increasingly acceptable to observe that the governments of the countries implementing the feeding programmes have invited the private sector to help fund the programme as it evolves and donor funding weans out. Effective School Feeding Programmes have found ways of managing the cost of these programmes by involving the private sector in the funding of the programmes. The next section describes different models of the feeding programme across different countries and continents. These models indicate that although the programmes provide meals to school children within those schools, the models from which they operate are different.

2.5 Models of the School Feeding Programme

School Feeding Programmes can be complex since it cuts across different sectors of the economy. As a targeting safety net, they are able to provide some form of support to the poor and vulnerable when they transfer food to families. Because of cost constraints, programme targeting is done to ensure that the selected group of beneficiaries derive the most from the programme (Bundy, 2012; Drake et al., 2016). The targeting of School Feeding Programmes can have universal coverage where the programme provides the meal or food rations to all school going children throughout the country. They can have a geographic targeting coverage where free meals or food rations are provided to selected schools within selected geographic zones, districts, states, provinces, and regions. Feeding programmes can similarly have a vulnerability and poverty targeting coverage where the

free meals or food rations are provided to students from impoverished and food insecure areas. The individual targeting likewise provides free meals to children on an individual basis based on vulnerability and poverty rankings determined by the use of means or proxy means testing).

Other methods used for targeting include the cost of the programme, its effectiveness, and equity. The programmes are led by different sectors in the country such as Education, Local government, Agriculture and Health. The institutional setup that exists for the School Feeding Programme has prescribed core functions that determine how effective the programme will be. Included in the core functions are policy guidelines and standards that govern the programme; budgeting and planning modalities; funds management; oversight monitoring and evaluation; coordination; training and technical advice; food procurement and contract catering (GoG, 2012, 2015; Drake et al, 2016).

Managing a School Feeding Programme requires different supply chain models. These models are dependent on the country context, targeting approach, funding, and supply chain models (World Food Programme, 2013). Studies by Gelli et al. (2013); Drake et al. (2016) identifies the main models of school feeding that are currently running globally as Centralized Insourced, Semi-Decentralized Insourced, Decentralized Insourced, Centralized Outsourced, Semi-Decentralized Outsourced and Decentralized Outsourced. Explanations given by Bundy (2012) and Drake at al. (2016) of the models of school feeding are outlined below.

Centralized insourced model: This model has management and control of the supply chain of the School Feeding Programme occurring at the national level. The government performs programme implementation. The supply chain of the School Feeding Programme is managed and performed in-house by the national government.

Semi-decentralized insourced model: The semi-decentralized supply chain management is performed in-house but aspects of it are sublet to an agency. This indicates that management and control of the supply chain are at the national level with some level of management given to the decentralized organizations to manage. Supply of the school feeding model is managed and performed in-house with support from the decentralized agencies.

Decentralized insourced model: The management and control of the supply chain take place at the local or school level and is performed by the government. Decentralized supply chain management is performed in-house with support from localized agencies. Here the local government together with the localised schools perform the main functions of providing the meal to the school children.

Centralized outsourced model: The management and control of the supply chain take place at the central, state or national level. The food supply chain is outsourced and performed by third-party contractors. Here the government outsources the supply and provision of the school meal to the third party national or central organisations who provide the school meal to the localised schools.

Semi-decentralized outsourced model: The semi-decentralized outsourced model has the supply chain management system performed by the School Feeding Programme or implementing agency but has some support from third-party contractors (localized agencies).

Decentralized outsourced model: The management and control of the supply chain take place at local, community or school level. The management and control of the supply chain are outsourced and is performed by localized level third party agencies. As such the local

third-party institutions take charge of supplying and proving the school meal to the children in school.

The choice of a model a country may decide to adopt depend on the institutional and governance system that exists within the country. The model choice may include the type of education system that exists within the country, how interrelated the education and other systems are, the specific objective the government of the country wants to use the feeding programme to achieve and even the kind of children the government may want to target. It also depends on the resources that are available and the level of poverty. Each of these models can address the specific need of countries depending on the objectives of the programme, the legal and legislative system, the resources available and the targeting mechanism the country decided to adopt. The next section identifies some countries and gives some practical insights into the school feeding models that exist in these countries and how they are implementing them.

2.6 Countries and types of Feeding Programme being operated

The country owned School Feeding Programme is the kind of school feeding in which the government implements and manages the programme alone or with support from donors or sponsors. Under this programme, the government is mandated to provide a meal or snack to school children throughout the country especially to government or government assisted schools Drake et al (2016). Countries such as Chile and India fall into this category of School Feeding Programmes. The models listed above have been implemented in different parts of the world by different governments. Outlined below are the different school feeding models used by different countries[1].

[1] See Appendix 2 for a summary of the various school feeding programmes under the various types listed in this chapter.

2.6.1 Botswana's School Feeding Programme

As a landlocked country, Botswana had a population of approximately two million people as of 2011. The poverty incidence of Botswana although decreasing is relatively higher in the rural areas. Botswana as a semi-desert country has poor agriculture potential with agriculture providing only three percent of employment. Ninety-eight percent (98%) of primary school-age children in Botswana are enrolled in primary school. Botswana has a high rate of transition from primary to secondary school. Expenditure in education accounts for approximately eighteen percent of the national budget, with roughly equal shares for primary and secondary education. The Botswana School Feeding Programme started in 1966 with support from the World food programme. The programme went through a transition period between 1993 and 1997 when the country attained a middle-income status Cirillo & Tebaldi (2016).

In 1998, the Botswana School Feeding Programme was modified. This led to the improvement of infrastructure, the decentralization of the procurement process and modification to the menu (Drake et al., 2016). The Botswana School Feeding Programme, according to Drake et al. (2016) and Cirillo and Tebaldi (2016) has the following objectives;

- Preventing school children from feeling hungry during school;
- Providing a balanced diet to school children; and
- Retaining school children for the entirety of the school day and improve school attendance.

Botswana's programme has universal coverage, targeting school children in public schools between the 1st to 7th grades. Botswana's feeding programme is a conditional in-kind

transfer (Cirillo & Tebaldi, 2016) that targets school children enrolled in primary school. As of 2011, the programme fed 332,972 public school children on a regular school day with one hot mid-morning meal. School children in remote districts receive a second meal. The government pays local cooks who are community members to prepare the meals for the children at the schools. The programme has a standardized menu with rations specified in the school feeding guideline that seeks to provide a third of the daily food nutrient requirements for energy (no less than 572 kilocalories on any day), protein, and fat. In 2008 the programme introduced the local agriculture component where seasonal agriculture produce from local agriculture was included Cirillo and Tebaldi (2016). Cirillo & Tebaldi (2016) indicated that the programme runs for about 185 days in an academic year and covers about 430,690 school children as at the 2012/2013 academic year.

The Ministry of Local Government and Rural Development implemented Botswana's School Feeding Programme with support from the Ministries of Agriculture, Health Education and Skills Development. Botswana's School Feeding Programme uses a centralized procurement model to procure goods to the districts. The districts then use a decentralized model to distribute the food to the district councils. The programme likewise procures fresh/seasonal foods from local farmers. The programme is implemented to help create jobs at the local level and to boost agriculture production. The Botswana School Feeding Programme, however, lacks a school feeding policy to govern its implementation procedure. Drake et al. (2016) note that some of the supply chain problems that affect the implementation of the programme include late deliveries of food commodities to schools, foodstuff going bad as a result of poor and unfavourable conditions at the warehouses and cold storage facilities. In addition, some food products that are delivered do not conform to the prescribed quality standards ascribed to the programme.

2.6.2 India's School Feeding Programme

India's School Feeding Programme is country owned. This came into being after some inconsistent implementation of the programme across India in 1995. It was after the government of India realised that the rationale of using a school meal to improve education and health outcomes of school children in primary school was not achieved. The government was then mandated by the Supreme Court to provide a cooked meal at midday to school children in government and government assisted schools. Each successive government is expected to put in measures to respect, protect and fulfil this mandate. This legal backing had encouraged the political commitment of the India government and led to some improvement in the implementation of the programme across the country.

The Indian Mid-Day Meal Scheme (MDM) is operated and funded by the state and national government with the Ministry of Education of India in charge of the actual management of the programme. The state and national governments provide staple grains of 100g of cereal (450 calories) and 1.8 rupees (for the northern states and 1.5 rupees all other states per child). The country owned midday meal programme offers a cooked meal at midday to all government and government assisted schools in the country. The government is supported by the private sector championed by Patra a private owned company who supports the programme by providing kitchens to enhance food production.

2.6.3 Chile's School Feeding Programme

Drake et al. (2016) describe Chile as a middle-income country with a population in 2013 of over 17 million. Of this 17 million about twenty-one percent are under 14 years of age. School Feeding Programmes in Chile began as a strategic tool that was used to improve access to basic education in 1929 through the Boards of School Assistance and Scholarships. In 1952, management of the programme moved from the Boards of School Assistance and

Scholarships to the Ministry of Education. According to Drake et al. (2016) and McEwan (2013), Chile's School Feeding Programme is backed by the laws of the country; Law No. 15.729 of 1964 and Law No. 17.301 of 1970. Currently, Chile operates two feeding programmes. The National Complementary Feeding Program[2] (PNAC) and the National Board of School Assistance and Scholarships (JUNAEB). The PNAC provides take-home food rations to all children between 0 and 5 years old, pregnant and nursing women McEwan (2013). Families that go for regular medical check-ups at Ministry-operated health centres receive the rations. This serves as a way of filtering to ensure that only the poor who cannot afford to pay for health care and the privately insured families are served under this system. JUNAEB, an independent unit of the Ministry of Education provides the second feeding programme. JUNAEB contracts private suppliers to provide the school's meals. JUNAEB nutritionists establish minimum standards for meals, including food calories and nutritional content; food structure, including minimum or maximum frequencies of certain foods; quality thresholds of ingredients; and minimum acceptable operating conditions and food service infrastructure (Kain, Uauy & Taibo, 2002; McEwan 2013).

Chile's School Feeding Programme has the following objectives;

- To ensure that every child has the right to basic education;
- Support the improvement of educational outcomes, (enrolment, attendance, and attainment);
- Allow vulnerable children to have equal opportunities in the education system and,
- Provide nutritional services to children throughout the school year and extension activities during school holidays (summer and winter).

[2] Programme Nacional de Alimentación Complementaria

As described by researchers (Kain & Uauy, 2001; Kain, et al, 2002; McEwan, 2013), food assistance at the school level began in Chile in 1929 with the establishment of the "Boards of School Assistance and Scholarships" at the county level. The country's central government is in charge of resources allocation. In 1964, NBSA was created to be responsible for the purchase, storage, preparation and distribution of the food. This programme design demanded a complex administrative structure of offices, warehouses, transport etc. which run up to about forty percent of SFP's total budget. After several studies were conducted, it was realized that the programme had some implementation challenges and the cost of running the programme under this new module was crippling the programme. In 1982, the government contracted the private sector to provide the meals. The SFP in Chile is administered by the National Board of School Assistance and Scholarships (Junta Nacional de Auxiliary Escolar y Becca's or NBSA), with support from the Ministry of Education (McEwan, 2013). The NBSA provides a supervisory and regulatory role to provide suppliers of the meal. It develops the technical norms for the programme, controls the quality of the service provided, and the nutritional content of the foods served and defines the targeting criteria. The NBSA is responsible for the bidding process where private food companies are selected to provide services to one-third of the schools for a 3-year period. It is responsible for the payment of the meals served.

Its main objective is to provide social and food assistance to low-income children attending state-supported schools. The main goal of the SFP is to promote school attendance by providing free meals to those children who might otherwise drop out of school; those children are in fact, the most impoverished ones. The meals have different nutritional contents and are distributed approximately 180 days per year. Meal plans are standardized and private sector firms are responsible for managing the entire supply chain, inclusive of food preparation. Despite all these gains, Chile's School Feeding Programme does not have

a standardized food preparation format (Kain & Uauy, 2001; Kain, Uauy & Taibo, 2002; McEwan, 2013).

The programme is implemented at the school level with special emphasis on public and state-subsidized schools. The programme reaches out to children in the 1st grade of the primary school to the 9th grade of secondary schools. The programme does not feed all children in participating public schools. The other non-beneficiaries in participating school have to provide their own meals. The same meals provided on the SFP are available for sale to schools and parents at the same price as is supplied on the programme. As of 2001, the programme provides a daily meal to approximately 1,200,000 children (7300 primaries, 900 secondary and 1,133 Kindergartens) from about 9500 schools in Chile (Kain & Uauy, 2001). Recipient schools are divided into territorial units, and firms can submit multiple bids for 1–8 territorial units, which are accepted or rejected in their entirety. Chile operates a centralized procurement model with decentralized program implementation being outsourced to private sector companies. For the various levels of education that are fed, the Pre-primary school children receive breakfast and lunch or lunch and snack (600 kilocalories per day). The primary school children receive breakfast and/or lunch and/or snack (700–1,000 kilocalories per day). The secondary school children receive breakfast or lunch (350–650 kilocalories per day). Lastly, the Home student (homes managed by JUNAEB) receive a full daily ration (Drake et al., 2016 & Kain & Uauy, 2001). Chiles's School Feeding Programme has varied community support in program delivery across regions. JUNAEB has set up self-help groups who have developed catering services and school feeding service delivery. The innovative centralized procurement model outsources the entire supply chain to enable the programme cost-efficiency standards to be maintained.

According to McEwan (2013), although the tendering process is cost-effective, the programme has challenges linking smallholder suppliers. Despite how well the programme is managed, the Chilean School Feeding Programme has no policy on regulatory requirement guiding its operations (Drake et al., 2016). Chile seems to be making efforts to develop a policy framework to guide the implementation of the programme. The lessons learnt over the years have helped to reduce some of the challenges the programme faced in Chile (Drake et al., 2016; Kain & Uauy, 2001 & McEwan, 2013). Indicating that the feedback from the lessons learnt has improved the implementation processes.

2.6.4 Kenya's School Feeding Models

Since the implementation of Kenya's School Feeding Programme in 1980, the programme has experienced expansion and refinement over the years (Langinger., 2011; Omwami et al, 2011). It transitioned into the Home Grown School Feeding Programme of the New Partnership for Africa's Development (NEPAD), the World Food Programme and the Millennium Hunger Taskforce of Kenya in 2003. The programme objective was to link feeding children in school with the locally grown foodstuff. Kenya has two School Feeding Programmes (Whaley et al., 2006). The Njaa Marufuku (Eradicate Hunger in Kenya) and the Home Grown School Feeding Programme. The Ministry of Agriculture (MOA) commissioned the Njaa Marufuku (Eradicate Hunger in Kenya) in 2005 with the aim of encouraging people in poor and vulnerable areas in Kenya to improve their educational and nutritional outcomes. These areas have high levels of malnutrition and very poor primary school outcomes. The aim was to use their locally cultivated food to address the education and health problems whiles boosting agricultural production in these areas. The programme is able to reach out to about 31,720 children in 48 schools that are across six provinces in Kenya.

As indicated by Langinger (2011), the Ministry of Education launched Kenya's Home Grown School Feeding model in 2009. The government of Kenya transfers funds to the programme to procure locally grown food to feed about 53,800 school children in about 1700 schools in the semi-arid parts of the country. Gelli, Meir and Espejo (2007) indicated that Kenya's School Feeding Programme reached out to about 80 percent of the rural dwellers and the vulnerable who live in urban slums of Kenya's large cities.

2.6.5 Ghana's School Feeding Programme

School feeding in Ghana dates back to 1958 when the Catholic Relief Service and the World Food Programme instituted the free hot meal and take-home rations as a way of improving primary school enrolment and attendance especially among female students (Abdulla, 2009). This was as a result of the then high absenteeism and low levels of education especially in the three northern regions of Ghana. Children were required to help work to generate incomes to support the home and school meals and take-home rations were used to target children, especially girls to attend school. School Feeding Programmes have since been ongoing in poor and vulnerable sections of the country especially the three northern regions by international NGO's such as the Catholic Relief Services and the World Food Programme. Over the years, educational standards kept on falling and the rate of school-aged children not attending schools increased (World Bank, 2012). Globally, the same trend was experienced especially in developing countries. The GSFP together with a series of other policy interventions was implemented to help improve the falling academic performance of school children especially in the public schools in the country. With the aim of achieving the MDG goals on hunger, poverty and primary education, the government of Ghana launched the Ghana School Feeding Programme in 2005 (GoG, 2010). Ghana operates the in-school meal under the Ghana School Feeding Programme. The country has a certain level of support from the World Food Programme to supply food rations to public

primary schools located in the three northern regions of Ghana. The School Feeding Programme was part of the development agenda of the New Partnership for Africa's Development (NEPAD) formulated as the Comprehensive Africa Agricultural Development Programme (CAADP), which functioned as a framework for the restoration of agriculture, growth, food security, and rural development in Africa. Sulemana, Ngah and Majid (2013) reiterate that Ghana is the first of 10 countries in Sub-Saharan Africa including Ethiopia, Kenya, Malawi, Mali, Mozambique, Nigeria, Senegal, and Zambia, to be selected by NEPAD to subscribe to NEPAD's CAADP and implement the School Feeding Programme in 2005.

Ghana's School Feeding Programme was launched in 2005 in partnership with the Dutch Government (SNV), World Food Programme (WFP), the Canadian International Development Agency (CIDA) and the Government of Ghana. The Ghana School Feeding Programme's (GSFP) objectives are to:

1. Reduce hunger and malnutrition;
2. Increase school enrolment, retention, and attendance and
3. Boost domestic food production.

The GSFP targets children in public primary schools and kindergartens especially in the poorest areas of the country with one hot, nutritious meal each day, prepared from locally grown food-stuff (GoG, 2011; Sulemana, et al., 2013).

I. The Ghana School Feeding Programme context

The introduction of the GSFP was to fulfil the requirements of the Free Compulsory Universal Basic Education (FCUBE) and the MDG 1, 2 and 3 (Osei-Fosu, 2011). It is in fulfilment of the international and national development obligations in education, health and

nutrition, agricultural production and enterprise development in relation to poverty reduction in Ghana (GoG, 2015).

II. International commitments

For its international obligations, the Ministry of Gender Children and Social Protection in its draft National Social Protection Policy document of 2015 indicated that Ghana strives to achieve the United Nations Sustainable Development Goals. In its commitment, the country has linked its social policy documents to ensure that they complement each other to achieve equity and reduce vulnerability and poverty. In line with international conventions and goals, Ghana has ascribed to these and more to reduce poverty and vulnerability while creating employment to promote local economic development.

These obligations as outlined in some of the five policy documents[3] of the Ministry of Gender, Children and Social Protection in 2015, include:

- The 1989 International Convention on the Rights of the Child;
- UNESCO (1960 and 2003) Convention Against Discrimination in Education;
- NEPAD's Comprehensive Africa Agricultural Development Programme (CAADP);
- The Banjul Charter of 1981 and 1986 which focussed on African Charter on People and Human Rights;
- UNESCO, 1990 and subsequent forums on Education for All;
- The (1990, 1999) African Charter on the Rights and Welfare of the Child;
- The Millennium Development Goals - Goal 1 seeks to eradicate extreme poverty and hunger, targeting income increases, full and productive employment and decent work for all and reducing hunger. Goal 2 aims at achieving universal primary

[3] The Ministry of Gender, Children and Social Protection in 2015 launched five policy documents. These are the Child and Family Welfare Policy, Justice for All Policy, National Ageing Policy, National Gender Policy, National Social Protection Policy and the School Feeding Policy

education for children everywhere, irrespective of gender, being able to complete a full course. Goal 3 aspires to promote gender equality and empower women beginning with the elimination of gender disparity in primary and secondary education and eventually at all levels.

- The 2005 ECOWAS Agricultural Policy;
- The 2007 West African Agricultural Productivity Programme (WAAPP);
- The Paris Declaration on Aid Effectiveness (2005), Accra Agenda for Action (2008) and the Busan Shared Principles 2011 emphasizing national ownership, focus on results, inclusive development partnerships, transparency, and accountability;
- ILO Recommendation 202 on Social Protection Floors (2012) providing for nationally defined sets of basic social security guarantees aimed at preventing or alleviating poverty, vulnerability and social exclusion;
- Sustainable Development Goals (SDGs) for post-2015.

III. National commitments

The implementation of the School Feeding Programme in Ghana satisfies several national development agenda, policies and priorities. This policy is associated with the national development agenda, existing national policies, and priorities (GoG, 2015). Among the national commitments that provide a basis for the GSFP policy are

1. The 1992 Constitution particularly, the Directive Principles of State Policy that seeks to provide basic resources that help to improve the livelihood of the populace
2. The Local Government Act, Act 462 (of 1993) empower the District Assemblies to take up the governance at the local level. The acts equip the district assemblies to plan and champion development at the local level.

3. The National Development Planning Act, Act 480 of 1994 help coordinate development planning from the district to the national levels. The focus should be bottom-up, community-led planning;
4. LI 1961 focuses on improving planning, coordination and development at the sectoral level;
5. The Ghana Shared Growth and Development Agenda (GSGDA I) 2010-2013 emphasizes good governance, social and economic development at the local level
6. The Ghana Shared Growth and Development Agenda (GSGDA II) 2014-2017 in addition to the goal of the GSDA I has the main agenda of promoting social protection under the "Human Development, Productivity and Decent Work" thematic area. The National Health Insurance Scheme, the Basic Education Capitation Grant, the School Feeding Programme and the Livelihoods Empowerment Against Poverty Programme (LEAP) are their priority areas;
7. The Ghana Education Service (GES) Act;
8. National Policy on Public-Private Partnership;
9. Education Sector Policies include;
    a. Education Sector Policy and Plan;
    b. School Health Education Programme; and,
    c. Early Childhood Care and Development Policy,
10. Health Sector Policies include
    a. Nutrition Policy;
    b. Imagine Ghana Free of Malnutrition;
    c. Draft School Health Education Policy,
11. Agricultural Sector Policies include the
    a. Food and Agricultural Development Policy (FASDEP II);
    b. Medium Term Agricultural Sector Investment Plan (METASIP);

c. National Agriculture Investment Plan (NAIP) providing for financing and capacity building for smallholders;
d. Rice Sector Support Programme (RSSP)
e. Livestock Improvement Programme; and
f. Roots and Tuber Improvement and Marketing Programme (RTIMP).

12. National Social Protection Strategy (2007) and the Draft National Social Protection Strategy (2012)

The draft GSFP policy document of 2015 takes account of all ongoing, complementary government programmes in education including the Capitation Grant, Free School Uniforms, Free Compulsory Basic Education, the National De-Worming and Hand-Washing Programmes (GSFP draft Policy document, 2015).

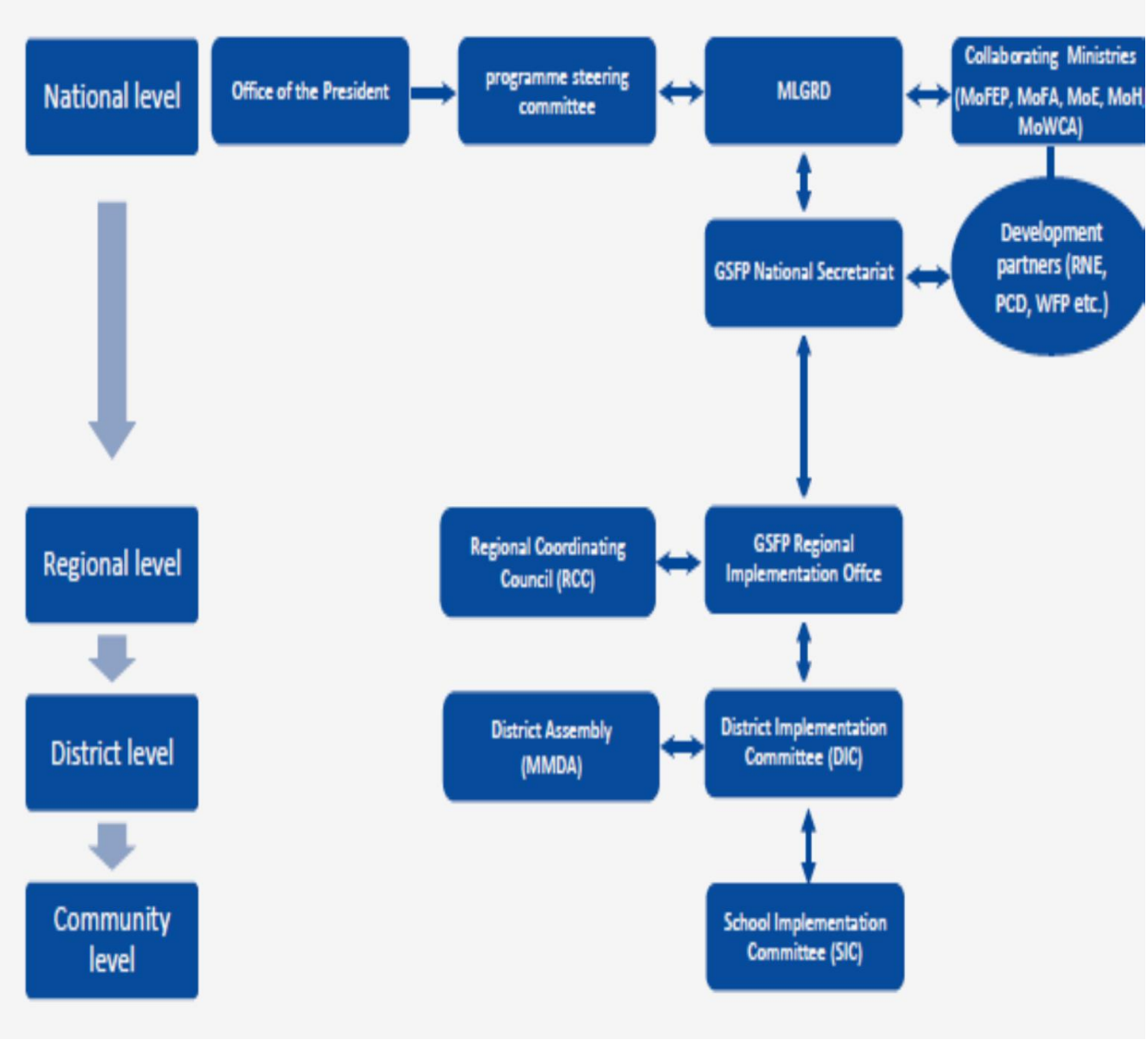
IV. The implementation procedure of the GSFP

According to the GoG, (2011), the programme started in October 2005 with 10 pilot schools, 1 from each of the 10 administrative regions in Ghana. After a successful pilot, the programme was scaled up to include more schools from deprived communities across Ghana. By August 2006, the number of beneficiary schools increased to 200 covering about 69,000 pupils in 138 districts. By 2010, the GSFP covered approximately six selected schools in each of the 170 districts in Ghana, catering for over 1.040,000 of the school pupils nationwide (Abotsi, 2013 and Afoakwa, 2014). Ghana's approach to school feeding was modelled on the World Food Programme's Home Grown School Feeding Programme. The School Feeding Programme presently covers all vulnerable area in all districts and regions of Ghana notwithstanding, the programme has survived different political leadership, the NPP with President Kuffour in 2005, the NDC with President Mills in 2008, the NDC with President Mahama in 2012 and currently the NPP with President Akufo Addo from 2016. Aside from the challenges associated with a change in government, the programme had

experienced different challenges to include delays in payment over the 12 years of its implementation.

The programme implementation procedure involves the efforts and coordination of different actors from different sectors of the country. The Ministry of Local Government and Rural Development has oversight responsibility for the programme. The Government of Ghana's Annual Operation Plan 2011 highlights that these ministries work in close collaboration with the Ministry of Education and the Ghana Education Service (GES); the Ministry of Food and Agriculture; and the Ministry of Health. Each Sector Ministry is responsible for the sector requirements under the programme. The programme further works with the Ministry of Finance, who is responsible for the financial transactions of the programme. In 2016 the Ghana School Feeding Secretariat became the implementation agency with offices at the regional levels. At the district levels, the District Desk Officers at the District Assemblies are responsible for coordination and implementation. Figure 2.1 below shows the programme actor relationship, between the collaborating actors at different levels of programme implementation.

Figure 2.1: Programme actor relationships



Source: GoG, Annual Operation Plan (2011)

V. The GSFP, procurement, preparation, and feeding

The GSFP project document, however, prioritizes procurement from the community surrounding the assisted schools, broadening the focus to the district, regional and national levels when food items are not available. The GSFP is country owned and is wholly funded by the Government of Ghana (GoG), except in the three northern regions where it is jointly funded by the World Food Programme (WFP). According to the GoG (2012) Budget Statement, on average the Government of Ghana spends not less than fifty million Ghanaian Cedis every year on the School Feeding Programme.

A National Secretariat undertakes coordination and implementation, whiles the Ministry of Local Government and Rural Development (MoLGRD) has oversight responsibility for programme implementation. In 2015, the Ministry of Gender, Children and Social Protection (MoGCSP) took over oversight responsibility of the School Feeding Programme. The channels of implementation remained the same with the District Assemblies still having the mandate to implement the programme at the district and community levels.

The School Feeding Programme awards contracts to selected local private caterers who procure, prepare and provide food for pupils in the targeted schools, (GoG, 2010). The Ghana School Feeding Program works with Districts Assemblies who provide cash transfers to the caterers. An amount of 50 Ghana pesewas per child per day is paid to the caterers under the supervision of the District Implementing Committees (DICs). This is used to procure food from local farmers on a competitive basis. The programme has the oversight role of ensuring that the caterers procure the local foodstuff needed for cooking from the local farmers. The strategy is to use locally grown and procured food to prepare local food that is nutritionally adequate, and to keep the money within the local communities. This provides a ready market for farmer produce, creating wealth among farmers whiles keeping

the income within the communities'. This fits purposely with the "Home Grown School Feeding Programme". The home-grown component of the School Feeding Programme seeks to link the School Feeding Programme with local agriculture production. The Homegrown School Feeding Programme has also been established with the objective of providing a reliable market for small-holder farmers. (Gelli and Drake, 2010; Gelli et al., 2013 and Haas School of Business, 2013). The GSFP was designed as a strategy to increase domestic food production, household incomes and food security in deprived communities.

VI. Programme targeting and focus

Poverty and vulnerability account for some of the reasons why some children of school going age may be out of school. Abotsi (2013) expounds that the GSFP targets "deprived districts by growth and poverty reduction strategy (GPRS) classification; Poorest and the most food insecure districts; Low wealth level districts; Low school attendance rate (high absenteeism) districts and High school dropouts' districts". Targeting such children and ensuring that policies and programmes such as the School Feeding Programme can help to address problems of health, agriculture and educational outcomes (Bundy et al., 2009). Targeting and prioritizing program objectives help countries make decisions about different trade-offs in the programme design no matter how complex they are. Essuman et al., (2013) and Del Rosso (1999) explain that targeting is used to ensure that intended beneficiaries of a development programme such as the School Feeding Programme obtain the most benefit.

Although enrolment and school attendance are the basic targeting drives used in School Feeding Programmes; poverty, vulnerability, economic status of families, geographic locations, and nutritional status of the school-age children (Del Rosso, 1999), gender (girl child) cultural context are some of the criteria for which targeting is done Bundy et al. (2009); McEwan (2013). Different programmes require different targeting schemes.

Countries are still exploring ways of targeting such that if not all school children benefit from the School Feeding Programme, at least those who really need the programme benefit the most.

VII. Management of the Ghana School Feeding Programme

The Ghana School Feeding Programme operates from three levels. The national, the Regional/District level and the Local or Community level.

1. National level:

The Ministry of Gender and Social Protection has the oversight role in the programme. The programme has a National Secretariat that coordinates and manages the affairs of the School Feeding Programme in Ghana. The National Secretariat executes the procedure at the national level and ensures reporting and accountability. They also support the District Implementation Committees (DICs) and School Implementation Committees (SICs) and work in partnership with all other ministries departments and agencies to ensure the smooth running of the GSFP.

2. Regional/District level:

The Regional Coordination Offices (RCOs) are responsible for reporting and ensuring accountability at the national level. They monitor, offer support and work in support of the District Assemblies at the district level. The regional officers receive and distribute the funds for the programme to the district. They are responsible for good governance at the lower levels. A District Desk Officer (DDO) provides feedback and communication to the higher and lower levels.

3. District implementation officers

The District Assemblies of the selected districts have a single role to provide schools with some of the facilities they require to facilitate teaching and learning. DICs have the supervisory role over the various agencies involved in the implementation. The agencies are District Education, Health and Agriculture directorates of the Assembly. The DICs are to ensure among other things the training of cooks in hygiene and nutrition.

4. The school level

The School Implementation Committees (SIC) is responsible for planning, implementing and executing the School Feeding Programme at the school and community level. They work under the supervision of the District Assembly. Each school must have a School Implementation Committee (SIC) made up of the headteacher, a Parent Teacher Association (PTA) representative, two representatives from the School Management Committee (SMC), a representative of the traditional leaders' union, and a teacher's representative who is in charge of the programme within the school. The SIC is responsible for the menu, employment of cooks, procurement of food, and the general oversight of the cooking and feeding, identifying likely problems and attempting to solve the problem of forwarding it to a higher authority when necessary (GoG, 2015). The School Implementation Committees work with the communities as they supervise the activities of the caterers who work on providing the lunch to feed the school children. In practice, not all schools have a SIC and the tasks may be taken on by any of the following, a headmaster, community members, and a cook.

5. Private caterers

The GSFP engages with the award of a contract, the services of private caterers who procure, prepare and serve food to beneficiary pupils in targeted schools. Each caterer can serve more

than three schools at a time. A caterer is paid an amount of 50 Ghana pesewas for each child for each school day the caterer provides the school meal (GoG, 2015). This amount is transferred from the District Assemblies, under the supervision of the District Implementing Committees (DICs), on a bi-monthly, monthly or quarterly basis. At the school level, School Implementing Committee (SIC) is responsible for the supervision of programme activities. Storage of food is the responsibility of caterers. The caterers are not restricted or guided in their procurement and are able to procure on a competitive basis even though the programme is working and ensuring that caterer purchase foodstuff from small-scale farmers within their catchment area (GoG, 2015).

2.7 Malnutrition, children's cognition, and academic performance

Having access to a balanced meal is a necessary requirement to reduce malnutrition. When children are not fed regularly, on time and with the right nutritional intake they tend to be malnourished. There are other environmental factors that influence a child's well-being. Stock and Smithe (1963) revealed that the critical period of brain growth is the early childhood of 2 to 5 years. Their case study has shown that on average a malnourished child's skill capacity is fourteen percent less than that of a better-nourished child. Their study also revealed that malnourished children have an Intelligence Quotient (IQ) of minus 15 points less than their compared counterparts. Their study concluded that malnutrition and its associated complications account for approximately thirty percent of child mortality. Malnutrition is seen as a major child health problem with malnourished children having higher rates of mortality and mobility (Bennet, 1993)

A malnourished child has little energy for play and little sense of exploitation. They are unwilling to relate and explore the environment they live in. Their ability to acquire new knowledge, ideas and skills that promote brain development is reduced. There is evidence

to support the argument that preschool age malnutrition impairs intellectual development (Pollitt, et al., 1981; Pollitt, Cueto, and Jacoby., 1998). Nutritional deficits, poor feeding practices, prolonged infections and generally low level of education if not checked can affect the possibility of children reaching their full potential. Multifaceted social policy interventions such as the GSFP, which targets poor and vulnerable children, provide huge returns on investment in the education of children, improve their cognitive abilities, reduce malnutrition and lead them out of poverty.

