



IMPROVING PARENTING PRACTICES: A RESEARCH SUMMARY OF TWO RANDOMIZED CONTROLLED TRIALS OF AN ECD PARENTING PROGRAMME IN RURAL RWANDA¹

**Conducted by the Institute of Development Studies at the University of Sussex, in
partnership with Save the Children**

Background

The first years of life are critical in shaping a child's future. A large body of research has shown that exposure to adversity early in life can negatively impact brain development, attachment and early learning.ⁱ Brain development is particularly rapid and malleable during the early years.ⁱⁱ Children from disadvantaged households or those exposed to adverse childhood experiences are more likely to suffer developmental delays, which become more pronounced with time. This leads to the perpetuation of poverty and negative effects on productivity in adulthood. Unfortunately, an estimated 279 million children from low- and middle-income countries are at risk of not reaching their development potential due to extreme poverty and stunting.ⁱⁱⁱ Early Childhood Development (ECD) interventions can help to tackle this challenge.

A wide range of ECD interventions have been implemented across a variety of contexts. For children age 0-3, programmes that target parents² are the most common interventions, including home visiting and group session models.^{iv} A growing body of research has shown that improving the quality of a child's home environment, including parent's practices and behaviours, can help to

¹ Patricia Justino, Marinella Leone, Pierfrancesco Rolla, Monique Abimpaye, Caroline Dusabe, Richard Germond and Diane Uwamahoro

² In this paper the term 'parent' refers to the person who is mostly involved in raising the child (i.e. the "principal caregiver" of the child).

improve children’s cognitive and socio-emotional development and mitigate factors that typically depress child development, including poverty.^v Although there are several proven examples of successful home visit models that directly engage parents with sustained results, these interventions tend to be expensive and difficult to implement at scale. Group-based parenting programmes are less expensive and may offer a more feasible solution for scale-up but there’s a gap in evidence of group-based interventions that offer sustained results and can be delivered through a scalable model, particularly in low- and middle-income contexts.^{vi}

The research papers outlined in this summary aim to contribute to the evidence base of ECD interventions, with particular focus on approaches to improving parenting for better child development outcomes. The first paper, *Improving Parenting Practices for Early Child Development: Evidence from a Randomized Radio Supported Group-Parenting Programme in Rwanda*, presents the short- and medium-term impacts of a programme that was explicitly designed to pilot a scalable, group-based model of an ECD intervention targeting parents of children age 0-3 in a poor, rural district of Rwanda (First Steps Impact Study). The second paper, *The Parenting Nudge – Increasing Parental Self-Efficacy to Improve Parenting Practices: Evidence from a Randomized Video Intervention in Rwanda*, was carried out to examine the role of a video intervention on parental self-efficacy and its related effects on parenting outcomes (Increasing Parental Self-Efficacy Study). Highlights of the findings from these two studies are summarised in this report, beginning with the First Steps Impact Study, followed by the Increasing Parental Self-Efficacy Study.

ECD in Rwanda

In Rwanda, most programming for children ages 0-3 has focused on the health and nutrition needs for securing children’s physical development rather than addressing the holistic development needs of children. Children’s socio-emotional and cognitive development needs have been largely neglected by targeted interventions. The result of this gap is evidenced through data generated from the most recently published Rwanda Demographic and Health Survey (RDHS), which showed that while 92% of children age 36-59 months in Rwanda are on track in physical domains, **only 7% of these children are developmentally on track in areas of literacy and numeracy; these figures are even lower for those in rural areas, poorer households and children of less educated parents.**^{vii}

THE ECD CHALLENGE IN RWANDA

- 63% of children age 3-5 are developmentally on track in at least 3 of 4 domains; however, only 7% of children age 3-5 are developmentally on track in literacy-numeracy
- 49% of children age 3-5 had an adult household member engage in 4 or more activities over the past 3 days that promote learning and school readiness
- 1% of children under 5 have at least 3 children’s books in the home
- 19% of children under 2 play with two or more playthings, including homemade toys or household objects
- 35% of children under 5 were left alone or under the care of another child under the age of 10 for at least an hour in the previous week
- Socioeconomic status and parents’ education levels are highly correlated to children’s scores on an ECD index, access to play materials, and household engagement in learning activities

Statistics drawn from the Rwanda Demographic and Health Survey 2014/15

In addition, few children in Rwanda have access to organised learning in the form of early childhood education programmes, with only 13% of children age 36-59 months attending an organised programme nationally; this number falls to 3% of children in the poorest households, and 4% of children living in the Western province.^{viii} For children under 3 years of age, access is even more limited.

Responsibility for supporting children's development, including their cognitive and brain development, falls to the child's primary caregiver (generally their parents). However many parents are unaware of practices that will help or could harm their children's development. A 2015 study produced by Save the Children that looked at Public Awareness of Emergent and Early Literacy in Rwanda found that public knowledge of children's cognitive development was low, with only 1% of respondents knowing that children's intelligence begins to form from age 0.^{ix} Furthermore, the RDHS found that only 49% of children age 36-59 months in Rwanda had an adult household member engage in activities with them that promote learning and school readiness.^x Although national statistics are not available for children under the age of 3, it's expected that this percentage would be even lower for younger children as the RDHS found that the number of learning materials in the home (including books and toys) was significantly lower for children age 0-23 months than children age 24-59 months (for children 23 months and younger, only 0.5% had 3 or more children's books and 18.5% had 2 or more types of playthings; for children age 24-59 months, these figures were 1.3% and 42.5% respectively).^{xi}

Some of these child development challenges are clearly linked to poverty. Nevertheless, it is possible to address many of these by better supporting parents and improving their knowledge on small, simple but effective parenting practices that they can realistically undertake. These include playing and talking with the child, singing songs or telling stories, providing love, affection and attention, naming objects and counting, matching or sorting things, and preparing healthy meals.

First Steps ECD Parenting Programme

In response to these concerns and identified gaps in child development and literacy outcomes, Save the Children and its local NGO partner, Umuhuza, initiated a 0-3 Early Childhood Development (ECD) programme to particularly address language, communication and wider cognitive development deficits, while simultaneously highlighting holistic child development in all domains. Targeting parents and building from a previous piloted model, a new intervention, called First Steps (Intera za Mbere), was designed in 2015 to test a scalable approach to ECD parenting programming.

First Steps seeks to improve child development outcomes for children in the early stages of life by encouraging parents to adopt practices supportive of child development and increasing literacy promotion in the home. By incorporating a research component into the programme, an additional aim is to contribute to Save the Children's, development partners' and the Government of Rwanda's understanding of feasible and cost-effective approaches to delivering parenting education, suitable for national expansion in the Rwandan context and effective in achieving improvements in parenting practices and children's development outcomes.

The programme was designed to target parents of children aged between 0 and 36 months in the Ngororero District³ of rural Rwanda from 2015-16⁴. It is a group-based parenting programme that engages parents through sessions that include listening to a radio show and facilitated discussions over the course of seventeen weekly village-level meetings. During the weekly meetings, parents⁵ meet in a central location of their village to reflect on the previous week's session, listen to a new episode of a radio show, discuss its content with a local facilitator⁶ and learn simple, age-appropriate activities and games they can do at home to support their children's development. The aim of the group sessions is to improve the quality of parent-child interactions and to equip parents to participate with their children in developmentally-appropriate learning activities, centred around daily routines and using household resources as learning tools. Session content focuses on i) early communication and emergent literacy promotion at home; ii) learning through play; iii) responsive care and bonding; and iv) nutrition and health.

Save the Children Rwanda and Umuhuza developed the radio show, drawing upon their experience in working with parents in Rwanda to ensure that content and characters were relatable to most Rwandan parents. The seventeen episodes, which last 15-20 minutes, depict a fictional community in which a parenting programme is being implemented; the plot follows the change and transformation in the characters as they address various parenting practices, attitudes and beliefs. Each episode centres on a key positive parenting practice drawn from the First Steps curriculum and relates to parents' interactions with their 0-3 age child, as well as confronting existing biases, misconceptions and negative attitudes around the key messages, including the role of fathers in child care and development.



Example of a poster used during sessions

The radio programme is both preceded and followed by a participatory conversation between a village facilitator and the parents. The discussions with parents also include the use of posters, which highlight key parenting practices and messages, and involve practicing activities and games between parents and children. In addition, parents were trained on how to make homemade books and toys using locally available materials. The village facilitators were drawn from a network of local women and men. They received a training of 3.5 days and were paid 4,000 RWF per month as an incentive (approximately 5 USD). All village facilitators also received an activity booklet, which outlined the activities, games and key messages to share with parents each session.

The programme was implemented as a Randomized

³ The Ngororero District is part of the Western Province of Rwanda. It is one of the poorest districts in Rwanda with 47.7% of the population below the poverty line, and 20.8% in extreme poverty (EICV5 2016/17, NISR, 2018)

⁴ The programme implementation period for the research was from 2015-16; however, the programme has continued to be implemented in other parts of Rwanda.

