

# Improving early childhood development in rural Ghana through scalable low-cost community-run play schemes

<b>Submission date</b> 23/03/2018	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered
<b>Registration date</b> 16/05/2018	<b>Overall study status</b> Completed	<input type="checkbox"/> Protocol
<b>Last Edited</b> 16/05/2018	<b>Condition category</b> Mental and Behavioural Disorders	<input type="checkbox"/> Statistical analysis plan
		<input type="checkbox"/> Results
		<input type="checkbox"/> Individual participant data
		<input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Early childhood care and education (ECCE) is critical to a child's development and their success in adult life. Children who receive quality ECCE are proven to be healthier, do better and stay longer in school, and have better economic trajectories in adult life. In impoverished rural northern Ghana, children do not receive these vital opportunities. Despite recent advances in Ghana's Education System (GES), two barriers to ECCE persist: (i) Low quality Kinder Garten (KG), marred by a lack of trained teachers, large class sizes, lack of play-based resources, teacher absenteeism and rote-based teaching; and (ii) low level of maternal education, information and aspiration in deprived rural communities. Lively Minds' innovation overcomes both of these challenges by training and empowering official KG teachers and mothers in highly deprived communities to set up and run educational play schemes (covering hygiene and stimulation) using local materials. To achieve sustainability, scalability and cost-effectiveness, play schemes are mainstreamed into and are designed to strengthen the Government KG system and are based on a training of trainers approach. The Institute for Fiscal Studies (IFS), in partnership with Innovation for Poverty Action (Ghana) will design and implement a randomised controlled trial in 80 rural communities in Northern and Upper East regions of Ghana, to evaluate impacts of the Lively Minds programme on the targeted children, their siblings and caregivers, volunteer mothers who run the play-schemes and teachers who train the volunteer mothers. The study will evaluate impacts on target child's physical, cognitive and socio-emotional development, as well as the home environment and primary caregiver's knowledge, perceptions and well-being. The evidence provided by this evaluation will be crucial for determining whether there is value in mainstreaming the programme across Ghana and replicating it in other countries.

### Who can participate?

There are three kinds of participants in this study. The primary participants in this study are children between 3 and 5 year old, and either currently attending or intending to attend one of the 80 study schools. Participants can be either male or female and are not required to have any specific condition or health status. The intervention also recruits volunteers to run the play scheme. Volunteers can be of any age, but must be female. This is because a core component of the program is female empowerment. Finally teachers are also trained as part of the

intervention. To participate they must be existing kindergarten teachers at one of the treatment schools.

What does the study involve?

The intervention focuses on unlocking the potential of caregivers, both mothers and teachers, training and empowering them with the knowledge, skills and confidence to run educational Play Schemes in kindergarten classes and provide better care and stimulation at home, using local materials. This intervention involves three main steps; (i) Kindergarten teachers are trained at centralised workshops, this includes the importance of education and play and how to train mothers. (ii) Teachers then train roughly 30 women from the community; this includes how to play games, child-friendly teaching and health practices. (iii) Play schemes run – a group of trained mothers come into kindergarten each day of the week for one hour. In the session 6 mothers teach 30 kindergarten children indoors, whilst the remaining children play outside. Children learn by playing a variety of games that strengthen six key skills – numeracy, sorting, creativity, reading, sensory awareness and physical education. Health and hygiene is also incorporated with children having to handwash with soap before starting the session. Throughout the year mothers and teachers are continually supported through regular additional trainings. The intervention lasts a total of 10 months.

40 of the study schools will be randomly assigned to receive the intervention, and 40 schools randomly assigned to be part of the control group; who will receive the intervention one year later. Surveys will be administered to the participants, their primary caregiver, household head, and siblings, as well as to kindergarten teachers and community elders. These surveys will take place at baseline (before the start of the intervention) and endline (soon after the end of the intervention). A shorter survey will also be administered to children halfway through the intervention.

What are the possible benefits and risks of participating?

We expect that children will directly benefit from increased cognitive and socio-emotional developmental outcomes as a result of the intervention, as well as improved hygiene practices. Volunteer mothers should benefit from an increased knowledge of childhood learning and health and hygiene practices, and potentially improved self-esteem and well being from feeling valued as members of the scheme. Teachers should benefit from increased knowledge of teaching practices which will aid them in their work.

There are known no risks to participation in the intervention, and all participation is completely voluntary.

Where is the study run from?