2.8 Educational access in Ghana

Granted that basic education is free and compulsory in Ghana, there are in some places children are unable to attend school as a result of poverty and socio-economic reasons. The government of Ghana has implemented several programmes to improve access to education. Among them are the Free Compulsory Universal Basic Education (FCUBE), free uniforms, and the School Feeding Programme. These programmes run concurrently to improve access and quality of basic education in Ghana. The Ghana Education Service (GES) strives to improve access, quality and outcomes on a yearly basis. In 2014, The World Bank indicated educational access had improved in Ghana but there is the need to improve education quality and learning outcomes of the children in the basic schools in Ghana. The poor and vulnerable in society are the ones who rely mostly on the public educational system, especially at the basic level. In some cases even though the government of Ghana has managed to improve access to education at all level, the ability of the beneficiaries of the programme to fully participate in education becomes a challenge. This is usually dues to competing needs and the value the parents and children place on education.

2.9 Home environment and educational outcomes

Each child goes through different transformation processes in the development trajectory of their lives (Bronfenbrenner, 1997). Of this trajectory, Bronfenbrenner (2005) identifies the home environment to be a critical environment for a child's well-being and development.

The World Bank (2014) indicates that for learning to be effective there is the need for the enabling environment to be created especially for children from poor, vulnerable and deprived environments. Basing the need for the development of such an environment is imperative because for some parents from poor backgrounds, providing the basic needs for survival is primary. Governments across the nations invest in diverse ways to make sure that adequate resources are provided to reduce poverty and encourage parental involvement (Davis Kean; 2005: Pinto Pessansha and Aguiar, 2013; Taylor and Hart, 2014). Although basic education in countries like Ghana is free, households may as a result of costs (direct and indirect) of education to the household decide not to send their children to school. Kazainga et al. (2009) indicate that if the expected benefits of education exceed the cost the household will send their wards to school. However, should the cost of education exceed the benefits, the household would not send their wards to school. Lawson (2012) shows that in some cases some families decide which child has the potential to offer the highest return to education.

Chowa, Ansong, and Osei-Akoto (2012) found that parents whose education levels are lower than that of their children are unable to help with academic work. Their study also found that such parents are rather interested in their children's school environment because they believe that access to the education they have not acquired would be able to improve the livelihoods of their children.

In environments where gender roles are clearly spelt out a male child is permitted to attend school to the detriment of the female child (Afridi, 2007; 2011; Gelli, et al., 2007). Chowa et al. (2013) show that parents are more involved with the home activities of their girl child and for their male children, they tend to be more involved in the school activities (Chowa, Masa, and Tucker, 2012). To get parents to be more involved in the school activities of their female children, specific targeting of a take-home ration may be required to encourage the parents to allow the girl child to attend school (Kain et al., 2001; Essuman & Bosumtwi-Sam, 2013). The concerted effort of teachers, social workers and allied agencies will be required to help reach such families.

Epstein (1992) concludes that there is a need to improve school-family relationships especially for families that are difficult to reach. She indicates that a specific type of programme is required to reach families that are unable to partake in any form of school activities. She reiterates that education and creating awareness of the benefits of education can help improve the learning outcomes of such children. Epstein (1992) further reiterates that different approaches are required to reach parents who may be unable and unwilling to partake in educational activities of their wards. In agreeing with Epstein claims, there is the need to use all resources available such as improving home visits, parent to parent interactions, school community relationships and generally using and building up the social capital that exists within the Ghanaian communities to encourage parents from the poor vulnerable and deprived communities to improve learning outcomes.

Generally, it is believed that the home environment conditions can help to improve learning outcomes. Fantuzzo, Mcwaynes and Perry (2004), Larson (2005) and Chowa et al. (2013) argue that the household size, educational level, employment status, family structure, marital status of the caregiver and the sex of a child have a significant effect on the child's

outcomes. Fantuzzo, Mcwaynes and Perry (2004) ascertain that the kind of involvement the family has with the school such as home-based involvement (0.96), school-based involvement (0.67) and home-school conferencing (0.52) all influence a child's outcomes with the home-based involvement having more of an influence on the child's outcomes. Education may be free for the poor and vulnerable in society, but more has to be done apart from making education free to encourage parents from poor and vulnerable circumstances to make their children participate in education. Measures must be put in place to improve access, reduce inequality, and ensure equity in accessing education. The home environment situation especially parental background does play a role in influencing a child's development (Fantuzzo, Mcwaynes & Perry, 2004; Larson, 2005; Chowa et al., 2013). According to Fantuzzo, Mcwaynes & Perry (2004) children from homes with two educated parents and other educated household members can help supervise and support the child with school-related activities and assignments.

2.10 Home environment, School Feeding and educational outcomes

Despite school feeding's success in increasing educational outcomes in Ghana, the country's education system continues to face major challenges especially with the effect of the programme on academic performance. Low academic performance is a central issue to the education policy dialogue in Ghana (World Bank, 2014). Once parents from poor home know that their children will get a meal in school, they are more motivated to have their children go to school.

Adesehinwa (2013) observes that when school children are exposed to the same lessons by the same teachers, they perform poorly when assessed. That school environment is not the only determining factor in academic achievement. The home environment plays a role in explaining why the result by Adesehinwa (2013) exists. The food from the programme

attracts and motivate children to attend school regularly. The daily nutritious meals serve as an incentive to participate daily in educational programmes increasing enrolment and attendance.

Support from home is an essential component of a child's well-being and development (Omwami et al., 2011; Bronfenbrenner, 2005). Merz et al. (2014) and Pinto, Pessanha, and Aguiar (2013) have argued that parents' educational level influences the kind of support children get at home. The more educated the parents are, the more likely they are able to engage their children academically and stimulate their learning and cognitive development towards academic activities. Afridi (2011); Kohl, Legua, and McMahan (2000); Kristjansson, Petticrew, MacDonald, et al. (2007) indicate that parental need for children to help with work at home and work to support household income can affect the opportunity costs of schooling access which has implications for learning outcomes.

According to Epstein (1992) and Larson (2005), the type of family a child grows up in can influence their learning outcomes. Brown (2004) explains that children who live with both biological parents have the tendency to perform better cognitively, academically, socially, and behaviourally than children from other family types. Manning and Brown (2006) showed in their work on children's economic well-being in married and cohabiting families that children are affected by the nature of the relationship that exists between their parents. A stressful, conflict-filled environment affects the children negatively. Their study found that children from a single parent household have less monitoring, support, control and boundaries, which affects their outcomes, and in some cases, these children turn out with truant behaviours.

In some cases, school children from very poor and vulnerable homes tend not to eat before they go to school which can affect their learning outcomes. Sampasa-Kanyinga & Hamilton (2017) indicate that eating breakfast before going to school has the ability to improve academic performance. Their study shows that eating breakfast improves a student's concentration in school and shows high academic performance. It can be inferred from the reviewed studies that children from low socio-economic backgrounds who eat breakfast irregularly tend to show a wide range of risk behaviours that can affect learning negatively. Feeding children before they attend school has the capacity to influence their learning outcomes positively as compared to children who go hungry before they eat the school meal at lunch.

2.11 School Feeding, school environment and academic performance

The kind of environment a child has in school has the ability to influence the child's outcome. Evan (2004) reports that children from poor and vulnerable homes usually attend schools that have fewer resources, low pupil expenditure, low teacher quality and low academic performance. Children from poor and vulnerable homes perceive the school environment and school resources differently than children from affluent homes. Poor households tend not to have much of a voice when speaking out for the educational needs of their children. Schools available to the poor and vulnerable tend to be in poor conditions and have limited resources. Kobers (2001) notes that children from vulnerable homes tend to be affected negatively when they attend low resourced, low performing schools. Glewwe and Jacoby (1994) and Kobers (2001) indicate that high ranking schools tend to perform better academically because of reasons such as well-organized schools with the right resources, rigorous curriculum that are aligned to regular standardized test and assessments; well-equipped motivated and prepared teachers, good and working relationships between the teachers, parents and communities among others. Glewwe et al. (1994) indicated that

school resources such as learning in conducive classrooms that have no cracks in the building have blackboards and books have a significant effect on the school children's learning outcomes. They further noted that parents alter the decision to allow their children to attend school depending on the availability of school resources, Parents are motivated by both the school environment and the academic performance of their wards to send their wards to these schools Graddy & Stevens (2005). Graddy et al (2005) and Burkam, Lee and Dwyer, (2009) explain that well to do parents are likely to change the schools of their wards if they feel that they are not getting the desired results they expect from their children's academic work. Depending on the feedback from the children as well as the academic performance of the child, parents are likely to keep or withdraw their wards from schools that do not meet their expectations. According to Graddy et al. (2005) and Glewwe (2011), parents will be willing to send their wards to schools with smaller class sizes and better school resources if the future returns to the investments made will compensate for the cost of educations.

2.12 Child, school, home environment and learning outcomes

A close collaboration between the various environments of a child has the ability to influence a child's learning outcome. The GoG (2015) Draft Ghana School Feeding Policy Document outlines a clear-cut pathway for which communication and interaction of programme implementation should be carried out. It entails the efforts of all the actors within the environment for which teaching, learning and eating should occur. A break in the partnership between these actors (child, parent, school teachers, community members and implementing agencies) can have an adverse effect on the main beneficiaries. Bryan (2005) calls for a collaborative initiative that can bind the resources available to improve the well-being of the child. This collaborative effort can help to demand accountability from the agents in charge of education. Benard (1991) echoes the collaborative effect, as being the

best model to ensuring that a broad, intense, effective network is developed that will protect the interest of the poor and vulnerable children and their families.

2.13 Impact of School Feeding on access to education

Access to education can be described as a household and children's decision to take part in the activities of the school. In the context of this study access to education implies the decisions of the household and the children to enrol in a public school that provide the school meal for free and ensuring that the school children attend school regularly. The cost of education is the main decider as to whether a child will be enrolled in school or not and if a child will be allowed to attend a school or not. Das, Dercon, Habyarimana, and Krishnan (2004) indicate that households consider the availability of school inputs in deciding to send their children to school.

A study by Jomaa, et al. (2011) identifies that School Feeding Programmes are effective in enhancing class attendances, and lowering student drop-outs rate and make them perform better in their academic work. Afridi (2001) indicates that enrolment (gross and net) alone is not a true reflection of participation. He highlights the need to use variables such as daily attendance and absenteeism as a true reflection of participation. He further explains that low attendance rates can be a true reflection of the quality of the school. Kristjansson et al. (2007); Powell et al. (1998) suggest that improvements in attendance can raise the academic performance since the school meal forms the basis for which students attend school thereby reducing drop out and absenteeism. Galloway et al. (2009) provide evidence to show that for families that can afford to buy some food, school feeding programs influence what is served at home, but for families that have limited food supply or lack resources, fewer changes are noticed at home as a result of the School Feeding Programme. It can be deduced

that very poor and vulnerable families may not experience much of a change in their status even if their children are fed at school.

Children from such background may only be able to reduce their short-term hunger from the school meal programme but the programme may not affect their lives in any significant way. WFP (2002) indicates in a study in Malawi that school feeding was able to increase attendance by 36 percent.

Experimental studies on school feeding by Kazianga, et al. (2009) in Burkina Faso indicated that school feeding had increased enrolment and attendance, especially for girls. Studies by Powell et al. (1998); Jacoby et al. (1996) found positive attendance effects in the Jamaican, Peruvian, and Ugandan experiments, but negative attendance effects especially for girls in the Burkina Faso study. This was attributed to the fact that on average, girls would have otherwise not been enrolled school had it not been for the programme. Thus as and when their services were required at home they would not attend school. Very few studies on school feeding use randomized controlled evaluation, and for those that used RCT generated some mixed result on the impacts of School Feeding Programmes on learning outcomes (Kristjansson, et al., 2007; Bundy, et al., 2009; Adelman, et al., 2011;). Adelman, et al. (2008) identified an evidence gap of the effect of school feeding on age at school entry, McEwan (2010) Alderman et al (2010) indicated a higher impact of the programme on the age at which the child is enrolled and a lower impact on grade repetition but showed no effects on test scores. A study in Chile by McEwan (2010) on the impact of school meals on educational outcomes found very small effects of the programme on interschool poaching but showed high effects on attendance.

Evidence on the impact of school feeding on learning and test scores have varying results. Tan, Lane & Lassibille (1999), Ahmed (2004) for which the programme shows increasing effects in language and no impact on Mathematics. Whaley et al. (2003) show that the pathway for which the impact of the meal influences outcomes can help to determine the level of impact. Generally, the consensus is that in-school feeding can take over teaching, instruction and learn time, but it is the most useful tool to ensure that not only are school children fed but also they are able to learn on a full stomach. The effects of in-school meals tend to benefit children more.

2.14 Impact of School Feeding on cognition and test scores

School feeding can improve test scores when children are instructed in an environment where there is cooperative learning and the child is involved in daily activities that enhance the child's abilities. Some countries provide the school meal at breakfast time since it is believed that eating breakfast improves cognitive development and learning outcomes. Pollitt, et al. (1998) in a study on the impact of breakfast on cognitive development established that eating breakfast before being taught enables students to perform better academically. Their study on school breakfast showed a positive impact on cognition and test scores. Edward and Evers (2001) argue that eating breakfast improves students' concentration and attention. Grantham-McGregor, et al. (1998) ascertains that students' attention to the task in school increased significantly with the provision of breakfast. When children eat breakfast before going to school, they have the capacity to engage and learn well. Kremer and Vermeersch (2004) found that school meals increase test scores in school where the teacher is experienced and attends school regularly. These arguments hold when the school children are fed a daily meal before school. Some school children from poor and vulnerable homes may not eat breakfast before school and are likely to stay in school hungry until it is time for the school lunch or midday meal.

Studies on school feeding by Adelman, Gilligan & Lehrer (2008); Ahmed (2004); demonstrates that school feeding has the ability to improve academic performance through improved attendance and increase in test scores. Although school feeding increases access and cognition, increased access may at times lead to overcrowding in the classroom. This has implications for academic achievement when more pressure is put on limited resources (Lawson, 2012). Depending on the implementation plan of School Feeding Programmes at the school level, teaching time may be shortened if teachers are used in overseeing the mealtime (Grantham-McGregor et al., 1998) and in some cases shorter instruction time when meal times are prolonged. The right environment for school feeding to improve learning outcomes must be in place for the full benefits of the school meal to be experienced. This should include environments that promote the child's use of all their abilities and skillsets; an environment that encourages learning, playing and able to integrate formal learning with general knowledge to promote behavioural change on a daily basis.

2.15 Programme challenges

As of 2011, the Annual Operating Plan (AOP) of the GSFP stated the following as some of the challenges the programme faces. The programme faced challenges of lapses in institutional collaboration between the DIC, SIC and the technical ministries; financial challenges which were compounded by the delays in payment; inability to effectively link the smallholder farmers with the caterers; low cost of feeding; ineffective monitoring and poor conditions of service for programme staff. The GoG (2015) Draft GSF policy document and the GoG (2011) Annual Operation Plan of the GSFP outlines some of the challenges of the GSFP to include political consideration and pressure in the programme implementation process, confusing work definitions, as some of the challenges the programme faces.

2.16 Conclusion

The chapter examined the existing literature on School Feeding Programmes; the operation modalities, the implementation procedures and how the programme can influence learning outcomes. Although studies on school feeding showed different outcomes on learning outcomes, the study explained how the feeding programme could be used to influence learning outcomes. Attention is drawn to the educational system in Ghana, to help understand how the feeding programme can influence learning outcomes. The chapter sheds light on how the home environment factors can help to improve or impede learning outcomes. It also gives attention to how school environment factors can influence children's learning outcomes. The study outlines the challenges feeding programmes face and how sustainable feeding programmes can be. The next chapter discusses the theories that underpin the relationship between school feeding, home environment, school environment and how this interrelated environment can collectively influence a child's learning outcome.

CHAPTER THREE

THEORETICAL AND CONCEPTUAL FRAMEWORK

3.1 Introduction

This chapter presents various theories that underlie the School Feeding Programme, home environment factors, and academic achievement. It examines the concepts and assumptions that underlie the smooth implementation of the School Feeding Programme. It seeks to explain the relationships that exist between the School Feeding Programme and how it affects access to education and academic performance.

3.2 Theoretical Framework

This section focuses attention on the three key theoretical foundations used to explain the development context within which the School Feeding Programme operates. School Feeding Programmes encompasses several aspects of development. It embodies human capital development, social capital development and the general well-being of the citizenry. The study focuses on the human capital theory, ecological system theory and the sociological institutional systems theory. These theories complement each other to help explain the relationships between the School Feeding Programme, home environment, school environment and academic achievements within the public basic education system in Ghana.

3.2.1 Human Capital Theory

According to Psacharopoulos et al. (2004), the roots of Human Capital Theory is embedded in the works of classical authors such as Adams Smith (1776) and Alfred Marshall (1890). Smith and Marshall assumed that countries in their development process require a technologically advanced and knowledge-based economy to enable them to compete in the

globalized world of today. Romer (1990) also indicated that Schultz (1961), Becker (1993) expanded the theory when they affirmed that time and money spent on education builds human capital. For any economy to be able to compete, produce and develop knowledge, skills, capabilities, and talents, it depends on the educational system that exists and the human resource that is available. Development depends largely on human beings with a higher level of individual competence.

Human beings are the subjects that take charge of all economic factors of production that are used to create goods or services that are not themselves significantly consumed in the production process (Boldizzoni, 2008). They also take charge of economic activities such as production, transaction, and consumption. Becker (1994) identifies capital as assets that yield income and other useful outputs over long periods. Human capital is considered as a factor of production where the human being is considered a capital who adds value to the other factors of production such as land, labour and capital. For the human being to be able to manage the production process there is the need to invest in the individual. In the context of the human capital theory, the focus is put on the importance of investments in education as an economic factor. Psacharopoulos (2004) explicitly connect investment in human capital development to education. He argues that acquiring education helps to develop the cognitive abilities and productive capabilities of the individual.

Moretti (2005) notes a well-developed human capital translates into economic development, productivity growth, and innovation and serves as the justification for government subsidies for education and job skills training. Vila (2000) predicts that increases in the overall level of education can benefit society in ways not fully reflected in the 'private returns' of educated workers, what is otherwise referred to as the 'externalities of education'. He concludes that social groups, communities or countries who have on average a higher level

of education, have better living conditions, in both material and non-material terms, than the less educated population.

The School Feeding Programme is to motivate and encourage households to invest their time in the educational development of their children. Parents determine how much to invest in the education of their children when they compare current spending to the future expected benefits they will derive from investments they are making in educating their children. They make economic decisions based on the nature of the costs they associate with education. They incur direct costs made up of school fees, supplies, books, uniforms and travel to school all of which are relatively subsidized by some governments in the world including Ghana. The indirect cost comprises the opportunity cost of the child's time taken way doing other chores and work when the child is in school acquiring education. Governments' objective in using school feeding and other education policies as a development tool is to reduce all possible cost of basic education, whiles motivating and encouraging households to invest in education so that greater returns to education may be achieved at all levels.

3.2.2 Bronfenbrenner's (1979) ecological systems theory

Over the years, development theories have evolved to capture the contextual difference embedded within the development environment for which some level of interaction occurs. Bronfenbrenner (1977, 1979) proposed the ecological perspective (also called the social-ecological model) to explain how individuals interact and exist within their social environment. The bioecological systems theory looks at a wide range of variables and activities within the environment that influence a child's development. These could be individual-level variables, specific to the context the child lives in; the family, community, cultural, ethnic and historical variables. (Fraser, 2004). The ecological models identify an internal and external environment that can affect the expected outcomes of the child.

Bronfenbrenner (1979; 2005) maintains that, because the environment of the child is complex, it requires a child to be able to interrelate with this environment for their cognitive abilities to develop. To Bronfenbrenner, ecology is an interrelationship between the house, the environment, and knowledge for which he postulated that the interrelation of this environment helps the development of the child. According to Bronfenbrenner's (1979) ecological systems theory, a child's development is determined by the interaction between the child and the five hierarchical/multiple level systems that exist within their social systems.

1. The microsystem consists of the immediate environment where the individual is physically present (i.e., home, peer group, school, and neighbourhood within which the individual resides in); Bronfenbrenner (1979) shows that the influence can be bi-directional. The child can influence the environment and the environment can influence the child.
2. The mesosystem consists of interactions and connections between micro-system settings (home, school interactions and relationships);
3. The exosystem consists of settings in the wider society; (parents, workplace and policies of the education system)
4. The macro-system consists of the values, laws, customs, public policies within the community and nation that impact on the individual; and
5. Chronosystem consists of the child's life events and transitions they make.

The various systems have factors that can adversely affect the child's development and positive and protective factors that can similarly affect the child's development (Fraser, 2004). As such, the study will attempt to find out how these various systems (micro, meso, exo, macro, chrono) interrelate within the environment the child lives in and how they

interact with school feeding to influence the child's academic engagement and achievement. Each of the five systems independently yet collectively influences a child's development. A negative or positive influence in one system influences the other system.

Bronfenbrenner (1994) indicates that the environments the child interacts with must be consistent over extended periods of time (proximal processes). These proximal processes originate either from vertical or horizontal interaction processes where children acquire some basic skills required for daily living. Bronfenbrenner (1994) stresses that the type of relations, power plays, context and direction of these proximal processes directly or indirectly affects the child's development. A child's development depends on how these relations affect the child and the kinds of foundation the environments especially the home environment brings to bear on the child's growth. Pianta and Walsh's (1996) contextual systems model are similar to Bronfenbrenner's ecological systems model. They indicated that children develop within four interconnected systems (child, family, classroom/school environment and broader socio-cultural systems).

3.2.2.1 Bronfenbrenner's ecological systems theory and children's academic achievement

Bronfenbrenner (1994); Risko, and Dalhouse (2009) have identified that the child's characteristics interact with family and school characteristics to influence a child's academic achievement. Brown (2004, 2006) describes how a parent's interest in their child's academic work is able to influence their academic achievement. Brown believes that when parents are involved in their child's academic work they, directly and indirectly, are able to shape the child's performance. Their interest can be in the form of payment of educational expenditure, to helping with homework through interaction with the teacher on their child performance. Epstein (1995) and Risko et al. (2009) shows that when a child's parents/family works

together with the school, the child performs better academically. Epstein (1995) describes this as the overlapping spheres of influence theory. A child does not operate in a vacuum but requires the concerted effort of the home and school environments to aid their progress academically. Academic achievement depends on interactions between the child's characteristics, behaviour and the environment the child lives in (Risko et al., 2009; Epstein, 1998; and Pianta and Walsh, (1996). Interestingly (Bronfenbrenner, 1994; Epstein, 1995) support these arguments. These arguments assert that when policies that promote education are implemented in consultation with the child's characteristics, their home environment, and the school environment factors, together they can work to improve the child's academic achievement. Similar to Bronfenbrenner ecological systems theory is the contextual systems model of Pianta and Walsh (1996) who agree that a child develops within an interconnected system or environment. They classified these environments as the individual child, family, classroom/school environment and broader social/cultural contexts. These systems have factors that interrelate and influence themselves and the child's development.

3.2.3 The sociological institutional theory

The institutional theory considers the processes by which structures, including schemes; rules, norms, and routines, become established as authoritative guidelines for social behaviour (Scott, 2004). The theory is relevant in examining the institutional structures of the implementation of the GSFP and the challenges therein. The theory helped to examine how or how not the social behaviour of the implementing actors conform to the structure, schemes and norms set out in the implementation plan of the GSFP.

The theory explains how the systems and elements of the institutions create, diffuse, adopt, and adapt, and how they fall into decline and disuse over space and time. It recognizes the ways through which institutions help individuals to understand and implement policies and

determine the role these policies can play in the development process of the nation (Scott et al., 2000; Thornton, 2002; 2004; Amenta, 2005). The institutional theory provides the basis for which government and political organizations use these policies to support their legitimacy and gain more support. Governments at times adopt and implement policies as a means of promoting cohesion among professional associations and academic or private policy-producing organizations (DiMaggio et al., 1983; Scott et al., 2000). Although these policies and powers may not necessarily achieve their desired objectives.

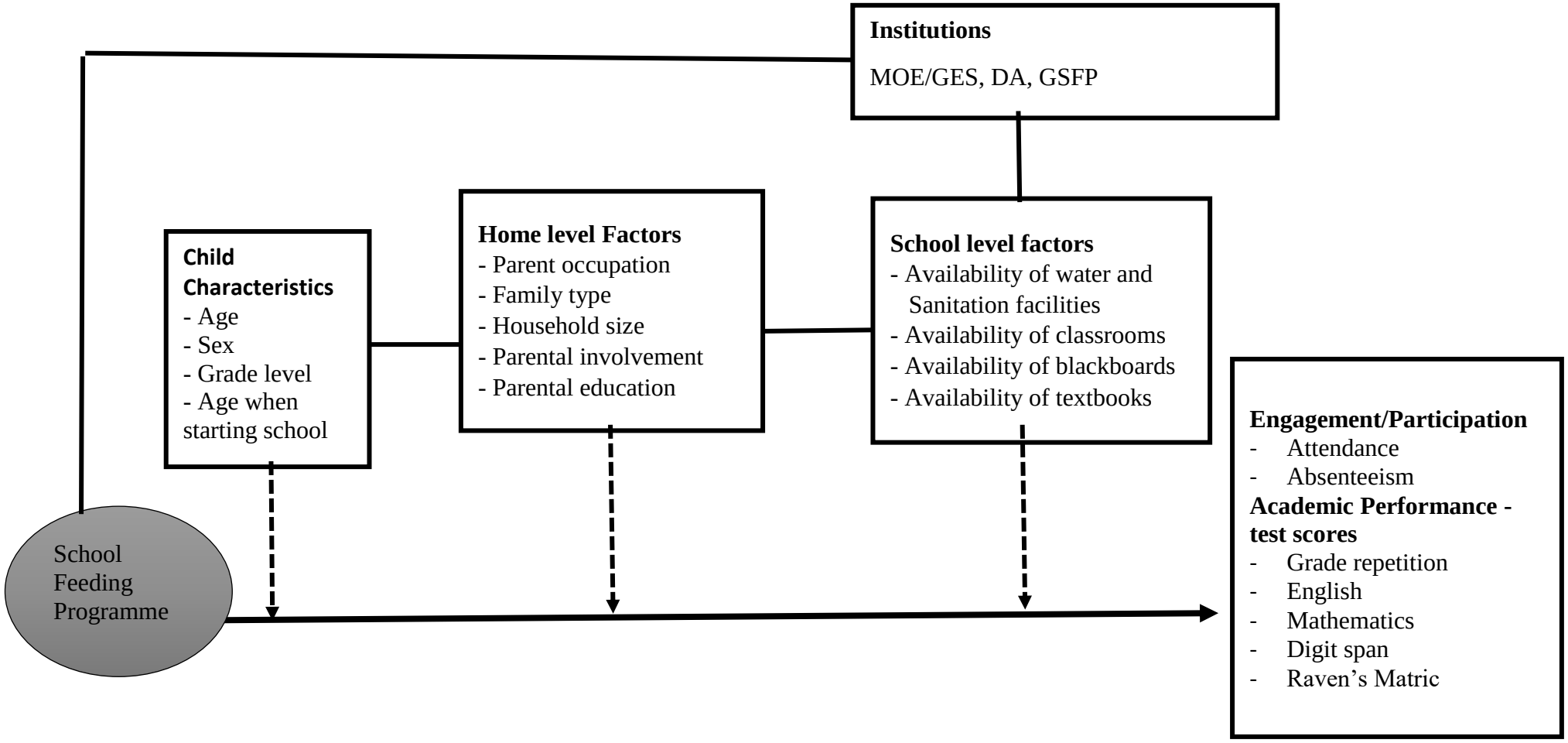
The theory highlights that there exist powerful actors such as international bodies, development agencies at various levels who may use incentives and threats to impose policy expectations on less powerful units with the objective of promoting their agenda (Bennett, 1991; DiMaggio et al., 1983). The sociological institutionalist focus on how these different policies converge over an extended time across a population of political units, typically nation-states or subnational units. Sociological institutional explanations seem to work best in situations in which a political actor needs institution-provided guidance – either legitimacy or a working schema – and sees no cost in adopting the forms and characteristics of other states or organizations.

3.3 Conceptual Framework

From the discussions in the literature review and the theoretical review, the child, household, school characteristics as well as institutional factors determine which child benefits from the school-feeding programme. The programme targets children from vulnerable and poor households and communities who attend public primary schools in Ghana. The school meal programme operates within a given institutional framework where institutions collaborate and coordinate to enable them to co-implement the programme.

The expectation is that the meals served in public primary schools have the required dietary and nutritional needs to enable the child to grow well. These balanced and timely meals have the right mix of nutrients to help the child cognitive development which when done over a period of time yields positive academic performance. With the right instruction within the right environment and available resources, school feeding can affect the quality of education negatively or positively in a given school. A child growing up in a good and conducive home and school environment that encourages learning and benefits from the School Feeding Programme is expected to perform better academically (Epstein, 1992). The opposite can occur to a child who does not benefit from the programme but is in a conducive home and school environment. The framework indicates that there exists a relationship between the school feeding, access to schooling and academic performance. It is expected that, within the given home and school environment context, the School Feeding Programme will affect educational outcomes given the right home support and school environment. Students who attend school regularly and consistently perform better than students who have lapses in their attendance (Davis-Kean, 2005; Taylor & Hart, 2014). Studies on the home environment and learning outcomes at the school level indicate that factors at the school level, such as quality of school the child attends, teacher's level of experience, security, neighbourhood and class size, may all affect how a child performs academically. Within the home, parental education, income level and a child's gender, may similarly affect performance (Epstein, 1995). Students from poor and vulnerable homes who absent themselves from school are likely to be associated with lower academic performance over time.

Figure 3.1: Conceptual Framework depicting the relationship between School Feeding, and learning outcomes and how the child, home and school level factors influence the relationship.



Source: Authors construct adapted from Becker's (1993; 1994) Human Capital Theory; Bronfenbrenner (1979, 2005) Ecological Systems Theory and Scots (2004) Sociological Institutional Theory.

The conceptual framework holds the view that investment in school feeding is a form of human capital investment made to improve access to education, reduce hunger and promote learning among children from poor and vulnerable environments. Investments in developing the human capital of these school children are heightened when the child, home, and school environments interrelate. A child's own characteristics (gender, age, and grade level/class) helps to account for variations in academic performance (Figure 3.1). On how the home environment factors influence the child's outcomes, variables such as how the parents involve themselves in the child's development, the family type and household size among other factors all influence the child's outcome. Likewise, the school environment and institutional factors such as regular monitoring visits all have a bearing on how the available resources are accessed, utilized and maintained to promote and enhance teaching and learning in the schools. All these resources when obtained and managed well within the right context of the various institutions working together effectively will yield the desired return on investment of improved educational outcomes. If not managed within the context for which they are supposed to operate, can yield negative returns or outcomes.

The framework holds that school feeding impacts the ability of students to participate in schooling and learning. However, these environments have an effect on how well a child in a feeding school is likely to perform as compared to a child in a non-feeding school. Creswell (2012) believes that the context of a person's life affects their behaviours and their outcomes. There is a need to understand and investigate the individual's home and school environment context. This model highlights the various components of how school feeding interacts with a child, home, and school environment to yield the desired learning outcomes. The conceptual framework envisages that managing investments within the right context, of implementing actors and institutions working together and effectively, yields desired returns on education investment.

3.4 Summary of the chapter

The chapter gives an overview of Ghana's human capital indicators. It presents three theories and assumptions that underpin the study. It specifically looks at the human capital theory, Bronfenbrenner's ecological systems theory and the sociological institutional theory. It tried to identify how these theories are interlinked and interrelated with the child's characteristics, the home environment, the school environment, the School Feeding Programme in Ghana and relates it to educational outcomes. The chapter also presented the conceptual framework of the study and explained the linkages between the factors that must exist for school feeding to exist, the relationship between school feeding, home and school environment and educational outcomes. It shows how school feeding can impact learning outcomes. It presented the intermediating effects of child, home and school environmental factors on the school feeding and learning outcomes relationship. The relationship also shows how implementing institutions inherently influence the school feeding and learning outcome relationship. A number of these relationships have been studied quite extensively, as the reviewed literature shows but the associated conclusions remain unclear because of availability of data, inconsistent analytical issues and study design issues, which this thesis seeks to address.

CHAPTER FOUR

METHODOLOGY

4.1 Introduction

This chapter presents the approach that the researcher adopts to obtain data and analyse the data. Section 4.2 explains the Ghana country context and situates the study within the Ghanaian context. The next section discusses the methodological procedure used for the study. The discussion of the quantitative methodology, which explains the rationale behind the selection of the sample and analytical tools used in the study, follows the Ghana country context. The qualitative procedure used for the study is described in the next section. The final section provides a summary of the chapter.

4.2 Ghana country context

Ghana is a country with a land size of 230,940 km^2 on the coast of West Africa bordering Ivory Coast, Burkina Faso, and Togo. Ghana has 10 administrative regions and 216 districts. It has been undergoing a process of decentralization, transferring decision-making powers to district level government through district assemblies. The Ghana Living Standards Survey (GLSS 6) by the Ghana Statistical Service notes that population of Ghana is 26.3million with more people living in the rural forest (6.9 million) than the rural savannah (4.7 million) and the rural coastal (1.5 million). Ghana has reduced the incidence of poverty from fifty percent in 1992 to about twenty-four percent in 2012/2013. The percentage of extremely poor people reduced to about eight percent in that 2012/2013 from about thirty-six percent in 1992. The three northern regions being the poorest regions in Ghana. The GLSS 6 showed that as poverty reduced, enrolment and attendance in primary schools increased over the years. For education, more females (24.3%) than males (14.6%) have never been to school. Of the children going to school in Ghana, about seventy two percent

are in public schools compared to about twenty nine in private schools. On the proportion of the households who work in agriculture, about fifty two percent of households in Ghana own and operate a farm with more of this household about eighty-three percent live in the rural areas. About forty four percent of households in Ghana operates a non-farm enterprise of which about fifty percent reside in urban areas. Ghana has an annual average household expenditure estimated to be GH¢ 9,317. The share of the urban population expenditure is twice (65.8%) as much as that of the rural population (34.2%). In terms of governance, about five percent of the population in Ghana show that the government of the country considers their view before changing the laws of the country.

4.3 Methodological procedure

The researcher adopted the mixed-method procedure using the sequential explanatory strategy (Creswell and Clark, 2011). It combines information from secondary quantitative data from the ISSER/PCD/NMIMR survey and primary qualitative field data to generate an in-depth understanding of the Ghana School Feeding Programme. Mixed methods approach focuses on collecting, analysing, and mixing both quantitative and qualitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than the use of either approach alone Creswell (2012). Creswell (2011) further explains the sequential explanatory as the collection and analysis of quantitative data followed by the collection and analysis of qualitative data. The focus of this mixed method strategy is to analyse the quantitative results after which the qualitative analysis will be used to explain and shed more light on the quantitative results (e.g., using follow-up interviews to better understand the results of a quantitative study).

The survey data was collected at the child, household, school and community levels. The qualitative data was collected at the household, the district and the regional levels to complement and bring about some convergence of both the qualitative and quantitative methods. This offers a deeper understanding of the institutional and systemic challenges the School Feeding Programme faces as well as help get a deeper understanding of the practical and nuanced challenges the programme faces. This will also help to bring out the inherent characteristics and unearth the underlying child, home and school characteristics that affect programme outcomes.