⁵ At the study's baseline, more than 93% of the principal caregivers were mothers and 5% were fathers.

⁶ Facilitators were identified from within each village of implementation based on criteria such as living in the village where the intervention was implemented, being literate, and not having any previous criminal record. Facilitators were not expected to have any previous experience in ECD or relevant educational background. The profile of facilitators included being aged between 22-60 (with the mean age being 36 years), 60% were female, and 25% had a primary education, 65% a secondary education and 10% vocational training.

Controlled Trial with three treatment arms: a Control group, a Light Treatment group and a Full Treatment group, with different components, as summarized below. Both treatment groups included the group-based sessions supported by a village facilitator, as outlined above. The Full Treatment group also received additional inputs of a supervising facilitator recruited at the cell level to support the village facilitators (cell-based facilitators were also trained for 3.5 days and received a slightly higher pay than the village facilitators (4,500 RWF per month)), 1 home visit by the village and cell-based facilitators, provision of a cell-based book bank, leaflets for parents to take home after each session reminding them of session content, and a children's book gifted to each household upon completion of all sessions.⁷

The primary purpose of the programme design to include two different intervention arms was to determine whether a relatively lower-cost intervention could produce similar results as a more thorough (yet still low-cost) model of a parenting programme intervention.



First Steps parenting session in action. Parents meet in different types of gathering spots; sometimes outside, as in this picture, other times in churches, community centres or someone's home.

The implementation groups and their distinguishing elements are summarised in the table on the following page:

⁷ An additional component of initiating local booksellers was introduced to provide opportunities for parents to purchase age-appropriate books for their children within their communities. This component was introduced in all 3 arms of the study and therefore was not evaluated as part of this research.

Light Treatment Group	Full Treatment Group	Control Group
17 weekly group-based sessions, including a 15-20 min radio drama to deliver key parenting messages, preceded & followed by facilitated discussions	17 weekly group-based sessions, including a 15-20 min radio drama to deliver key parenting messages, preceded & followed by facilitated discussions	No intervention
Local village facilitator for sessions, trained for 3.5 days to lead sessions	Local village facilitator for sessions, trained for 3.5 days to lead sessions and conduct home visits	
Provision of an activity booklet to each village facilitator, which outlined the activities and key messages to teach to parents each session	Provision of an activity booklet to each village facilitator, which outlined the activities and key messages to teach to parents each session	
Illustrated posters used to guide discussions	Illustrated posters used to guide discussions	
Training of parents to make homemade books and toys	Training of parents to make homemade books and toys	
	Additional assistance from a cell-based facilitator to support the 3 villages within the cell (cell-based facilitators also received 3.5 day training)	
	1 home visit conducted by village and cell-based facilitators	
	Provision of a cell-based book bank of sixty 0-3 age-appropriate, local-language children's books for parents to borrow	
	Provision to all participating households of weekly session take home cards, which include illustrations and text to remind parents of activities and key messages introduced in each session	
	Provision of 1 children's book per household upon completion of the sessions	

First Steps Impact Study

This section presents a summary of the research on the short- and medium-term impact of the First Steps programme implementation, as presented in the paper *Improving Parenting Practices for Early Child Development: Evidence from a Randomized Radio Supported Group-Parenting Programme in Rwanda*.^{xii} The full paper should be consulted for a complete description of the research design and methodology, as well as more detailed findings. The research aimed to address the following key research questions:

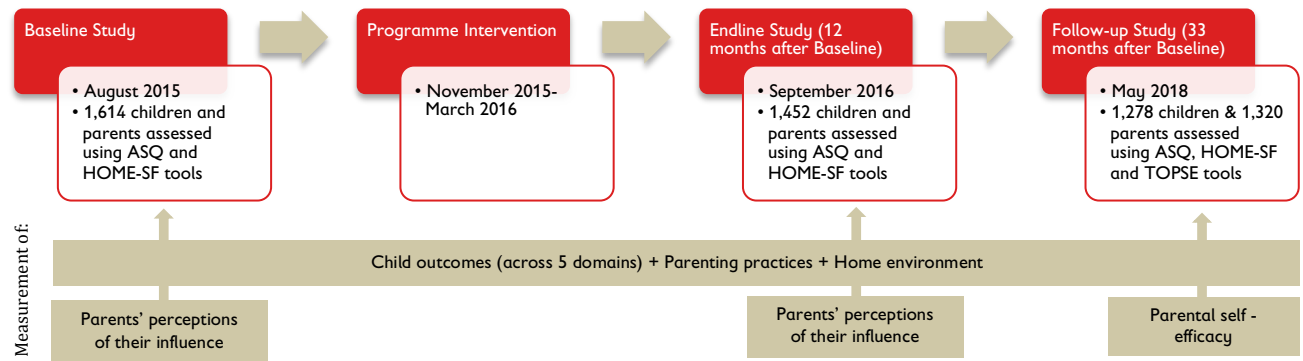
- What is the impact of 2 variations of a scalable, holistic parenting programme in a low-income context (Rwanda)?
- Do results persist in the medium-term (for parents and for children)?
- What are the mechanisms driving the changes in child development? To what extent do parenting practices and behaviour matter?

RESEARCH DESIGN & METHODOLOGY

The First Steps intervention was evaluated through a randomized controlled trial with a control group and two treatment arms – Light Treatment (LT) and Full Treatment (FT) – as previously described. Within Ngororero District, 9 sectors out of 13 were selected for the study; these sectors were randomly assigned into three study arms. In each sector, three cells were randomly selected and within each cell, three villages were randomly selected. The sample therefore includes 9 sectors, 27 cells and 81 villages (i.e. 27 villages in each treatment arm). In each village, 20 households with children age 6-24 months participated in the intervention and research⁸.

The Baseline (BL) data were collected in August 2015. The intervention ran between November 2015 and March 2016. Endline (EL) data were collected in September 2016. Follow-up (FU) data were collected in May 2018. To measure child development outcomes, the Ages & Stages Questionnaire (ASQ) was used. Information on the home environment and on parenting practices was collected using an expanded version of the Home Observation for Measurement of the Environment – Short Form (HOME-SF) tool, adapted for the Rwandan context. In the follow-up survey, data were also collected on parental self-efficacy using the Tool to measure Parenting Self-Efficacy (TOPSE).

The research activities are summarised as follows:



⁸ Villages with more than 20 eligible and interested families were offered the same intervention in a second, subsequent cohort.

At Baseline, there weren't significant differences in the characteristics of children and parents between the three arms of the study. Thus, the control group is able to serve as a counterfactual, or comparison, for the treatment sample with the differences between the control and treatment thereby attributable to the programme. Treatment group effects are assessed on the basis of an intent to treat (ITT) estimate; that is, data are presented based on results from all children and parents in each treatment arm regardless of the extent to which they participated in the programme (if at all).

SUMMARY OF IMPACT STUDY RESEARCH FINDINGS

The following findings are presented for child development and parent outcomes in the short-term (at Endline, 12-months after the baseline) and medium-term (at Follow-up, 33-months after the baseline). **Overall, findings are encouraging, showing very positive results for a programme with a low budget using a radio supported group-session model.**

Impact on Child Development

Child Development outcomes across five dimensions (communication, gross motor, fine motor, problem solving and personal-social) were measured to assess child performance in relation to expectations for his/her age range. **Short-term results show that both the light treatment and full treatment arms of the First Steps programme supported significantly stronger child development outcomes than the status quo in the control group.** In the short-term, the programme increased the aggregate index of child development by .29 and .38 standard deviations respectively for LT and FT interventions; in other words, in comparison to the control group, there was a 12% increase in scores of children from the LT group and 15% increase in the scores of children from the FT group. As shown in Figure 1, the FT intervention had a stronger effect in all five child development dimensions except gross motor skills, with the largest effects coming from improvements in communication, problem solving and personal social skills, all of which are critical to improving a child's chances of later success in school and life.