The study is run from a total of 80 government schools across two districts in rural Northern Ghana; Bongo district (Upper East region) and Tolon district (Northern region)

When is study starting and how long is it expected to run for?

The study is starting in July 2017 and will run for just over a year, finishing in September 2018.

How long will the trial be recruiting participants for?

The trial will be recruiting participants for the total duration of the study of 15 months. The study is kindly funded by two partners; the Jacobs foundation and the Global Innovation Fund.

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Public

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# Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers

AEARCTR-0002777

# Study information

## Scientific Title

Improving early childhood development in rural Ghana through scalable low-cost community run play schemes : a cluster randomised controlled trial

## Study objectives

The main hypothesis is that the intervention will lead to positive impacts on child physical, cognitive and socio-emotional development as well as hygiene practices. It is hypothesised that this impact will occur through a combination of the following intermediate outcomes:

1. Direct impact from child's participation in the Play Schemes
2. Indirect impact through improvements in Mothers' stimulation and care practices (through acquiring knowledge in the training sessions and interaction with Volunteer Mothers)
3. Indirect impact through improvements in Mothers' psychological wellbeing
4. Indirect impact through a change in resource allocation (time and material) within the households by primary caregivers having more say
5. Indirect impact through increased knowledge and awareness among Kindergarten Teachers on good stimulation and hygiene practices (through training) and reduced Teacher absenteeism (through higher motivation and improved accountability as a result of mothers' enhanced pre-school engagement)
6. Indirect impact on children who have not participated in the Play Scheme through interaction with siblings who have

## **Ethics approval required**

Old ethics approval format

## **Ethics approval(s)**

1. University College London (UCL), UCL Ethics Committee, 11/07/2017, 10167/001
2. Innovations for Poverty Action (IPA) - USA, Ethics Review, 21/06/2017, #14340
3. Ghana Health Services Ethics Review Committee (GHSER), 03/09/2017, GHSERC012/07/17

## **Study design**

Evaluator-blinded randomised controlled cluster study

## **Primary study design**

Interventional

## **Secondary study design**

Cluster randomised trial

## **Study setting(s)**

School

## **Study type(s)**

Quality of life

## **Participant information sheet**

## **Health condition(s) or problem(s) studied**

Childhood cognitive, socio-emotional, and motor development and hygiene practices.

## **Interventions**

The intervention focuses on unlocking the potential of caregivers, both mothers and teachers, training and empowering them with the knowledge, skills and confidence to run educational Play Schemes in kindergarten classes and provide better care and stimulation at home, using local materials. The intervention will be carried out by Lively Minds, an award-winning organisation that has been running the programme in rural Ghana (as well as Uganda) for 8 years. The structure of the program is as follows:

1. Kindergarten teachers trained at centralised workshops. There are ten practical and participatory sessions, which cover the importance of education and play, classroom management, how to use and make games, and how to train Mothers.
2. Teachers train 30 Mothers in their community. Training includes two community meetings and nine participatory workshops. It is designed for women who are illiterate and have never been to school. Content includes how to make and play games, child-friendly teaching, and health practices. The syllabus uses behaviour-change and play-based approaches to transform mindsets, gain buy-in and volunteerism. Teachers are supervised and supported by high performing Kindergarten Teachers from schools with existing Schemes.
3. Play Schemes run. A different group of 7 Mothers come into kindergarten each day of the week for an hour. 6 Mothers teach 30 kindergarten children indoors (1:5 parent child ratio). The remaining children and Mothers participate in outdoor play. The teachers supervise. Children learn by playing with a variety of games that strengthen six different skillsets (counting /numeracy; matching/sorting; imagination and creativity; reading/books; sensory awareness; and physical education). These crosscutting skills develop executive functions, providing the

foundation for learning. Teaching uses discovery and play-based methods, rather than rote method which is the norm in school.

4. Health and hygiene activities are incorporated. Children have to handwash with soap before using the Scheme, sensitising them to this vital practice. Mothers are also taught how to erect simple handwashing devices (tippy-taps) at home. Once the Schemes are running, Mothers and teachers are given regular training on health and parenting topics to improve their childcare.

5. Teachers and Schemes are supported. Play Schemes are given regular supervisory visits by Lively Minds staff and GES officials to quality control. Regular "top-up" training sessions are held for teachers where they discuss problems, share successes and also are trained to provide the Mothers with monthly skills workshops.