4.3.1 Rationale for the type of evaluation method

Several reasons justify the choice of how a programme is assessed. Reasons such as technical consideration, the obligation to research rigour, concerns about time, money and future funding sources determine the need for an intervention and assessing how effective it can be (Creswell, 2012; Pope, Ziebland and Mays, 2006). Patton (2004) and Creswell et al. (2011) explains the different ontological perspectives are required to help explain the rationale for the mixed method of evaluation that is used. It also justifies the ontological perspective and epistemological assumptions underlying the qualitative methods. It focuses on helping to determine and understand the implementation challenges that are contextual to the School Feeding Programme in Ghana. It seeks to explore the nature of knowledge and the validity of such knowledge in the school feeding implementation procedure. It seeks to assess the opinions of the programme actors on how the programme is implemented, the implementation challenges that exist and what is considered the best way of implementing the programme.

4.3.2 Philosophical orientation of the study

The philosophy of science is shifting towards the convergence and a combination of methods. The focus has moved from days when a clear divide existed between the quantitative and qualitative research paradigms. This trend rests in the paradigm shift when both quantitative and qualitative methods are seen as complementary methods in explaining what truth is. The study leans towards the social constructivist worldview who usually try to uncover meaning from data. To further explain the constructivist's approach Vygotsky (1978) and McMahon (1997) explain social constructionist worldview to be that culture, context and language together determine how an individual's intellectual development is constructed. It agrees with Guba and Lincoln's (1990) view that there exists a difference between human and the natural environments and they must be studied differently. The constructionist believe that human perception is not real in an absolute sense. The environment we live in evolves and shapes our thoughts patterns and our perceptions. Although an individual's inherent characteristics influence their learning outcomes, their focus is usually on how the social environment influences their individual or communal lives.

The constructionist believe that no worldview is uniquely determined by empirical data alone but by subjective worldviews as well. Likewise, Shardish (1995) in Creswell et al. (2011) explains that human beings do not have single and direct access to knowledge. The social constructionist interprets truth differently and they perceive truth as a consensus of educated constructors. Their notion of objectivity is that, for it to be factual, it has to be constructed within a given framework. This makes it possible to be able to assess the effects of the child, home and school environment factors to explain the impact that school feeding has on learning outcomes. It uses the different worldviews of the various actors to seek to understand and explain the programme effects and the implementation challenges that exist

with the programme. The views and interpretation of reality by the various actors help to draw various views and experiences and not just a singular conclusion: It shows how the multiple voices determine the worldview of their reality within the school feeding context.

4.3.3 Challenges with mixed methods

Patton (2002) argues that in conducting an evaluation, the practical mandate outweighs methodological purity and some challenges arise when methods are integrated and mixed to obtain an objective view of the phenomenon under study. Although mixed methods can be complex, time-consuming and require more resource to undertake, it helps to provide a more complete and comprehensive understanding of the research problem than when one approach is used (Patton, 2002; Creswell, 2007; Pope et al., 2006). The purpose of using the primary data is not only to triangulate the quantitative data but also to explain the expected outcomes (Bottorff, 1997 and Riley et al., 2005) within the school feeding context. The results from the qualitative data help to explain the causal relationships that exist within the School Feeding Programme in relation to the child, home and school environment context. The qualitative data helped to explore and understand the effects of the school feeding context, examine how the programme implementation process and identify the programme's effects on the study population. This method of sequential explanatory approach was relatively easy to implement because the process of implementing was easy to follow through and the study design easy to describe.

4.4 Population sampling and data description[4]

The population is the entire group of events, individuals or people that are involved in the study. They may be everyone in the country, or those in a particular location, or a special

[4] Summary of secondary data procedure was pulled from Gelli et al. (2016)

ethnic, economic or age group, eligible for a data collection investigation (Merten, 2014). The study used secondary quantitative survey data and primary qualitative data. The study obtained the Ghana School Feeding Programme survey data which was collected by a team of researchers from the Institute of Statistical, Social and Economic Research (ISSER), the Noguchi Memorial Institute for Medical Research (NMIMR), in partnership with Imperial College/Partnership for Child Development (PCD) and International Food Policy and Research Institute (IFPRI) over a three-year period (2013 – 2016). The researcher sought permission to use the Ghana School Feeding Programme from ISSER. The quantitative study covered beneficiaries and non-beneficiaries, school level, caterer level as well as implementers of the School Feeding Programme across the length and breadth of Ghana.

The obtained quantitative data was analysed for relationships between school feeding and learning outcomes. The child characteristic; home environment factors and school environment factors were controlled to determine their individual and collective effects on learning outcomes. When these relationships were established, the qualitative analysis was conducted to augment the quantitative and seek a clearer understanding of the underlying reasons for the impact identified.

Content analysis was used to gain further insight and understanding of the activities of the School Feeding Programme. The qualitative analysis helped to obtain a varied perspective of the feeding programme. The study obtained the opinions of the coordinating officers of the School Feeding Programme at the national level, the regional and district officers of school feeding through in-depth interviews. Focus group discussions were organized with the household heads to get their opinion on the School Feeding Programme.

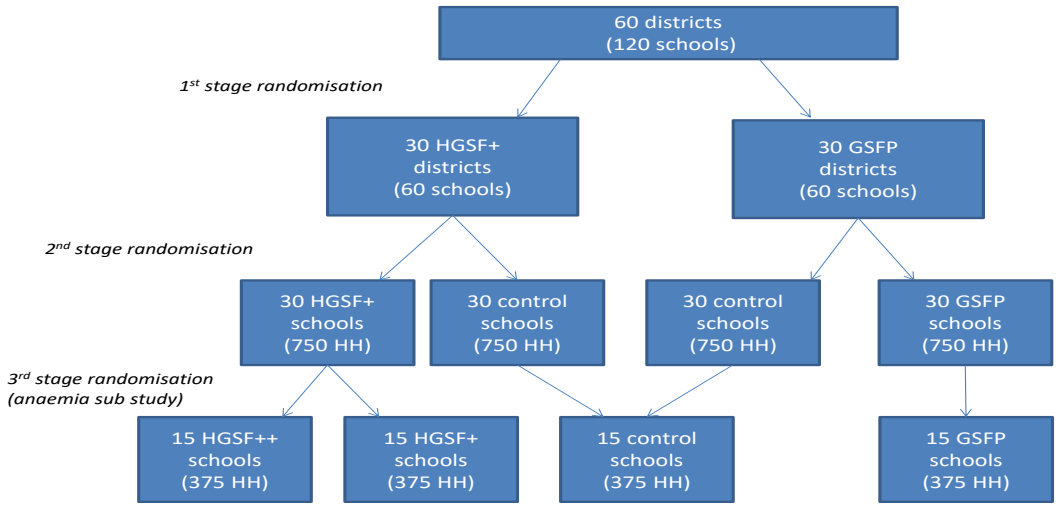
This data was used because it is specific to the School Feeding Programme. It covers data at the child level, the child's household (farmer and non-farmer household), and the child's school-level data. It compares with similar child household and school level data as well as test scores on English Literacy, Mathematics, Ravens Matric test and Forward and Backward Digit Span test with that of a child in a non-feeding school. The Ghana School Feeding Programme (GSFP and HGSF) survey data is a Cluster Randomized Control Trial (RCT) data. It is a type of RCT in which groups (districts, localities and schools) are randomized as opposed to individuals (Gelli et al., 2016). This data is an experimental data that helps to determine the impact of the GSFP and the HGSF Pilot on the various levels of outcomes captured in the data. It is an RCT because it is expected to yield unbiased estimates of causal impacts than other observational or descriptive studies (Alderman et al., 2006).

Randomised Control Trials are considered the gold standards since they give a robust statistical design, which tells the best evidence of causality than quasi-experimental and descriptive studies. The main objective of the evaluation was to provide evidence-based information to show the progress of the GSFP and the HGSF and its impact on school children's nutrition, health and education outcomes, and on small-holder farmer's food security. The survey was conducted over 3 years June - September 2013 and January – February 2016. The baseline study describes and assesses the conditions of the sampled school children, schools, households and communities. It helps to determine and compare the initial conditions and changes that the School Feeding Programme can have on respondents. The endline survey assessed the impact of the School Feeding Programme on health, agricultural, consumption, income (farm and non-farm) and educational outcomes among others. The clustered RCT design was chosen for this study because of the assumption that study sample was constructed by a random assignment which warrants that school children, households and schools in each group (Control and treatment Arms) have

the same observable and unobservable characteristics, except for access to the school meals. Therefore, if the randomization process is properly executed differences in outcomes will be attributed to differences in the School Feeding Programme.

The GSFP has set a clear procedure in selecting interventions area for the retargeting exercise conducted in 2012. Two surveys, the Ghana Living Standards Survey of 2005/2006 and Core Welfare Indicators Questionnaire of 2003 respectively were used to develop a poverty ranking. Sixty (60) districts from all ten administrative regions of Ghana were selected for the evaluation from each of the 60 districts (Figure 4.2); two candidate schools were selected based on poverty rankings and Education Management Information System (EMIS) data. The selected beneficiary (treatment) and Non-beneficiary (control) schools were matched and the best-matched schools were randomly sampled using the lottery style. A protocol was designed in order to ensure that the selected schools are comparable and that undue influence between the two schools in each district was avoided. This allowed a comparison of outcomes of the intervention against the control group at the school level in the districts.

Figure 4.2: Schematic view of the design of the randomization



Source: Gelli at al., (2016); GSFP evaluation report (2013, 2016)

The study randomly sampled 120 primary schools from 60 districts in Ghana. The 120 schools were randomly assigned to three groups made up of the GSFP, the HGSF and the control group where the feeding programme is delayed (Gelli at al., 2016).

1. The standard School Feeding Programme (GSFP) group, is made up of schools and communities where the standard Government programme is implemented;
2. The Home-Grown School Feeding Programme (HGSF) is the enhanced aspect of the Ghana School Feeding Programme. It is an innovative pilot project, which aims at enhancing nutrition and agriculture, which was implemented together with the standard School Feeding Programme in some schools and communities. This innovation includes training to build the capacity of community-based organizations and other stakeholders on food procurement, nutrition, education, health and feedback monitoring;
3. The control group included schools and households from communities in which the intervention is intentionally delayed without informing the households by at least two years.

4.4.1 School selection

This study sampled two comparable schools from each of the 60 sampled districts for both the baseline and the end line (Figure 4.3). The EMIS annual census data from 2011-2012 was used to match these schools obtained from the districts and the "best matched" pair of schools was used for the study (Gelli et al., 2016). The randomized (lottery style) allocation was used to select the schools from the drawn sample. Seven thousand, three hundred and ninety-nine children between the ages of 2-18 years were surveyed in the baseline and six thousand two hundred and thirty-five children were surveyed in the end line.

4.5 Research instruments

The quantitative data used different survey instruments, including a household questionnaire, a school questionnaire and a caterer questionnaire for both the Baseline and the end line data collection. Data collection for the baseline was in 2012/2013 by ISSER/PCD/NMIMR whiles that of the end line was in 2016. The Computer Aided Personal Interviews (CAPI) was used to collect the data. To collect data on the children, trained enumerators visited the schools and the homes of these children and conducted a timed, individual test (literacy, Mathematics, digits span and cognition test). These tests were to assess cognitive abilities and academic abilities of the children. The tests were conducted in both waves of the study. The data collected helped to gain insight into the children's development, home environment and school environment. Several visits were made to the communities since the 2012/2013 academic year. Some respondents who had relocated from the communities captured in the baseline were tracked during the end line survey.

4.6 Data collection, validation and ethical consideration

The survey adhered to the research ethics of the University of Ghana throughout the study process. Respondents were informed and their permission was sought throughout the data collection process. The ethical clearance was sought from the University of Ghana ethics committee for the Humanities. The secondary data was checked and corrected for data errors and outliers. The attrition and compliance rates were calculated and then the data was then plotted and described to find out if the data is concentrated around some specific variables (Glennerster & Takavarasha, 2013). The study adopts the use of descriptive statistics (frequencies, graphs and percentages) to determine trends and difference-in-differences with covariates was used in assessing interventions impact. The STATA 14 statistical package was used to facilitate the analysis. Since the analysis used existing secondary level data, the preliminary analysis was conducted to determine the level of causal impact between the school feeding, household variables, and education variables.

4.7 Re-organisation of the secondary quantitative data

Based on Gelli et al. (2016) findings from their Random Control Trial (RCT) evaluation of alternative School Feeding Programmes in Ghana where they found significant differences in the means of a number of outcome and control variables across the intervention groups, there was the need to reorganized the data to manage and alienate these significant differences to make it possible for the data to be used to make meaningful examinations and assessment of the feeding programme. The data management made it possible to select only the respondents that complied with the randomization protocol and those who did not contaminate the randomization process across both the baseline and the endline.

Initially, the data was segregated into the household and school-level data for which there was no common variable by which the two data sets could be merged. It was pertinent to

restructure and reorganize the two data sets to be able to use both the school and household data in the same analysis. Although the study sampled 120 schools, 115 schools were used in the baseline data. However, because of contamination, some schools were dropped in the end line data. Only 98 schools could be matched in both waves of the school level data for both the treatment and control schools. The household level data was reorganized and matched with the sampled 98 school data. The data was then organized such that only the randomly assigned school children, in the KG and primary schools were selected since they are the target beneficiaries of the programme with the rest assigned into another variable "school type" that was created.

Some students had switched schools from the originally sampled school's whiles some students who were originally sampled although captured in the data were not attending the school feeding schools. This could be because of parents preference for private school since they believe that they have smaller classes and better resources. Graddy & Stevens (2005) study confirms these results by indicating that parents are interested in their children's future career opportunities and would prefer a school that offers the best form of education. The school and household data for the baseline were then matched unto the school and household data for the end line. The matched data were then aggregated to determine the number of school children who did not comply with the randomization procedure (Table 4.1). From the matched sample, it was detected that for the children in the control group, approximately twenty percent of them benefitted from the programme, (contamination). These children were not supposed to have received the meal on the programme but received the meal. For those in the GSFP (treatment Arm 1) about thirty six percent did not comply with the randomization protocol. For the respondents in the HGSF (innovative pilot with training and capacity building Arm 2) about thirty-seven percent of the primary school children who were scheduled to receive the school meal did not receive it (non-compliance).

Table 4.1: Proportion of students who did not comply with the randomization protocol

Study Arms	Receive School Meals		Total
	Yes	No	
Control	**20.12**	79.88	100
School Feeding	63.68	**36.17**	100
Home Grown School Feeding	62.83	**37.17**	100
Total	41.85	58.42	100

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016

As is common with longitudinal datasets, not all respondents who participate in programme activities completed the designated years of the intervention. Response rates of each round declines over time suggesting a level of attrition in this study was not unusual for a panel study. Differences in baseline and end line characteristics as well as between treatment and control groups might be a threat to internal validity. The methods used to develop the final dataset differs for this study from what the project dataset used. Following the same students over the baseline and the end line, a balanced individual-level panel dataset of 5108 students from KG to Primary 6 was constructed. The individual, household and school characteristics were compared for school children in both the treatment and control groups.

To be able to estimate the impact of school feeding on learning outcomes, the study relied on variables from studies by Bronfenbrenner (1979; 1997; 2005), Epstein (1992;1995), Kobers (2001) among others. Table 4.2 identifies the variables of interest and how they are described.

Table 4.2: Main indicators of the study

Variables	Indicator(s)	Metric(s)
Home Environment	• Parents Socio-economic and demographic characteristics, • Parental supervision	• Occupation, education level, demographic variables • Household composition, provision of resources for child
Academic Performance	• Education access	• Attendance, and Absenteeism
	• Cognition and Attention	• Digit span and Ravens tests
	• Learning Achievements	• Scores on language and Mathematics tests
School resources	School resources • Input, Process, Output	• Type of school, number of Blackboards, Number of classrooms, access to textbooks, availability and types of water and sanitation facilities, • Availability of textbooks, availability of teaching and learning materials, school building, water and sanitation facilities. • Academic achievement (test scores on English, Mathematics) • Parental involvement (PTA, SMC)

Source: Authors construct

Targeted levels of impact

- School children between the ages of 5 and 15 - to determine the impact on academic performance using tests scores.
- School Levels (Teachers/Headteachers) - the impact on school attendance and absenteeism, and to assess the practical implementation of the GSFP in the schools. This helps to understand what challenges exist for the smooth implementation of the School Feeding Programme and its effect on school quality.
- Household level (Parents/Primary caregivers/Guardians) - To determine the impact of the GSFP on school attendance, absenteeism, and households contributions to learning outcomes.

4.8 Methods used to Address Research Objectives

The methods used to address the research objectives are summarized here (Table 4.3). It outlines each objective and lists the method used to address the objective. It also identifies the data source that is used for the analysis.

Table 4.3: Summary of the methods used to address the research objectives

Specific Objective	Method Used	Data Source
a. To estimate the impact of GSFP on educational access (attendance and absenteeism) whiles examining the effects of child, home and school level factors	• Difference-in-difference • FGD with household heads and school children • In-depth interviews with programme implementers	• GSFP Secondary data • Field data
b. To estimate the impact of GSFP on academic performance whiles examining the effects of child, home and school level factors	• Difference-in-difference • FGD household heads and school children • In-depth interviews with programme implementers	• GSFP Secondary data • Field data
a. To investigate the challenges confronting the implementation of the GSFP outcomes	• Desk study/Literature Review • Focus Group Discussions • In-depth interviews with programme implementers	• Literature • Field data

Source: Authors construct

4.9 Analytical Framework for the Quantitative Work

To determine the impacts of the Ghana School Feeding Programme on education access and academic performance (attendance and test score), household and children test score results for both waves of the data were analyzed using Difference-in-Difference (DID) with covariates model. According to Lechner (2011), the difference-in-difference model is used to estimate the causal effect of a policy intervention or a policy change that may not affect everyone at the same time and in the same way. It is used when a minimum of two

comparable groups are identified. These comparable groups are assigned to either a treatment group which is a group exposed to the intervention and a control group which is a group without the intervention. The experiment is conducted with two or more groups within a given time to enable comparability.

The difference-in-differences with covariates framework combines other non-experimental variables to determine the levels of impact of the programme on the expected outcomes (Villa, 2016). A difference-in-differences treatment effect is estimated based on the existence of two time periods; a baseline (time: t = 0) and an after/follow up/end line time (time: t=1). Secondly, there should be the existence of two or more comparable groups made up of the treatment group (Zi=1) who receive the treatment (school meals) and a control group (Zi=0) who do not receive the treatment (no school meals). The treatment indicator in the DID setting requires absence of any intervention in the baseline for either group (Di, t=0 = 0|Zi = 1, 0), and it requires the intervention to have made an impact on the treated group in the follow-up (Di, t=1 = 1|Zi = 1). For a given outcome variable, Yit, the population DID treatment effect is given by the difference in the outcome variable for treated and control units before and after the intervention.

The single DID setting is given by

$$DID = \{E(Y_{it=1}|D_{it=1} = 1, Z_i = 1) - E(Y_{it=1}|D_{it=1} = 0, Z_i = 0)\} -$$

$$\{E(Y_{it=0}|D_{it=0} = 0, Z_i = 1) -$$

$$E(Y_{it=0}|D_{it=0} = 0, Z_i = 0)\} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\textbf{Equation 1}$$

In cases where the implementation of the design is compromised, the difference-in-difference with covariates can be used to determine which inherent variables influence the intervention outcomes. Villas (2016) observes that in such a situation there is the need to

combine the DID with other non-experimental evaluation methods especially when observed heterogeneity may confound the identification strategy. Observed covariates (Xi) may be exempt from the effects of the treatment but if they are available should be added to the analysis. The model is then specified as

$$\text{DID} = \{E(Y_{it=1}|D_{it=1} = 1, Z_i = 1, X_i) - E(Y_{it=1}|D_{it=1}) = 0, Z_i = 0, X_i\} -$$

$$\{E(Y_{it=0}|D_{it=0} = 0, Z_{it} = 1, X_i) -$$

$$E(Y_{it=0}|D_{it=0} = 0, Z_i = 0, X_i)\} \ldots\ldots\ldots\ldots\ldots\ldots\textbf{Equation 2}$$

A linear regression of a single DID analysis is used to estimate the expected values in the equation. The introduction of the generic variable K with parameter B4 representing the control variables are specified by the linear regression specified below.

$$\begin{aligned}\text{Outcome} \quad &= \beta_0 + \beta_1 \times \text{period}()_i + \beta_2 \times \text{treatment}()_i + \beta_3 \times \text{period}()_i \\ &\quad \times \text{treatment}()_i + \beta_4 \times \text{period}()_i \times \text{treatment}()_i + \quad \varepsilon_i\end{aligned}$$

The Outcome is the outcome variable for each unit

1. Period ( )i is a binary variable taking the value of 0 in the baseline and 1 in the follow-up periods;
2. Treatment ( )i is a binary variable indicating the treatment status for each unit, similar to Zi = 1.

The expected values in equation 1 are obtained from the estimated coefficient. The interpretation of the coefficients is listed below.

ß0: the mean outcome of the control group at the baseline.

ß0+ß1: the mean outcome of the control group in the follow-up.

ß2: the single difference between the treated and the control groups at the baseline.

ß0 + ß2: the mean outcome of the treated group at the baseline.

ß0 + ß1 +ß2 + ß3: the mean outcome of the treated group in the follow-up.

ß3: the DID estimate.

ß4: a generic variable K with parameter B4

The outcome measures were measured on 7 levels (attendance, absenteeism, grade repetition, Mathematics, English Literacy, Raven's matrix test scores and Forward and Backward digit span test. Model 3, which has all covariates in the same model, is the preferred model.

Basic Model – The impact of the school feeding on learning outcomes; using the default DID model. This is the standard DID model which can be found in the literature. This study introduced the DID with covariates by Villa (2016). Model 1 to model 3 are the addition to knowledge on School Feeding Programmes, home environment and learning outcomes. The basic model is too parsimonious and that without accounting for the child, home and school environment factors, the impact of the SF on learning outcomes could be overestimated.

Model 1 - The impact of the school feeding on learning outcomes, and how the child's characteristics (age, sex, grade and age at which the child Started school) individually and collectively influence the outcomes. It is a combination of the DID model and the use of expanded child characteristics control variables.

Model 2 - The impact of the school feeding on learning outcomes. It shows how the child's characteristics (age, sex, grade and age at which the child Started school); home environment variables (family Structure, who pays for educational expenses, having younger siblings, whether the child eats breakfast before school among others) individually and collectively influence the outcomes. It is a DID model and the use of expanded child and home environment control variables. However, with the feeding programme being

implemented at the school level, there is the need to control for school level effects. Thus the introduction of model three being the preferred model since it captures the three main environments that a child relates in whiles acquiring education and also enjoying the benefits of being fed a school meal in school.

Model 3 – Child, Home and School environment characteristics are included in the model to determine the effect these factors have individually and collectively have on the outcomes; it is a DID model and the use of expanded child; home and school environment control variables. Model 1-3 are the addition to knowledge my works brings to the fore. Since the base model is the standard DID model which can be found in the literature.

For the heterogeneity effect since the GSFP survey data had enough data points, this study estimated subsample regressions for boys, girls, KG and primary levels. Evidence on school feeding and learning outcomes clearly shows that the effect of SF is non-linear in gender, age and educational levels. Hence, the need to disaggregate the average effects for boys and girls and for different levels of education. This helped explain the heterogeneity effects of the subsample to clearly show the levels of effects of the programme among boys and girls and also between school children in the Kindergarten (KG) and in the primary school.

i. Boys sub-samples – Boys responses were to determine the effect the child, home and school environment factors have on outcomes of the male students; it is the DID model and the use of expanded school-level control variables.
ii. Girls sub-sample – Girls responses were to determine the effect that child, home and school environment factors have on outcomes of the female students; it is the DID model and the use of expanded school-level control variables.
iii. KG sub-sample – KG responses were to determine the effect the child, home and school environment factors have on outcomes of the school children in the KG classes; it is the DID model and the use of expanded school-level control variables.

iv. Primary sub-sample – children from class 1-6. The results obtained was to determine the effect the child, home and school environment factors have on outcomes of the school children in the KG classes; it is the DID model and the use of expanded school-level control variables

The response variables, child, home and school environments variables are treated as categorical under the assumption that the levels have no natural ordering and STATA 14 chose the referent group.

Table 4.4: Variables of interest and a priori expectation

Variables	**A priori expectation of the effects of SFP on measured outcomes**	**Literature**
Attendance and Absenteeism	Positive/Negative	Odame (2014), Afridi (2007), **Ahmed (2004), Alderman et al. (2010)*,** Jacoby et al. (1998), **Kazianga et al. (2014; 2009)*, He (2009),** van **Stuijvenberg et al. (1999)*,** and Arsenault et al. (2009
Cognition	Positive/negative	Grantham McGregor et al. (1998), Kazianga et al. (2014; 2009), Lien et al. (2009), Muthayya et al. (2007), **Muthayya et al. (2009)*,** Osendarp et al. 2007, **van Stuijvenberg et al. (1999)* and Whaley et al. (2003)***
Test Scores	Positive/negative	Adrogué and Orlicki (2011), **Ahmed (2004),** Chandler et al. (1995), Grantham-McGregor et al. (1998), Jacoby et al. (1998), **Kazianga et al. (2014, 2009)*,** Lien et al. (2009), **Muthayya et al. (2009)*, Osendarp et al. (2007)*, van Stuijvenberg et al. (1999)***, and **Whaley et al. (2003)***

Source: Authors construct * and bold reference represents Randomised Control Trial

4.10 Definition of Variables in the Study

This section seeks to describe the various variables used in the analysis. It explains the dependent and independent variables used for the analysis.

4.10.1 Dependent Variable

The dependent variable for the educational outcomes in this study is made up of educational access variables such as school attendance and absenteeism. Since enrolling children itself does not guarantee that the goal of achieving universal enrolment, it is possible for enrolled students not to regularly attend school. Which is the case that has been observed with children on the GSFP. In instances like this attendance rates is used as a proxy to measure enrolment rate (Mehta, 2003). According to Barro & lee (1993; 2001) attendance rate can be calculated at different levels of education. It can be calculated daily, weekly, monthly, quarterly and annually. Attendance rate can be calculated in relation to the number of actual school days the school children actually attend over a given period of time. Attendance rates can be calculated and compared in schools under different managements on condition that the school conditions can be comparable of which the feeding and non-feeding schools in the programme can be compared. Attendance rate can be described to mean the number of pupils in the official age group for a given level of education who attend at that level, expressed as a percentage of the total population of school children in that age group in a given school year. Attendance is a dummy on whether a child attended school in the immediate past school year but absenteeism is a dummy on whether the child was absent in the last 5 school days preceding the survey.

Absenteeism is expressed as the number of school days missed in a week. Since when students are absent it means they did not attend school for the number of school days missed. Learning outcome variables such as grade repetition and test scores in English Literacy and mathematics were used in the assessment. For the various test scores, standardised mathematics and English literacy test were conducted for the school children. The individual test scores were aggregated and the total score used in the analysis. In addition, the study

used test scores for Raven's Progressive Matric and the Wechsler Intelligence Scale Forward and Backwards Digit Span test score for children's cognition test.

4.10.1.1 The Ravens Progressive Matrix

The Ravens Progressive Matrix (RPM) was used to measure child cognitive outcomes. The RPM is a nonverbal test that determines if the children could make meaning out of ambiguous situations, think clearly and understand complete situations. It is made up of 12 multiple-choice questions that were listed in order of difficulty. Children are asked to identify missing elements incomplete patterns made up of five by five, four by fours, three by three and two by two matrixes. A high score on this scale means the child has performed well academically.

4.10.1.2 The Wechsler Intelligence Scale for Children (WISC) Forward and Backward Digit Span Test Scores

The WISC test was used to measure the concentration, short-term and working memory ability of children. It uses a string of numbers for which a child must repeat as stated exactly on the test. The same numbers are listed in a repeat format for which the child must repeat in the same format. A child is scored on their ability to repeat the test in exactly the same format as listed in the forward order and reverse or backward format. The string of numbers increases in number as the child answers correctly. This test is standardized and provides a more natural and simple problem-solving test for all children without requiring any in-class instruction and assessment. The forward tests are conducted first followed by the backwards tests. The test is made up of an average of six questions for the forward and six for the backwards tests. A total combination of the scores for the forward and the backwards tests are computed.

4.10.2 Independent Variable

School feeding is the independent variable. It is defined by a student being on the School Feeding Programme and eating a government-provided midday lunch in school for free.

4.10.2.1 Covariates

Covariates are the predefined variables before the onset of an experiment. They are the variables that cannot be changed by the programme. They are also known as controlled variables and are added to the model to help reduce the unexplained variables and reduce the magnitude of the error term whiles making the estimate more precise Glennerster & Takavarasha, 2013).

In order to sharpen the standard errors of our point estimates and to adjust for departures from randomization, several child and family covariates that were identified from the literature were included in the model, minimizing the potential for omitted variable bias. Child, household and school level demographic characteristics were used as covariates to determine the effects of the programme on educational outcomes. Child covariates included sex, age in years and class as at the 2012/2016 assessment years. Home environment covariates included the gender of household head, educational level given as with educated or not educated dummies because of the high rate of uneducated adults in the households.

Prior research on school feeding and home environment (Bertram & Pascal, 2002; Sharp, 2002; GES, 2012; Marija Sakic et al., 2012), include a family structure who is head of the household, either a male or female, a child lives with both parents, only mother, only father and children from a polygamous family. Parents' occupation, if the parent is a waged employee, the child has younger siblings, household size, and if children eat before they come to school.

The school-level covariates include schools with blackboards in classrooms, availability of textbooks, and availability of water in school, availability of toilet facilities and condition of toilet facilities in the school. School environment includes the facilities and resources that are available in school. They include the instructional facility in school, incentive facility in school, the physical–natural environment of the school that encourages teaching and learning. For the school environment and educational outcomes, Greenfader & Miller, (2014) included similar covariates.

4.11 The Qualitative Study

The qualitative approach allowed the researcher to generate in-depth knowledge of the effects of the GSFP on education outcomes from the perspective of the actors and implementers of the programme. The qualitative approach helped to obtain the varied opinions and capture the interest of the various actors within the School Feeding Programme. It also helped to identify the challenges that exist within the implementation of the programme. Swift et al. (2010) describe the qualitative study as a study that allows the researcher to study the phenomenon within the social, economic and political contexts of the native population. It helps to understand "motives, aspirations, and relationships" that accounts for how people, places and phenomenon are represented (Gregory et al., 2009). The Focus Group Discussion (FGD) and key informant interviews presented an opportunity to probe deeper into issues that were not easily captured and explored in the secondary data. The key informants were district and regional officers of the School Feeding Programme, Education, Health and Agriculture arms of the School Feeding Programme. These key informants were selected because of the key role they play in the programme implementation process. They contributed to the discussion by identifying, exploring and helping to understand the challenges associated with the implementation of the programme.

4.12 Qualitative Sampling - Selection of Districts, Schools and Communities for Qualitative Study

Based on the quantitative results, two districts were purposively selected from the Northern and Western Regions of Ghana. From the quantitative data, these districts and regions formed the best and worst case scenarios in terms of education indicators (EMIS). The localities of the districts and schools originally used in the panel data for the quantitative study were used. Furthermore, the selection of these regions helped to obtain an in-depth understanding of how the programme has fared in terms of the North and the South dispersions in Ghana. The selected districts similarly helped to capture the differences that exist within the programme in terms of the different school feeding models we have in Ghana. The study purposively selected a traditional Ghana School Feeding Programme from the Northern region specifically the Savulugu district. Mpohor Wassa East was selected because of the Home Grown School Feeding model. This selection helped obtain a holistic picture and understanding of the impact that the GSFP and the home environment factors have made, on educational outcomes. Since the programme is implemented at the school level, personnel from the District Assemblies, the District Directors/Officers of Education, Health, Local Government and Rural Development, and Gender, Children and Social Protection, were purposively sampled and interviewed. Some School Implementation Committee and District Implementation Committee members were similarly interviewed identified in the quantitative study were also sampled for the qualitative. Likewise, the caterers sampled for the quantitative study were also sampled in these two regions and districts.

For the qualitative data, in-depth interviews and Focus Group Discussion were conducted with the relevant officers and households to enable the researcher to unearth the underlying

reasons for the level of impact the programme was making in relation to educational outcomes, school quality and the implementation challenges the programme is facing.

4.12.1 Focus Group Discussions

The focus group discussion guide was used to solicit information from heads of households who were directly and indirectly beneficiaries and non-beneficiaries of the programme (Mark 2005). The rationale for the focus group discussion was to help explore the important issues concerning parents' perceptions, opinions and attitudes of the School Feeding Programme. For the Focus group discussions, the invitation to the parents and guardian of sampled school children were sent through the headteachers. These were parents of the children identified in the specific schools and classes from the quantitative study. From discussions with the teachers, it was agreed that lunchtime was the preferred time for the meetings. This was to ensure that parents used in the qualitative data were the same parents the study had obtained responses from for the quantitative study. There were five members in the FGD for Savulugu and eight for Mpohor. This allowed for group control and effective participation. The study chanced upon caterers who had gone to renew their contracts with the District Desk Officer at the District assembly. After introductions, permission was sought from the caterers, a focus group discussion was organized for the caterers.

4.12.2 In-Depth Interview

Mark (2005) states that in-depth interviews are optimal for collecting data on individuals' personal histories, perspectives, and experiences, particularly when sensitive topics are explored. The in-depth interviews were conducted with representatives from the District Directors of Education, Health, Local Government and Rural Development, and Gender, Children and Social Protection. Furthermore, in-depth interviews were conducted with a School Implementation Committee member, caterer and District Implementation Officers

of the selected districts for the qualitative study. Interestingly when the respondent visited the second district, she chanced upon caterers who had come to sign their contract at the district assembly and they were willing to take part in a Focus Group Discussion with the respondent. That accounts for the Focus Group Discussion with the caterer in one district and an In-depth discussion with a caterer in another district.

4.13 Interview Methods for the Qualitative Study

Two main methods were employed in this follow-up qualitative study – Focus Group Discussion (FGD) and an in-depth key informant interview. Within each beneficiary community, three FGDs were undertaken as follows;

1. Male farmers/household head whose children are beneficiaries of the school feeding FGD;
2. Female farmers/household heads whose children are beneficiaries of the school feeding FGD and,
3. A combined group of males and females whose children are non-beneficiaries FGD.

Key informant in-depth interviews were conducted with a national school feeding officer, regional and district school feeding implementers, and opinion leaders to solicit their opinions on the programme. This was used to obtain information on the context, policies and implementation processes involved in the School Feeding Programme. In all twelve Key Informant Interviews and seven Focus Group Discussions were conducted over and three and a half months' period (Table 4.5).

Table 4.5: Number of Focus Group Discussion (FGD) and Key Informant Interviews (KII) for a Qualitative Study

METHOD	Focus Group Discussion (FGD)	Key Informant Interviews (KII)	TOTAL
National Key Informant Interview		1	1
Regional, District and Community	3	5	8
Caterer FGD District	1	1	2
Regional, District and Community	3	5	8
TOTAL	7	12	19

Source: Author's computation from Field survey, 2017

4.14 Qualitative Analysis

Creswell (2007) defines data analysis as a process whereby the researcher prepares and organizes the data for data analysis then reduces the data into codes and themes. There were then condensed into tables, figures or discussion. Kothari (2004) explains data analysis as the means of computing indices, measures and search for patterns of relationship that exist among the data groups. The Atlas TI7 software aided the coding and analysis of the data. Thematic and open codes were obtained from objectives, the secondary data, literature and previous studies. The study likewise used themes from the interview and experiences obtained from the fieldwork (Gibbs, 2009). The data was coded and segmented into the broad themes covering the following themes; overview of the GSFP; programme implementation procedure; home environment; school environment; academic achievement and the implementation challenges associated with the GSFP. The qualitative study was assessed in line with some results from the quantitative to triangulate and assess the validity of the responses. The data was subsequently condensed into meaningful segments and names were assigned to these segments. Interviews and Focus Group Discussions were

transcribed verbatim and read through severally to understand the data, identify the pattern and think through codes and themes. Field notes were used to help triangulate the obtained data from the field. The codes and themes were further combined into broader themes to make interpretation meaningful in line with the existing literature. The study then used the qualitative to help explain some of the quantitative results for meaningful interpretation of the feeding programme and its effects on learning outcomes.