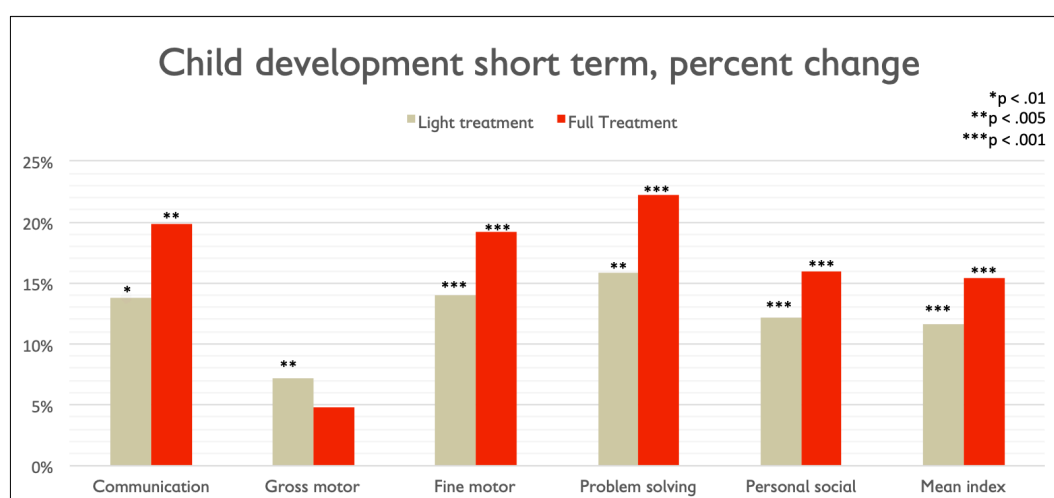


Figure 1: Children's short-term gains at Endline in comparison to the control group (as '0') against the 5 dimensions of child development and the overall mean child development index

Follow-up results show that the effect of the FT intervention on child development outcomes, despite being smaller and statistically weaker, persists in the medium-

term, as illustrated in Figure 2. Effects on child development for the LT intervention group, although still positive, are no longer significant. These results suggest that while a less resource-intensive model can deliver results, **to maintain these results in the medium-term, at least some of the additional components incorporated into the FT group made a difference to produce sustained impacts over time.** However, as the additional inputs to the FT group included several components, it's not possible to isolate which variable was most effective in securing these results, although qualitative research indicates that the inclusion of 1 home visit was most likely a primary component.^{xiii} In particular, families pointed to the importance of home visits in improving men's engagement.

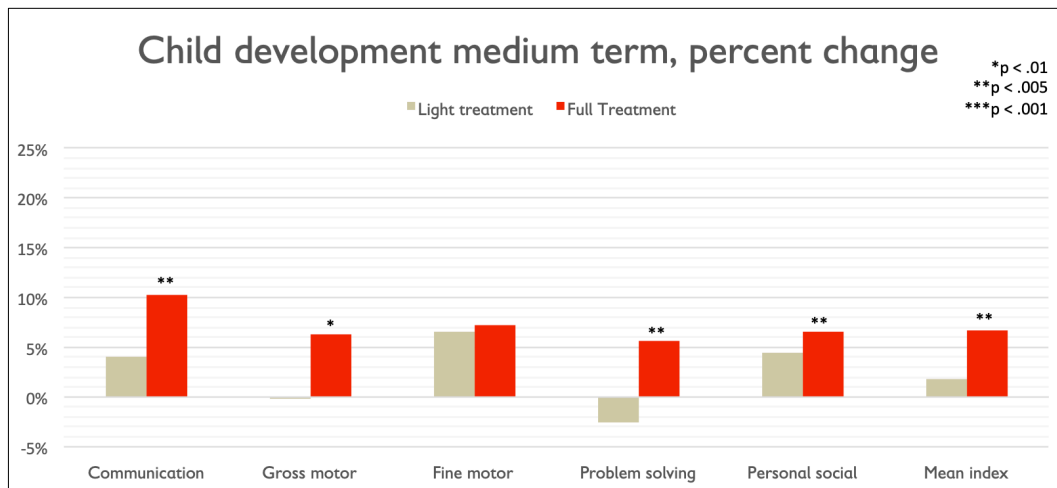


Figure 2: Children's medium-term gains at the 33-month Follow-up study in comparison to the control group (as '0') against the 5 dimensions of child development and the overall mean child development index

Impact on Parent Outcomes

In addition to measuring child development outcomes, this study was interested in identifying what effects the intervention had on the home environment and parenting practices to test the programme's hypothesis that improving the home environment and parenting practices is a key mechanism for improving child development outcomes. Parents reported on the frequency of interactions on a set of activities with the child, with the cumulative scores defined as mother time investment and father time investment. Parent time investment was further categorised by dimensions of learning, positive discipline and negative discipline. In addition, at Endline, information was gathered about parents' perceptions of their influence on their child's learning, child development, nutrition, child care, discipline or child guidance and health care. At Follow-up, parental influence was not measured specifically but rather data on parental self-efficacy was gathered.

Results from Endline and Follow-up showed that **both the LT and FT intervention models had a positive and significant effect on mothers' time investment in both the short- and medium-term, particularly on increasing practices of engaging in 'learning' caregiver-child activities,** such as singing, telling a story, playing with toys, reading and naming objects. As shown in figures 3 and 4, in the short-term, mothers from the LT group invested 41% more time on learning activities than parents in the control group; mothers from the FT group invested 52% more time than control mothers. In the medium-term, although gains

were reduced, they remained high, with mothers from the LT group investing 22% more time than control mothers and FT mothers investing 27% more than control.

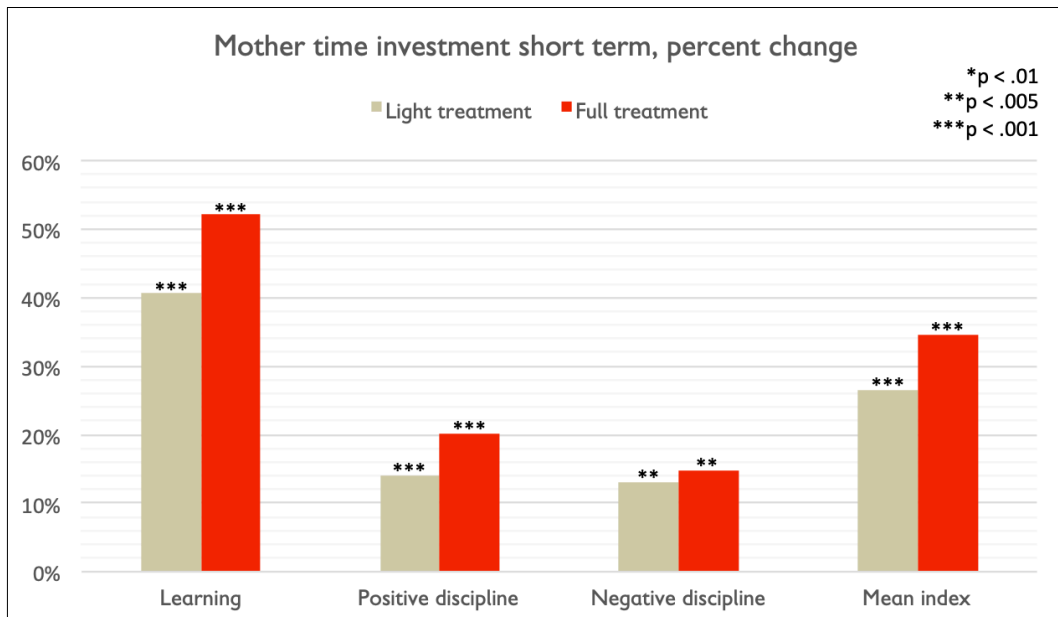


Figure 3: Changes in the frequency of activities undertaken by mothers in the intervention groups in the short-term, compared to mothers in the control group.

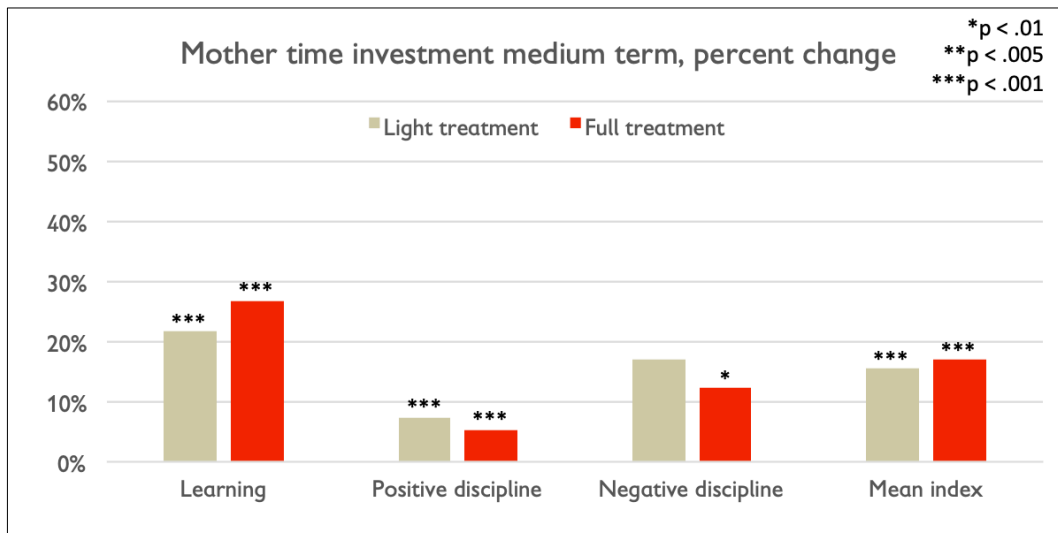


Figure 4: Changes in the frequency of activities undertaken by mothers in the intervention groups in the medium-term, compared to mothers in the control group.