6. Mothers are supported. Mothers are given monthly workshops on parenting and health topics and life skills by Teachers (topics include nutrition, hygiene, child rights, play, communication, malaria prevention, financial awareness, self-esteem, inclusive education). This increases awareness on a variety of childcare and public health issues, reinforces new behaviours, and is a powerful incentive to keep the Mothers committed to volunteering.

7. Sustainability and scalability. District Education officials are involved in the mobilisation and training of schools. They monitor the Schemes and supervise the teachers and schools as part of their normal supervisory duties. High performing teachers and officials are trained to participate in the training and support of new cadres of teachers. Play Scheme Committees are established in each community.

The study is a cluster-randomised controlled trial, with the school as the unit of randomization. The trial will take place across two districts in rural Northern Ghana; Bongo district, Upper East region and Tolon district, Northern region. Across these two regions, 80 schools will be selected to be part of the study. Within these schools, 40 will be randomly allocated to receive the intervention, and 40 allocated to the control group, who will receive the intervention at the end of the study. Randomisation will stratify using circuit (a geographical cluster of on average 6 schools falling under one supervisor from the Ghana Education Service), and school size (defined as high or low, based on whether the school has above or below the median number of total Kindergarten children). Randomisation will be conducted using Stata 14. The participants are unblinded to their treatment status, however the data collectors and enumerators are blinded.

## **Intervention Type**

Behavioural

## **Primary outcome measure**

The primary outcome is children's cognitive and socio-emotional developmental outcomes. We will measure developmental outcomes of the child, through the use of the International Development and Early Learning Assessment (IDELA) tool, developed by Save the Children. This provides measures of development along 5 core domains; emergent numeracy, emergent literacy, socio-emotional skills, motor skills, and executive function. The full set of primary outcomes will be measured at two timepoints; baseline - before the start of the intervention (September 2017), and endline - soon after the end of the intervention 10 months later (August 2018). In addition a reduced form of the IDELA will be delivered at midline - the midway point of the intervention (March 2018).

## **Secondary outcome measures**

All of the following will be measured at baseline and midline:

1. Target children's health outcomes - we will collect data on the incidence of diarrhoea, fever and respiratory infections using the definitions of the WHO as measures of morbidity. We will also measure arm circumference.

2. Developmental outcomes of siblings - we will measure the development of younger siblings through the Caregiver-Reported Early Development Index (CREDI) short form, and of older siblings through Ravens progressive matrices and tests of basic literacy and numeracy. Child pre-school attendance and participation in the Play Schemes - the household survey will collect details on target child's pre-school attendance.
3. Maternal knowledge of child stimulation and care practices - we will collect information on the mother's knowledge of stimulation and care practice, and her beliefs regarding the importance of these for children's development. To test knowledge, we will rely on a selection of items from the Knowledge of Infant Development (KIDI).
4. Psychological well-being of primary caregivers - We will measure psychological wellbeing outcomes of primary caregivers through the use of two scales: the SRQ-20 measure of depression and the Rosenberg measure of Self-esteem.
5. Enhanced quantity of resources allocated to child within the households - the presence of toys and learning materials in the house will be assessed together with parental involvement with the child, the child's routines and organisation of the child's time inside and outside the family house. This will be assessed using the Family Care Indicators, developed by UNICEF.
6. Target children's hygiene knowledge - we will construct a hygiene knowledge score based on child's responses to questions such as what are good times to wash your hands, what material is needed to wash hands and what are reasons for why washing hands is important.
7. Pre-school engagement of primary caregivers - we collect data on the frequency of primary caregivers' school visits and the extent to which they know the teacher's name
8. Teacher wellbeing, teaching practices and knowledge - we will measure outcomes of teachers using an instrument developed in a previous study in Ghana. This includes a variety of measures including teacher presence, practices, burnout and job satisfaction. The SRQ-20 will also be administered to teachers to assess their mental wellbeing. Given the small sample size of teachers in our study, however, we may not have sufficient power to detect significant impacts on this outcome.