4.15 Conclusions

This chapter examined the methodological procedure and the philosophical orientation of the study. It discussed the conditions under which secondary randomised control trial was obtained, reorganised and analysed. The difference-in-difference model that was used in this analysis was described. The variables of interest such as the dependent and independent variables used in the study were likewise described. The design, administration, collection and the procedure used in analysing the primary qualitative data were described. The next chapter examines the impact of school feeding on access to education. It also seeks to describe the effects of the child, home and school environment factors on the learning outcomes.

CHAPTER FIVE

SCHOOL FEEDING, HOME ENVIRONMENT AND ACCESS TO EDUCATION

5.1 Introduction

This chapter presents the results of the impact of the School Feeding Programme on educational access. It begins by looking at the socio-demographic characteristics of the child, household and school characteristics of respondents of the survey respondents. Descriptive statistics such as frequency distribution, mean, standard deviation and percentages were used to describe the socio-economic and demographic characteristics of the respondents. The study adopted the use of difference-in-difference to assess the impact of the programme on participation controlling for the effect of a child, home and school environment factors on attendance and absenteeism. All regressions are controlled for school and locality fixed effects. The standard errors are clustered at the school level.

5.2 GSFP and educational outcomes for public school children between the ages of 3 and 20 Years

This section describes the child and household characteristics of school children in public basic schools used in the sample and the school characteristics of the children. This section presents the descriptive statistics of the selected school children from the ISSER/NMIMR/PCD/IFPRI survey data. Results from the data analysed using the survey data are similarly presented and explained in the subsequent sections.

Table 5.1 Description of the child, home and school level variables used in the analysis

Variable	Unit	Observation	Mean	Std. Dev.	Min	Max
Independent Variable/Treatment/Control						
Arm	Frequency	26,811	0.74	0.83	0	2
GSFP	Proportion	1278	0.24	0.43	0	1
HGSF	Proportion	1228	0.24	0.42	0	1
Control	Proportion	2602	0.51	0.50	0	1
Dependent Variables						
Language	Scores	5,108	2.75	2.91	0	15
Mathematics	Scores	5,108	2.90	3.06	0	15
Digit Span Test	Scores	5,108	4.24	2.33	0	12
Raven Progressive Matrix	Scores	5,108	3.45	2.29	0	12
Attendance Rate	Rate	5,108	7.39	16.98	0	100
Absenteeism	Dummy	5,108	0.11	0.32	0	1
Grade repetition	Dummy	5,108	0.06	0.18	0	1
Covariates						
Child Characteristics						
Sex	Dummy	5,108			0	1
Age (in years)	Number	5,108	9.39	2.81	3	18
Class	Number	5,108	3.33	1.86	1	7
Home environment factors						
Number of adult females	Dummy	5,108	0.97	0.15	0	1
Number of adult males	Dummy	5,108	0.86	0.35	0	1
Female adult is head of household	Dummy	5,108	0.24	0.42	0	1
Male adult is head of household	Dummy	5,108	0.76	0.42	0	1
Household size	Number	5,108	5.26	2.89	1	18
School environment factors						
Teaching and learning materials availability	Dummy	5,108	0.21	0.41	0	1
Water is available in school	Dummy	5,108	0.28	0.45	0	1
Learn in classroom	Dummy	5,108	0.46	0.50	0	1
Classrooms have blackboards	Dummy	5,108	0.69	0.46	0	1
Separate toilets for boys and girls	Dummy	5,108	0.55	0.50	0	1
Separate urinals for boys and girls	Dummy	5,108	0.55	0.50	0	1
Toilet facilities in good condition	Dummy	5,108	0.23	0.42	0	1

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016

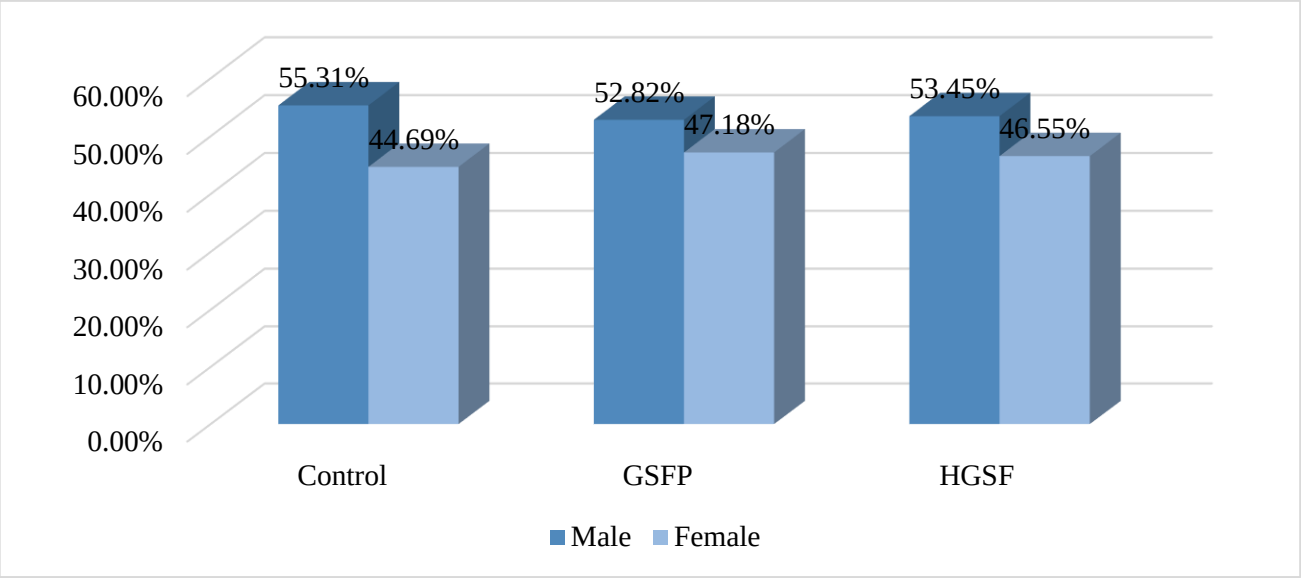
The descriptive statistics of the sample indicate that twenty-eight thousand six hundred and eleven (26,811) individuals were sampled in the study. The restricted sample had a total of

1278 for the GSFP, 1228 for the HGSF and 2602 for the control school children for each wave of the feeding programme (Table 5.1). The various variables used in the difference in difference estimation are described in this section. They include the summary statistics of the independent variable and school feeding treatment Arms. The independent variables which are measured by learning outcomes are similarly described. Additionally, the child, home and school level variables are described in this section.

5.2.1 Characteristics of school children and their households

This section presents the descriptive statistics of school children by the treatment arms. It describes the sex and class distribution of the sampled school children.

Figure 5.1: Percentage of students, by treatment arm, sex and survey period



Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016

The results show that there are more males than females of school children in the selected sample (Figure 5.1). About fifty-four percent of the school children are male while forty-six percent were female.

Table 5.2 Percentage of school children by treatment arm, survey period and current grade (%)

Current grade	Baseline				End line			
	Control	GSF	HGSF	Total	Control	GSF	HGSF	Total
Pre school	5.6	3.0	2.5	4.9	0.1	0.0	0.0	0.0
Kg	28.9	32.6	31.7	30.5	6.9	6.4	9.3	7.4
P1	25.2	20.9	20.2	22.9	14.3	10.3	11.4	12.6
P2	18.8	19.3	17.1	18.5	16.0	14.1	14.2	15.1
P3	14.5	17.6	16.9	15.9	16.7	19.4	17.3	17.5
P4	5.3	5.0	7.2	5.7	17.8	19.1	17.9	18.1
P5	1.6	1.4	1.2	1.2	14.8	16.4	15.6	15.4
P6	0.5	0.3	0.3	0.4	13.5	14.2	14.2	13.9
Total percentage	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016

The percentage distribution of children in each category by the current grade. It was realized that over fifty percent of the students were in classes below primary 3 in the baseline, but these students had progressed in the academic life (over fifty percent) above primary 1 (seventy percent) during the end line survey (Table 5.2).

Table 5.3: Percentage of educational levels of adult household members by treatment arms (%)

	No Education	BECE/MSCL	Secondary	Tertiary	Total
Control	81.8	12.4	4.1	1.8	100
GSFP	78.8	15.0	4.5	1.7	100
HGSF	80.6	13.7	4.2	1.5	100
Total	80.7	13.4	4.2	1.7	100

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016

The proportion of household heads who are educated in the sample indicates that most households have little or no form of formal education (about eighty-one percent). The GSFP group have more households being educated up to basic education levels. Only 1.7 percent of household heads had up to tertiary education (Table 5.3). This indicates that the sample

selected indeed comprised of people from poor and vulnerable households who had very low education levels.

5.2.2 Economic activity of household heads

For the economic activities, the majority of the household heads are in one form of unpaid activity or the other. About seventeen percent of households heads from the control group were employed in the agriculture sector (Table 5.4). About three percent of the HGSF households members were in waged employment; whiles about seventeen percent of households in the GSFP group are employed in micro businesses. Only about eight household heads are unemployed.

Table 5.4: Percentage of main economic activity of households members by treatment arm (%)

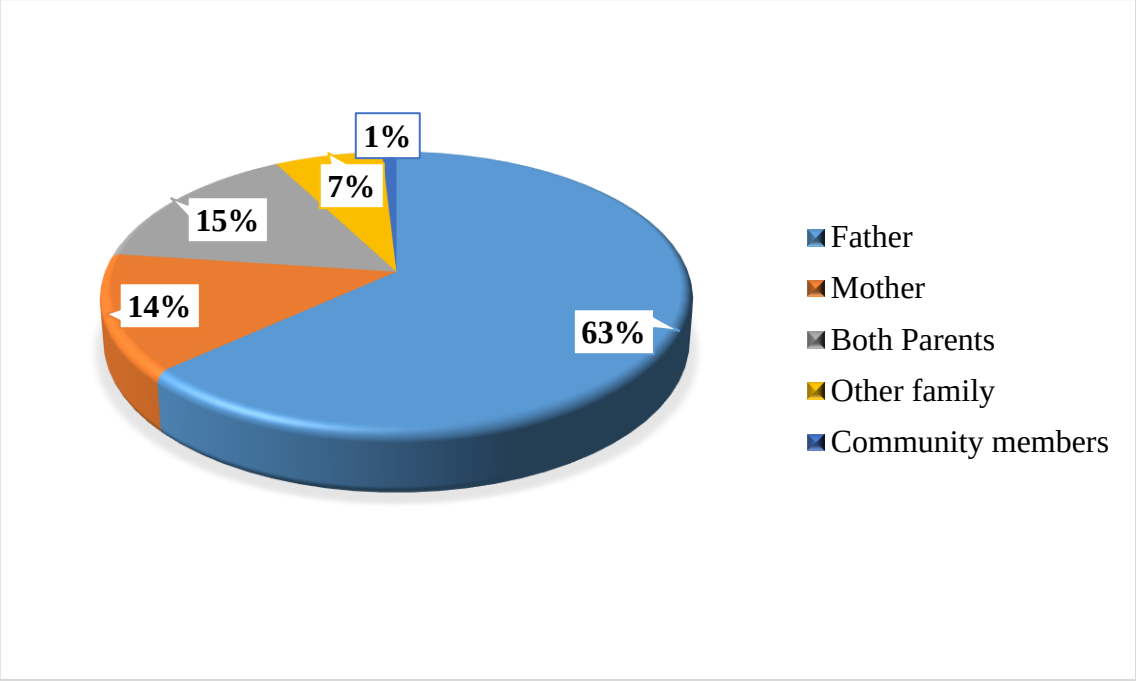
	Agriculture	Unpaid activities	Waged employment	Micro-business	Unemployed	Total
Control	17.08	57.79	2.24	15.17	7.54	100.00
GSFP	15.91	56.75	2.43	16.76	8.15	100.00
HGSF	14.85	58.49	2.63	15.48	8.55	100.00
Total	16.25	57.7	2.38	15.64	8.03	100.00

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016

5.2.3 Composition of household members who bear the most cost of education

This section describes the proportion of family members who bear the cost of education. It was noted from the sample that fathers bear the most of the cost of education (sixty three percent). Fifteen percent of respondents indicated that both parents share the responsibility of paying for their children's education (Figure 5.2). Mothers bear about fourteen percent of the cost of educating their children. Other families and other community members bear about 8 percent of the cost of educating children in the sample. This was used as a proxy for parental engagement.

Figure 5.2: Composition of household members who bear the most cost of education (%)



Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016

5.3 Description of school characteristics by survey period

This section describes the characteristics of public basic schools in the sample. It describes the available resources and facilities in the schools. With the understanding that the school characteristics help to situate the School Feeding Programme within the educational context of Ghana. Of the 115 schools sampled, 1902 teachers and attendants attended to the educational needs of the school children (Table 5.4). Of this number, about fifty-nine percent were males while about forty-one percent were females. Fifty-nine percent of the teachers had some tertiary level of education. Thirty-four percent of the teachers and attendants had up to secondary levels of education as at the time the study was conducted. For the sex of the teachers, there were more male teachers than female teachers in the study sample.

Table 5.5: Percentage of teacher characteristics by survey period (%)

SEX OF TEACHERS	Baseline	End line	Total
Male (n=1139)	58.7	60.9	59.9
Female (n=763)	41.3	39.1	40.1
Total	100.0	100.0	100.0

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016

The end line, however, saw a slight reduction in the number of female teachers. The results indicated that there has been an increase in the qualification of teachers who had up to tertiary education from forth-six percent to seventy-one percent between the two surveys (Table 5.5). Further interrogation indicated that the GES had recently recruited new teachers who were at the post when the team visited for the various school for the end line survey**.**

Table 5.6: Percentage of teacher qualification by survey period (%)

TEACHER QUALIFICATION	Baseline	End line	Total
JHS	5.4	3.0	4.1
Secondary	37.4	22.4	29.4
Post-Secondary/Vocational /technical	0.6	0.4	0.5
Tertiary	45.8	71.4	59.5
Others	10.8	2.8	6.5
Total	100.0	100.0	100.0

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016

5.3.1 Water and Sanitation in schools

For the type of water resources available in the schools, most of the schools had boreholes as the main source of water. The control and HGSF schools had an improvement in their water sources, the percent of boreholes increased from sixty eight percent to sixty nine percent at the end line (Table 5.6). The GSFP schools saw a reduction in the boreholes in their water available to the school. The proportion of schools that had pipe borne water in the baseline similarly reduced slightly in the end line. Less than one percent of the respondents indicated that they relied on sachet water. Generally, almost all the schools had access to potable water.

Table 5.7: Percentage of type water resources, by treatment arm and survey period (%)

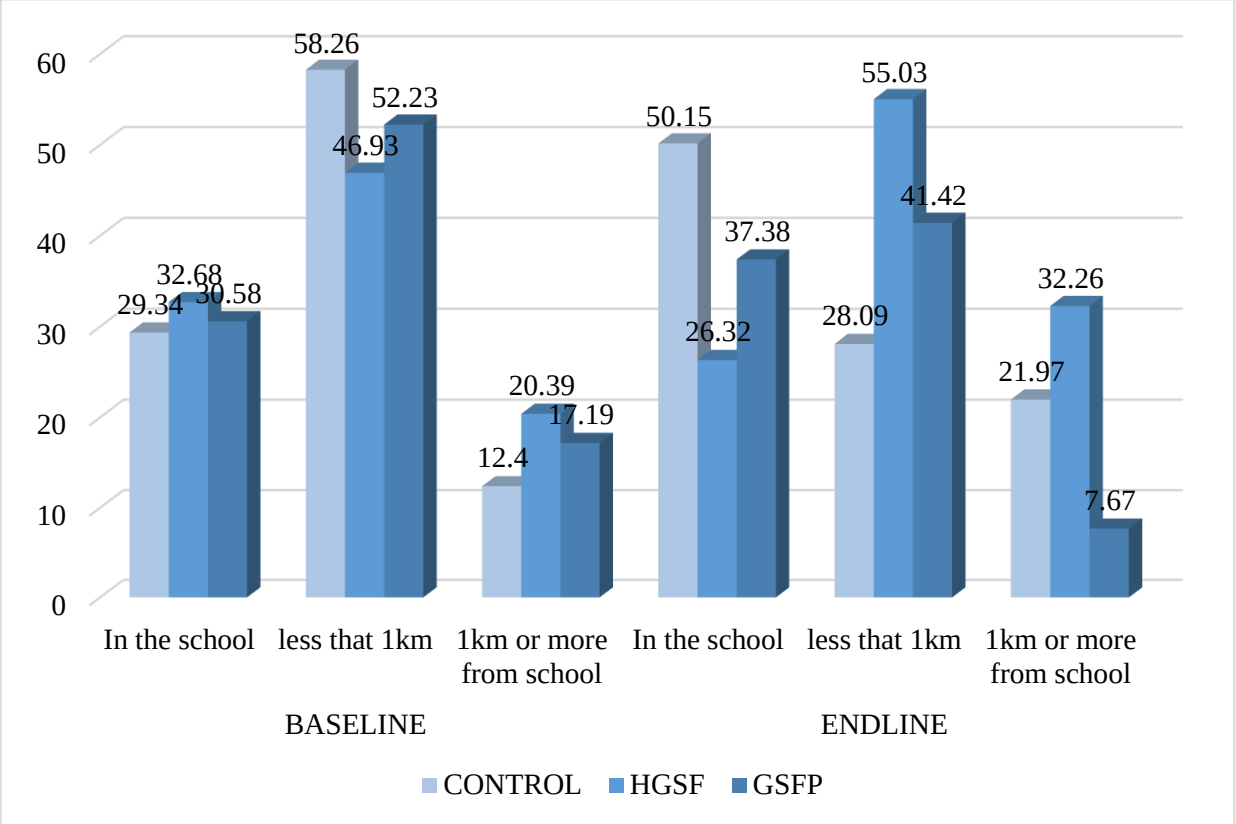
Water Source	Baseline				End line			
	Treatment Arms				Treatment Arms			
	Control	GSFP	HGSF	All	Control	GSFP	HGSF	All
Bore hole	46.5	59.1	64.5	59.1	68.9	56.9	67.7	65.5
Hand dug well	5.3	2.1	10.8	5.0	5.2	11.2	5.9	7.3
Stream	17.7	18.7	11.0	16.5	12.3	6.5	14.0	10.1
Rainwater	16.8	4.8	4.4	11.1	10.8	10.4	4.8	7.9
Pipe-borne water	2.8	14.6	5.9	7.0	2.4	10.7	5.0	4.8
River	1.0	0.7	3.5	1.5	0.4	3.6	2.6	3.8
Sachet water	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016

5.3.2 Distance to the Water Source from School by a Wave

This section presents data on distance to the nearest water supply from the various schools. It describes the distances the children have to go to get water when they are in school. The study observed that as at the end line there was a reduction in the distances that children cover to obtain water, except for the HGSF schools. The GSFP schools had an improvement of about seven percent over the study period whiles the HGSF decreased from thirty-three percent to twenty-six percent (Table 5.4). It is possible that the control and HGSF schools had experienced either a dry up or a breakdown of their water sources that were either in the school or less than 1 km from the school. Over the period of the study, the control and the GSFP schools had seen remarkable improvements in their water supply as compared to the HGSF schools.

Figure 5.3: Distance children cover from their schools to the nearest water source on a daily basis (%)



Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016

The HGSF and the GSFP schools have to cover longer distances (55.03 percent and 32.26 percent respectively) to get water when school is in session. Although access to water in school has improved over time, students indicated that they have access to sachet water in school. Water tends to run out especially in the dry season and the district assembly, some household heads and school children have to provide water for the caterers to cook the school meals.

5.3.3 Availability and conditions of sanitary facilities

In finding out if, sanitary facilities were available in the school and what condition these facilities were in; about fifty-five percent of the schools have a separate toilet for boys and girls (Figure 5.5). The GSFP schools have more separate toilet facilities for both boys and

girls than the control and treatment schools. However, it was observed that although the schools had toilet facilities available, the condition of the facilities was in a poor state.

Table 5.8: Percentage of children by type of toilet facilities available in schools (%)

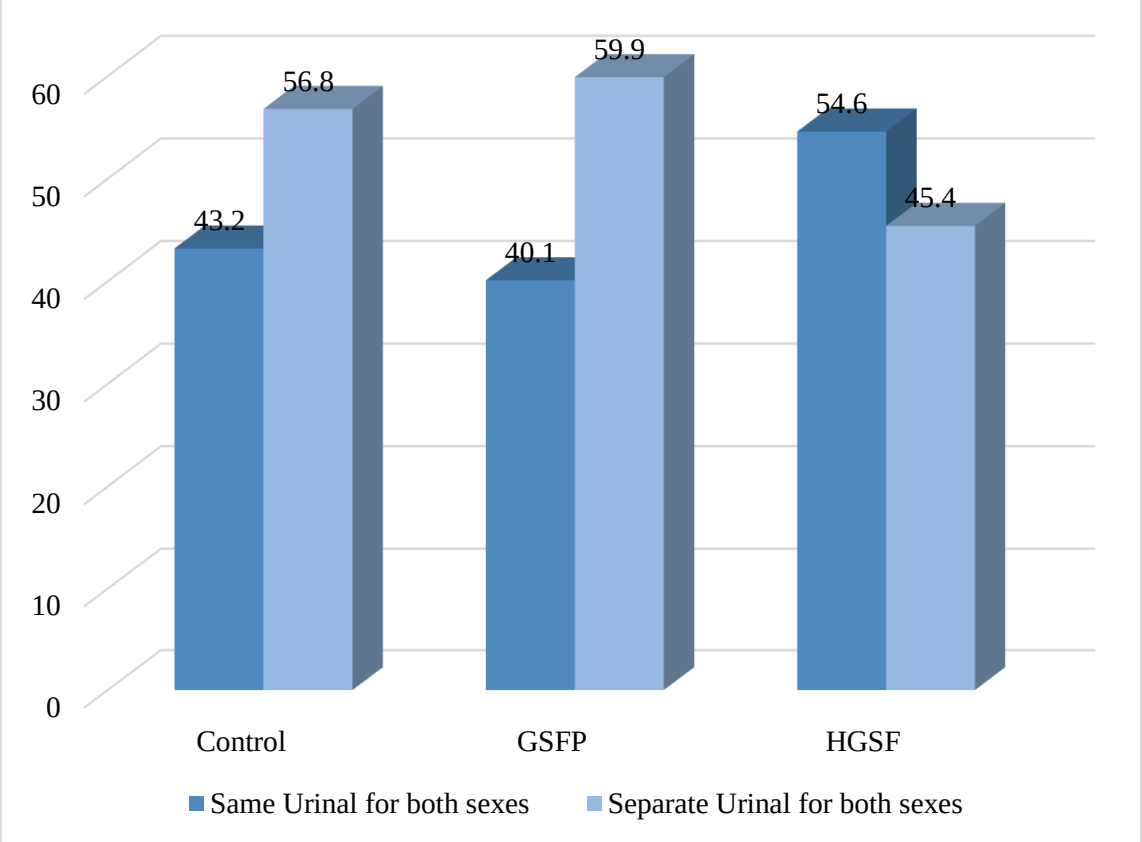
Availability and condition of toilet facilities in schools	Control	GSFP	HGSF	Total
Same toilet facilities for both sexes	45.0	33.9	57.0	45.1
Separate toilet facilities for both sexes	55.0	66.1	43.0	54.9
The condition of toilet facilities that are available in the Schools				
Unclean condition	78.98	75.43	74.35	76.98
Clean condition	21.02	24.57	25.65	23.02
Total	100	100	100	100

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016

Overall about seventy–seven percent of the schools indicated that the toilet facilities were in an unclean state. The teachers indicated that most of the toilet facilities had broken down. The qualitative study explained although the toilet facilities were available, poor maintenance of the facilities by the school authorities had led to the state the facilities are in now. The schools visited indicated that the communities also used the school's facilities.

The study identified that the GSFP schools had more urinal facilities than the control and the HGSF schools. Interestingly, the GSFP schools also had about 60 percent of their urinal facilities being separate for boys and girls. Only forty percent of the schools had the same urinal facilities for both boys and girls.

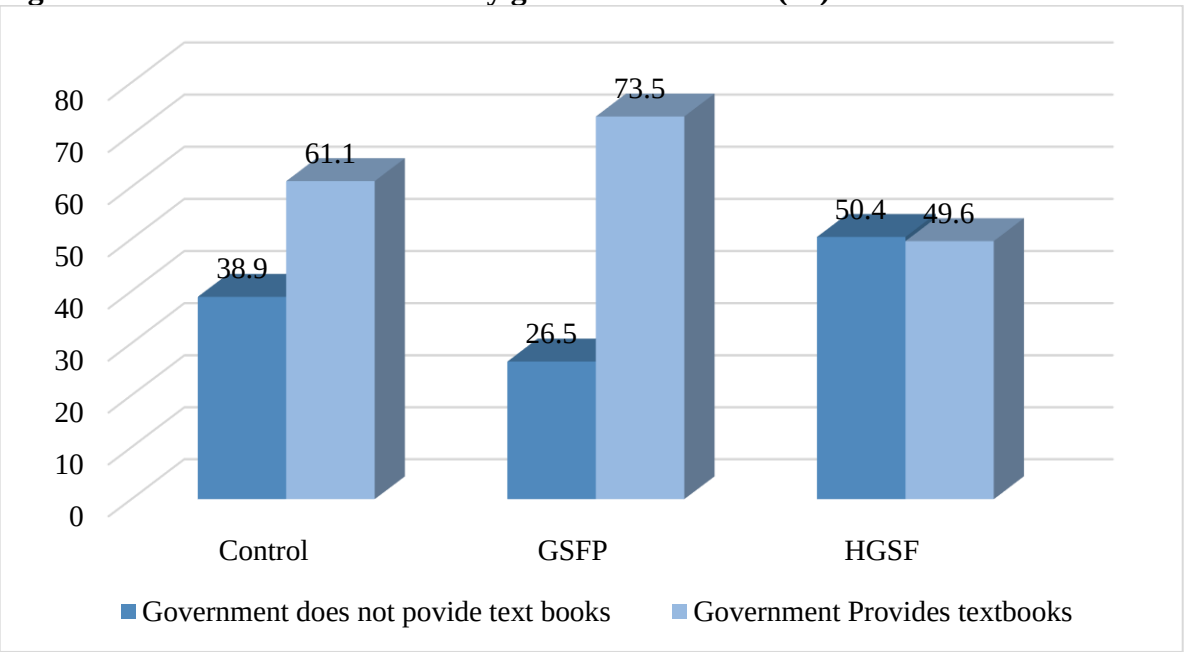
Figure 5.4: Percentage of children by type of urinal facilities available in Schools (%)



Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016

On the provision of textbooks, it was noted that textbooks were provided by the government. The control and GSFP schools received a slight increase in textbooks from the government compared to the HGSF schools (Figure 5.5). Although the government provided the textbooks per academic year, the headteachers indicated that they had not received textbooks in the last two academic years (from 2013/2014 academic years) and were relying on the textbooks from the years preceding this academic year. As a result, some of the textbooks were missing or worn out.

Figure 5.5: Provision of textbooks by government/school (%)

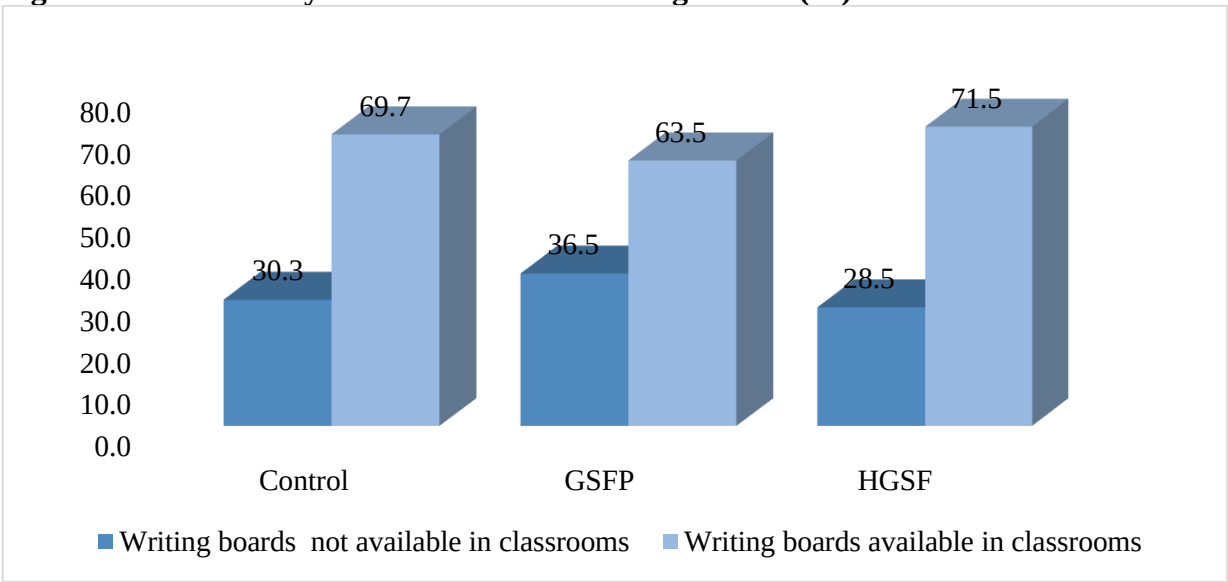


Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016

5.3.4 Availability of classrooms with writing boards

Regarding the availability of blackboards in the classrooms, more than sixty percent of the sampled schools had writing boards (Figure 5.6). The Home-Grown School Feeding Schools had an increase in the number of classrooms that have blackboards to about seventy-two percent. The GSFP schools had the least number of classrooms that had writing boards. It was observed from the qualitative study that the blackboards had turned into whiteboards from the consistent use. This made visibility in the classrooms difficult. Students sitting at the back especially could not read some of the things that were written on the board. The headteachers indicated that the boards were yet to be blackened.

Figure 5.6: Availability of classrooms with writing boards (%)



Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016

5.3.5 Learning in a Classroom Environment

Although the selected schools for the qualitative study had classroom structures to aid learning, it was observed that most of the classroom had no windows to control the flow of air and noise. Some structures had cracks in the building and had few tables and chairs. School children come to school and have to share sitting spaces. Although the schools have tables and chairs for the pupils, the feeding programme has brought more children in school and the available tables and chairs were inadequate to cater to the needs of all the school children. These sentiments were shared by the headteachers, the directors of education at the district office, the desk officers and officers of the feeding programme at the regional offices. They complained that the programme was under resourced and had effects on the quality of education since the little resources available at the district was inadequate in providing all the needs of the schools under the programme. For the children who come to school late, they tend to sit on the floor to be taught (Figure 5.7).

Figure 5.7: School children learning environment in a school in the Northern Region

Source: Field data, 2016

Likewise, most classrooms that were observed in the two schools in the two sampled districts had no windows to control from wind flow. The classrooms had very little teaching and learning materials available to aid learning. The schools visited had textbooks for which the headteachers indicated were provided by the government. These books were kept well since they indicated that it took a long time for the government to provide new books for use by the schools.

5.4 School Management Committees (SMC)

As part of the School Feeding Programme, each school must have a school management committee. The objective of the SMC is to coordinate the activities of the feeding programme at the school level. It works in partnership with the PTA and the headteacher to achieve their objectives. As a result of the programme efforts to improve programme

community relationships, the SMC has oversight responsibilities for the feeding programme at the school level.

SMC's generally must have a representative from the Municipal Directorate of Education, Head of school, Unit committee, Parent Teacher Association (PTA), Chief of the town, teaching staff, Old Students Association and other co-opted members. Discussions with the desk officers and headteachers revealed that the functions of the SMC include monitoring and supervising the activities of headteachers, teachers and pupils, caterers, ensuring maintenance and safety of school infrastructure, ensuring pupil and teacher discipline, assisting teachers to improve teaching and learning, resolving school-community conflict and improving teacher community relations. Of the one hundred and fifteen schools sampled, about eighty-seven percent of the sampled schools had SMC's. Interestingly, only 46.09 percent of the SMC had received training on the roles and responsibilities of an SMC (Table 5.9). Discussion from the qualitative and other GES desk reviews explained that the SMC concept was adopted by the Government of Ghana under the Ghana Education Act of 1994 for

1) Strengthening community participation
2) Mobilization for education delivery; as well as
3) Improving the quality of teaching and learning (GES, SMC/ PTA Handbook, 2001).

To serve as a follow-up, it was realised that only 27 percent of the schools contact the district education office when they had management problems. The teachers indicated that there existed a structured reporting format that made it easy to resolve problems. As such, not all problems are referred to the district education office. They usually report the problem to the circuit supervisors who help them resolve them. As such, it was only problems that could not be resolved by the headteachers and circuit supervisors that were forwarded to the district education office.

Table 5.9: Selected characteristics of School Management Committees

School Management Committee	Frequency	Percent
School has SMC (N=115)	100	87.0
Training of SMC members (N=115)	53	46.1
Contacted DEO on management issues (N=115)	31	27.0

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016

Out of the 115 schools sampled, the results indicated that 100 of them had SMC. However, some of the schools had SMC's that were not functioning. The programme and the schools were not benefitting from the SMC's. Some community members did not feel a part of the SMC's although the SMC's have been in existence for a long time. One SMC member complained:

"I became the SMC member (magazia[5] of the women's group) in the last five years. No one wants the position. There is too much work. I am a teacher at a different school and I do not send my children to the school feeding school because education standards are low there. Over here, we can make a change but in the other school, no one speaks for them" (SMC member Savulugu District).

5.5 Characteristics of a Caterer on the School Feeding Programme

The characteristics of the caterers who cook for the sampled schools are presented in this section. Forty-four percent of the caterers on the programme have up to secondary education. The caterers had 115 cooks that helped them cook in the schools. Of the 170 caterers and cooks, 43.53 percent have no formal education, while 5.29 percent had up to the tertiary level of education. About sixty-four percent of the caterers and cooks had no training in cooking for school children on the programme (Table 5.9). The rest had training by institutions such as the Ghana Education Service (GES), The District Implementation Committee and the School Implementation Committee.

[5] Magazia is a Hausa term given to a women's leader at the community level

Table 5.10: Caterer Characteristics (%)

Caterer Characteristics	Caterer	Cook	Attendants	Total
Number of caterers/cooks	54	113	**3**	170
Caterer education level (%)				
None	18.5	55.8	**33.3**	43.5
BECE/MSCL	20.5	26.6	**66.7**	25.3
Secondary	44.4	17.7	**0**	25.9
Tertiary	16.7	0	**0**	5.3
Total	100.0	100.0	**100.0**	100.0
Percentage of caterers and cooks trained in food preparation				
Training Institution	**Caterer**	**Cook**	**Attendants**	**Total**
By GES	9.3	0	**0**	2.9
By DIC	33.3	8.0	**33.3**	16.5
By SMC	1.9	0	**0**	0.6
By Caterer	7.8	19.47	**0**	15.3
By Other state institution	10.9	0	**0**	0.6
No training	36.8	72.6	**66.7**	64.1
Total	100.0	100.0	**100.0**	100.0
Type of water used for cooking	**Caterer**	**Cook**	**Attendants**	**Total**
Bore hole	32.1	67.0	**0.9**	100.0
Hand dug well	50.0	50.0	**0**	100.0
Stream	37.7	64.9	**0**	100.0
Pipe borne water	25.9	66.7	**7.4**	100.0
River	31.6	68.4	**0**	100.0
Total Sample	54	113	**3**	170

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016

The caterers and cooks indicated that water from the borehole was used in cooking on the programme because it is the most available source of water in the communities. Given the results for the types of water that is used in cooking, on average caterers and cooks use potable water in cooking for the school children.