Impact on father time investment, however, while positive in the LT group was only significant in the FT group both at Endline and Follow-up (see figures 5 and 6). Results need to be taken with caution, as there were relatively few observations of fathers; however, these findings are interesting as they indicate a substantial increase, with **men from the FT group increasing over the control group their investment in learning activities with children by 81% in the short-term and 32% in the medium-term.**

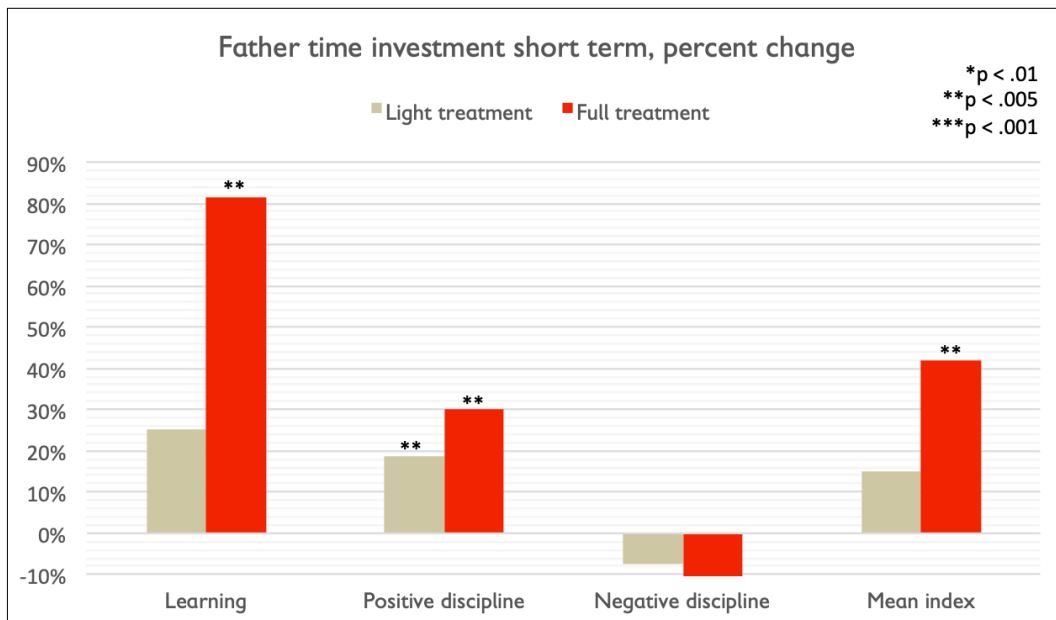


Figure 5: Changes in the frequency of activities undertaken by fathers in the short-term in the intervention groups compared to fathers in the control group.

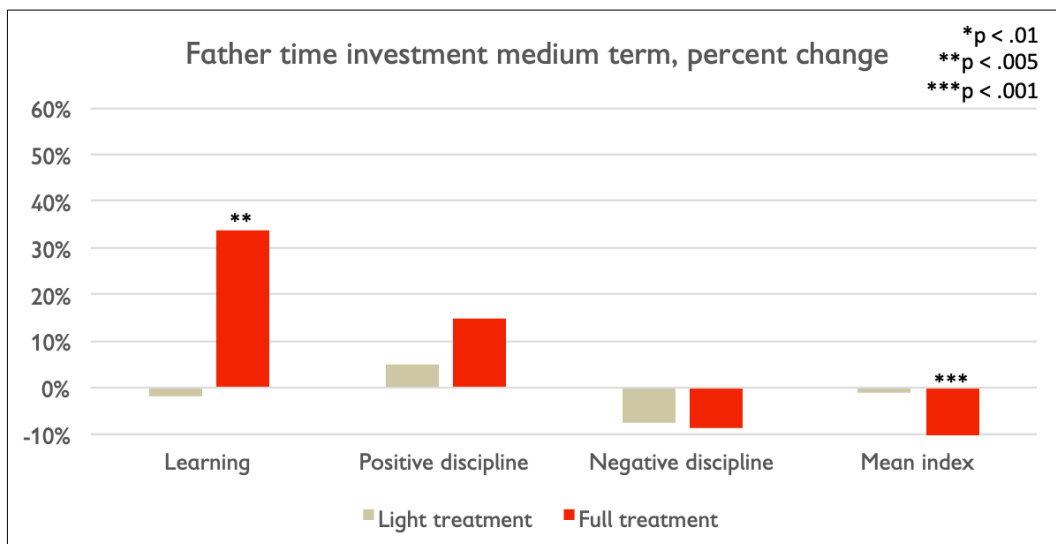


Figure 6: Changes in the frequency of activities undertaken by fathers in the medium-term in the intervention groups compared to fathers in the control group.

As visible from the figures above, the most significant impact of the programme on parent investment was on play and learning activities. Positive discipline activities were also impacted but to a lesser extent. Negative discipline activities were those least affected by the programme, and in the case of fathers in the medium-term, reports of negative discipline were higher in the medium-term, though not significantly so. These findings aren't surprising given that the programme focused more predominantly on topics relating to learning; positive discipline was addressed, but only lightly.

In addition to increasing parental investment, at Endline, **parents' perception of their influence in supporting children's development increased significantly** in the intervention groups compared to the control group, and parents in the full treatment intervention group

gained significantly more than parents in the light treatment group (increasing by 14% in the LT and 20% in the FT group) (see figure 7).

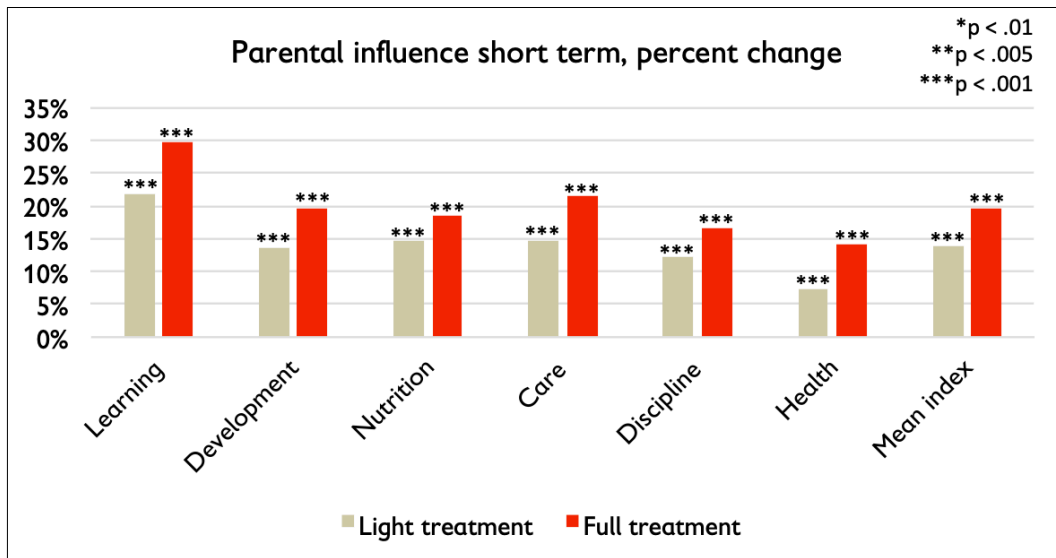


Figure 7: Changes in parents’ perceptions of the influence they have over children in different dimensions and mean index, compared to parents in the control group.

At Follow-up, parental self-efficacy was measured, with results showing a sizeable impact from the programme (mostly the FT arm) on many dimensions of parental self-efficacy. Parents who participated in First Steps were more likely at Follow-up to feel confident in their ability to respond to their children’s emotional needs, support their children’s play activities, exercise control over their children, discipline their children and not succumb to pressures relating to parenting. It should be noted, however, that these outcomes were collected at Follow-up only and therefore regressions do not control for baseline parental self-efficacy levels.

Factors Influencing Outcomes

Results were further analysed to determine whether the effect of the programme differs based on factors such as gender, age of the child, or education level of parents. **Results show that the programme impacted child development in a similar way on both boys and girls and children of different ages.** In addition, the effect of the programme on child development is similar irrespectively of the level of education of the mother or father, but the **effect on mother time investment appears larger for less educated parents**, as depicted in figure 8. This is an exciting finding as it demonstrates that lower educated households can significantly benefit from a parenting intervention such as First Steps, overcoming the common association of higher education levels resulting in better child development outcomes.