### **Overall study start date**

01/01/2017

### **Completion date**

14/06/2019

## **Eligibility**

### **Key inclusion criteria**

There are three kinds of participants in the study; target children, volunteer mothers, and kindergarten teachers. The inclusion criteria are as follows:

#### **1. Children**

To be part of the intervention, children have to be attending the kindergarten of one of the 40 treatment schools. They can be either male or female. Officially only those aged 4 and 5 are supposed to be attending kindergarten, however in reality there are many children who attend that are not in this age range. Of these total participants, a subset will be chosen to be part of our sample and therefore surveyed. These children are chosen as a random sample of all children meeting the following inclusion criteria:

1.1. Aged 3-5 years as of the start of the school term 11th September 2017

1.2. Reported in July 2017 that they are either currently attending one of the 80 study schools or intend to do so come the start of school term in September 2017

#### **2. Mothers**

Volunteers in the place scheme can be anyone willing to take part as long as they are female –

this is because a major focus of the program is on female empowerment. Our sample of volunteer mothers to be surveyed will be made up from the sample of primary caregivers. Hence to be eligible to be surveyed, individuals must be the primary caregiver of one of the sampled target children.

### 3. Teachers

The only requirement of kindergarten teachers is that they are a teacher in one of the study schools as of the start of the intervention in October 2017. All kindergarten teachers in the study schools will be surveyed.

#### **Participant type(s)**

Mixed

#### **Age group**

Mixed

#### **Sex**

Both

#### **Target number of participants**

2400 participants in 80 schools

#### **Key exclusion criteria**

Inclusion criteria not met.