5.6 School Feeding and children's access to basic education in Ghana

Studies by Abotsi (2013) and Danquah, Amoah, Steiner-Asiedu and Opare-Obisaw (2012) on school feeding and educational access in Ghana have shown inconclusive results over the years. The Ghana Education Service (GES) uses attendance rate, grade repetition rate; absenteeism among others as measures of access. Access to schooling activities can be described as a household and children's decision to take part in the educational activities of

the school. The study measured education access of school children in public schools within these parameters. There are four specifications of the models used in this analysis and four sub-samples of the Model 3 as specified.

The Basic Model assesses the impact of the school feeding on learning outcomes. It is the default DID model; Model 1-3 are the difference in differences with covariates which help to determine the effect each environmental factor being assessed influences learning outcomes when these environmental factors are controlled for. Model 1 assesses the impact of the school feeding on learning outcomes, and how the child characteristic (age, sex, grade and age at which the child started school) individually and collectively influence the outcomes. Model 2 assesses the impact of the school feeding on learning outcomes, and how the child characteristic and home environment variables individually and collectively influence the outcomes. Model 3 assesses the impact of the school feeding on learning outcomes, and how the child characteristic, home environment variables and school environment factors individually and collectively influence the outcomes. Model 3 is the preferred DID model. It employs the use of an expanded child, home and school environment factors as expanded control variables. The results may be heterogeneous and may differ according to the sample. The heterogeneous nature of the data made it possible to determine the effect of the programme on gender and class sub-samples. The gender sub-sample assess the impact of the programme on boys and girls. It also determined the effects of the child, home and school environment factors on educational access. The class sub-sample assess the impact of the programme on children in the classes up to kindergarten and children in primary school (primary 1-6). It also determined the effects of the child, home and school environment factors on programme outcomes.

5.6.1 Impact of School Feeding on Attendance controlling for Child, Home and School Environment Factors

This section presents the estimated effects of school feeding on attendance using child, home and school environment factors as covariates (Table 5.11). The basis DID model indicates that there is a negative relationship between the School Feeding Programme and attendance. However when the control variables for the three environments were included (model 3 – Child, home and school level factors), the results indicate the school feeding does not encourage attendance. With school attendance being an important measure of the acceptability of the feeding programme, the results indicate that the children may not be accepting the programme. The low attendance rate as well as the negative effect of the programme on attendance especially in the instance when the child and the home environment are introduced, indicate that the child and the home factors may not be may not accept and participate fully in the programme activities.

When the child, home and school environment variables were analysed, it was the child's age, the age at which a child starts school, the family type (polygamous household), parent employed in agriculture, children from female-headed households that had statistically significant relationships with a child in a feeding school attending school. For the school environment, the availability of water in the school and condition of toilet facilities available in the school had statistically significant relationships with the programme and attendance.

At the child level, the child's age in years and the age at which a child starts school helps to explain these results (Table 5.11). This result is contrary to findings Omwami et al., (2011) study in Kenya who identified that age had no significant effect on attendance rates. When the model controlled for the household environment factors, children from polygamous households, children whose parents are employed in non-agriculture and are not waged

employees and a female-headed household are less likely to attend school on a daily basis showed significant effects on attendance. The study shows that home environment factors do not encourage attendance.

Table 5.11: School feeding and attendance, controlling for the child, home environment and school environment factors

VARIABLES	Basic Model	Model 1	Model 2	Model 3	Boys Sub-sample	Girls Sub-sample	KG Sub-sample	Primary Sample
Time	0.027**	0.030**	0.031**	0.024*	0.028**	0.021	0.010	0.027*
	(0.011)	(0.013)	(0.014)	(0.013)	(0.014)	(0.018)	(0.021)	(0.014)
Dummy for Treatment Arm	0.001	0.002	0.001	0.001	0.003	-0.000	0.002	-0.005
	(0.005)	(0.005)	(0.004)	(0.005)	(0.006)	(0.007)	(0.009)	(0.005)
Impact	-0.011*	-0.011*	-0.011*	-0.006	-0.005	-0.007	0.003	0.002
	(0.006)	(0.006)	(0.006)	(0.006)	(0.008)	(0.010)	(0.014)	(0.007)
Male child		0.000	-0.001	-0.000	-0.005**	-0.002	-0.007	-0.006
		(0.004)	(0.004)	(0.004)	(0.002)	(0.002)	(0.012)	(0.005)
Child's age		-0.003	-0.002	-0.003*	0.005*	-0.001	-0.003	-0.003**
		(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.001)
Class		0.002	0.002	0.002	-0.007	-0.011**		
		(0.003)	(0.003)	(0.002)	(0.005)	(0.006)		
Age at which Child starts school (RC before age 6)		-0.011***	-0.011***	-0.009**	-0.005	-0.014	-0.035*	-0.014**
		(0.004)	(0.004)	(0.004)	(0.007)	(0.009)	(0.018)	(0.006)
Eating before going to school			-0.005	-0.009*	0.015*	-0.001	0.005	-0.013**
			(0.006)	(0.005)	(0.008)	(0.009)	(0.012)	(0.006)
Household size			0.006	0.007	0.449	-0.019	0.025**	-0.003
			(0.007)	(0.006)	(0.361)	(0.019)	(0.012)	(0.006)
Polygamous household (RC polygamous)			0.280*	0.290*	0.029	0.014	-0.065***	0.310***
			(0.155)	(0.172)	(0.029)	(0.014)	(0.018)	(0.017)
Education level of adults (RC educated)			0.022	0.021	0.047	-0.014	-0.003	-0.001
			(0.016)	(0.017)	(0.089)	(0.020)	(0.022)	(0.009)
Adult in waged employment			0.006	0.010	-0.042***	-0.045***	-0.074**	0.006
			(0.044)	(0.047)	(0.010)	(0.014)	(0.029)	(0.032)
Adult in agriculture employment			-0.048***	-0.045***	-0.003	-0.008	-0.002	-0.037***
			(0.011)	(0.010)	(0.012)	(0.013)	(0.048)	(0.014)

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016; Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 5.11 School feeding and attendance, controlling for the child, home environment and school environment factors, continued

VARIABLES	Basic Model	Model 1	Model 2	Model 3	Boys Sub-sample	Girls Sub-sample	KG Sub-sample	Primary Sample
Male-headed household			-0.004	-0.007	-0.003	0.011	-0.019	-0.010
			(0.011)	(0.009)	(0.026)	(0.029)	(0.023)	(0.011)
Female-headed household			0.003	0.001	0.001	0.014	0.025	0.005
			(0.020)	(0.020)	(0.011)	(0.013)	(0.026)	(0.012)
Mother bears the cost of education			0.007	0.007	0.012*	0.012	-0.008	0.010
			(0.008)	(0.008)	(0.007)	(0.008)	(0.024)	(0.010)
Textbooks are provided in School				0.012**	0.028***	0.016	-0.006	0.009
				(0.005)	(0.011)	(0.012)	(0.012)	(0.006)
Water is available in School				0.023**	-0.014	-0.011	0.014	0.021**
				(0.009)	(0.013)	(0.013)	(0.020)	(0.009)
Learn in a classroom structure				-0.012	0.009	0.027*	-0.018	-0.013
				(0.012)	(0.013)	(0.015)	(0.016)	(0.012)
Separate urinal for boys and girls				0.018	-0.010	-0.013	0.029*	0.013
				(0.013)	(0.009)	(0.013)	(0.016)	(0.014)
Availability of toilet facilities				-0.011	0.048	0.021	-0.017	-0.010
				(0.008)	(0.043)	(0.018)	(0.017)	(0.009)
Constant	0.066***	0.101***	0.101***	0.103***	0.079***	0.119***	0.085	0.103***
	(0.007)	(0.020)	(0.028)	(0.023)	(0.022)	(0.039)	(0.053)	(0.026)
Observations	5,108	5,108	5,108	5,108	2,778	2,330	1,101	4,007
R-squared	0.003	0.008	0.009	0.018	0.018	0.028	0.020	0.021

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016; Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. The Basic Model assesses the impact of the school feeding on learning outcomes. Model 1 assesses the impact of the school feeding on learning outcomes. It determines the effect of the child characteristic individually and collectively on the outcomes. Model 2 assesses the impact of the school feeding on learning outcomes, and the effect of child characteristic and home environment individually and collectively on the outcomes. Model 3 assesses the impact of the school feeding on learning outcomes, and the effect of a child, home and school environment individually and collectively on the outcomes. Column 6 and 7 represent the boys and girls sub-samples of model 3. Columns 8 and 9 represent the KG and primary sub-samples of model 3.

The qualitative Focus Group Discussion explained that the children help the adults with the household chore and in some instances prevent the children from engaging in school activities. The magnitude of this effect with the exception of households who are in non-agriculture employment reduces as the various environments are introduced in the various models.

For school environment factors, the results indicate that when the schools have water, there is a positive statistically significant effect on attendance. Indicating that children are 23 times more likely to attend school when water is made available in public schools. Contrarily, the condition of toilet facilities has a negative significant effect on attendance. This implies that improving sanitary conditions in the school can influence attendance. The results further indicate that all the other child, home and school environment factors individually do not significantly determine if a child attends school but collectively can influence attendance.

Discussions with the Adult Focus Group Discussion unveiled that parents are happy that the feeding programme is providing a meal for their children in school. They were not happy with how the programme was being managed. They were of the view that if they had money they would send their children to the private schools since they tend to perform better academically. Generally, the parents are not motivated by the programme in Ghana because of how the programme is managed in school and the general perception that public schools do not perform as well as compared to private schools. But as a result of limited financial resources, they kept their wards in the feeding schools

The district officer affirms this by stating, *"Although some of these children are in school, the parents are not motivated to encourage them to be consistent with attending school. Some have their names in the register but appear rarely at school MoGCSP MpohorDistrict"*.

The problems of the programme indicated in the AOP and the GSFP draft policy document to include delays in payment and politicizing of the programme (GoG, 2011, 2015) persisted currently. Included is the perception that feeding is compromising learning outcomes when they believe that feeding time eats into instructional time and some schools usually end teaching and learning after eating the school meals. Some parents indicated that they had withdrawn their wards from the feeding schools to private schools because of the fear that their wards may be sacrificing the quality of education for the meals being served. Because economic resources limit parents, they have to send their children to the other schools.

5.6.2 Impact of School Feeding on Absenteeism controlling for Child, Home and School Environment Factors

Absenteeism is another indicator for measuring access to education. The impact of school feeding on absenteeism shows a 3.9 percentage points reduction in absenteeism because of the programme. The results show that there is a negative but significant impact of school feeding and absenteeism at 3.9 percentage points. Controlling for all the covariates, there is a 4.1 percentage points likelihood that school feeding reduces absenteeism. The programme's impact on boys' absenteeism (-4.3 percentage points) is much higher than that for girls, which was estimated to be insignificant (Table 5.12).

In analysing the effect of child characteristics on absenteeism, the study realised that the grade of a child has an inverse and statistically significant relationship between school

feeding and absenteeism. For the effects of the home environment factors on absenteeism, eating before going to school and; children from polygamous households discourage absenteeism. This implies that when school children eat before they go to school they are encouraged to attend school. Children who do not eat before they go to school get hungry and will have to wait until lunch to eat. Children from polygamous households may tend to find a school as a way of escape and would want to attend school to avoid the chores and friction that may exist because of the polygamous nature of the household. Likewise, the Focus Group Discussion unearthed the reason why children from polygamous households are less likely to be absent from school. The female Focus Group Discussion indicated that females from polygamous households wish that their children performed better than the children of their rivals as such will encourage their children to attend school.

"There competition among us, I want my children to perform better than the children of my rival…. Female FGD Savelugu".

"*My situation is not good but I think if my child gets educated they will have a better life than what I have….. Female FGD Savelugu".*

"The children like going to school. They get some peace when they get to school….. Male FGD Mpohor".

"There is competition among them to perform better than their step-siblings…. Male FGD Savelugu".

"They get excited when they come home from school and realize that they have performed better than their other siblings .....Female FGD Mpohor".

The results from Table 5.12 also indicate that female-headed households have a positive and statistically significant effect on the relationship between school feeding and absenteeism. This demonstrates that female household heads are less likely to encourage their children to

attend schools. The females explained in the qualitative that they could not do all the work and as such require their children to support them. That the children knew the context with which they were growing up in and willingly support them to ensure that they have some form of improved livelihood. The socio-cultural context of the poor and vulnerable, the male adult has little political power in the household and local community where the female head does the bulk of the housework, the female head relies on the children to help with the house tasks. These tasks at a time may take up school time and may prevent the child from attending school. The need for children to help with the house task can influence the ability of parents to send their children to school Adelman, Gilligan, and Lehrer (2010). Discussions with adult Focus Group in Savelugu indicated that the socio-economic and cultural context does not encourage children especially female children to access education on a regular basis. Studies by Fantuzzo, et al. (2004) and Chowa et al. (2012) confirm that socioeconomic characteristics have negative effects on absenteeism.

Table 5.12: School feeding and Absenteeism controlling for the child, home environment and school environment factors

VARIABLES	Basic Model	Model 1	Model 2	Model 3	Boys Sub-sample	Girls Sub-sample	KG Sub-sample	Primary Sample
Time	0.089***	0.104***	0.120***	0.117***	0.120***	0.110***	0.137**	0.104***
	(0.022)	(0.022)	(0.024)	(0.029)	(0.030)	(0.033)	(0.060)	(0.027)
Dummy for Treatment Arm	0.027	0.027	0.025	0.025	0.026	0.024	0.038	0.018
	(0.019)	(0.019)	(0.019)	(0.019)	(0.018)	(0.022)	(0.024)	(0.017)
Impact	-0.039*	-0.039*	-0.037*	-0.041*	-0.043*	-0.040	-0.053*	-0.033
	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.029)	(0.039)	(0.022)
Child's sex (RC Male)		0.004	0.000	-0.000			-0.009	0.003
		(0.007)	(0.007)	(0.007)			(0.019)	(0.008)
Child's age		0.001	0.002	0.004	0.002	0.008*	0.003	-0.001
		(0.003)	(0.003)	(0.003)	(0.004)	(0.005)	(0.005)	(0.003)
Class		-0.009*	-0.011**	-0.012***	0.120***	-0.020***		
		(0.005)	(0.004)	(0.004)	(0.030)	(0.007)		
Age at which Child starts school (RC before age 6)		-0.003	-0.001	-0.003	0.008	0.015	-0.017	0.005
		(0.007)	(0.007)	(0.007)	(0.016)	(0.019)	(0.034)	(0.015)
Eating before going to school			-0.066***	-0.058***	-0.046**	-0.070***	-0.056*	-0.059***
			(0.017)	(0.018)	(0.019)	(0.022)	(0.029)	(0.018)
Household size			0.011	0.006	0.012	-0.003	0.045*	-0.005
			(0.016)	(0.015)	(0.017)	(0.018)	(0.026)	(0.015)
Polygamous household (RC polygamous)			-0.097***	-0.131***	-0.120**	-0.142***	-0.143**	-0.119***
			(0.022)	(0.037)	(0.047)	(0.049)	(0.067)	(0.042)
Education level of adults (RC educated)			-0.015	-0.014	-0.037***	0.004	-0.047***	-0.007
			(0.017)	(0.016)	(0.009)	(0.032)	(0.015)	(0.022)
Adult in waged employment			0.359	0.349	0.511*	0.207	-0.133*	0.453*
			(0.253)	(0.248)	(0.261)	(0.295)	(0.073)	(0.267)
Adult in Agriculture employment			0.015	0.011	0.088	-0.085***	0.030	-0.006
			(0.074)	(0.072)	(0.123)	(0.025)	(0.147)	(0.079)

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016; Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.

Table 5.12: School feeding and Absenteeism controlling for the child, home environment and school environment factors continued

VARIABLES	Basic Model	Model 1	Model 2	Model 3	Boys Sub-sample	Girls Sub-sample	KG Sub-sample	Primary Sample
Male-headed household			-0.017	-0.009	-0.018	0.002	-0.054	0.000
			(0.019)	(0.020)	(0.019)	(0.030)	(0.049)	(0.018)
Female-headed household			0.058**	0.066**	0.052	0.100***	0.145***	0.051
			(0.024)	(0.025)	(0.033)	(0.024)	(0.032)	(0.032)
Mother bears the cost of education			0.023	0.022	-0.007	0.056*	0.000	0.028
			(0.022)	(0.021)	(0.023)	(0.028)	(0.040)	(0.022)
Availability of Textbooks				-0.030**	-0.031**	-0.029*	-0.045*	-0.025*
				(0.012)	(0.015)	(0.016)	(0.024)	(0.014)
Water is available in School				-0.032*	-0.036*	-0.025	-0.051	-0.024
				(0.019)	(0.020)	(0.022)	(0.032)	(0.019)
Learn in a classroom structure				0.023	0.018	0.026	0.089***	0.001
				(0.022)	(0.023)	(0.024)	(0.033)	(0.021)
Separate urinal for boys and girls				-0.028	-0.032	-0.022	-0.005	-0.034
				(0.022)	(0.024)	(0.024)	(0.038)	(0.022)
Availability and condition of toilet facilities				-0.019	-0.019	-0.021	-0.016	-0.019
				(0.020)	(0.023)	(0.022)	(0.028)	(0.021)
Constant	0.069***	0.079**	0.078	0.087	0.128**	0.012	0.021	0.104*
	(0.019)	(0.037)	(0.055)	(0.053)	(0.054)	(0.073)	(0.066)	(0.061)
Observations	5,108	5,108	5,108	5,108	2,778	2,330	1,101	4,007
R-squared	0.012	0.013	0.026	0.038	0.040	0.042	0.073	0.034

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016; Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. The Basic Model assesses the impact of the school feeding on learning outcomes. Model 1 assesses the impact of the school feeding on learning outcomes. It determines the effect of the child characteristic individually and collectively on the outcomes. Model 2 assesses the impact of the school feeding on learning outcomes, and the effect of child characteristic and home environment individually and collectively on the outcomes. Model 3 assesses the impact of the school feeding on learning outcomes, and the effect of a child, home and school environment individually and collectively on the outcomes. Column 6 and 7 represent the boys and girls sub-samples of model 3. Columns 8 and 9 represent the KG and primary sub-samples of model 3.

For school environment factors, the results indicate that when school provide textbooks and when the school have water, there is a negative and statistically significant effect on absenteeism. This implies that school providing resources to the children encourage the children to attend school regularly. The results indicate that there was a slight reduction in the number of children who indicated that textbooks are provided by their schools. This goes to confirm results from (Ausubel, 2000, as cited in Abotsi, 2013) assertion that young children are able to understand abstract ideas if sufficient and adequate teaching and learning materials are provided to help explain and appreciate the phenomena and concepts.

5.7 Discussion of Results

Many studies have assessed the effects of school feeding on learning outcomes and they did not account for the contributions of the child, home and school environment factors. Attention focuses on the linkage between the programme and learning outcomes without considering the other environmental factors and their effect on learning outcomes. The study realised that the School Feeding Programme in Ghana improves attendance but looses the gains made in attendance when the child, home and school environment factors are controlled for. Since the children are enrolled in school but do not attend school on a regular basis. For the reasons why the programme had no effect on attendance when the child home and school environment factors were controlled for, the qualitative found that the programme was not providing the school meal on all school days as specified in the policy document. For reason such as delayed payment, some caterers were providing the school meals only for three (3) school days. As such the headteachers and household heads indicated that the children attended school regularly on the days they knew they were going to get the school meal. Excerpts from the qualitative discussion explain this occurrence

Students attend school regularly on days they know they will get food to eat. The caterers do not serve the School meals on every school day…. We have observed that the children attend school on days they know they will get the meals. They serve the meals on Mondays, Wednesdays and on Fridays so attendance is high on these days….. ***Headteacher, Savelugu***

The caterers complain that they do not pay them regularly and on time so they are making the best out of the situation they find themselves …… ***Female FGD, Mpohor***

The children do not always like the food they cook for them…..Previously, they put oil on top of the maize and bean meal and it was very nice. Now there is no oil. They do not like the porridge…. ***Female FGD Mpohor***

*They used to give them local fruits but they have stopped…… the food portions are very small……. they take too long to feed them……. Classes end as soon as they finish eating……****Female FGD Savelugu***

One time my child came from school after eating the school meal with a running stomach. I had to incur extra costs in getting medication to heal her… ***Female FGD Savelugu***

Meanwhile the caterer FGD indicated that they try to serve the school meal as per the Handy measure that is given to them by PCD. They further explained that the delays in payment tend to influence their ability to provide high nutritious school meals on every school day. Even though they make an effort to still provide the school meals on a regular basis, they have to make some allowances to the quantity and in some cases quality of the school meals they serve. To them, they have made efforts to manage the funding challenges they face since to some of the school children, their main meal for the day depends is the free meal in school.

When the various covariates were included in the model, the results indicate that school feeding programmes had had no effect on attendance and positive effects on absenteeism.

Below are the summaries of the result when the child, home and school environment factors are controlled for.

5.7.1 Child Characteristics

Using the difference-in-difference analysis the study establishes that child characteristics do influence educational access. The results for the effects of child characteristics on educational access indicate that a child's age, sex and grade do influence access. As a child grows and progresses academically, the likelihood that a child's inherent characteristics will help the child to not want to miss a school day and learn to make something out of their lives is high. With Basic education being free in Ghana and the free meal serving as a motivator for children to attend school and participate in learning, it is expected that all things being equal the child will perform well academically. For access to education, school feeding showed statistically significant impacts on attendance and absenteeism. When the home environment factors were analysed, it was observed that the age at which the children starts school have a negative but significant effect on attendance and absenteeism. Although studies by Alderman et al. (2010); Adelman, et al. (2006) and McEwan (2010) observed a significant relationship between age at which a child starts school and increased attendance and a reduction in absenteeism. Their study showed a higher impact of the programme on school entry age; this study shows a negative but significant effect of about 1.5 percentage points. There is the need to consider the age at which parents send their wards to public schools in Ghana. Parents should be encouraged to send their wards to school early.

5.7.2 Home Environment Factors

The home environment of these poor and vulnerable school children does not encourage them to learn and perform better. The household type (household size, polygamous nature of the household, female-headed households) tend to have a significant but negative effect

on absenteeism. Larson (2005) argues that family structure had significant but positive effects on learning outcomes, this study shows similar results, especially for attendance and absenteeism. Studies by Fantuzzo, Mcwaynes & Perry, (2004) also showed statistically significant effects of the employment status of the household heads on learning outcomes. This study shows an inverse relationship of the family structure improving access to education. In finding out why this effect was experienced, household heads may be involved in the activities of their wards (Ekobor-Ackah at al., 2014) but because of their low levels of education, they may not place much emphasis on acquiring education and may be unable to help their children with their academic work.

There is the need to work and put in measures to encourage parents to invest time and resources in the academic performance of their children. The socio-economic backgrounds of these children do not encourage them to want to participate in educational activities. The ability for children to eat before going to school had a negative but statistically significant effect on learning outcomes. Sampasa-Kanyinga & Hamilton (2017) study had similar results. The need to provide the basics needs of the household takes precedence over the higher order needs of the households. In the wake of the children eating at home before coming to school, the children getting food in school relieves parents of that responsibility of providing lunch. Interestingly a study by Powell, et al. (1998) showed that children who ate before going to school performed better only if the children's school environment were well resourced and well organized. Improving school conditions and making resources available for learning also aids the learning process and can improve the outcomes of school children in school. As Epstein et al. (2011) highlights, it is the nature of the relationship between the parent and the school can help a child's performance. Cordial parental school relationships affect the nature of teaching and learning as well as supervision and monitoring of school activities.

It was realised that parents were not involved in the programme implementation process at the community level. A teacher in the Savelugu district had this to say, *"They really don't understand the implications of their not being involved, otherwise parents would have been more concerned about the damage they are doing to their children. They don't know that is why the enlightened ones would just withdraw their children"* ***Teacher Savelugu District.*** Parents are not aware of the negative effects their attitudes are having on their children's educational outcomes. The qualitative FGD indicate that some of the parents felt education was the responsibility of the government and because of their low education status, they could not relate with the education standards and requirement of their children. To them, their responsibility was to try and provide the basic schooling needs of the children before the beginning of the school year.

The socio-cultural context of the poor and vulnerable households and communities should be given attention. Parents can engage in academic activities irrespective of what their financial status is. There should be more community engagement and sensitization on the values of education and what is expected of the community, parents, teachers and the children. Fantozzo et al. (2000) found that parents, school engagement does help parents from relatively poor socio-economic background become involved in the education of their children. Their study found such engagement over an extended period could influence children learning outcomes. That irrespective of your socio-economic background, taking an interest in the educational activities of your child can have positive benefits on the child's performance. As such, parents generally should continuously engage in the school activities of their children on the programme so the benefits of the programme and education as a whole would be experienced.

5.7.3 School Environment Factors

The school environment is a part of the programme since a child will benefit from the programme on the condition that the child attends school. The programme in collaboration with the local community provides the kitchen, water for cooking, utensils and the food but does not necessarily provide resources for learning. The programme improves education access, but the resources required to help improve learning outcomes do not match up with the needs of the various schools. Despite this, the school environment has a positive effect on the child's access to education as compared to the home environment. The study found that the introduction of each environmental factors shows a marginal change in the impact the feeding programme has on learning outcomes. For attendance, the programme showed the same change (negative but significant effect) in the programme impact for the basic model, model 1, which is the child factors, and model 2, which is the home environment factors. However, the level of effect changed for the model 3, which included the school level factors there was a zero effect of the programme effect on learning outcome which indicates that provision of school resources does have the ability to improve learning outcomes that the programme, the child and the home factors are unable to do. Variables such as the availability of water in school encourage attendance by a 2.2 percentage points. Having separate toilet facilities for boys and girls encourages attendance by a 3.2 percentage points (Table 5.11). For attendance, the availability of water in school increases attendance by about 2 percentage points whiles if the government provides textbooks for the school, attendance increases by a 1-percentage points. As Epstein (1996); Fantuzzo et al. (1999) and Parker et al. (1999) reiterates, improving resources in school does improve learning outcomes. Education should be the concerted efforts not just of the child and the school but also the parents for the best educational outcomes to be achieved.

For the programme effect on attendance, the results indicate that the provision of textbooks in school and availability of water in the school reduces absenteeism by a 3-percentage points when the child, home and school environment factors are examined. Likewise, the availability of water in school reduces absenteeism for girls by 36 percentage points (Table 5.12).

Given the subsidized nature of public school education in Ghana, one would expect that providing school meals to school children would serve as a motivator to improve attendance and reduce absenteeism. Although by selection most children in public school tend to be from poor and vulnerable homes, the provision of school resources for a public school in Ghana affects educational access. This confirms Kobers (2001) claims that children from vulnerable homes tend to be affected negatively when they attend the low resourced, low performing schools. The school environment tends to reduce to some extent the magnitude of the negative effect of the home environment effect on education access.

5.8 Conclusion

The study realised that the School Feeding Programme reduces attendance, especially in the instances when the child and home environment factors are introduced. The programme has no effect on attendance when the school environment factors are introduced. It is also able to reduce absenteeism when the child, home and school environments are controlled for. When the various environments were controlled for, the study revealed that the child's innate characteristics encourage the parent to enrol their child in school, encourage attendance on a daily and weekly basis, and not be absent from school. The home environment factors show mixed results on educational access. The school environment factors encourage attendance and reduce absenteeism. The availability of school resources such as water, urinals and toilet facilities, encourages parents and children to want to send their children to

school. Efforts must target encouraging and sensitizing parents and local community members on the value of education and send children to school. Such efforts will help parents to value the benefits of education and help support the efforts of the government to build up the human resource base of the country.

CHAPTER SIX

SCHOOL FEEDING, HOME ENVIRONMENT AND ACADEMIC PERFORMANCE

6.1 Introduction

This chapter investigates the effect of school feeding on test scores controlling for child, home and school environment factors. These factors affect the child's outcomes and its effect can impact the outcomes in a negative or a positive way. Studies on school feeding and learning outcomes do not consider the effects that the environment the child relates to has on the child. This may be because these studies rely on the assumptions of the randomization procedure and being able to minimize bias. Bronfenbrenner's (1979; 1997) ecological systems theory shows that the environment the child relates to has a role to play in shaping their development as they grow. This chapter analyses the impact of school feeding on class repetition whiles controlling for child, home and school environment factors to determine the programme's effect.

Additionally, the study assessed the impact of school feeding on learning outcomes with a specific emphasis on mathematics and English Literacy test scores. Subsequently, the study controlled for child, home and school level factors to determine their individual and collective effect on learning outcomes. The study then analyzed the impact of school feeding on cognition whiles controlling for child, home and school-level factors to determine the programme's effect. The results are discussed along with the qualitative data to arrive at a meaningful discussion that is able to influence social policy. The results of the impacts of the school feeding on learning outcomes are captured in the subsequent sections (Tables 6.1- 6.5).

6.2 School Feeding and learning outcomes

The relationship between school feeding and learning outcomes is documented to be inconsistent (Lawson, 2012). This inconsistency is explained by some inherent child characteristics, some home; and school environment conditions. This section examines the identified factors, that affect the lives of school children from poor and vulnerable backgrounds who benefit from the School Feeding Programme. The difference in differences model with covariates by Villa (2016) was used to estimate the results. Four models were derived to explain the impacts and the effects school feeding have on learning outcomes The various models used in assessing the impact of school feeding on learning outcomes and the effect of the child, home and school environment factors are specified in sections 4.9 and 5.6.

The results may be heterogeneous and may differ according to the sample. The gender sub-sample assessed the impact of the programme on boys and girls. It moreover determined the effects of the child, home and school environment factors on educational access. The class sub-sample assessed the impact of the programme on children in the classes up to kindergarten and children in primary school (primary 1-6). It likewise determined the effects of the child, home and school environment factors on programme outcomes. Test score results for English Literacy, Mathematics, Raven's test and Forward and Backward Digit Span test results were used in the estimations.

6.2.1 Impact of School Feeding on Class Repetition controlling for Child, Home and School Environment Factors

Class repetition is an indicator used for measuring learning outcomes. The class repetition variable was generated when respondents were asked if they had ever repeated a class. The obtained response of yes and no was coded 1 and 0 respectively to know the proportion of

students who had ever repeated a class and those who had not. The class repetition impact shows the coefficients of the difference-in-differences (DID) estimates of the feeding programme (Table 6.1). With the exception of the model on the impact of school feeding on girls repeating a class in the feeding schools, there existed no statistically significant impact of school feeding on a child repeating a class. The results indicate that there was a significant but negative relationship between school feeding and class repetition for girls. Indicating that boys on the feeding programme are 3.4 percentage points more likely to repeat a class as compared to girls in a feeding school.

Table 6.1: School feeding and class repetition controlling for the child, home environment and school environment factors

VARIABLES	Basic Model	Model 1	Model 2	Model 3	Boys Sub-sample	Girls Sub-sample	KG Sub-sample	Primary Sample
Time	0.141***	0.053***	0.057***	0.061***	0.055**	0.068***	0.075**	0.044*
	(0.018)	(0.019)	(0.019)	(0.019)	(0.026)	(0.026)	(0.033)	(0.023)
Dummy for Treatment Arm	0.006	0.009	0.008	0.009	0.004	0.014	0.008	0.007
	(0.011)	(0.010)	(0.009)	(0.010)	(0.012)	(0.012)	(0.007)	(0.013)
Impact	-0.006	-0.008	-0.008	-0.012	0.006	-0.034**	-0.006	-0.014
	(0.017)	(0.017)	(0.016)	(0.017)	(0.023)	(0.017)	(0.032)	(0.020)
Child's sex (RC Male)		0.002	-0.000	-0.002			-0.001	-0.002
		(0.010)	(0.009)	(0.009)			(0.013)	(0.012)
Child's age		0.052***	0.053***	0.054***	0.052***	0.057***	0.022***	0.045***
		(0.006)	(0.006)	(0.006)	(0.006)	(0.008)	(0.007)	(0.004)
Class		-0.026***	-0.028***	-0.030***	-0.030***	-0.030***		
		(0.008)	(0.008)	(0.008)	(0.009)	(0.010)		
Age at which Child starts school (RC before age 6)		0.040**	0.043***	0.044***	0.043**	0.046**	0.021	0.029
		(0.016)	(0.016)	(0.016)	(0.020)	(0.018)	(0.033)	(0.018)
Eating before going to school			-0.011	-0.013	-0.013	-0.012	-0.010	-0.007
			(0.011)	(0.010)	(0.014)	(0.014)	(0.015)	(0.012)
Household size			0.050***	0.044***	0.038**	0.050***	0.027	0.047***
			(0.012)	(0.012)	(0.015)	(0.017)	(0.021)	(0.014)
Polygamous household (RC polygamous)			-0.017	-0.022	0.031	-0.135***	-0.024*	-0.099***
			(0.027)	(0.037)	(0.020)	(0.025)	(0.013)	(0.025)
Education level of adults (RC educated)			-0.026	-0.024	-0.027	-0.019	-0.030***	-0.017
			(0.019)	(0.019)	(0.018)	(0.034)	(0.010)	(0.025)
Adult in waged employment			0.082	0.072	-0.009	0.180	-0.132**	0.126
			(0.185)	(0.193)	(0.203)	(0.272)	(0.060)	(0.225)
Adult in Agriculture employment			0.018	0.022	0.033	-0.003	-0.045**	0.044
			(0.091)	(0.091)	(0.150)	(0.073)	(0.018)	(0.122)

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016; Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.

Table 6.1: School feeding and Class repetition controlling for child, home environment and school environment factors, continued

VARIABLES	Basic Model	Model 1	Model 2	Model 3	Boys Sub-sample	Girls Sub-sample	KG Sub-sample	Primary Sample
Male-headed household			-0.006	-0.002	-0.024	0.020	-0.012	-0.003
			(0.021)	(0.021)	(0.025)	(0.028)	(0.023)	(0.026)
Female-Headed household			-0.055	-0.057	-0.051	-0.080	0.026	-0.078*
			(0.040)	(0.040)	(0.046)	(0.064)	(0.042)	(0.044)
Mother bears the cost of education			0.060**	0.054**	0.043	0.066**	0.015	0.057**
			(0.024)	(0.024)	(0.030)	(0.028)	(0.037)	(0.025)
Textbooks are provided in School				0.016	0.023	0.008	0.018	0.014
				(0.015)	(0.017)	(0.021)	(0.011)	(0.019)
Water is available in School				-0.003	0.005	-0.013	-0.022	-0.000
				(0.022)	(0.027)	(0.023)	(0.018)	(0.024)
Learn in a classroom structure				0.058***	0.065***	0.048**	0.022	0.060***
				(0.018)	(0.022)	(0.020)	(0.016)	(0.021)
Separate urinal for boys and girls				0.003	-0.001	0.009	0.006	0.003
				(0.017)	(0.023)	(0.017)	(0.016)	(0.021)
Availability of toilet facilities				0.020	0.031	0.007	-0.003	0.032
				(0.018)	(0.024)	(0.022)	(0.016)	(0.021)
Constant	0.100***	-0.277***	-0.230***	-0.268***	-0.238***	-0.296***	-0.122*	-0.270***
	(0.012)	(0.030)	(0.047)	(0.053)	(0.072)	(0.078)	(0.066)	(0.062)
Observations	5,108	5,108	5,108	5,108	2,778	2,330	1,101	4,007
R-squared	0.033	0.106	0.115	0.120	0.118	0.127	0.067	0.096

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016; Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. The Basic Model assesses the impact of the school feeding on learning outcomes. Model 1 assesses the impact of the school feeding on learning outcomes. It determines the effect of the child characteristic individually and collectively on the outcomes. Model 2 assesses the impact of the school feeding on learning outcomes, and the effect of child characteristic and home environment individually and collectively on the outcomes. Model 3 assesses the impact of the school feeding on learning outcomes, and the effect of a child, home and school environment individually and collectively on the outcomes. Column 6 and 7 represent the boys and girls sub-samples of model 3. Columns 8 and 9 represent the KG and primary sub-samples of model 3.