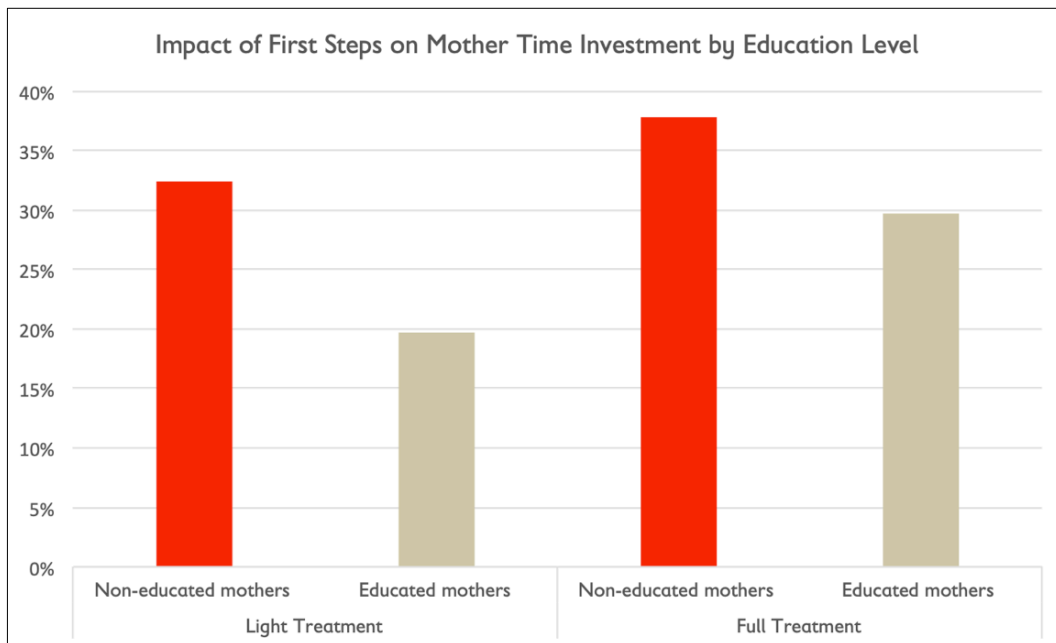


Figure 8: Effect of First Steps on mother time investment against the control group, comparing this effect between the mothers with or without primary level of education, for each treatment arm

Furthermore, mediation analysis showed that **20% of positive changes in child development indicators can be attributed to the increase in time mothers spend engaging with their children on different activities.** Additionally, improvements in mothers' time investment were shown to be positively associated with child development outcomes; **the more time mothers invest in their children's development, the higher their scores are on the ASQ child development index,** as illustrated in Figure 9.

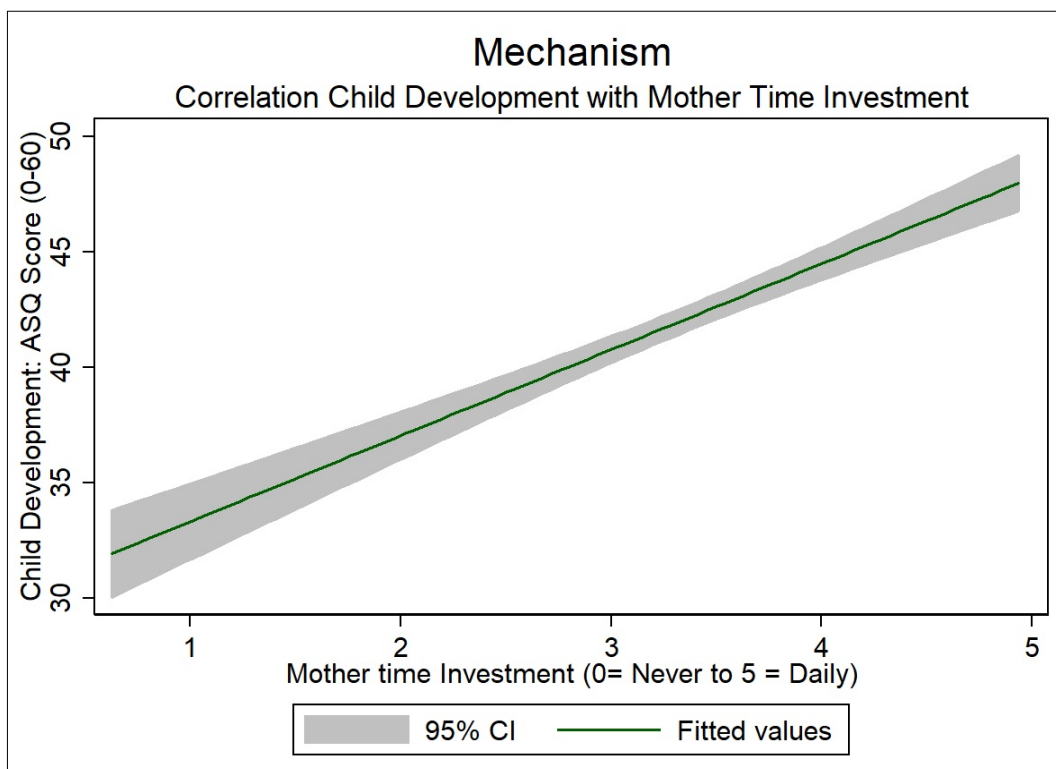


Figure 9: Correlation showing that the more time a mother spends engaging in activities with her child, the higher the child scores on the ASQ Child Development Index

An additional factor that affected the impact of the programme on child development and parental outcomes was the number of sessions that the parent attended. As noted previously, the full programme consisted of 17 weekly sessions. Participation was voluntary and on average, parents attended 12 sessions. Analysis of the impact on child development based on the number of sessions attended showed that **only after attending at least 8 sessions was there a positive effect of the programme, with performance improving the more sessions a parent attended.**

In seeking to better understand if certain characteristics made it more or less likely for parents to attend more sessions, findings showed that parents with at least a primary education attended on average a half session more than parents with no education; wealthier households attended less than a quarter session more than poorer households; and parents attending sessions facilitated by a more experienced facilitator were found to attend one tenth more sessions than others. These results, while statistically significant, are not so large as to have likely changed the outcome of the programme in favour of more educated and wealthier families, or those attending more well-facilitated sessions.

Increasing Parental Self-Efficacy Study

This section presents a summary of the research on a subsequent video intervention. Drawing from the intervention impact study outlined above, an additional research study was carried out after implementation to further explore ways in which parental practices could be affected by increasing parental self-efficacy. The study, as presented in the paper *The Parenting Nudge – Increasing Parental Self-Efficacy to Improve Parenting Practices: Evidence from a Randomized Video Intervention in Rwanda*, was carried out in 2018, drawing on the same intervention area with First Steps participants.

Parental self-efficacy is defined as the perceived confidence of parents in tasks associated with parenting. Self-efficacy has been linked to positive early childhood development outcomes because when parents feel confident in their ability to be parents, they are more likely to use parenting strategies that will foster positive child development outcomes.^{xiv}

There are four sources of efficacy beliefs:

- i) **Performance accomplishment** – Relates to having a direct experience that builds self-belief through one's perception of having mastered a task;
- ii) **Vicarious experience** – Relates to one's observation of surrounding people, especially role models; seeing others succeed by their effort increases one's own beliefs in being able to succeed in that area;
- iii) **Verbal persuasion** – Relates to influential people in one's life strengthening one's belief that he has what it takes to succeed;
- iv) **Emotional state** – Relates to one's state of mind or emotional well-being.^{xv}

Although parental self-efficacy has been shown to be correlated with parenting and, consequently, with child development outcomes, few studies to date have provided causal evidence of the importance of self-efficacy in improving parenting outcomes. To further explore

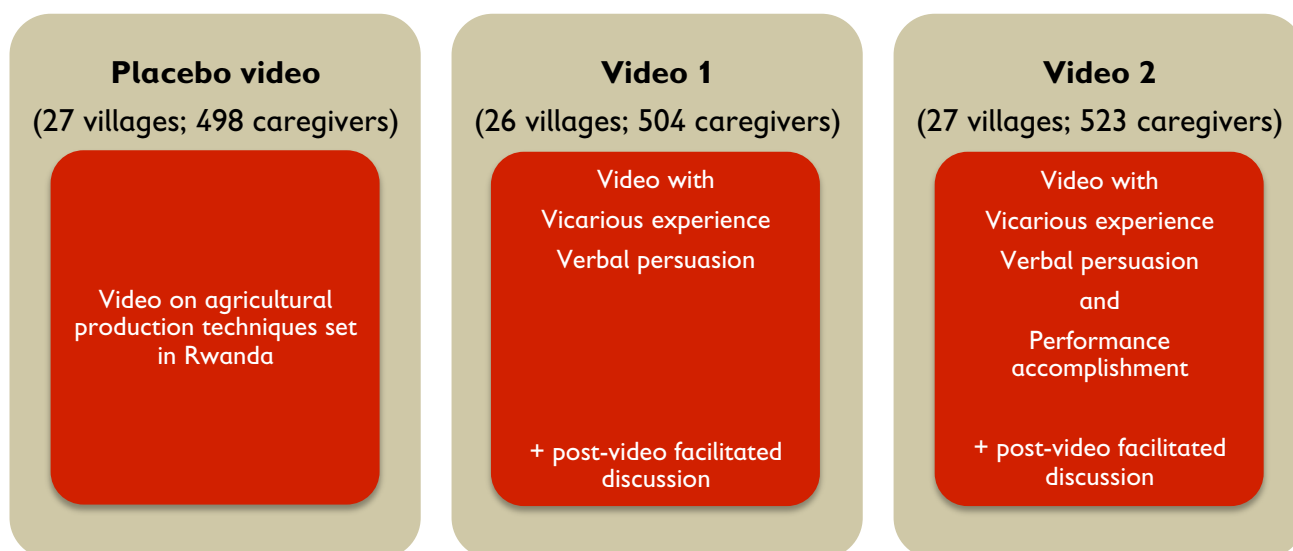
this relationship, this research was undertaken to: 1) investigate the causal impact of a video intervention and accompanying discussion on parental self-efficacy and parenting practices, attitudes and beliefs, and 2) understand how much of the effect on the latter parenting outcomes is because of the experimentally increased parental self-efficacy. This study aimed to address the following research questions:

- What is the impact of a video intervention and group discussion in a low-income context (Rwanda) in the short-term on parental self-efficacy?
- Does a short video, supported by group discussion improve parenting outcomes?
- To what extent does the change in parental self-efficacy mediate the effect on parenting outcomes?