#### **Date of first enrolment**

11/07/2017

#### **Date of final enrolment**

18/09/2018

## **Locations**

#### **Countries of recruitment**

Ghana

#### **Study participating centre**

KPANIYILI AME

N/A

#### **Study participating centre**

FEO-AWIISI D/A PRIMARY/KG

Ghana

N/A

#### **Study participating centre**

**GOWRIE-TINGRE KG**

Ghana

N/A

**Study participating centre**

**DUA D/A PRIMARY/KG**

Ghana

N/A

**Study participating centre**

**KASULIYILI RC**

Ghana

N/A

**Study participating centre**

**NAYORIGO D/A KG**

Ghana

N/A

**Study participating centre**

**APUWONGO PRIMARY/KG**

Ghana

N/A

**Study participating centre**

**ST. AUGUSTINE R/C KG/PRIMARY**

Ghana

N/A

**Study participating centre**

**VEA D/A KG**

Ghana

N/A

**Study participating centre**



**GOWRIE KG**

Ghana

N/A

**Study participating centre**

**GOO-ATANDAA KG**

Ghana

N/A

**Study participating centre**

**KANSOE D/A KG/PRIMARY**

Ghana

N/A

**Study participating centre**

**TINDANG HANATIYA**

Ghana

N/A

**Study participating centre**

**TIBOGUNAYILI AHMADIYA**

Ghana

N/A

**Study participating centre**

**KPENDUA AHMADIYA**

Ghana

N/A

**Study participating centre**

**JAGRIGUYILI AME ZION**

Ghana

N/A

**Study participating centre**

**TALI RC**

Ghana

N/A

**Study participating centre**

**CHIRIFOYILI RC**

Ghana

N/A

**Study participating centre**

**GBRUMANI-TIBOGU DA**

Ghana

N/A

**Study participating centre**

**WANTUGU EA**

Ghana

N/A

**Study participating centre**

**WALA DA**

Ghana

N/A

**Study participating centre**

**TAMALGU ANGLICAN**

Ghana

N/A

**Study participating centre**

**KUGLOGU EA**

Ghana

N/A

**Study participating centre**

**GBULAHGU AME ZION**

Ghana

N/A

**Study participating centre**

**WANTUGU RC**

Ghana

N/A

**Study participating centre**

**ZALI EA**

Ghana

N/A

**Study participating centre**

**KOBILMAHIGU DA**

Ghana

N/A

**Study participating centre**

**DIMABI DA**

Ghana

N/A

**Study participating centre**

**GOLINGA PRESBY**

Ghana

N/A

**Study participating centre**

**NAMOO-DOONE KG/PRIMARY**

Ghana

N/A

**Study participating centre**

**AMANGA D/A KG**

Ghana

N/A

**Study participating centre**

**BUNGU D/A KG/PRIMARY**

Ghana

N/A

**Study participating centre**

**SIKABIISI D/A KG/PRIMARY**

Ghana

N/A

**Study participating centre**

**AMOYAAMA KG**

Ghana

N/A

**Study participating centre**

**AZAMBUO D/A KG/PRIMARY**

Ghana

N/A

**Study participating centre**

**ST. JOHN BOSCO R/C PRIMARY/KG**

Ghana

N/A

**Study participating centre**

**KUNGURU DA**

Ghana

N/A

**Study participating centre**

**KANGBAGU SDA**

Ghana

N/A

**Study participating centre**

**KPAACHIYILI DA**

Ghana

N/A

**Study participating centre**

**AGOMO D/A KG**

Ghana

N/A

**Study participating centre**

**ASAKULSI D/A PRIMARY/KG**

Ghana

N/A

**Study participating centre**

**LEEMBIISI-MOSHIDABOORO**

Ghana

N/A

**Study participating centre**

**DUA-KANTIA D/A KG/PRIMARY**

Ghana

N/A

**Study participating centre**

**GHANA DAA R/C PRIMARY**

Ghana

N/A

**Study participating centre**

**BEO-NAYIKURA D/A KG/PRIMARY**

Ghana

N/A

**Study participating centre**

**KADARE D/A PRIMARY/KG**

Ghana

N/A

**Study participating centre**

**AYONE D/A KG**

Ghana

N/A

**Study participating centre**

**NYARIGA D/A KG/PRIMARY**

Ghana

N/A

**Study participating centre**

**VEA-KULPEELGA KG**

Ghana

N/A

**Study participating centre**

**TARONGO D/A PRIMARY/KG**

Ghana

N/A

**Study participating centre**

**KANKO-OM D/A PRIMARY**

Ghana

N/A

**Study participating centre**

**KODOROGO D/A PRIMARY**

Ghana

N/A

**Study participating centre**

**BALUNGU D/A KG/PRIMARY**

Ghana

N/A

**Study participating centre**

**BALUNGU-GANLAGRUM D/A PRIMARY/KG**

Ghana

N/A

**Study participating centre**

**FATHER LEBEL MEMORIAL RC**

Ghana

N/A

**Study participating centre**

**ATANSEKA KG**

Ghana

N/A

**Study participating centre**

**AWAA D/A KG**

Ghana

N/A

**Study participating centre**

**GAMBRONGO D/A PRIMARY/KG**

Ghana

N/A

**Study participating centre**

**ABELINZANGA D/A KG/PRIMARY**

Ghana

N/A

**Study participating centre**

**KANFEHIYILI EA**

Ghana

N/A

**Study participating centre**

**TINGOLI RC**

Ghana

N/A

**Study participating centre**

**NGABA ZION**

Ghana

N/A

**Study participating centre**

**BUYILI DA**

Ghana

N/A

**Study participating centre**

**WANTUGU TUNTEEYA**

Ghana

N/A

**Study participating centre**

**YOGGU DA**

Ghana

N/A

**Study participating centre**



**KPALIGUN ZION**

Ghana

N/A

**Study participating centre**

**ASSEIYILI AME ZION**

Ghana

N/A

**Study participating centre**

**ZOOLANYILI EA**

Ghana

N/A

**Study participating centre**

**GBRUMANI AHMADIYA**

Ghana

N/A

**Study participating centre**

**YOBZERI DA**

Ghana

N/A

**Study participating centre**

**TALI EA**

Ghana

N/A

**Study participating centre**

**GBANJONG AME ZION**

Ghana

N/A

**Study participating centre**

**YIPELUGU AME ZION**

Ghana

N/A

**Study participating centre**

**KPALSOGU AME ZION**

Ghana

N/A

**Study participating centre**

**FIHINI ZION**

Ghana

N/A

**Study participating centre**

**KURIGUVUHIYAYILI EA**

Ghana

N/A

**Study participating centre**

**NYUJAGYILI EA**

Ghana

N/A

**Study participating centre**

**GURUMANCHAGYILI EA**

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N/A

## **Sponsor information**

### **Organisation**

Institute for Fiscal Studies

### **Sponsor details**

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**Sponsor type**

Research organisation

**ROR**

<https://ror.org/04r1cjx59>

## **Funder(s)**

**Funder type**

Not defined

**Funder Name**

Jacobs Foundation

**Funder Name**

Global Innovation Fund

## **Results and Publications**

**Publication and dissemination plan**

Planned publication in a high-impact peer reviewed journal.

**Intention to publish date**

14/06/2019

**Individual participant data (IPD) sharing plan**

The full anonymised data set will be made publicly available on the IFS website 2 years after the trial end date. This will be publicly accessible for anyone, given a short registration form where they will provide contact details. This will be available for any type of analyses that the user wishes to conduct. Full consent was gained from all participants, and all data made available will be fully anonymised with no names, or other personal identifiers.

**IPD sharing plan summary**

Data sharing statement to be made available at a later date