The variables that showed statistically significant relationships between the School Feeding Programme and class repetition when the child inherent factors are controlled for include, a child's age, class and the age at which a child starts school. The child level factors showed a statistically significant relationship between school feeding and repeating a class. When the age of the child was examined, it shows that older children are more likely to repeat a class as compared to younger children (Table 6.1). Irrespective of the age of the child, a growing child is likely to be affected by the different environments they grow up in. Some environmental factors may distract them and prevent them from learning thus making it possible for them not to perform well academically and repeat a class. Nevertheless, as a child progresses from one class to the next class, the likelihood of that child repeating a class decreases by 3 percentage points. This indicates that the innate abilities of children from poor and vulnerable homes who attend feeding schools encourage them to perform well as they progress academically. Parents shared the view that school children are happy when they are promoted from one class to the other. The teachers indicated that on the average they are less likely to repeat a child because their capabilities are not limited to only academic work but other social modes of learning.

When the age at which a child starts school is also analysed in the model, the results indicated that children who start school early are more likely to repeat a class. But the age at which a child starts school is only significant and positive when the child level factors are controlled for. The magnitude of the relationship tends to reduce as the various environment were included in the model. Parents explained that initially children were not sent to school early because the public school did not make provision for preschool. However, currently, public schools have a nursery and preschool section which allows for children to attend school early. This helps to orient and shape the child, parents and teachers to accept it when

children are sent to school early. As such now attending school early especially before the age of six does influence the ability of a child to attend school.

Similarly, when the home environment factors are looked at in the model, the household size and mother bearing the cost of education, showed statistically significant effects on children repeating a class. Focus Group Discussions indicated that a larger number of people in a household may have both negative and positive effects on learning outcomes. For the positive effects household heads explained that more people means more people to help with house chores and homework while that same number could also mean that more work for the children since more adults would depend on the children to support them with the house chores. The study results confirm this in that the household size has a significant and positive effect on a child repeating a class. This can be inferred from the FGD that the higher number of people at home might mean more activities for the child to engage in. This means less time for the child to focus on academic work. Likewise, when women bear the cost of education, children are more likely to repeat a class. Studies by Dunne et al., (2005); Jones & Chant (2009); Stephens (2000) Tuwor & Sossou (2008) also confirm that the gendered nature of the Ghanaian society, as well as the low education levels of the poor and vulnerable households' females, does account for these findings. In some societies, women from poor and vulnerable households tend not to have much of a voice and their efforts are not considerable. As such, the efforts of these women, especially in terms of helping with academic work since they may not understand the assignments. These children may be willing to attend school, eat the free meal at school but the academic support they may require from home to learn and perform better may not be forthcoming.

For school environment factors, the results indicate that not learning in a classroom setting does encourage class repetition. That children who do not learn in a structured classroom

environment are more likely to repeat a class of about six percent. The results further indicate that all the other child, home and school environment factors individually do not significantly determine if a child will repeat a class but together have an effect on a child repeating a class.

6.2.2 Impact of School Feeding on Mathematics Test scores controlling for Child, Home and School Environment Factors

Mathematics test score results are one of the indicators for measuring learning outcomes in this study. The mathematics test impact shows the coefficients of the difference-in-differences (DID) estimates of the feeding programme. The aggregated individual mathematics scores used in the estimation (Table 6.2). The results indicate that there is a positive and significant impact of school feeding on mathematics test scores when the child, home and school environment factors are controlled for (model 3). There also exists a statistically significant impact of school feeding and mathematics test scores for girls when child and school environment factors are controlled for.

The preferred model is the model where the child, home and school environment factors are analysed and that is significant at ten percent. This means that on average, the programme increases the ability for children to perform better in mathematics by 0.24 percentage points. This indicates that school feeding impacts on children ability to perform well in mathematics when the child, home and school environment factors analysed. The results also show that feeding affects girls performing well in mathematics. This relationship is statistically significant at ten percent when the child, home and school environment factors are controlled for. It indicates that the possibility that the School Feeding Programme influences the ability for girls to perform better at mathematics test by thirty four percent.

When the child level factors were analysed, the variables that showed a statistically significant effect a child performing well are the child's age and class. The results indicate that there was a positive and statistically significant relationship between school feeding and Mathematics when the child's age and class were examined. When the model controls for the home and school environment factors, the household size, children from parents who are in a waged form of employment and children from male-headed households who had a statistically significant effect on the relationship between school feeding and mathematics test scores.

Table 6.2: School feeding and Mathematics test score, controlling the for child, home environment and school environment factors

VARIABLES	Basic Model	Model 1	Model 2	Model 3	Boys Sub-sample	Girls Sub-sample	KG Sub-sample	Primary Sample
Time	2.641***	1.075***	1.093***	0.907***	0.906***	0.915***	0.839***	1.375***
	(0.178)	(0.108)	(0.111)	(0.138)	(0.169)	(0.154)	(0.275)	(0.168)
Dummy for Treatment Arm	0.057	0.039	0.046	0.042	0.032	0.054	0.001	0.132
	(0.075)	(0.068)	(0.059)	(0.072)	(0.085)	(0.085)	(0.043)	(0.092)
Impact	0.243	0.220	0.206	0.235*	0.139	0.342*	0.056	0.173
	(0.177)	(0.155)	(0.158)	(0.141)	(0.131)	(0.190)	(0.273)	(0.157)
Child's sex (RC Male)		-0.016	-0.032	-0.046			0.055	-0.060
		(0.078)	(0.077)	(0.072)			(0.085)	(0.091)
Child's age		0.040	0.042	0.063**	0.088**	0.038	0.222***	0.389***
		(0.038)	(0.035)	(0.029)	(0.035)	(0.039)	(0.035)	(0.028)
Class		0.749***	0.744***	0.709***	0.700***	0.710***		
		(0.085)	(0.082)	(0.080)	(0.083)	(0.095)		
Age at which Child starts school (RC before age 6)		0.319	0.330	0.358*	0.458**	0.245	0.532**	0.922***
		(0.206)	(0.208)	(0.183)	(0.183)	(0.208)	(0.265)	(0.244)
Eating before going to school			0.064	0.030	0.118	-0.061	0.159*	-0.084
			(0.104)	(0.100)	(0.129)	(0.100)	(0.093)	(0.117)
Household size			0.282***	0.167**	0.178*	0.133	-0.071	0.199**
			(0.101)	(0.081)	(0.106)	(0.109)	(0.115)	(0.085)
Polygamous household (RC polygamous)			0.437	0.223*	0.229	0.323	0.127	-0.018
			(0.306)	(0.130)	(0.181)	(0.216)	(0.454)	(0.272)
Education level of adults (RC educated)			-0.012	-0.003	0.043	-0.086	0.108	-0.109
			(0.123)	(0.115)	(0.168)	(0.196)	(0.241)	(0.129)
Adult in waged employment			-1.514***	-1.643***	-2.118***	-1.235***	-0.427	-2.028***
			(0.185)	(0.188)	(0.468)	(0.265)	(0.398)	(0.357)
Adult in Agriculture employment			-0.052	-0.042	-0.029	-0.133	-0.254	0.120
			(0.396)	(0.381)	(0.693)	(0.297)	(0.376)	(0.486)

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016; Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.

Table 6.2: School feeding and Mathematics test score, controlling for the child, home environment and school environment factors, continued

VARIABLES	Basic Model	Model 1	Model 2	Model 3	Boys Sub-sample	Girls Sub-sample	KG Sub-sample	Primary Sample
Male-headed household			-0.472***	-0.377**	-0.424*	-0.345**	-0.164	-0.409***
			(0.167)	(0.144)	(0.228)	(0.133)	(0.123)	(0.156)
Female-Headed household			-0.571**	-0.535**	-0.361	-0.865**	0.286*	-0.735**
			(0.244)	(0.250)	(0.311)	(0.354)	(0.146)	(0.332)
Mother bears the cost of education			0.082	-0.000	-0.198	0.193	-0.206*	0.110
			(0.129)	(0.122)	(0.153)	(0.166)	(0.112)	(0.149)
Textbooks are provided in School				0.000	0.057	-0.072	-0.045	0.061
				(0.143)	(0.148)	(0.152)	(0.089)	(0.177)
Water is available in School				0.259*	0.227	0.301**	-0.323**	0.387**
				(0.133)	(0.158)	(0.148)	(0.136)	(0.159)
Learn in a classroom structure				0.671***	0.746***	0.603***	0.001	1.004***
				(0.164)	(0.174)	(0.179)	(0.097)	(0.204)
Separate urinal for boys and girls				-0.047	0.089	-0.205	0.401***	-0.185
				(0.204)	(0.204)	(0.239)	(0.138)	(0.240)
Availability of toilet facilities				-0.309**	-0.275*	-0.329**	-0.332**	-0.303*
				(0.132)	(0.151)	(0.164)	(0.128)	(0.154)
Constant	1.448***	-0.693***	0.030	-0.244	-0.843*	0.467	-1.209***	-1.107**
	(0.072)	(0.189)	(0.353)	(0.354)	(0.434)	(0.425)	(0.398)	(0.474)
Observations	5,108	5,108	5,108	5,108	2,778	2,330	1,101	4,007
R-squared	0.215	0.394	0.401	0.417	0.427	0.411	0.232	0.284

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016; Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. The Basic Model assesses the impact of the school feeding on learning outcomes. Model 1 assesses the impact of the school feeding on learning outcomes. It determines the effect of the child characteristic individually and collectively on the outcomes. Model 2 assesses the impact of the school feeding on learning outcomes, and the effect of child characteristic and home environment individually and collectively on the outcomes. Model 3 assesses the impact of the school feeding on learning outcomes, and the effect of a child, home and school environment individually and collectively on the outcomes. Column 6 and 7 represent the boys and girls sub-samples of model 3. Columns 8 and 9 represent the KG and primary sub-samples of model 3.

For school environment factors, the results indicate that not learning in a formal classroom setting and school providing textbooks have a positive and statistically significant effect on Mathematics test scores. The results further indicate that all the other child, home and school environment factors individually do not significantly determine if a child will perform well in Mathematics but together have an effect on performance in Mathematics.

6.2.3 Impact of School Feeding on English Literacy Test controlling for Child, Home and School Environment Factors

This study identified that there is not a statistically significant relationship between school feeding and literacy test score when the child, home and school environment factors were controlled for (Table 6.3). To determine the individual and collective effect the child, home and school environment factors had on learning outcomes when the on English literacy tests, the study identified that as a child grows and progresses academically the likelihood of a child performing well in English literacy increases.

In the home environment factors were controlled for, household size had a positive and statistically significant effect on learning outcomes. Yet, when the school level factors were included in the model, there were no statistically significant effects on learning outcomes. Children from a polygamous household are more likely to perform better at English Literacy. However, the type of a household, that is if the child is from a male or female-headed household, the household size, the parental occupation all had a negative and statistically significant effect on the English literacy test scores of the school children. This is explained by socio-cultural factors these children are confronted with. Some of the school children are expected to help offset household income by performing home task thereby freeing parents to work to support the home. Larger family sizes indicate that children can get help from other family members as and when needed. However, children from parents

who are waged employed do not get the needed support and supervision since parents tend to spend most of their time at work. Moreover, with the low levels of education, even when the parents come home they are unable to help with some of the homework from school. The parents rely on other household members and friends to help with them. Likewise, these children use the local language as a form of communicating at home and may not have a means of practising what is learnt at school. At the school level, the availability of a classroom to aid learning has a statistically significant effect on the literacy test. A child who learns in a classroom environment is more likely to perform better at literacy test. All other variables in the model do not statistically significantly affect literacy test scores.

Table 6.3: School feeding and Literacy controlling for the child, home environment and school environment factors

VARIABLES	Basic Model	Model 1	Model 2	Model 3	Boys Sub-sample	Girls Sub-sample	KG Sub-sample	Primary Sample
Time	2.097***	0.582***	0.606***	0.420***	0.531***	0.293	0.462*	0.877***
	(0.123)	(0.129)	(0.125)	(0.147)	(0.156)	(0.187)	(0.248)	(0.159)
Dummy for Treatment Arm	0.121	0.101	0.105	0.104	0.120	0.093	0.076	0.183*
	(0.095)	(0.086)	(0.075)	(0.082)	(0.096)	(0.095)	(0.055)	(0.106)
Impact	0.182	0.159	0.148	0.163	0.060	0.273	-0.077	0.118
	(0.154)	(0.135)	(0.139)	(0.129)	(0.131)	(0.166)	(0.236)	(0.141)
Child's sex (RC Male)		0.028	0.007	-0.010			0.118	-0.029
		(0.075)	(0.074)	(0.069)			(0.083)	(0.090)
Child's age		0.015	0.018	0.043	0.065**	0.017	0.208***	0.366***
		(0.037)	(0.034)	(0.028)	(0.032)	(0.038)	(0.045)	(0.027)
Class		0.756***	0.749***	0.710***	0.692***	0.730***		
		(0.084)	(0.082)	(0.079)	(0.082)	(0.095)		
Age at which Child starts school (RC before age 6)		0.313	0.325*	0.348**	0.451**	0.231	0.317	0.927***
		(0.194)	(0.193)	(0.165)	(0.177)	(0.180)	(0.236)	(0.226)
Eating before going to school			0.041	0.017	0.091	-0.054	0.175*	-0.105
			(0.089)	(0.087)	(0.107)	(0.106)	(0.101)	(0.102)
Household size			0.251**	0.121	0.220**	-0.014	-0.144	0.166*
			(0.115)	(0.087)	(0.106)	(0.115)	(0.115)	(0.091)
Polygamous household (RC polygamous)			1.582*	1.310**	0.498	3.028***	0.477	2.687***
			(0.846)	(0.565)	(0.315)	(0.299)	(0.572)	(0.400)
Education level of adults (RC educated)			0.080	0.094	0.201	-0.034	0.126	0.005
			(0.148)	(0.150)	(0.291)	(0.188)	(0.197)	(0.194)
Adult in waged employment			-0.811***	-0.969***	-1.728***	-0.187	-0.006	-1.289**
			(0.276)	(0.334)	(0.505)	(0.197)	(0.365)	(0.578)
Adult in Agriculture employment			-0.056	-0.045	0.414	-0.704**	-0.421	0.160

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016; Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.

Table 6.3: School feeding and Literacy controlling for the child, home environment and school environment factors, continued

VARIABLES	Basic Model	Model 1	Model 2	Model 3	Boys Sub-sample	Girls Sub-sample	KG Sub-sample	Primary Sample
			(0.416)	(0.401)	(0.676)	(0.294)	(0.426)	(0.500)
Male-headed household			-0.590***	-0.479***	-0.390**	-0.573***	-0.483***	-0.453***
			(0.186)	(0.149)	(0.178)	(0.177)	(0.168)	(0.155)
Female-headed household			-0.465*	-0.424	-0.386	-0.434	0.125	-0.548
			(0.252)	(0.259)	(0.349)	(0.402)	(0.171)	(0.343)
Mother bears the cost of education			0.101	0.009	-0.181	0.204	-0.282	0.134
			(0.139)	(0.126)	(0.161)	(0.162)	(0.222)	(0.140)
Textbooks are provided in school				-0.040	-0.002	-0.087	-0.097	0.025
				(0.175)	(0.183)	(0.181)	(0.117)	(0.199)
Water is available in the school				0.201	0.153	0.259	-0.353**	0.323*
				(0.145)	(0.167)	(0.159)	(0.137)	(0.169)
Learn in a classroom structure				0.790***	0.898***	0.674***	0.181	1.103***
				(0.185)	(0.198)	(0.191)	(0.117)	(0.224)
Separate urinals for boys and girls				-0.058	0.098	-0.250	0.278**	-0.170
				(0.197)	(0.206)	(0.218)	(0.127)	(0.232)
Availability of toilet facilities				-0.313**	-0.231	-0.389**	-0.351***	-0.297*
				(0.138)	(0.158)	(0.162)	(0.119)	(0.173)
Constant	1.543***	-0.475**	0.192	-0.123	-0.820*	0.624	-0.605	-1.090**
	(0.112)	(0.195)	(0.340)	(0.336)	(0.427)	(0.454)	(0.392)	(0.454)
Observations	5,108	5,108	5,108	5,108	2,778	2,330	1,101	4,007
R-squared	0.151	0.340	0.349	0.372	0.385	0.363	0.148	0.240

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016; Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. The Basic Model assesses the impact of the school feeding on learning outcomes. Model 1 assesses the impact of the school feeding on learning outcomes. It determines the effect of the child characteristic individually and collectively on the outcomes. Model 2 assesses the impact of the school feeding on learning outcomes, and the effect of child characteristic and home environment individually and collectively on the outcomes. Model 3 assesses the impact of the school feeding on learning outcomes, and the effect of a child, home and school environment individually and collectively on the outcomes. Column 6 and 7 represent the boys and girls sub-samples of model 3. Columns 8 and 9 represent the KG and primary sub-samples of model 3.

6.3 School feeding and Cognition

6.3.1 Impact of School Feeding on Digit Span Test controlling for Child, Home and School Environment Factors

Digit Span Test Score is used as a measure for assessing cognition in this study. The Digit Span Test Score shows the coefficients of the difference-in-differences (DID) estimates of the feeding programme. There is a positive but insignificant effect of school feeding on the digit span test (Table 6.4). When the child, home and school environment factors are controlled for, there was no statistically significant impact of school feeding on the digit span test. Similarly, there was a positive but insignificant impact on that of the gender of the child and the class of the child when the various environmental factors were assessed. Variables that showed statistically significant relationships between school feeding and digit span test scores when the child, home and school factors are controlled for are outlined in the next paragraph.

At the child level, a child's age and class determine how a child performs at the digit span cognitive tests. At the home environment, the presence of a male and female adult at home, the household size, the occupation of the household head being in waged employment had a statistically significant effect on the Digit Span test result. At the school level, a school providing textbooks, and learning in a classroom all influence the cognitive development and performance of school children in public schools in the feeding programme. When the child level factors are assessed, the age and class variables showed a significant and positive effect on cognition. The study realized that as a child grows and is exposed to the home and school environment the child's innate characteristics encourage the child to want to develop their cognitive abilities. These three environments work well for the child to want to grow and perform better. But the age at which a child starts school has a significant and negative effect on the digit span test when the child level factors are assessed. The magnitude of the

relationship tends to reduce as the various environment are introduced in the model. This indicates that each environment the child relates to tend to influence their learning outcomes. The age and class of a child show positive statistically significant effects of the programme on Digit Span test scores. This implies that as a child grows, the likelihood of a child performing better academically is increased by 0.12 percentage points. Indicating that as children in feeding schools grow, they are 0.12 percentage points more likely to perform better than children in non feeding schools. The magnitude of age increases when the child learns and engage in academic and non-academic activities at home and at school but decreases for a class when the child interrelates with the home and school environment. The presence of a male and female adult has a negative statistically significant effect on child cognitive development.

The household size shows that the higher the size of the household, the more people the child get to relate. This offers the child the opportunity to relate with the different members of the household thereby learning more from each member. Children from Polygamous households also tend to develop higher cognitive abilities as they relate to other family members. The family type (male or female-headed households) have a negative and statistically significant effect on the cognitive abilities of the school children. This implies that although adults engage with their children at home, these engagements affects their children's cognitive abilities negatively. The low levels of education, low socio and political power of these household heads in the society account for these results. Thus although parents are able to engage their children's cognitive abilities, their engagements are unable to influence them positively academically. Their activities rather affect them negatively taking them away since their modes of engagement and interactions are not focused on educational achievements but rather ways of promoting their well-being. The school resources indicate that when children have water in school, learning in a classroom,

motivates these children to want to develop their cognitive abilities. All the other child, home and school environment factors individually do not statistically influence the cognitive abilities of the school children but together relate to influencing the cognitive abilities of school children in public school benefiting from the School Feeding Programme.

Table 6.4: Impact of school feeding on Digit Span test controlling for the child, home environment and school environment factors

VARIABLES	Basic Model	Model 1	Model 2	Model 3	Boys Sub-sample	Girls Sub-sample	KG Sub-sample	Primary Sample
Time	0.487***	-0.623***	-0.613***	-0.742***	-0.657***	-0.836***	-0.802***	-0.560***
	(0.136)	(0.116)	(0.110)	(0.106)	(0.134)	(0.127)	(0.235)	(0.126)
Dummy for Treatment Arm	0.040	0.034	0.034	0.022	-0.014	0.069	0.027	0.077
	(0.100)	(0.095)	(0.082)	(0.086)	(0.104)	(0.096)	(0.102)	(0.100)
Impact	0.039	0.025	0.015	0.052	0.010	0.090	0.115	0.014
	(0.137)	(0.130)	(0.130)	(0.124)	(0.147)	(0.134)	(0.209)	(0.131)
Child's sex (RC Male)		0.017	-0.003	-0.012			0.295**	-0.114
		(0.060)	(0.060)	(0.059)			(0.119)	(0.070)
Child's age		0.117***	0.120***	0.132***	0.152***	0.111***	0.408***	0.232***
		(0.029)	(0.029)	(0.030)	(0.035)	(0.039)	(0.063)	(0.019)
Class		0.422***	0.414***	0.386***	0.383***	0.386***		
		(0.046)	(0.045)	(0.044)	(0.052)	(0.053)		
Age at which Child starts school (RC before age 6)		0.133	0.151	0.180	0.275**	0.081	0.035	0.325**
		(0.135)	(0.135)	(0.122)	(0.120)	(0.156)	(0.223)	(0.136)
Eating before going to school			0.056	0.010	0.143	-0.132	0.383***	-0.105
			(0.077)	(0.080)	(0.096)	(0.097)	(0.133)	(0.100)
Household size			0.216**	0.127	0.137	0.098	-0.035	0.159**
			(0.090)	(0.079)	(0.092)	(0.102)	(0.182)	(0.072)
Polygamous household (RC polygamous)			1.114***	1.023***	1.711***	-0.081	2.272***	-0.610***
			(0.109)	(0.162)	(0.188)	(0.149)	(0.316)	(0.228)
Education level of adults (RC educated)			-0.060	-0.053	-0.141	0.004	0.359	-0.236**
			(0.121)	(0.113)	(0.162)	(0.178)	(0.395)	(0.094)
Adult in waged employment			-1.343***	-1.419***	-1.528***	-1.323***	-0.704**	-1.713***
			(0.398)	(0.316)	(0.554)	(0.238)	(0.342)	(0.292)
Adult in Agriculture employment			0.160	0.163	0.105	0.219	-0.540	0.426
			(0.418)	(0.417)	(0.661)	(0.460)	(0.993)	(0.479)

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016; Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.

Table 6.4: Impact of school feeding on Digit Span test controlling for the child home environment and school environment factors continued

VARIABLES	Basic Model	Model 1	Model 2	Model 3	Boys Sub-sample	Girls Sub-sample	KG Sub-sample	Primary Sample
Male-headed household			-0.501***	-0.434***	-0.382***	-0.501***	-0.900***	-0.269**
			(0.134)	(0.129)	(0.135)	(0.176)	(0.199)	(0.129)
Female-Headed household			-0.558***	-0.535***	-0.458**	-0.679	0.283	-0.715***
			(0.201)	(0.204)	(0.226)	(0.481)	(0.298)	(0.229)
Mother bears the cost of education			0.258**	0.198*	0.163	0.220	-0.017	0.265**
			(0.123)	(0.114)	(0.134)	(0.167)	(0.204)	(0.125)
Textbooks are provided in School				0.104	0.085	0.125	0.159	0.039
				(0.087)	(0.123)	(0.095)	(0.138)	(0.084)
Water is available in School				0.305***	0.295**	0.312**	-0.306*	0.445***
				(0.115)	(0.140)	(0.124)	(0.179)	(0.131)
Learn in a classroom structure				0.482***	0.550***	0.416***	0.000	0.699***
				(0.12)	(0.15)	(0.13)	(0.17)	(0.14)
Separate urinal for boys and girls				-0.11	-0.09	-0.13	-0.01	-0.15
				(0.12)	(0.14)	(0.15)	(0.19)	(0.14)
Availability of toilet facilities				-0.18	-0.03	-0.34**	-0.05	-0.27*
				(0.14)	(0.17)	(0.15)	(0.21)	(0.15)
Constant	3.95***	1.95***	2.78***	2.56***	2.16***	3.073***	-0.107	3.30***
	(0.10)	(0.21)	(0.34)	(0.36)	(0.40)	(0.54)	(0.66)	(0.39)
Observations	5,108	5,108	5,108	5,108	2,778	2,330	1,101	4,007
R-squared	0.013	0.167	0.182	0.198	0.216	0.183	0.152	0.110

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016; Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. The Basic Model assesses the impact of the school feeding on learning outcomes. Model 1 assesses the impact of the school feeding on learning outcomes. It determines the effect of the child characteristic individually and collectively on the outcomes. Model 2 assesses the impact of the school feeding on learning outcomes, and the effect of child characteristic and home environment individually and collectively on the outcomes. Model 3 assesses the impact of the school feeding on learning outcomes, and the effect of a child, home and school environment individually and collectively on the outcomes. Column 6 and 7 represent the boys and girls sub-samples of model 3. Columns 8 and 9 represent the KG and primary sub-samples of model 3.

6.3.2 Impact of School Feeding on Ravens Test score controlling for Child, Home and School Environment Factors

Ravens Test Score is used as another indicator for cognition in this study. The Raven's Test Score impact shows the coefficients of the difference-in-differences (DID) estimates of the feeding programme. It shows that there is a positive but insignificant effect of school feeding on cognition at the child, home and school environment factors. Likewise, there was a positive but insignificant impact on that of the sex and the class of the child when the various environmental factors were analysed. The preferred model is the model where the child, home and school environment factors are all controlled for but the model shows that school feeding has no significant impact on Raven's test score (Table 6.5). Variables that showed statistically significant effects between school feeding and Raven's test score at the child, home and school are a child's age and class. For the home environment factors, the results although were mixed showed significant effect between school feeding and Raven's test score.

At the child level, the age and class variables showed a significant and positive effect on cognition. The study realized that as a child grows and is exposed to the home and school environment the child's innate characteristics encourage the child to want to develop their cognitive abilities. These three environments work well for the child to want to grow and perform better. But the age at which a child starts school is only significant and negative when the child level factors are controlled for. The magnitude of the relationship tends to reduce as the various environment interacts with the feeding programme. This indicates that each environment the child relates to tend to influence their learning outcomes.

Table 6.5: School Feeding and Raven's test score controlling for the child, home environment and school environment factors

VARIABLES	Basic Model	Model 1	Model 2	Model 3	Boys Sub-sample	Girls Sub-sample	KG Sub-sample	Primary Sample
Time	-0.464***	-1.169***	-1.086***	-1.184***	-1.154***	-1.217***	-0.180	-1.274***
	(0.140)	(0.154)	(0.151)	(0.148)	(0.156)	(0.192)	(0.247)	(0.171)
Dummy for Treatment Arm	0.032	0.031	0.036	0.023	-0.040	0.106	0.098	0.045
	(0.118)	(0.113)	(0.106)	(0.104)	(0.135)	(0.115)	(0.109)	(0.116)
Impact	0.131	0.127	0.120	0.139	0.156	0.108	0.119	0.123
	(0.118)	(0.124)	(0.125)	(0.134)	(0.151)	(0.144)	(0.207)	(0.138)
Child's sex (RC Male)		-0.019	-0.041	-0.039			0.236*	-0.120*
		(0.061)	(0.061)	(0.060)			(0.137)	(0.062)
Child's age		0.111***	0.116***	0.121***	0.151***	0.083**	0.378***	0.110***
		(0.022)	(0.022)	(0.023)	(0.028)	(0.036)	(0.061)	(0.019)
Class (RC KG)		0.232***	0.224***	0.211***	0.202***	0.222***		
		(0.034)	(0.034)	(0.034)	(0.037)	(0.052)		
Age at which Child starts school (RC before age 6)		-0.064	-0.064	-0.044	0.059	-0.164	-0.729***	-0.079
		(0.126)	(0.119)	(0.109)	(0.128)	(0.126)	(0.216)	(0.116)
Eating before going to school			-0.209*	-0.199	-0.199	-0.180	-0.357*	-0.133
			(0.124)	(0.131)	(0.134)	(0.161)	(0.201)	(0.123)
Household size			0.189**	0.153*	0.148	0.146	0.474**	0.092
			(0.090)	(0.080)	(0.095)	(0.118)	(0.211)	(0.083)
Polygamous household (RC polygamous)			0.521**	0.418	0.641*	0.161	1.212***	-0.344
			(0.245)	(0.273)	(0.326)	(0.202)	(0.271)	(0.243)
Education level of adults (RC educated)			0.068	0.070	0.066	0.079	0.287	0.009
			(0.127)	(0.121)	(0.145)	(0.189)	(0.341)	(0.126)
Adult in waged employment RC Waged employed)			-0.562*	-0.636*	-0.883***	-0.506	-1.764***	-0.656
			(0.327)	(0.357)	(0.287)	(0.535)	(0.412)	(0.458)
Adult in Agriculture employment			-0.796	-0.786	-0.373	-1.462*	-2.528***	-0.114
			(0.489)	(0.481)	(0.524)	(0.758)	(0.558)	(0.454)

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 6.5: School Feeding and Raven's test score controlling for the child, home environment and school environment factors, continued.

VARIABLES	Basic Model	Model 1	Model 2	Model 3	Boys Sub-sample	Girls Sub-sample	KG Sub-sample	Primary Sample
Male-headed household			-0.499***	-0.463***	-0.299*	-0.640***	-0.723**	-0.350**
			(0.130)	(0.130)	(0.151)	(0.161)	(0.280)	(0.147)
Female-headed household			-0.085	-0.037	-0.026	-0.032	0.153	-0.122
			(0.255)	(0.256)	(0.296)	(0.390)	(0.669)	(0.239)
Mother bears the cost of education			-0.119	-0.140	-0.055	-0.242	-0.165	-0.131
			(0.130)	(0.126)	(0.171)	(0.149)	(0.385)	(0.121)
Textbooks are provided in School				0.242*	0.250	0.232*	0.106	0.191
				(0.131)	(0.166)	(0.120)	(0.144)	(0.139)
Water is available in School				-0.018	0.010	-0.053	-0.270	0.047
				(0.136)	(0.162)	(0.140)	(0.258)	(0.128)
Learn in a classroom structure				0.210*	0.272**	0.152	0.104	0.315***
				(0.111)	(0.129)	(0.119)	(0.193)	(0.110)
Separate urinal for boys and girls				-0.127	-0.093	-0.173	0.216	-0.228
				(0.135)	(0.161)	(0.138)	(0.199)	(0.143)
Availability of toilet facilities				-0.235	-0.082	-0.405*	-0.437*	-0.250
				(0.187)	(0.209)	(0.205)	(0.256)	(0.197)
Constant	3.608***	2.194***	2.621***	2.492***	1.937***	2.996***	-0.161	3.806***
	(0.131)	(0.209)	(0.370)	(0.384)	(0.470)	(0.475)	(0.873)	(0.405)
Observations	5,108	5,108	5,108	5,108	2,778	2,330	1,101	4,007
R-squared	0.008	0.078	0.087	0.096	0.103	0.097	0.120	0.083

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016; Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. The Basic Model assesses the impact of the school feeding on learning outcomes. Model 1 assesses the impact of the school feeding on learning outcomes. It determines the effect of the child characteristic individually and collectively on the outcomes. Model 2 assesses the impact of the school feeding on learning outcomes, and the effect of child characteristic and home environment individually and collectively on the outcomes. Model 3 assesses the impact of the school feeding on learning outcomes, and the effect of a child, home and school environment individually and collectively on the outcomes. Column 6 and 7 represent the boys and girls sub-samples of model 3. Columns 8 and 9 represent the KG and primary sub-samples of model 3.

When the home environment factors are controlled for, it is the household size and the children form male-headed household that has a significant effect on their cognitive abilities. The household size has a significant and positive effect indicating that the more people at home the more a child get to relate and learn from them. However, with the gendered nature of the Ghanaian society, children from male-dominated households tend not to perform better in their cognitive abilities. That although the men are heads of households they tend to have very little relations with their children. The socio-cultural setting of some households indicates that the men are usually at work and do not necessarily supervise the activities of their children. The females take a more active role in nurturing for children in the traditional Ghanaian context. These children may pick up some truant behaviours because the fathers are not supervising them. Children who have parents working in waged employment who are less likely to perform better in their cognitive abilities. This indicates that parents are busy making money to take care of the family and tend to spend more of their time at work. The children have little supervision at home and may tend to pick up truant behaviours.

For school environment factors, the study observed that schools providing textbooks and learning in a formal classroom environment have a significant and positive effect on cognitive abilities. The results further indicate that all the other child, home and school factors individually do not significantly influence attendance but together have an effect on the cognitive abilities of the children. Parents should be encouraged to send their wards to school, and encourage their children to talk about what happens in school since Chowa et al. (2012) identified that that has the ability to improve their learning outcomes. They should work with the schools to give them feedback on the performance of their wards such that irrespective of the vulnerable and poor status. If they show interest in the education of their

wards, they would be encouraged and compelled to perform better, develop their cognitive abilities and be able to relate well with others.

6.4 Discussions on the Effects of School Feeding on Learning Outcomes

The study identified that school feeding does not influence learning outcomes for English literacy, ravens test scores and forward and backward digit span test scores. This is not dues to specification problems since similar studies on school feeding programmes and learning outcomes found mixed results (Gelli et al 2016; Lien et al., 2009; Muthayya et al., 2007, Muthayya et al., 2009; Osendarp et al., 2007; van Stuijvenberg et al., 1999 and Whaley et al., 2003). The study attributes these mixed results to the challenges associated with how the programme is implemented in Ghana. These implementation challenges outlined in chapter seven have negative effects on the programme outcomes and needs to be addressed. The next sessions discuss the impact of the programme on learning outcomes (grade repetition and mathematics test scores) examining how the child home and school environment factors influence these outcomes.

6.4.1 Child Characteristics

Using the difference-in-difference with covariates analysis the study establishes that when the various environments are controlled for, child characteristics do influence all learning outcomes. This study demonstrates that even though School feeding impacts on learning outcomes, child, home and school environment factors individually and collectively influence learning outcomes of school children in public basic schools in Ghana.

The results for the effects of child characteristics on learning outcomes indicate that a child's age sex and class do influence learning outcomes. As a child grows and progresses academically, the likelihood that a child's inherent characteristics will help the child to not

want to miss a school day and learn to make something out of their lives is high and is significant at one percent. This confirms Alderman et al. (2010); Pollit et al. (1981; 1982); Renner et al. (1976); Stock and Smithe (1963) assertion that as individuals mature both in age and progress from one academic class to the other, the cognitive ability of the individual increases. That their environments of interrelationship have the ability to help them mature.