RESEARCH DESIGN & METHODOLOGY

This intervention takes the form of a simple video screening coupled with a group discussion, which was implemented as a randomized controlled trial. The intervention targeted parents who had participated in the First Steps ECD Parenting Programme approximately 2 years prior to this intervention. For this purpose, two videos were developed⁹ highlighting different sources of self-efficacy with the intention of (i) directly increasing parental self-efficacy, (ii) directly improving parents practices, attitudes and beliefs, and (iii) indirectly improving parents practices, attitudes and beliefs through the experimentally increased parental self-efficacy.

A total of 80 villages in 9 sectors of Ngororero District were assigned to 3 different treatment arms – a Placebo, Video 1 and Video 2. The sample included 3 cells in each of 9 sectors¹⁰; within each cell, 3 villages were randomly assigned a different treatment status as follows:

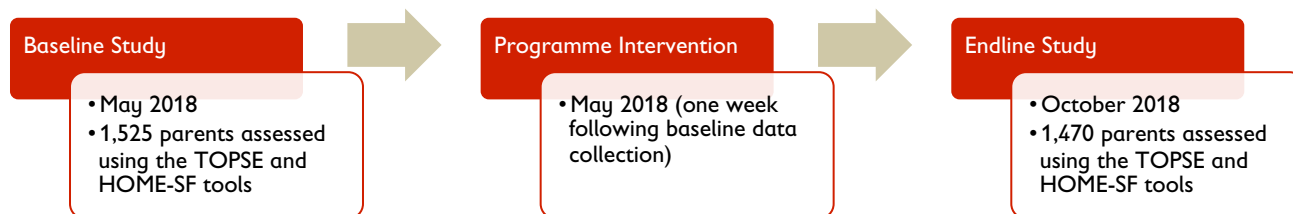


Baseline data were collected in May 2018, one week before the video screening and group discussion. Endline data were collected four months later, in October 2018. Parental self-efficacy measures were collected using the *Tool to measure Parenting Self-Efficacy (TOPSE)* questionnaire,

⁹ Video(s) produced by Looking for Livingstone (Rwanda) (<http://www.lookingforlivingstone.com/>)

¹⁰ These sectors and cells were previously part of Save the Children and Umuhuza's First Steps ECD parenting programme; in a previous RCT assessing the impact of First Steps, randomization of treatment and control arms occurred at sector level. Following the RCT intervention, most of the control sectors also received the intervention.

which includes 43 statements divided into 8 sections exploring different dimensions of parents' self-efficacy over: 1) emotion and affection, 2) play and enjoyment, 3) empathy and understanding, 4) control, 5) discipline and setting boundaries, 6) pressure, 7) self-acceptance, and 8) learning and knowledge. To capture parenting practices, attitudes and beliefs, an expanded version of the HOME-SF questionnaire adapted to the Rwandan context was used. The following figure depicts the sample composition and intervention timeline:



Video 1 sought to boost parental self-efficacy through focusing on **vicarious experience** and **verbal persuasion**. This video included scenes of actors impersonating a typical family from Ngororero District, who were going about their daily life; parents were shown working in the field, cooking, cleaning and taking care of their children, playing with them, and reading books. This latter activity was emphasised to illustrate the vicarious experience component. In addition, in the second part of the video, one actor played the role of an 'ECD Specialist', explaining the importance of believing that as parents they can really make a difference for their children (illustrating the verbal persuasion source).



Video 2 included the same content as Video 1, but with an additional focus on **performance accomplishment** in addition to **vicarious experience** and **verbal persuasion**. In the additional part of the video, the 'ECD Specialist' presented the results of the First Steps ECD Parenting Programme (which parents in the study had participated in), highlighting from the research results that First Steps children were performing better than peers whose parents did not participate in the programme, and praising parents on their skills and accomplishments as parents (addressing the performance accomplishment source of parental self-efficacy).



A third video was screened to the Placebo group, which was used as a control for this study. It included a video on agricultural production techniques set in Rwanda. This was done to ensure that results observed from the intervention were not only due to the fact that a video



was shown in a setting where video screenings are rare.

For Video 1 and Video 2, enumerators were trained to facilitate a group-discussion with the parents about the key messages of the video they were just shown. Enumerators from Video 2 groups were trained to particularly highlight the performance accomplishment source of Video 2. The total intervention lasted approximately 45 minutes – 1 hour¹¹ and occurred only once, one week after the baseline data were collected.

SUMMARY OF PARENTAL SELF-EFFICACY STUDY RESEARCH FINDINGS

The study found that the video with the performance accomplishment source (Video 2) positively impacted parental self-efficacy, parents’ practices and attitudes. Parents from the Video 2 group were more likely to feel confident in their ability to: understand their children’s emotions and express affection with their children, play with and enjoy time with their children, express empathy and understand how to effectively communicate with their child, exert appropriate control over their child, effectively discipline and set behavioural boundaries, withstand external pressures relating to parenting, feel self-acceptance and confidence as a parent, and able to share learning and knowledge with other parents. The group that was shown only Video 1 did not show any significant changes, as depicted in figure 10. This finding highlights **the importance of the performance accomplishment source in affecting parental self-efficacy.**

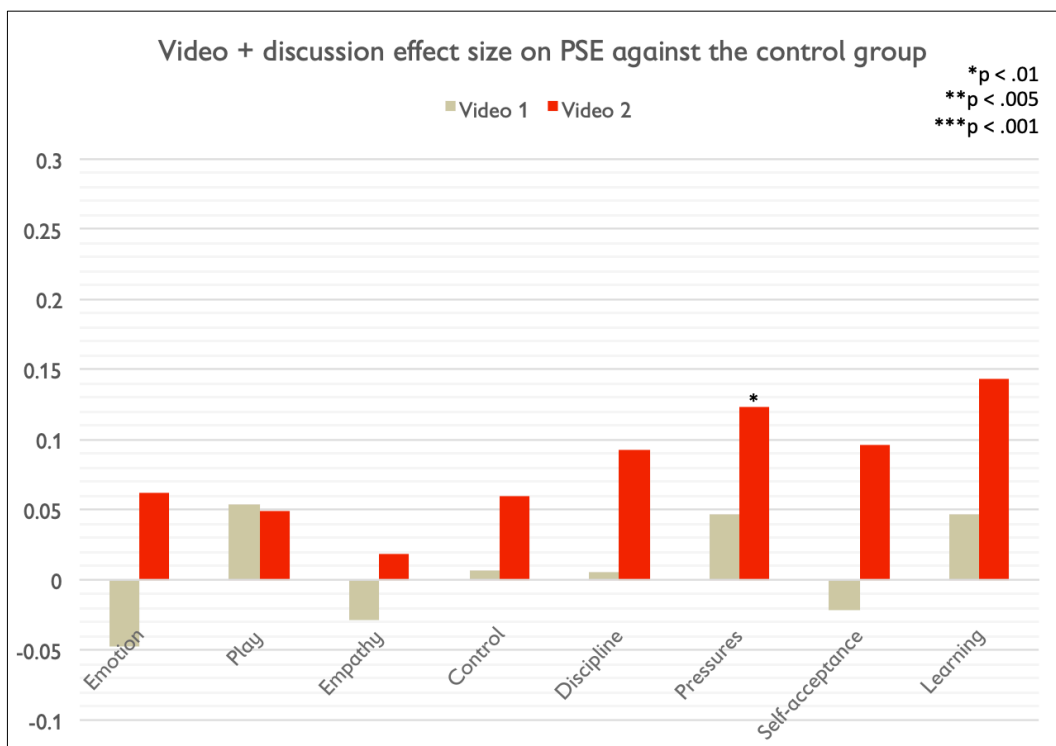


Figure 10: Effects of Video 1 and Video 2 on changes in parental self-efficacy as compared to the Placebo group by standard deviation

¹¹ Video 1 was 9 minutes long, Video 2 was 16 minutes long, and discussions lasted 30-60 minutes, depending on the village.

Results also showed a positive and significant effect of Video 2 on parents' time investment in their children, attitudes towards child development, and aspirations for their children, as reflected in figure 11.

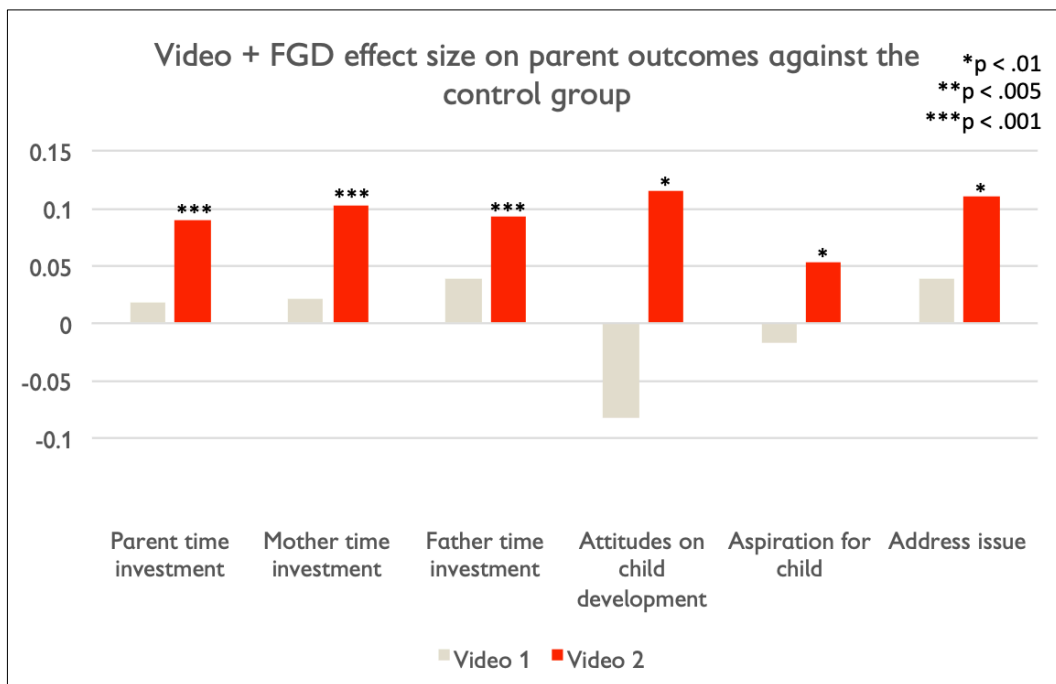


Figure 11: Changes in parents' behaviours, attitudes and beliefs following the Video intervention, as compared to the Placebo group by standard deviation

Furthermore, **parents' time investment was shown to be positively correlated to parental self-efficacy**, as shown in Figure 12. This suggests that by increasing parents' beliefs in themselves as successful caregivers for their children, they are more likely to increase the amount of effort they put into supporting their child and to exhibit positive attitudes and beliefs. **Mediation analysis showed that 20% of improvements in parents' practices, attitudes and beliefs are attributed to the increase in parental self-efficacy.**

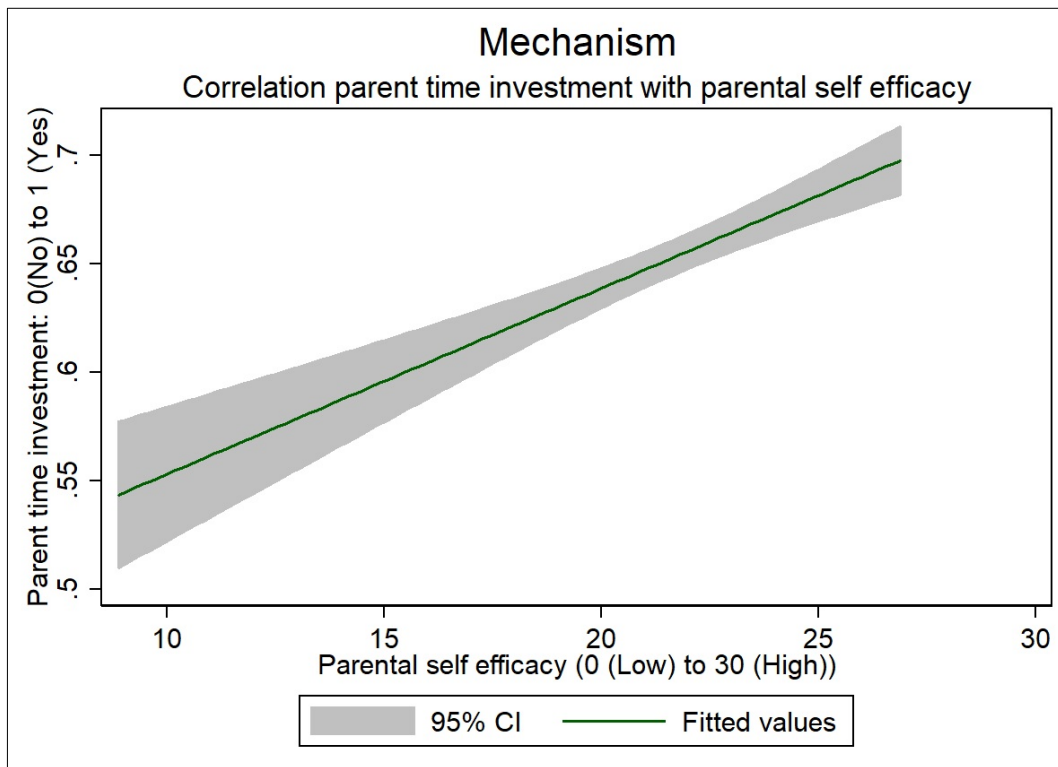


Figure 12: Correlation between the level of parental self-efficacy felt by a parent and the amount of time she invests in supporting her child

The study also examined the heterogeneous effect of the intervention and found that **the impact of the performance accomplishment video intervention (Video 2) on parental self-efficacy (mostly empathy and learning dimensions) was larger for those households that are poorer**, as depicted in Figure 13, suggesting that this population can benefit from positive reinforcement of their parenting capacity.

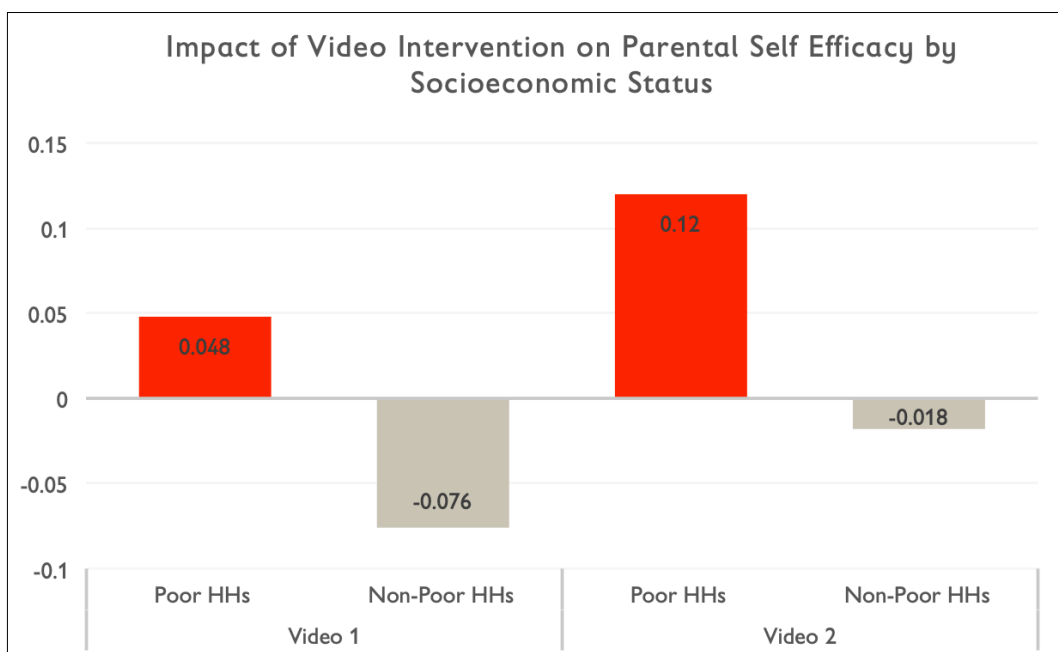


Figure 13: Impact of Video 1 and Video 2 on parental self-efficacy based on proxies of wealth

Conclusions

First Steps Impact Study

The First Steps impact study demonstrated that a low-cost, scalable model of radio supported parenting group sessions can deliver significant results for child development and changes in parental behaviour and attitudes in both the short-term and medium-term, more than 2 years after the intervention was completed. The use of radio to ensure fidelity and consistency of messaging and to stimulate discussion helped to enable sessions to be facilitated by minimally trained local facilitators, a significant cost saver and enabler for scale up.