The relationship on the effect of the programme and its effect on the home and school environment characteristics on the child's learning outcomes was not statistically significant. This study confirms results from Adelman, Gilligan, et al. (2008) who identified an evidence gap of the effect of school feeding on age at school entry. It also confirms the results from McEwan (2010) and Alderman et al. (2011) who indicated school entry age had a higher effect on attendance. On the cognitive abilities, although there was no statistically significant impact of school feeding on cognition when the child, home and school environment factors were controlled for, and there was no statistically significant impact on girls and boys as well as the cognitive abilities of children in primary school and those in the kindergarten. However, when the child, home and school environment covariates were included in the model, it was observed that this environment had an effect on the cognitive abilities of the children in public basic schools. The child is instructed on the acceptable behaviours and norms of the household as they grow up tends to perform well. Likewise, in-school instruction is organized on a needs basis. Their lessons are tailored to the age and class-specific need at the time of instruction.

6.4.2 Home Environment Factors

The home environment of these poor and vulnerable school children does not encourage them to learn and perform better. This result is consistent with results by Chiowa et al. (2012) which indicates that parents' involvements in their children's education vary by

socio-demographic and economic circumstances. There is the need to work and put in measures to encourage parents to invest time and resources in the academic well-being of their children. Parents from poor and vulnerable household have a negative and significant effect on their children's academic performance. Focus Group Discussion with household head indicated that most parents in the localities have very low level of education and tend not to be able to give their ward the educational support they may require since the parents do not understand the homework their children bring in. *"when the children bring homework, I am unable to help. We depend on older siblings or older children in the community who may have gone through that class to help with the homework ...**FGD Mpohor"***

*For the homework, their siblings and other big boys and girls I the community help them to do them. I do not understand a lot of the things they say and write, how do you expect me to be able to help them **FGD Savelugu"***

*I usually get the seniors to help them to do the homework. Even if I do not understand, I ask those who do to help them out. There are these young people who have finished JHS and SHS around and they help them out with their homework….. **FGD Mpohor"***

"Because of the low levels of education in this community, the teachers try to organise extra classes where they let them stay in school and they help them with homework and the next days' activity, it cost money some of us do not have so our children may be unable to attend…… FGD Savelugu"

Results from this study are consistent with findings from Chiowa et al. (2012) who also indicated that parents are more involved with their children's academic work at home when their educational level exceeds that of their children. The study realized that parents are not

too interested in the programme because their knowledge of the programme and its activities was limited to providing a hot nutritious meal to school children in school. The other programme activities were not very clear to the parents. This made it difficult for parents to see the programme as a development tool since their knowledge about the programme, its objectives and activities were limited. As such they could not hold the programme manager accountable when they experienced lapses in the programme implementation process. The need to provide the basics need to the household takes precedence over the higher order needs of the households. Providing the school meal relieves parents of that responsibility of providing lunch. Interestingly this study was unable to confirm the study by Powell, et al. (1998) showed that children who ate before going to school performed better only if children's school environment were well-resourced and well-organized. Although responses from the teachers and household heads confirmed this. Improving school conditions and making resources available for learning also aids the learning process and can improve the outcomes of school children in school. An interactive engagement and cooperative relationship between the home and school environments also aids learning and help in improving a child's learning outcome.

Parents are not aware of the negative effects their attitudes are having on their children's educational outcomes. To some parents, the cost of sending their wards to a feeding school is more than the benefits derived from sending their children to a feeding school. The parents feel that the programme is not being implemented well and that the quality of education in a feeding school is compromised on a daily basis a result of the power struggle between the implementing actors, poor quality of the meal and very little monitoring of programme activities. A look should be taken at the socio-cultural context of the poor and vulnerable households and communities. There should be more community engagement on the values of education, the input from the government and what is expected of the community,

parents, teachers and the children. The benefits of education to the child, the parent, the community and the nation as a whole should be outlined in these interactions. These interactions and engagements should be a continuous process to help the children on the programme to benefit not just from eating the meals to satisfy their hunger but also to improve their educational outcomes as well.

6.4.3 School Environment Factors

The school environment is a part of the programme since a child will benefit from the programme on the condition that the child attends school. The programme in collaboration with the local community provide the kitchen, water, utensils and the food but does not necessarily provide resources for learning. However, once the child is in school all these environments influence the child and affect their performance. The school environment has a positive effect on the child's learning outcomes as compared to the home environment. The school environment tends to reduce the negative effect of the home environment effect in terms of magnitude. The limited nature of the resources which have not improved over the years to match the increasing numbers that the feeding has brought to school thereby taking their children out of the programme to non-feeding schools. It is worth noting that these schools are highly under resources and their effect on learning outcomes can be negative. This finding is in line with Kobers (2001) who notes that children from vulnerable homes tend to be affected negatively when they attend the low resourced, low performing schools.

6.5 Conclusion

The study realised that the School Feeding Programme reduced the likelihood of a girl repeating a grade. Likewise, it increases the likelihood of children performing well in mathematics test scores. This is especially the case for the girl child. The effects of the

various environments indicate that the child's innate characteristics, their home environment factors and the school environment showed mixed effects on learning outcomes. The results indicate that even though the school children and their families may have come to accept the programme, the implementation challenges associated with the programme may hinder the ability for them to adequately participate in programme activities for the desired benefits of the programme to be obtained. All the actors in the programme have raised concerns about the sustainability of the programme. Children from poor and vulnerable households need the food to be able to learn and perform well in school. The food is delayed until lunchtime before these hungry children eat. Unfortunately, classes end immediately the school children eat the meal so the benefits of the programme may not experience much.

The home environment needs to be assessed critically. It is necessary to look at the nature and volume of work given to school children that take them away from learning, and encourage them to free up time and communicate with the schools for an effective remedy to help the school children make the best of the educational opportunities that are being given to them. Parents should be encouraged to take an active role in their children education; they can ask their children to tell them about what happened in school. The home as an agent of socialization influences the child either negatively or positively. When parents and adults in the home are made aware of the effects they have on their children's learning outcomes they will be able to help turn the negative effects they have on their child's outcomes to positive. Their interest in their children's education would encourage and motivate the children to perform better. It will also encourage the teacher to try and give their best as educators with the limited resources available in the public education system. All these discussions indicate that the performance of the school feeding programme on learning outcomes is not entirely dependent on the content and implementation plan of the

programme but also on the other environmental factors that inter-relate with the GSFP to influence the measured learning outcomes.

CHAPTER SEVEN

IMPLEMENTATION CHALLENGES CONFRONTING THE SCHOOL FEEDING PROGRAMME

7.1 Introduction

This chapter outlines the nature of the relationship that exists between the actors of the School Feeding Programme in Ghana. The chapter discusses the challenges that exist within the programme implementation by looking at the role the various actors play in the implementation process. The strengths and weaknesses of the programme are identified and the perceptions of the actors on the benefits and ways of improving the programme are discussed in this chapter.

7.2 The Ghana School Feeding Programme

The Ghana School Feeding Programme was explained as a programme that sought to feed school children in Ghana. It provides one hot nutritious meal to public school children in Ghana. The actual implementation of the programme is at the district level with the District Desk Officer (DDO) as the coordinating officer of the programme. The DDO is expected to coordinate activities of the programme at the district. The GSFP together with the Ministry of Finance provides the fund to the caterers to provide the meal to children in school. The programme provides a free in-school meal for school children at lunch. Because of limited funds and the lapse in coordination and communication among the key actors, the DDO usually reports directly to the District Chief Executive (DCE) who happens to be the chairperson of the programme at the district level. At the District level, the DIC has oversight responsibility of activities of the programme at the district level. On the whole, the DIC, although has been constituted in the districts office, is not a functional committee.

7.3 Actors of the GSFP Implementation Procedure

The actors of the GSFP can be found at the national, regional, district and the community levels. The national level actors involve the officers in charge of school feeding at the Ghana School Feeding Secretariat under the Ministry of Gender, Children and Social Protection. The other actors are the Finance, Gender Children and Social Protection, Agriculture, Health and Education ministries. These ministries are in charge of the policy planning, monitoring and decision-making arm of the programme at the district level. From the visits to the regions and the districts, it was noted that the key actors involved in the programme implementation process are not acting as a result of poor coordination and mistrust among themselves. From interactions with the officers, it was clear that there existed some lapses in communication and coordination at the regional, district and community levels. With most decisions on implementation are led by the DCE and the DDO. They seemingly work in collaboration with the other officers at the district and community in the implementation procedure. The other actors showed some sentiments of feeling neglected when it came to decisions on the school feeding especially the education officers. Essuman & Bosumtwi-Sam (2013) study collaborates on this finding.

7.3.1 Actors' Knowledge, Roles and Responsibilities on the Programme

The key actors at different levels had a different interpretation of what the programme sought to achieve and what their role was in the implementation process. Some officers had some vague responses in terms of their knowledge of the programme in respect of their roles in the implementation process. At the regional level, it was realized that the regional officers had more knowledge about the programme and its implementation processes than the district officers. They could describe the School Feeding Programme, its objectives, its activities and its actors and the roles of each of the actors. They had some form of knowledge about the origin of the programme and the changes the programme has made and the new direction

and focus of the programme and its activities as compared to the district officers. At the district level, the desk officers exhibited detailed knowledge of programme activities, but the other actors did not have much knowledge of the crosscutting effects of the programme beyond their area of programme activities. Additionally, these actors were not aware of some policy level decisions of the programme including the new policy. They could not outline what their roles in the implementation process were.

As indicated in the GOG (2011, 2015) school feeding AOP and GSFP Policy document there are clearly defined roles, responsibilities, structures and activities of the key actors involved in the implementation process. At the district level, power in programme implementation rest in the office of the DCE and the DDO. It was noted that the allied offices of the School Feeding Programmes interest and expertise were sought and negotiated as and when their expertise was required in the programme implementation process. The interest of the other officers such as the education, agriculture and health officers were not always sought. It helped to explain why these officers had limited knowledge about the programme implementation process, were unwilling to discuss issues pertaining to the programme, and indicated that information relating to the programme should be referred to the district assembly. Their knowledge of the programme was only limited to specific roles they played in the implementation process. They did not have the relevant updated policy guideline on the programme implementation processes.

The household heads were the group that had little knowledge about how the programme is implemented. Their knowledge of the programme was limited to providing a meal as an incentive for them to allow their children to be enrolled in school and to attend school. They indicated that officially they relied on the headteachers and the teachers and occasionally the assemblyman to provide information on the programme. They, however, get information

on the programme from the local radio stations and television stations for information on the programme.

Generally, with the exception of the District Desk Officers, knowledge of the programme activities by the other implementing officers was very low. When pushed to give out information, key actors pulled out the AOP 2011 as the reference manual to inform interviewers on the programme. It was obvious that there was a lag in information flow between the key actors. Actors (education, health and agriculture officers) did not know what new changes had been made in the programme implementation process and were using outdated plans in the implementation. Although the officers from the Ministry of Gender, Children and Social Protection had some knowledge about the draft school feeding policy, they did not have the capacity to implement the programme.

There was the need to educate and orient all actors in the programme on the new policies and approaches that were being adopted in the implementation plan and help all the actors adopt the new processes and approach to enable the programme to yield the desired and required outcomes.

7.3.1.1 The District Implementation Committee (DIC)

All the districts had a statutory DIC but not all districts had a functioning DIC. The headteachers are the focal persons in the implementation process who monitor the activities of the programme at the school level. From the school data, forty-seven percent of respondents indicated yes whiles 13 percent of respondents said no. Interestingly 39.13 indicated they did not know if the District Assembly had a DIC or not. In terms of regularity of meetings, the functional DIC tried to meet at least termly (once in every four months) a

term. It was explained that major decisions on the School Feeding Programme were made and challenges addressed at these termly meetings.

The Key Informant Interviews with the headteacher's and the officers of the district showed that most of the DIC's had been constituted but were not functional. With the programme being under-resourced, a district officer reiterates that "there existed little funding to run the programme as such they resort to measures that will help the programme to run on the limited funding. Asking members to attend the meeting will require fund which we do not have as such we consult available members and make the decision for the programme to run," (Interview with district officer, Mpohor District)

Another district officer indicated that "For some children, this is the only balanced meal they get to eat, we have to manage with the limited funds and work with people who will understand where you are going" (Interview with district officer, Savulugu District).

The general notion was that there are challenges with coordination. The education, health and agriculture officers indicated that they usually receive letters requesting specific details from the programme and do not play an active role in the GSFP programme implementation process. The desk officers indicated that as a result of limited funds, regular meetings were not organized.

7.3.1.2 The School Management Committee (SMC)

From Table 5.8, out of the 115 schools sampled, 46 percent of the headteachers indicated the SMC had received training on school-based management, 54 percent of them had not received any forms of training on school-based management. Likewise, the SMC has been constituted in some schools, but had not received training and were not very functional. The

headteacher and his assistant in consultation with the SMC and caterer at the school level make most decisions on the programme. Occasionally when PTA meetings have organized some issues relating to the programme are discussed. Responses from two SMC members interviewed captures their experiences;

"We come in when the community is required to come together and get some infrastructure for the school as happened in the case of getting the kitchen for the school".... ***SMC member, Mpohor District.***

Another added that *"we just monitor the activities of the caterers and work in partnership with the headteacher when there are problems to resolve ....**SMC member, Savelugu District.***

The headteachers together with the assistant headteacher domestic and the girl's education officer at the school level are in charge of monitoring the activities of the caterers in the schools to ensure they provide the nutritious meals in a timely manner they check on the quality and quantity of the meals in the schools visited. They keep records of the number of children served, make sure that the caterer serves the meals on the actual school days they are supposed to serve the meals and ensure that the caterer's record books have the required numbers before these details are forwarded to the district, regional and national office for approval and payment. The informal arrangement is that teachers and headteachers are supposed to eat the meals provided by the caterers to determine if the meals are wholesome for the children. The teachers monitor the meals at the classroom level and give feedback to the headteachers and feeding officers at the school level on the quantity and quality of the meals.

From the interaction with the various officers of the programme at the district and school level, there was a clear indication that the officers in charge of the implementation of the programme at the district and school levels lack a detailed understanding of the core mandate of the programme. Apart from the desk officers, the other actors could not clearly outline the objectives, core mandate activities, roles and responsibilities of the various actors within the scope of the GSFP at the district and school level.

7.3.1.3 The GSFP Suppliers (The GSFP Caterers)

The caterers of the School Feeding Programme are community members who have some level of training and can cook for a large number of children. These caterers must exhibit the financial capability of being able to fund cooking before you receive funding from the programme. Caterers are expected to have a legal entity that permits them to cook for school children, undergone medical screening and have a valid tax certificate.

i. Caterer Selection

The GSFP Caterers are selected based on merit. Caterers put in an application to the district school feeding officers. The district implementation committees are supposed to vet the various candidates who apply to cook. Depending on the experience and financial backing of the shortlisted caterers, they undergo an interview process and the most qualified ones are recruited to cook for the schools they selected. Depending on locality, caterers are sourced from the community members and caterers are not allowed to cook for more than one school. It was realized that although the DIC is supposed to vet these caterers, the inability of some districts to have a functioning DIC mandates the desk officer and the DCE to vet and appoint the caterers. This creates room for the polarization and nepotism that has plagued the programme implementation process.

7.3.1.4 Community Involvement

Discussions with the household heads and district officers revealed the existence of a weak relationship between the programme and the community. The communities also indicated that they come together to provide some resources for the programme. Key among these are building of kitchens, providing firewood and at times fetching water for the caterers to cook for the children. The communities work with the SMC's most of which were not functioning. With the few functioning SMC's, the desk officers indicated that the capacity of the SMC was not enhanced as such they could not adequately monitor the programme implementation process at the school. With only 47 percent of functions SMC of the 115 schools interviewed, the desk officers in the two districts interviewed indicated that no training has been organised to build the capacity of the SMC's. The SMC's that work do not have clearly defined roles and responsibilities that guide their actions especially in relation to the GSFP.

7.3.1.5 School Children

The school children are the actual beneficiaries of the meal. They indicated they are fed at least three times a week on the School Feeding Programme. It was observed that the school children were hungry at the time they ate the meal. They asked that the quality of the meal should be improved; furthermore, meals should be provided on a regular basis. They were not particularly happy about the duration for which it takes the caterer to feed them and in some instances when they finish eating, learning does not continue. It was observed from the two schools visited in the qualitative study that it took a long time for the cook to serve and the students to eat the meal.

7.4. Implementation Challenges of the GSFP

This section outlines the implementation challenges the various actor's experiences in the implementation processes of the feeding programme. It discusses the challenges from the institutional, school as well as the household views

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7.4.1 Coordination, School Resources and Expected Outcomes

As the GSFP strives to provide food to improve education, health and agriculture outcomes, some implementation challenges seek to derail the objective. Poor coordination among the actors of the GSFP is a major challenge affecting the GSFP. Compounding the problem of poor coordination is the problem of poor dissemination of information among the actors especially from the lead actors (DDO and DCE) to the allied actors. It was realized from the visits to the various actors of the programme that there existed some problem of coordination and collaboration among the key actors. There was the indication that there existed some struggle for power among the actors over who owns the programme at the district level. Although it is indicated that effective, inter-sectoral coordination across stakeholders and vertical coordination help to support program quality and effectiveness, that was not the situation at the regional and district levels of implementation. There was tension especially in the education ministry who felt they must have more oversight responsibility since the programme is implemented in their schools. The education officers at the district clearly stated that they feel left out in most aspects of their programme. They indicated that the headteacher was the key person in the implementation of the programme who was implementing the programme at the school level.

For the programme to be effectively implemented there should be coordination among the key actors. The GSFP policy document (2015) asserts that given the changing focus and nuances in the environment in which the programme operates, the range of participating

ministries and agencies, as well as future collaborators must be coordinated and their collaboration and communication optimized.

It will be prudent to consult and collaborate with the education office on the programme activities to enable the teachers, circuit supervisors and other education officers monitor the activities of the programme on their regular monitoring visits. If this is done well the GSFP would be able to utilize the available resources especially human resource of the allied officers to improve the monitoring process of the programme.

7.4.2 Change in Oversight Ministry

In 2015, a policy document mandated the Ministry of Local Government and Rural Development (MLOGRD) to hand over the oversight responsibility of the programme to the Ministry of Gender Children and Social Protection (MOGCSP). It was very clear that there had been some changes at the national level in terms of oversight responsibility. Interestingly, at the district level, there was no indication of such a change. Respondents from the two districts indicated the following when contacted on their respective opinions on the change in oversight responsibility and its implementation at the districts:

*"Even though it is documented to have the oversight ministry changed from MoLGRD to MoGCSP, the MoLGRD is still the ministry implementing the programme at the district level. If you ask me for my opinion I think nothing has been changed. We still have the national coordinator, regional coordinator and the desk officer at the district level. All the actors are the same" .....**District officer, Savulugu District.***

Another officer reiterated the same sentiments. *"Nothing has changed it is just the same management system. What has changed is just the ministries but the structures remain the same. It is a government directive and the mandate has moved from the Ministry of Local*

*Government and Rural Development to the Ministry of Gender, Children and Social Protection. That is the only change that was done at the national level, but at the district level, that change will not be affected. In terms of management structure, it has not affected it" ....**District officer, Savulugu District***

Another Officer reiterated similar sentiments *"You know there has been so much conflict of interest when it comes to who takes what responsibility and what on the programme. Some role of officers in the MMDAs are not clearly defined. People are asked to handle some positions so as not to make the idle. When sometimes the qualified person who is supposed to be in charge is neglected. And what your boss says, you cannot go against it. I help when I can".....**District officer, Mpohor District***

Most of the respondents were of the view that although there has been a change in oversight responsibility at the national level, nothing has changed at the district level in term of the implementation structure. Whiles the policy documents indicate the Ministry of Gender Children and Social Protection as the lead ministry in charge of programme implementation; it was obvious that the plan was not what was being implemented at the district level. The gender office did not have that capacity to implement the programme. The office was woefully under-resourced and the officers indicated that for school feeding it was the prerogative of the DCE to determine who manages the programme. Continuous change in the implementing agencies causes a lot of confusion among the implementing agencies. These changes that usually occur at the national level without it being effected at the district level and local levels have negative implications for programme implementation and programme outcomes. Information in the programme implementation is not shared and does not trickle down. This has a negative effect on the enforcement of the policy at the district and local levels.

7.4.3 Delays in Payment

Delays in Payment has been a persistent problem that faces the programme year on. In both the quantitative surveys and qualitative interviews respondents indicated that the main challenge the programme faces is irregular payments and delay in paying the feeding grants to caterers. Payments have been irregular and caterers have to find other ways of pre-financing the programme which puts a strain on their limited budgets. *"It is a huge challenge and as we speak government owes the caterers two terms and those who are not resourced enough cannot continue and so if you don't monitor them carefully you will see that they are not able to perform so it is a huge challenge" ....**District officer, Savulugu District.***

When asked if payment delays all the caterers indicated yes. Further questions on the frequency of payments and the ability of payment to cover all expenditures yielded the results in table 7.1 below.

Table 7.1: Caterer responses on Payment

Frequency of payment	Frequency	Percent
Every 4 weeks	4	7.27
Every 8 weeks	2	3.64
Not paid so far	2	3.64
Not regular	47	85.45
Total	**55**	**100.00**
Adequacy of Payments to cover all food-related expenditure		
Payments ability to cover all expenditure	9	16.36
Payment inability to cover all expenditure	46	83.64
Measures that are taken to compensate for delays in payment		
No reduction in meals sizes when payment delays	51	92.73
Reduction of meal sizes when payment delays	4	7.27
Total	55	100.00

Source: Author's computation using ISSER/NMIMR/PCD/IFPRI survey data, 2012, 2016

When the caterers asked what they did when payments are delayed, from Table 7.1, they indicated that food portions were not reduced and they did not substitute foodstuff with

cheaper and affordable foodstuff. However, contrary to what the caterers said, the district officers, teachers and the children indicated that the meal sizes have reduced and quality compromised over the years.

7.4.4 Composition of the District Implementation Committee, the School Implementation Committee and their Activities

All the key actors have indicated that the District Implementation Committee (DIC), the School Implementation Committee (SIC) were supposed to be an integral part of the programme implementation process. The officer interviewed indicated that all the districts had a DIC

*"Yes, when you come to the DIC we have the MCE as chairperson, the Desk Officer as the secretary, Director of Agriculture, Director of Education, Director of Health, one traditional leader, two representatives from the social services and an opinion leader from the district so basically that is the composition of the district implementation committee"....**District Officer, Savulugu District.***

Another officer indicated that *"At the school level we have the headteacher as the secretary, the PTA representative as the chairperson, one representative from the committee, one traditional ruler, assemblyperson, and the school prefect's male and female"* ***…….District officer, Mpohor District.*** As indicated by the district officers, the DIC is constituted in all the districts visited but there was a clear indication from the education, health and agriculture directorates that the DIC was not functional. The education officers indicated that they were usually consulted when the desk officers wanted enrolment and attendance figures. The agriculture officers were of the view that they were consulted initially when they tried to link the programme with the local farmers. They further reiterated that they had several challenges with linking agriculture to the programme because of the distrust between

the caterers and the farmers. They shared a few of the challenges along the programme to include farmers pricing themselves out of the market because caterers take subsequently; they were not contacted on issues pertaining to the programme. The desk officer indicated that they had not met the 2015/2016 academic year. This confirms the gap that exists with communication and information flow. If the local actors are unable to share information that is critical to the programme's success, the gap between the programme and the local community would widen up. Partnership for Child Development (2011) indicates that there existed a gap between the programme and local communities in 2011, which persist. This creates a huge challenge for the agriculture arm of the programme objective if the local and community level actors are unable to participate in the programme activities.

7.4.5 The Challenge of Poor Hygiene

Hygiene was an issue raised by both the Household heads, the headteachers and the district officers. They expressed concerns about the inability of the caterers to use the standard guidelines outlined by the programme. The education officers complained that the caterers were unwilling to adhere to some of the suggestion from them because they were not the people who contracted them. Although they are the first in terms of monitoring at the school level, it was noted that there were lapses in communication between them and the caterers. This makes monitoring between them and the caterers especially on maintaining the hygiene standards difficult.

7.4.6 Timing of the School Meals

Feeding time eating into instructional time was a challenge that all the officers, headteachers and children acknowledged. Likewise, the quantitative data indicated it takes a longer time to serve food and eat which takes some time out of the instructional time. This situation was observed in the two schools visited. With the usual break time taking about 25 – 30 minutes,

the cooks took more than that time to serve the meal to all the school children in the school. A cook who cooked the meal distributed the school meal to classes. Teachers had to assist with the distribution of the meal, which took a long time because of one or two caterers sharing it. It took about an hour and a half for all the students to eat their meal and get back into the classrooms. This confirms results by Essuman & Bosumtwi-Sam (2013) that eating time eats into instructional time have serious implications on educational outcomes. It was further observed that once the meals were served, classes ended. Children ate outside of their classrooms, under trees and in open spaces in not too hygienic bowls and plates. After eating the meals some of the school children did not return to the classrooms indicating an end of the school day. Likewise, the programme is influencing the quality of education that exists in the basic schools since the time allocated for instruction and learning has been cut short. This study confirms Abadzie (2009) study on which highlight activities, which take time away from instructional time, can affect effects learning negatively and be unable to mitigate poverty as is expected. School Feeding Programmes can if care is not taken affect learning negatively should this practice of feeding time eating into instructional time is not addressed. It can affect learning outcomes negatively.

7.4.7 High Enrolment and Attendance

The headteachers, teachers and some parents indicated that the high enrolment and attendance has a negative effect on the limited resources available to the schools. They indicated that the programme has attracted more children to school but the resources they had when they had fewer numbers are the same resources they are using now that the numbers have increased. They felt that although education is being made available there is the need to look out for ways of improving and increasing the resources such as classrooms, tables and chairs, textbooks and teachers that are more qualified to be able to handle the increasing number of school children in the schools.

A district officer indicated, *"Because of the program children are attracted to the school, the enrolment has also shot up. When enrolment increases, daily attendance increases. It becomes very difficult to amend the enrolment figures at the district level. This has negative effects on the planning of both programme and educational activities"……**District officer, Mpohor district.***

Although the education office has an improved way of updating enrolment figures at the school, circuit and district levels, there are still delays in releasing these figures to the district officers. The lack of trust and poor coordination among the programme actors underlies this challenge. On the high attendance, it was noted that attendance at school is tied to the days that meals are served. Both the qualitative and quantitative data indicate that attendance in educational activities is higher and regular on days that the school meals are served. Although the caterers indicated that they served the meals daily in the schools, it was realized from the household data and the qualitative interactions with the headteacher and the school children that the meals were not served daily. It was observed that attendance rates were irregular and fluctuate in some of the class registers. This confirmed the claims made by the headmaster that attendance was higher on days that the meals were served at the schools and lower on days the meals were not served.

7.4.8 Poor Quality of Food

Although some caterers had received some form of training on cooking on a large scale and the handy measure for a balanced meal. There is a need to look out for the quality of food that was cooked for the children. The teachers indicated that the quality of the meal was compromised to make room for the funding challenges identified in the programme. Although the programme has a standardized menu, it was noted that the menu was not followed at the grassroots level.

7.4.9 Limited Monitoring Visits

On monitoring visits, all the officers visited indicated that there was a lapse in the monitoring of programme activities, which was made worse by the challenges of limited funds, and coordination the programme faces. The regional officers of the programme indicated they had limited funds for operational purposes. As such schools and communities that are closer to the district capital benefit most from the regular monitoring visits. The schools and communities that are far from the districts do not benefit from these regular monitoring visits. The district officers echoed the same sentiments.

Poor communication among these implementing actors also worsens the existing problem. The education officers have existing monitoring structure at the district, cluster, circuit and school levels. The DA officers are unable to coordinate with the other officers especially the education officers and make use of the existing set up for monitoring at the school level to complement the monitoring process of the programme. As such although monitoring goes on at different levels, coherent monitoring that cuts across all educational and education-related programmes are lacking. There is little logistics for monitoring on the programme. The officers indicated that there is very little in terms of logistics to monitor the activities of the programme. To them, they strive to embark on monitoring visits but the little resources make it possible to visit only a few schools in their respective regions and districts within a term.

7.4.10 Political Interference

Most respondents indicated that political interference was one of the problems the GSFP faces. Although theoretically, the GSFP is implemented along with the decentralised system of governance of the Ministry of Local Government and Rural Development (MoLGRD), the position of the Desk Officer and the District Chief Executive are political appointees

who are championing the political and development agenda of the government in power. The GSFP is a development tool which is being implemented by government officials who are led by a political appointee who has a lot of political power and influence in the district. Any change in government at the national level affects the coordinators of the programme at the decentralized level. The perceived belief is that the political leaders had people who lobbied and helped them to gain political power. These political leaders must find the means of satisfying their cronies and use job placement in some of these programmes as a means of satisfying them. From discussions with the key actors in the programme, it was realized that the caterers and some administrative staff on the programmes change whenever there is a change in government. When the team visited that district after the change in government in January 2017, the desk officers were unwilling to talk to the team. When the team followed up to ascertain if the officer were still at post and find out what their opinions were a year after the change in government it was realized that the desk officers and some key officer at the school feeding secretariat had been changed. Although these are popular perceptions, this study neither identifies with nor disclaim this. However, this perception can form the basis for which follow up studies can be conducted.

7.4.11 Mistrust among Implementing Officers

Although there existed a lot of confusion on the programme implementation process, the participants either exhibited having absolute power or fear when they were interacted with concerning the Ghana School Feeding Programme (GSFP). The officers at the District Assembly who were in direct control of the programme held a lot of power and authority in the programme implementation process. Whiles those who were not direct implementers of the programme had a lot of anger and mistrust of these officials. The education office was especially bitter about how the programme is implemented and felt the officers in charge were not interested in the educational aspects of the programme. The programme aims at

bringing the children to school, resources to promote learning is neglected in favour of providing the meal. The other officers (education, health and agriculture) do not trust the district assembly to steer and coordinate the affairs of the programme to benefit all the actors. Their sentiments about the programme reiterate this local jargon *"The programme is seen as money for the boys and girls and if you do not belong they do not include you in the activities of the programme"*. Indicating that the programme is seen as a way of compensating some selected political party officials of whichever government is in power.

7.5 Perceptions of households on programme

Household members and school children were afraid to comment on the programme and activities of the programme at the district level for fear of the programme will be taken away from them. Local community members are divided along partisan lines and usually bid their time for a change in government for them to also have a turn in running the programme and programme activities. *"As for the programme it is for members of one party now (political party*). *There will be a change in government soon and the next party will manage it"…..* ***FGD member Savulugu District.***

They indicated that the teachers at the local level were not motivated to occupy the students after meals. Schools in the community close once the school meals are served which to them does not aid teaching and learning. In that respect, schools not on the programme to benefit more from education and classroom activities than schools on the programme.

On how the key implementers of the programme relate to each other, the FGD members were of the view that the key actors did not relate well. They indicate that communicating channels on the programme are not clear. If a parent had a challenge with the programme

implementation process at the school and caterer level, there are no clear reporting channels and they were afraid of their wards being victimised for voicing out their opinions.

Some parents were of the view that standards of education were low in public schools and falling steadily than the private schools. This was noted when it was realized that some school children had switched from school feeding schools into non-school feeding schools. Household participants indicated that they preferred to struggle and send their wards to privates and expensive schools if that will afford their ward the value of quality education. They specified that they will not compromise on the quality of education for the sake of a school meal. For those from the low-income households, they indicated that they did not have much of a choice than to send their children to the public schools with the hope that the situation would improve with time. In view of these challenges, Essuman & Bosumtwi-Sam's (2013) concerns that some challenges of the GSFP delivery can have negative effects on effective teaching and learning and undermine education quality and positive educational outcomes.

7.6 Benefits of the School Feeding Programme

Despite the numerous challenges enumerated above, the School Feeding Programme comes with some benefits. Discussions from respondents on the benefits they obtain from the programme are outlined below.

7.6.1 Reduction of hunger

Discussions with all actors indicated that the programme is able to reduce hunger and malnutrition among beneficiary school children. They indicated that children come to school hungry and leave school satisfied. Seeing the school children with smiles on their faces is an indication that the programme is good and should continue. *"Most children in this*

community are orphans and it is the programme that brings them to school. The meals they eat are the main meal for some of them" Headteacher Savulugu District. A caterer shares her opinion on the benefits of the programme:

"As for the meals the children always eat everything we cook. No food goes to waste" (caterer, Mpohor district). A child from Savulugu has this to say; *"the food is good and nice. I get to eat and be full when I come to school" Child, Savulugu District* were sentiments shared by some actors when asked about the benefit of the programme.

7.6.2 Improved attendance

The headteachers indicated that the programme has improved attendance on a daily basis. They indicated that although the programme faces challenges, the attendance has been steady. That the children have noted the days that the caterers are unable to provide meals and they tend to not attend school on those days. This could be used to explain Table 6.11 as to why attendance had a negative impact. More because the children attend school regularly on days they know the caterers will cook and absent themselves where they know they would not get food in school.

7.6.3 Increased Interest of Some Parents in the Education of their children

Another benefit of the School Feeding Programme is that it has generated interest in education among parents of the school children. Headteachers, education officers and desk officers on the programme made this observation. The programme officers indicated that some parents are now interested in the education of their children. Some parent comes to school to check on the food that is being provided and to determine if their wards are in school. They indicated that some parents felt that the programme has relieved them of some burden. These parents felt the programme was helping to improve both the educational and health outcomes of their children. The headteachers echoed the sentiments of the parents

about the programme. This confirms what Koorman refers to as labelling effect (Koorman, 2000 as cited in Afridi 2011), which is explained as the provision of in school-cooked meals does not reallocate household resources from programme beneficiaries, and parents see the cooked meal as an incentive to promote and encourage daily participation.

7.6.4 Improved Class Participation

The teachers indicated that the programme helps to improve class participation but in some cases, once the children finish eating the time to learn after the meals is relatively short and in some schools, the children tend not to come back to the classroom to learn. The teachers indicated that because of the nature of the mealtime they tried to maximize the early morning periods to make good use of the learning time. More has to be done to maximize the time after eating so the children benefit more from the programme. They opine that if this is not addressed the programme might bring the school children to school but in terms of programme effectiveness, it might be minimum. It also goes on to echo the earlier concerns about the timing of the school meals and how the programme and the education ministry can work together to ensure that the meal and the education system are synchronised such that both give of their best to the school children.

7.6.5 Improved Retentive Memory

The teachers indicated that because the children are fed in school and have something to look forward to they tend to pay attention to teaching in class. They, however, suggested that there is the need to look at the timing of the food since some children come to school hungry and learning on a hungry stomach can impede learning. Although they complained about lack of education about the effect of Micro Nutrient Powder (MNP) on the colour of the food, some had been educated on the nutritional benefits of the MNP. However, the

parents indicated that more education and sensitization should be made before the MNP are introduced into the food. Parents were sceptical about the benefits of the MNP.

7.7 Sustainability of Programme

Issues of sustainability on educational outcomes of the School Feeding Programme are discussed within the context of the environment within which the programmes are implemented. On the papers reviewed, sustainability is discussed within the model, which is run by the country. Ghana's program is different from what is run by India (Ahmed 2004) and Chile (McEwan, 2013). Ghana's programme, which is crosscutting involving caterers, farmers and local community members, would have been one of the sustainable programmes if the programme is implemented well. The main issue of delays in payment and poor coordination can affect the sustainability of the programme. The HGSF model was seen as the ideal model for the School Feeding Programme because of its community integration, agriculture and agribusiness development capabilities. It seeks to integrate the local community into the programme implementation process. This model seeks to help especially the local agriculture business since the caterer will be encouraged to procure food from the local farmers. A community member indicated that *"It is because we are poor that is even why people don't want to go to school so you can imagine now telling them that, in order to go to school at least do something small to contribute and get your children food when they come. It can be sustainable, and it can also go down depending on how it is being managed"* ***FGD member Savulugu District.***

The caterers indicated that aside from the irregular payments, the price of food for school children need to be looked at. When the study began, the programme was paying 0.40ghc per child per school day. In the four years to the end line, the price has risen to .80 pesewas per child per school day. Although the prices of foodstuff keep going up, much consideration

is not given to the cost of food on the programme. The farmers at the time have the cost of their food is higher than that sold on the markets preventing the caterers from purchasing from them. Additionally, the farmers are unwilling to sell to the caterers on credit thus making it difficult for these local actors to participate in the programme.

The farmers and some community members are not content with the services being provided on the programme. There is the perceived idea that the food served on the programme is of low quality, these key actors (parents and children) may not be willing to participate in the programme because of this. This can also help to explain the low level of impact we are experiencing in the GSFP.

Parents and some district officers indicated the negative effect the perceived political interference is having on the programme. When asked about measures that can be put in place to ensure the sustainability of the programme members of the FGD in Savulugu gave this explanation. *"If they do away with the political interference and do proper supervision, monitoring and evaluation, I think it is a programme that can be sustained other than that we'll be relying on the grants and funds and when it is finished, then the programme ends"* ***FGD, Savulugu District.***

Another FGD in the Mpohor Wassa district indicated the need to introduce the School gardening *"we all did it (school gardening). You can do it at your leisure time or at your break time to feed you and me even ..... When I was schooling in Accra, Akatsi south, the students were growing their own vegetables and it wasn't taking their teaching hours".* ***FGD Mpohor District.***

One problem that was highlighted by all the actors was the lack of regular monitoring and programme evaluation for which results are communicated to improve the implementation process. To be able to ensure that the expected objectives, goals and outcomes of the programme are achieved there is the need for a regular all-inclusive monitoring and evaluation drive. This will help to promote cohesion, improve coordination and ensure that the right quality and quantity of food is served in a timely manner, household heads (parent farmers will be motivated to sell to caterers given a well-defined and agreed upon payment setup and structure.

When reviewing the GOG (2010) Annual Operation Plan, PCD (2016) Handy measures, and the GOG (2015) Draft policy document it was realized that the outlined implementation structure in Ghana's School Feeding Programme is well structured and falls in line with the structures highlighted by Bundy (2009; 2012), Drake et al. (2016) in their World bank Sourcebook Case Studies. The school feeding model in Ghana would be one of the most sustainable programmes if the challenges identified with its implementation process are addressed and measures put in place to build up the community engagement aspects, improve regular payment and ensure that the coordination and collaboration are improved among the key actors. The capacity of the various actors should be built to improve their knowledge about the programme and help to monitor at all levels of the implementation process.

7.8 School Feeding, Home Environment and Learning Outcomes

From discussions with the actors of the programme, it was realized that the programme does have an effect on learning outcomes. The general consensus was that although the study population comes from poor and vulnerable backgrounds, their desire for their children to get some food in addition to being educated was a welcome relief to household heads. They

were of the view that education can improve the outcomes of their wards and would encourage them to attend school. They indicated that the elder siblings of the children help them with the homework and on some occasions, the schools organize extra classes that their children attend to improve their outcomes.

The study realised that household composition and socio-cultural characteristics are diverse across Ghana. Discussions with parents indicated that as per the culture in some parts of Savulugu (Pong Tamale area), girls children are asked to live with another family especially their aunties as they grow up. This cultural practice does not at times help the children who in some cases are seen as helpers, attendants and the ones to do most of the housework. Although a lot of education has gone into sending the girl child to school the volume of work the girl child has to do at home before going to school as compared to the boy child affects their learning outcomes. Teachers also indicate that some parents do not understand the full benefits to be derived from education and at a time tend not to support the education of their children. That although they are aware that education is compulsory, they do enrol their wards in school but are unwilling to encourage them to attend school on a regular basis especially in instances when they require the children to perform some chores at home. Although Ghana has experienced huge gains in improving access to basic education (MOE, 2012, 2015; UNICEF 2010, World Bank 2014) the home environment factors especially for children in Savulugu if not improved may not encourage the gains to be sustained. Although the School Feeding Programme has helped to improve Mathematics test score, the home environment factors do not generally encourage children to perform well.

7.9 School Feeding, school environment and learning outcomes

Respondents indicated that the School Feeding Programme was good in satisfying short-term hunger especially for the children who eat before they go to school. The schools in the

rural areas and on the School Feeding Programme have limited resources that were available before the onset of the programme. With the programme, these schools have only had resources such as a kitchen and a few Polytanks to store water for the caterers. Not all the schools had water storage facilities. They were of the view that there was the need to improve facilities in the schools since the GES had posted new teachers into all the districts in the 2015/2016 academic year to improve the pupil-teacher ratio.

With the way the programme is implemented at the district and community levels, education and the schools are the best agency to be able to reach out to the homes and community levels. Because the district assembly is implementing the programme and coordination among the key implementing agencies is not cordial, the benefits of the programme to the education is not effective. Decisions making on the programme in relation to education tends not to be effective because of the power struggle between education and the district assembly. Education has more structures to monitor the already education-related programmes but is cautious in monitoring feeding-related activities. Good coordination among these actors can ensure that as part of educations usual setup, the feeding programme is highlighted among their daily, weekly, monthly monitoring activities that their circuit supervisors and unit heads embark on. Then education can be asked to be solely responsible to answer questions as to why with the investments being made in education are not paying off as expected.

7.10 Conclusion

The challenges of the Ghana School Feeding Programme highlighted above are interlinked and a critical look at them will pave the way for the innovative measure to be put in place to address them. Outlining the roles, responsibilities and core mandates of the coordinating ministries and actors of the programme will aid the programme implementation process.

Although the programme may be able to achieve its objectives, these implementation challenges seem to affect the programme implementation process. A concerted effort of all the stakeholders working together to feed the children will help to improve educational outcomes and achieving sustainable development goals. This will help to build up the human capital base of the nation. From the interactions with the key actors, it was realized that the implementation procedure of the GSFP does not make room for the free flow of information. Each institution collects information and monitors based on the needs of the institution in relation to the programme implementation aspect of that institution. This information is not shared among the implementing actors. As such each collaborating institution sees itself as a separate entity in the programme implementation process. In addition, the study identified the following as some of the challenges the programme faces. These challenges include but are not limited to delayed payments, limited financial resources, limited monitoring of programme activities, limited knowledge of some implemented actors, mistrust among implementing actors, perceived political interference, high attendance but little in term of improved resources and longer timing of the school meals among others.

Education is a collective effort of all the actors especially, the children, their households, the schools and the government. An improvement in coordination where all the key actors of the programme at the national, regional, district and community levels work together to implement the programme as indicated in the Annual Operation Plans and the GSFP 2015 policy document will improve and smoothen the implementation process of the GSFP making the school children on the programme get the best outcomes. In addition, ensuring that all actors are educated and re-oriented on programme activities will help smoothen and improve the implementation processes involved in the school feeding programme in Ghana.

CHAPTER EIGHT

SUMMARY CONCLUSIONS AND RECOMMENDATIONS

8.1 Introduction

This study examines the effects of home environment factors on learning outcomes of public school children in Ghana who benefit from the School Feeding Programme. It compares the results with that of public school children who do not benefit from the School Feeding Programme. The chapter summarizes the findings of the study and deduces some conclusions from the results obtained. Some policy recommendations are drawn from the conclusions to help address the issues that the School Feeding Programme faces. The study limitations are also presented and some possible areas for further research are recommended.

8.2 Summary of the Study

The world over School Feeding Programmes has been seen as a development tool that has a common goal of improving educational, health and agricultural outcomes of implementing countries. For the programming effect on access to education, the study shows significant effects on attendance and absenteeism. School Feeding Programmes serve as multi-purpose safety nets that provide health and education benefits to poor and vulnerable children and their families (Abotsi, 2013; Drake et al., 2016; Essuman & Bosumtwi-Sam, 2013; Jomaa, et al., 2011). The aim of the programme is to improve educational and health outcomes and build up the human capital base of the populace. School Feeding Programmes have the ability to improve access, increase attendance, reduce absenteeism, and ensure some level of food security at the household level (Afridi, 2011; Kazianga et al., 2014; World Food Programme, 2013). The School Feeding Programme in Ghana has helped to achieve the

United Nations Millennium Development Goals (MDG's) 2 and 3 and currently help to achieve the Sustainable Development Goals (SDG's) 2, 4, 5, 6 and 17.

The objectives of the study were to examine the intermediating effects of home and school environment factors and the GSFP on students' participation; to analyse the impact of the GSFP on learning outcomes and how a child, home and school environment factors affect learning outcomes. The study investigated the challenges that exist with the implementation of the GSFP. A review of the empirical evidence indicated that school feeding is a policy that is used to improve academic performance. The GSFP has been able to generally improve access to education especially in the vulnerable and deprived communities of the country. The programme is able to target the poor and vulnerable in society. The parents of these children identified have low levels of education. The school meals serve as a good motivator to encourage school children to attend school. Children of school going age now have something to look forward to enabling them to attend schools. Parents willingly send their children to school because they are assured of one free meal that can help reduce the burden of feeding their children at home. This study aims at informing parents about the kind of environment that can influence the learning outcomes of their wards and how they can benefit from the School Feeding Programme. It also informs parents on what needs to be addressed within the home environment to be able to help the children benefit from the meal and benefit from the free basic education being provided. The study also informs policy on the kind of environment that exists with the public school setup and indicates which school resources together with the programme can influence the learning outcomes.

The study provides evidence on the effects of home environment factors and school feeding on learning outcomes of children from public basic schools in Ghana. The study helps to provide information to the parents, teachers, caterers, implementers and allied agents of the

School Feeding Programme on the gaps identified in the programme implementation and how it impacts on educational outcomes. The study has helped identify some measures that can be put in place to address these gaps.

Chapter two highlights the literature on causal relationships between school feeding, home environment factors and learning outcomes of school children from poor and vulnerable backgrounds. It describes the types of School Feeding Programmes that exist and modes of implementation in different countries. Chapter three examined the theories that underpin the provision of school feeding as a development tool, the various environments of interaction and how this environment can influence a child's learning outcomes. The chapter specifically looked at how the school feeding as a social intervention tool can be used to motivate and influence a child's to attend school. It further explores how the child on a programme can be influenced by the child's own abilities, the home environment and the school environment. It looks at how these environments interrelate to influence the child's learning outcomes. Bronfenbrenner's ecological system identifies the various environment that can influence a child's outcome and test how these environments inter-relate to determine a child outcome. The sociological institutional theory was used to assess how policy is perceived and how the institutions relate to implementing development policies. The study tries to operationalize these theories and see how they interrelate and complement each other to influence educational outcomes.

Chapter Four presented the data that are used in the study. Two types of data were used: a secondary Randomised control trial data from the ISSER/PCD/NMIMR conducted in 2012/2016 and primary qualitative data (obtained from FGDs and in-depth interviews). The availability of a baseline and an end line data, as well as some child, home and school level variables for both baseline and endline, made it possible to use the difference-in-difference

with covariates model in the estimation. The chapter specifies the empirical models and functional forms used in the study.

Chapter five presented the results of the difference-in-difference analysis of the seven educational outcomes analysed. The descriptive statistics of the variables used in the estimation are also presented. The results showed that child characteristics such as age, and grade has significant effects on learning outcomes. Age at which a child starts school have a significant and positive effect on Mathematics and English and a negative but significant effect on grade repetition. The presence of a male and female adult have significant negative effects on participation and test scores. These effects sizes reduce when the child, home and school environment are analysed. When the father bears the cost of education, a significant but negative effect on the Digit Span test and Mathematics test are experienced. The effect of the relationship reduces when the school level variables are analysed, indicating that school feeding has the capacity to improve their learning outcomes. Larger household sizes have a significant negative effect on access to education but a positive effect on test scores. Children not eating before going to school have a significant negative effect on Raven's Test Score and absenteeism. These effects reduce slightly when the school level variables are estimated. Educational levels of household heads are significant bit negative when interacted with the programme. Children from farming household have a significant and positive effect on Raven's test score but negative on attendance.

On the school environment factors, a school providing textbooks to pupils on the programme have a significant but negative effect on attendance but a significant and positive effect on Raven's test. When children have separate urinals in school it had a significant but negative effect on digit span test and Raven matrix test scores. Providing water in school have a significant and positive effect on Mathematics test while learning in a classroom structure

has a significant positive effect on literacy, math and grade repetition. Learning in classrooms with blackboards have a significant and positive effect on Mathematics. The child's inherent characteristics, their home environment factors and school resources do play a role in determining the learning outcomes of the school children in this study.

Chapter 7 presents the implementation challenges from the qualitative and quantitative study. These challenges include but are not limited to delayed payments, limited financial resources, poor coordination and information flow among the various implementation actors of the programme, limited knowledge of some implementing actors, political interference. The chapter indicates that the actors perceive the programme as a development tool that can help improve educational outcomes. However, the challenges if not addressed can influence the gains the programme has made over the years negatively.

8.3 Conclusions

From the various discussions, it is noted that the GSFP strives to satisfy two main objectives of reducing short-term hunger and malnutrition and improving access. The programme has some challenges in reducing short-term hunger. The programme is able to feed some of the school children but it prolongs the ability to reduce short-term hunger especially to school children from very poor homes who do not eat before they go to school. The programme has a capacity for improving educational outcomes if these implementation challenges are addressed. The school meals can bring the school children to school but if the enabling environment does not exist and the resources that promote effective teaching and learning as well as support from home does not exist, the programme would be unable to achieve the desired intent of helping to improve learning outcomes.

The study indicates that the home environment helps to influence the learning outcomes of children from poor and vulnerable households. Although the school children generally are from farming and non-farming households, child characteristics such as age, sex, grade and age at which a child starts school influences their learning outcomes usually in a positive way. The home environment variables such as household size, educational level, having younger siblings among other influence the learning outcomes of the school child. When school environment factors in the form of resources such as the provision of blackboards in classrooms, having water in the schools, having separate toilet facilities for boys and girls and improving sanitary conditions in schools can influence the learning outcomes of the school's children in Ghana in a positive way.

8.4 Policy Recommendations

A child's experiences as they grow has the capacity to influence their learning outcomes. A child's environment has the ability to influence the child abilities, especially the forms of interactions that occur in the environment and can determine how well a child will perform academically. A good relationship among the peers at home, school and the community at large influence the outcomes of the child. A healthy, satisfied emotionally sound child builds the foundation for better human capital development. As a human capital development tool, school feeding addresses the problem of short-term hunger and malnutrition. Measures should be put in place to ensure that payments are made to caterers on a regular basis. This will help them to provide the meals to the school children regularly. It will also help to improve the quality of the meals. When these measures are in place school children will be motivated to attend school. The gains made by the programme in improving access will be sustained.

The age at which a child starts school improves school children outcomes in Mathematics and English that policies must target getting school children to starts school early and stay in school. The measure should be put in place to ensure that the gains made in improved attendance and mathematics test scores are sustained. There should be a more inclusive and conducive environment especially for a poor and vulnerable household with very little and no education to make an input in their children's education. Parents should be encouraged and enlightened on the benefits of educating their children in the human capital development of the nation. When parents from farming household get involved in the education of their children, their negative effects on their children's learning outcome would be channelled to positive effects. They would be educated on the value of smaller household sizes and the need to free up time for their wards to learn and mature. Investments should be made on educating the demand side agents, (children, parents and community at large) on their roles and responsibilities in the programme implementation process to ensure that the programme achieves its desired objectives. Parental involvement should go beyond bearing the cost of education, participating in termly Parent Teacher Association meeting and serving as a representative on the non-functioning School Management Committee. It should involve active participation in their children's education on a daily basis. When parents irrespective of their educational level engage their children by asking them about their school activities, visit the schools, interact with teachers on their children academic works as indicated by (Epstein 1992; 1995; 2011; Chowa et al., 2012 and Taylor & Hurt 2014) the gains made will be sustained.

Although the programme does not provide resources for teaching and learning in schools, the results show that the availability of school resources and improved condition of water and sanitation facilities in the schools does improve learning outcomes. If the actors work together, they will be able to determine which school requires resources the most. Their

working together will help to allocate resources efficiently and effectively among public schools. They should coordinate on School Feeding Programme activities as well as other education-related activities. Coordination will ensure that resources on the programme generally and in education, subsector are allocated efficiently. It will ensure that programme activities are synced with other education and child development activities at the district and community levels. The study recommends that programme actors should work at improving coordination among themselves and at all levels of the implementation process. There should also be a free flow of information and regular orientation for programme actors. When these are done most of the challenges outlined would be addressed and the programme would start experiencing the desired outcomes.

The home environment, which is the primary environment for socializing a child, has to be considered in making decisions on the School Feeding Programme. The home a child is initiated into helps the child to learns and acquire most of the skills they require to grow. Policies that aim at improving the child well-being from education, health, school feeding and allied development perspective should be innovative and include the family in their planning. The best child outcome occurs in an environment that encompasses all the agents of interaction in a creative, cooperating and consultative way. For the best educational outcomes, the input of all the actors in the programme is a necessary requirement. A concerted effort between the child, the home, the school, and the implementing agents. The needs of the vulnerable should be considered and adapted to. Specific targeting, especially for the really poor and vulnerable school children who do not eat before going to school, should be considered to enable them to attend school and learn on a full stomach until lunch time.

Provision of a highly nutritious snack for the very poor and vulnerable children who do not eat before going to school will serve to improve the outcomes. Although the programme serves to feed children in school, it cannot feed effectively and sustainably without the cooperation of the child, the home, the school and the implementing actors and policymakers. In some cases, provisions could be made for such poor and vulnerable school children to serve the meals as a mid-morning meal than a midday meal for maximum effect of the meal.

The inclusion of parents and local communities in the implementation process would help improve the negative effects of the home environment factors on programme outcomes. These parents would come to know and understand the goals and ideals of the programme. The revamping of the SMC would help improve the relationship between the programme, the school and community relationship. Community members will have that sense of ownership on the programme and would serve to monitor programme activities at the school and household levels. This will help with the sharing of information on the programme and highlight the benefits of the programme to community members. Parents and community members can push the implementing actors to be transparent in their implementation process and be accountable to them on programme activities. For the programme to be effective, yield the desired outcomes of reducing short-term hunger, and improve educational outcomes, the child, home, school and implementing actors must work together.

The programme together with the education ministry should consider increasing the school instructional time from 2:30 pm to about 3:30 pm daily. The official time allotted for a break should be increased to a minimum of one hour (12:00 pm – 1:00 pm) to cater for the time used in sharing and eating the meal. This will also encourage the teachers to teach the official two courses after eating to make sure the students maximize the time left after eating to gain

the full meal effect. Also, caterers should be encouraged to maximize the added time so the students get the benefits of the meal. Caterers should be encouraged to employ extra staff to help cook and serve the meals. Additionally, discussions should be made to increase the term duration to cater for the lost time the myriads of problems confronting the School Feeding Programme.

The lack of coordination and representation of all the actors in the programme has implications for the sustainability of the programme as is being experienced in the GSFP. Chauhan (2015) indicates that programmes that represent the voices of different actors require the input of all actors to help with the reorganization and revision of the content of the representation. There is the need for a reorientation of the various actors of the programme on the policy documents, what their roles, activities and mandates are. Policies like the School Feeding Programme, which target the poor and vulnerable, should have the support of all actors to include government, donors, community members and school children. Should these policies start to lose their focus, these actors are expected to dialogue and debate to steer it in the right direction. It must be acknowledged that the implementation of the GSFP is a complex and multifaceted social intervention. With the cumbersome implementation process and limited and not very informed staff and different agencies responsible for different implementation aspects of the programme, implemented policies which do not involve a mere relay of instructions from the national to the local level (Pressman and Wildavsky, 1973). The actual implementation dynamics of any policy often has a local flavour and differs from one region to another even within the same country (Coleman et al., 2010). The culture and context of the various countries for which development policies are implemented differently. The programme must factor in the culture and the context in the implementation plan. Likewise, the national, regional, district and community level actors must understand the rationale of the programme, its objectives,

goals the specific roles of each actor must come together to identify these problems. These problems must be discussed at each level of the implementation stage in consultation with the various actors to find working solutions to the implementation challenges outlined in section 7.4. This will ensure that the actors own the programme and are committed to finding a working solution to address the identified problem.

8.5 Theoretical Contribution

The findings of this study emphasize (Bronfenbrenner, 1997; 2004). Ecological systems theory, Becker's human capital theory and Scots sociological institutional systems theory. They individually and collectively work together to explain the Ghana School Feeding Programme, the child, home and school environment influence the learning outcomes of public school children in Ghana.

The findings also indicate that the various environments within which the child relates to having the ability to influence their outcomes. It confirms Bronfenbrenner's arguments that each environment an individual socialises in influences their lives (Bronfenbrenner, 1997; 2004). The study results pinpoint a significant association between the three environments outlined which are the child's inherent characteristics; their home environment factors and the school environment do play a role in their learning outcomes. This aligns with Bronfenbrenner's ecological systems theory, which asserts that the environment of socialization of an individual has an effect on how the individual will perform.

The focus of the programme should not only be on the provision of the meal but also on the fact that each environment that the child lives and relates to having an effect on the children outcomes. Care should be taken in ensuring that all these environments are managed well to improve a child's learning outcomes. Giving food to a child can reduce short-term hunger

and improve a child's learning outcomes only if the right environment exists for teaching and learning to occur. Together with the implementing actors and the households attention and resources should target improving the child's outcomes not only with food but with better learning environments both at school and at home.

Lastly, the study contributes to discussions on the importance of modifying programmes and treaties to suit the local context. It goes to confirm the discussions by Scott et al. (2000); Thornton (2002, 2004); and Amenta (2005) in their institutional theory that the government through its institutions have recreated the school feeding models in Ghana. The government and the implementing institutions have been able to diffuse, adopt, and adapt to the Ghana School Feeding Programme. Unfortunately, because of some implementation challenges facing the programme, if care is not taken, some aspects of the programme might fall into decline and disuse over space and time. Some of the actors are helping the individuals to understand and play their roles in the policy implementation process. If the identified challenges are addressed, the Ghana School Feeding Programme can play the roles of reducing hunger and malnutrition as well as improve educational outcomes.

8.6 Significance and Future Direction of the School Feeding Programme

Future studies should investigate the role of politics in the school in the programme implementation process and its role in learning outcomes. It should address the channels that connect the school and community levels and the programme impact. Future studies should look at how politics influence health and agriculture outcomes of the GSFP. Likewise, future studies can focus on following up on the same children to see how the programme has fared after the study recommendations have been adhered to.

Secondly, future works can investigate measures that can be used to address the poor coordination among the actors in relation to their core functions and mandates of the programme and see how the GSFP can be better synced with the other policies of education to improve educational outcomes. School feeding is a good development tool that can improve learning outcomes. The challenges of the Ghana School Feeding Programme must be addressed to make the programme more sustainable. Future works can also investigate the effects of school feeding on health and educational outcomes and how the child, home and school environment factors can contribute to improving a child's learning outcome. It will be interesting to investigate and explore further the long-term relationship between school feeding and it impacts household incomes to be able to distinguish which group of the poor and vulnerable should benefit more.

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APPENDICES

Appendix 1: Qualitative Research Instruments

INSTITUTE OF STATISTICAL SOCIAL AND ECONOMIC RESEARCH

UNIVERSITY OF GHANA

LEGON

HOME ENVIRONMENT AND THE SCHOOL FEEDING PROGRAMME IN GHANA: EFFECTS ON LEARNING OUTCOMES

INTERVIEW GUIDE FOR DISTRICT DIRECTORS OF EDUCATION, MoGCSP, MoLGRD, DIC, SIC & HEAD TEACHERS.

Hello. My name is Emefa A. Amponsah, a PhD student of ISSER, University of Ghana. I am conducting a study on free lunch for basic schools; effects and implementation challenges. The aim of the study is to find out the impact of Ghana's School Feeding Programme on educational outcomes generally and the role the home environment is playing in the education of children on the feeding programme. I would also like to identify the implementation challenges associated with the School Feeding Programme. This study is a follow up on the evaluation of the School Feeding Programme conducted in January 2016 by the ISSER/NOGUCHI/PCD. I will like to record the interview process but I will like to assure you that your anonymity as an interviewer will be assured. Your answers will be used as a general statement or opinion in the report. The participation in the survey is voluntary and you may stop the interview at any moment. The tool is a guide and I would be asking or probing for further clarifications where necessary.

Do you agree to participate in the interview? Yes ☐ No ☐

Time interview started……Time interview Ended……

Date of interview……..……

Region……...District……

Name of School…….

1. What do you know about the School Feeding Programme?
    a. Origin
    b. Activities
    c. Actors
    d. Institutions

2. What are the roles of the institutions and the actors listed above?
    a. Probe for their opinion on the change in the management structure of the School Feeding Programme from MoLGRD to MoGCSP
3. What is the role of your Ministry in the School Feeding Programme implementation in Ghana?
4. How is the School Feeding Programme managed?
    a. National Level
    b. Regional Level
    c. District Level
    d. Is an independent Institution/agency that manages the affairs of the programme?
    e. Please tell me about the agency.
5. What are efforts, (financial and technical support) in place to aid the smooth implementation of the School Feeding Programme?
6. What are the criteria for which schools are placed on the School Feeding Programme?

LOCAL COMMUNITIES AND TARGET SEGMENTS

1. Has there been a change in any of these since the implementation of the programme?
    a. Infrastructure (school building, blackboard, water and sanitation facilities etc.)
    b. Type of food served
    c. Caterer selection
    d. Procurement from local farmers?
    e. Monitoring and evaluation?

    Probe for specific roles being played
2. Who led the process of bringing about the changes in these (Ministry, Individual…. Probe for which of the actors helped to bring about the change)

SCHOOL FEEDING AND EDUCATION OUTCOMES

1. What is the impact of school feeding on educational outcomes
    a. School performance at BECE
    b. Children's score in Mathematics
    c. Children's score in English

   d. Children's score in Science
2. Is there equal representation among boys and girls in school in this community? Please explain your answer…….
3. Between the SFP schools and the NON-SFP schools are there any differences in terms of their performance academically?
4. Do students who benefit from the School Feeding Programme perform better at school than those who do not?
5. What was the performance of school children before the school feeding intervention?
6. What is their performance now?
7. What can be done to help the children perform better academically under the School Feeding Programme?
8. The school feeding report indicated that children's cognitive ability generally declined amongst the sample as a whole. What do you think is the reason for this?

SCHOOL FEEDING AND SCHOOL QUALITY

1. How does school feeding promote school quality in terms of the following?
   a. Textbooks
   b. Infrastructure
   c. Pupil teacher ratio
   d. Number of blackboards in a classroom
   e. Teacher availability
   f. Teaching and learning time
   g. Teacher Motivation
   h. Teacher qualification
2. What impact does has school feeding have on school quality?

TRANSPARENT SELECTION PROCESS OF SCHOOL FEEDING SERVICE PROVIDERS

1. Does the School Feeding Programme have a clear guideline in selecting beneficiaries of the programme?
   a. Who are these beneficiaries?
   b. Where can they be located?

c. Who selects them (schools and caterers)
d. How are they included in the programme?
e. Are they selected on merit?

2. Does the School Feeding Programme cover the areas where vulnerable and deprived children live?
3. Does the School Feeding Programme successfully reach them?
4. Does the program target the geographic regions where it is needed most?
5. Does SFP have any political affiliations?
6. Who does the selection of the caterers?
7. Do you know about any rules and regulations that govern the programme? Please explain your answer……..

SCHOOL FEEDING, FUNDING AND TECHNICAL SUPPORTS

1. What is the nature of collaboration between your ministry and the MOGCSP and the MoLGRD? Please explain your answer….
2. Do teachers, managers, and school feeding committees have opportunities to learn about nutrition, food security, and health?
3. Do cooks have opportunities to learn about the nutritional aspects of menus, sanitary matters, and culinary experiments to secure food quality?
4. Are there any opportunities to work with universities, NGOs, or other governmental organizations to train stakeholders in the School Feeding Programme?
5. Are there any standardized nutritional and hygiene requirements for the School Feeding Programme?
6. Please indicate what these standardized procedures are?
7. Is the selection process of school feeding service providers transparent and open to any organizations as long as they meet the above-mentioned requirements?

COMMUNITY INTEGRATION

1. Is the programme fully integrated into the local community?
2. How do parents contribute to the programme implementation process?
3. What are the standardized reporting processes in the school feeding implementation process in the community?
4. Do community members feel a part of the School Feeding Programme? Please explain your answer……..

IMPLEMENTATION CHALLENGES AND HOW THEY CAN BE ADDRESSED

1. Are there any challenges associated with the implementation of the School Feeding Programme in Ghana?
2. What are some of the challenges associated with programme implementation?
3. Are these challenges Local or national?
4. How do these challenges affect the sustainability of the School Feeding Programme?
5. How can these challenges be addressed?
6. What measures can be put in place to prevent the future occurrence of the challenges
7. How sustainable is the School Feeding Programme in Ghana?

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HOME ENVIRONMENT AND THE SCHOOL FEEDING PROGRAMME IN GHANA: EFFECTS ON LEARNING OUTCOMES

FOCUS GROUP DISCUSSION GUIDES FOR HOUSEHOLD HEADS (MALE/FEMALE)

1. What do you know about the School Feeding Programme?
    i. Origin
    ii. Activities
    iii. Actors
    iv. Institutions
2. What are the criteria for which schools are placed on the School Feeding Programme?
3. How is the community involved in the School Feeding Programme?

    Probe for which members of the community are involved and how they are selected

    Probe for how these members are selected into the programme
4. Does SFP have any political colouration? Probe for what colourization and how it affects the programme.
5. How are caterers selected for the programme?

    Probe for who does the selection of the caterers
    i. Do you think Caterers are selected on merit? Please explain
    ii. What qualification must one have to be able to select these caterers
    iii. Knowledge about the various food groups
    iv. How food is purchased
    v. How food is stored
    vi. Payment of caterers
6. Do you know about any rules and regulations that govern the programme? please provide the rules and regulations

PERCEPTION OF PARENTS ON SCHOOL FEEDING AND CHILDREN BEHAVIOUR

7. What are the contributions of parents and other community members to the School Feeding Programme?
8. Do you think school feeding has impacted students' lives? How has it influenced children behaviour? The families?
9. Has there been a change in students
    a. enrolment - the number of children of school-going age in school
        i. attendance – children who go to school on a daily/weekly basis
    b. Learning –
        i. Mathematics
        ii. English language - does it make the children learn
    c. homework… since they were put on the programme
10. What feedback do you children bring from school about school meals? Probe for the quality of the meal and the portions served.
11. What contributions are parents and other stakeholders making to the programme? Probe for negative or positive contributions
12. How do you perceive the School Feeding Programme? Probe for negative and positive perceptions
13. Girls on the programme are more likely to miss school days that boys, what reasons can be attributed to this children's cognitive ability generally declined amongst the sample as a whole
14. The study has realized that parents are withdrawing their children from feeding schools to non-feeding schools. Why is this happening…?
15. Do the study results indicate that children from polygamous households tend to perform better in terms of access to education what accounts for this?

IMPLEMENTATION CHALLENGES AND HOW THEY CAN BE ADDRESSED

16. Are there any challenges associated with the implementation of the School Feeding Programme in Ghana?
17. What are some of the challenges associated with programme implementation?
18. Are these challenges Local or national? Probe for which are local and which are national……..
19. How do these challenges affect the sustainability of the School Feeding Programme?

a. How can these challenges be addressed?

20. What measures can be put in place to prevent the future occurrence of the challenges
21. How sustainable is the free lunch at the basic school Programme in Ghana?

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HOME ENVIRONMENT AND THE SCHOOL FEEDING PROGRAMME IN GHANA: EFFECTS ON LEARNING OUTCOMES

CHILDREN OBSERVATION SCHEDULE

Data collector name(s): _____

Date of observation:	School name:

If any circumstances affected your ability to complete this observation, please describe:

1. Grade(s) in class (check all that apply).	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐
2. Time of observation	
3. Subject observed.	Mathematics ☐ Literacy/language arts ☐ Science ☐

4. When are children served?
5. How are Children served?
6. Where do children eat?
7. How long does it take for children to eat?
8. Observe what children do after eating
9. See if there are any changes in the attitudes of the children in the classroom
10. When they are eating
11. After eating the meal

Appendix 2: Summary table of School feeding models in 6 countries

Country	Model	Lead Sector	Targeting Approach	Strategic Focus	Cost per child	Policy and Legal framework	Food Preparation	Implementation Level	Community Involvement	Evidence of Impact
Botswana	Centralized In-Sourced	Local Government	Universal	Education	2009–2013 Average: 769.77 Pula (US$104.02) per child per year (185 school days) or 4.16 Pula (US$0.56) per child per day	Suggested Guidelines for the Management of Primary School Feeding Programmes in Botswana The Revised National Food Strategy Revised National Policy for Rural Development Guidelines for Procurement of Agricultural Products for School Feeding	On-site. By local cooks paid by the government	All school children in grades 1-7 in government public schools	PTA, community members directly support the programme by providing infrastructure and utensils	Reduce hunger, Improve enrolment and attendance (Drèze and Goyal, 2003; Blue, 2005) Especially for girls and caste tribes (Jain and shah, 2005) Learning abilities Social equity.

India	Semi Decentralized Insourced	Education/ Ministry of Human Resource Development, DSEL	Universal	Education	2011 average: US$32.40 (approximately 1,500 rupees).	Supreme Court Orders related to school feeding in the case of PUCL v Union of India Follow-up Supreme Court Orders between 2001 and 2012 Revised MDMS Guidelines Guidelines on the National Programme of Nutritional Support to Primary Education National MDMS Guidelines	Centralized kitchen or on-site school by cooks	Universal coverage of grades 1–8 in government and government-aided schools, local body and alternate and innovative education centres under the Education Guarantee Scheme	Mixed results. Motivates parents especially mothers and self-help groups to get involved in the programme	
Kenya	Decentralized Insourced	Agriculture	Geographic	HGSM: Ministry of Education, Science, and Technolo	2012: HGSM KSh2, 421 (US$28.00). NMK KSh2, 702	Kenya Vision 2030 National Education Sector Support Programme National Food Security and Nutrition Policy 2012	School cooks	HGSM primary schools in semi-arid areas with high dropout, and low enrolment and completion rates	School Management Com	NMK Local Agriculture/ income and improved

				gy. NMK: Ministry of Agriculture.	(US$31.25).	National School Health Policy Draft National School Health Guidelines National School Health, Nutrition and Meals Programme Strategy		NMK: Schools in areas of high-to-medium agricultural potential with High poverty and malnutrition levels, and low academic performance, school attendance, and retention.	mittees.	livelihoods Food security Education: Enrolment attendance Health and nutrition
Chile	Semi Decentralized	Education	Individual	Education, Health, And Nutrition	2012: Approximately US$331.52 (189,189 CLP)	Law No. 15.729 of 1964 Law No. 17.301 of 1970	Private preparation for standardized meal	Pre-primary, primary, secondary and home students	Community Self-help groups	

							plans			
Ghana	Decentralized Outsourced	Local Government/ MoGCSP	Geographic	Education, Agriculture, Health, And Nutrition	2013: Approximately, GH₵0.50 (US$0.23) per child per day or GH₵100 (US$45) per child per year.	National Social Protection Strategy Growth and Poverty Reduction Strategy (GPRS) II 2006–2009 Education Act of 1961 (Act 87) The 1992 Constitution of Ghana Education Strategic Plan 2003–2015 Policy — Imagine Ghana Free of Malnutrition Food and Agricultural Sector Development Policy (FASDEP) II	On-site: One caterer and a team of cooks per 500 school children	Vulnerable pupils targeted in public primary schools in all 216 districts in Ghana	Through PTA, SMC.	

Source: Bundy (2012), Drake et al. (2016), McEwan (2013)