Testing two intervention models, the data suggest that **the full treatment model delivered more sustained results**. This model included additional elements of a cell-based facilitator to support and assist village facilitators, 1 home visit during the implementation period, access to a book bank, take home materials to remind parents of activities they practiced in sessions, and the provision of a children's book upon completion of sessions. Although it is a slightly more resource-intensive model than the light treatment arm, this intervention arm remains an inexpensive model that could be scaled up in a low-income, rural context.

The study also demonstrated that in order for the programme to have an impact on parent and child outcomes, **parents need to attend a minimum number of sessions** (estimates suggest eight); the more sessions parents attend, however, the greater the results. Factors that influenced the likelihood of parents attending more sessions included having at least a primary education, coming from a higher socioeconomic household, and attending sessions led by a more experienced facilitator.

The programme demonstrated large improvements in children's outcomes, including substantial improvements in the dimension of communication, which is a key building block for early literacy skills. Considering the extremely small percentage of children in Rwanda that are on track in the literacy domain (7% nationally as outlined in the 2014-15 Rwanda Demographic and Health Survey), this finding is encouraging. Rwanda has set a target to become a knowledge-based economy; to achieve this ambition, additional inputs to improving children's literacy and later learning are required. This programme model provides a simple strategy to help achieve this goal and tackle inherent challenges to it by starting at an early age.

In addition to demonstrating a successful, scalable model of an ECD parenting intervention, this research reveals several interesting findings with respect to equity and addressing developmental deficits. Data from the Rwanda Demographic and Health Survey 2014-15 found a positive association between mother's education and children's likelihood to be developmentally on track in at least three of four ECD domains. It also found that scores of children in the upper two wealth quintiles were higher than those in the three lowest quintiles. Results from this study on the impact of First Steps shows that **the programme can mediate these inherent disadvantages for children in poorer households with less educated parents**. This is significant as it provides an opportunity for children to break the cycle of poverty by enabling them to thrive and achieve future academic success in spite of the conditions they were born into.

Investing in a programme that specifically targets improving parents' behaviour and practice is an effective way to address the poor performance of children against development measures. The programme showed both short- and medium-term improvements to parents' investment of time engaging in activities with their children, particularly learning activities. Changes in parenting behaviour and practices account for a substantial proportion of the change observed in child development outcomes; **this study showed the positive relationship between the number of activities parents engaged in with their children and resulting child development scores for children.** First Steps demonstrates that by providing parents with the knowledge and understanding of how to implement supportive activities, parents, even if poorly educated, will increase their positive engagement with children.

Increasing Parental Self-Efficacy Study

The additional study on parental self-efficacy further showed that **parental self-efficacy can be experimentally improved through a simple, low-budget additional intervention.** It also demonstrated that **improvements in parental self-efficacy translate to improved parenting practices.** Results showed that the performance accomplishment source, in addition to the vicarious experience and verbal persuasion sources, was necessary to produce changes in parental self-efficacy; that is, **by showing parents a video that reminds parents of positive parenting practices, models behaviour, provides encouragement and demonstrates parents' accomplishment in parenting, parents that previously benefited from the programme intervention are more likely to not only continue, but increase, positive behaviours introduced in the programme.** These positive behaviours can then translate to better child development outcomes.^{xvi} The study also showed that poorer households can particularly benefit from this positive reinforcement. Implicit within these findings is the importance of sharing positive intervention results with programme beneficiaries as an additional means to sustain and augment programme interventions.

Recommendations

For future programme planning and policy consideration, the following recommendations should be considered:

For implementers:

- Implementation planning for the group-based parenting ECD intervention model used by First Steps should include additional components employed by the Full Treatment model; this may include support of a cell-based facilitator to support village facilitators, at least 1 home visit, access to a book bank, and take home materials for parents and children.
- Minimum attendance requirements should be embedded into interventions and participants should be made aware of the difference that attendance makes to improvements in their children's development. Additionally, potential drivers and barriers to participation in group sessions should be explored as part of implementation planning considerations.
- Strategies to promote men's participation in parenting programmes and greater engagement of fathers in their children's development should be explored.
- Implementers should explicitly plan for sharing results from their work with the change agents (in this case, the parents) with whom they have been engaging, not just from an accountability

perspective but also from a programming perspective as a means of enhancing and sustaining the impact of the interventions. This could also be extended to incorporation into social and behaviour change communication campaigns.

- Additional emphasis should be put on improving parental self-efficacy in parenting programmes to enhance parental outcomes.

For policy makers:

- A parenting programme that especially emphasises parenting practices to improve children's development in the area of communication can help to address the current poor statistics of children in Rwanda meeting their development potential in communication skills, the foundation for literacy.
- A low-cost radio supported model of group-parenting programming, such as that piloted by First Steps, should be considered for national implementation.
- ECD Parenting programmes should be particularly targeted to poor, low educated households in order to help reverse the trend of associations between poverty, mother education levels, and child development outcomes.

For researchers:

- Further research should explore the effect of improvements in child development outcomes, and especially communication skills, on children's later literacy and learning outcomes.
- Further research is required to understand which component or combination of components employed in the Full Treatment model, are most important to securing sustained results.
- Further research should explore the effect of parental self-efficacy on child development outcomes.



This research/project is supported/funded by the British Academy's Early Childhood Development Programme, supported under the UK Government's Global Challenges Research Fund and by the Department for International Development. Save the Children also acknowledges funding from Grand Challenges Canada for the implementation of First Steps and the first part of this research.

References

- ⁱ Black, M. M., Walker, S. P., Fernald, L. C., Andersen, C. T., DiGirolamo, A. M., Lu, C., McCoy, D. C., Fink, G., Shawar, Y. R., Shiffman, J., et al. (2017). Early childhood development coming of age: science through the life course. *The Lancet*, 389(10064):77–90.
- ⁱⁱ Knudsen, E. I. (2004). Sensitive periods in the development of the brain and behavior. *Journal of Cognitive Neuroscience*, 16(8):1412–1425.
- ⁱⁱⁱ Knudsen, E. I. (2004). Sensitive periods in the development of the brain and behavior. *Journal of Cognitive Neuroscience*, 16(8):1412–1425.
- ⁱⁱⁱ Black, M. M., Walker, S. P., Fernald, L. C., Andersen, C. T., DiGirolamo, A. M., Lu, C., McCoy, D. C., Fink, G., Shawar, Y. R., Shiffman, J., et al. (2017). Early childhood development coming of age: science through the life course. *The Lancet*, 389(10064):77–90.
- ^{iv} Britto, P. R., Lye, S. J., Proulx, K., Yousafzai, A. K., Matthews, S. G., Vaivada, T., Perez- Escamilla, R., Rao, N., Ip, P., Fernald, L. C., et al. (2017). Nurturing care: promoting early childhood development. *The Lancet*, 389(10064):91–102.
- ^v Black, M. M., Walker, S. P., Fernald, L. C., Andersen, C. T., DiGirolamo, A. M., Lu, C., McCoy, D. C., Fink, G., Shawar, Y. R., Shiffman, J., et al. (2017). Early childhood development coming of age: science through the life course. *The Lancet*, 389(10064):77–90.
- ^{vi} Carneiro, P. M., Galasso, E., Lopez Garcia, I. X., Bedregal, P., and Cordero, M. (2019). Parental Beliefs, Investments, and Child Development: Evidence from a Large-Scale Experiment. *World Bank Policy Research Working Paper*, (8743).
- ^{vii} National Institute of Statistics of Rwanda (NISR) [Rwanda], Ministry of Health (MOH) [Rwanda], and ICF International. 2015. Rwanda Demographic and Health Survey 2014-15. Rockville, Maryland, USA: NISR, MOH, and ICF International.
- ^{viii} Ibid
- ^{ix} Save the Children (2015). Public Awareness of Emergent and Early Literacy in Rwanda.
- ^x National Institute of Statistics of Rwanda (NISR) [Rwanda], Ministry of Health (MOH) [Rwanda], and ICF International. 2015. Rwanda Demographic and Health Survey 2014-15. Rockville, Maryland, USA: NISR, MOH, and ICF International.
- ^{xi} Ibid
- ^{xii} Justino, P., Leone, M., Rolla, P., Abimpaye, M., Germond, R., Uwamahoro, D. (2019). Improving Parenting Practices for Early Child Development: Evidence from a Radio Programme in Rwanda.
- ^{xiii} Fuller, R. (2016). Qualitative Evaluation of Save the Children's First Steps Program in Rwanda. <https://rwanda.savethechildren.net/sites/rwanda.savethechildren.net/files/library/First%20Steps%20Qualitative%20Report.pdf>
- ^{xiv} Bloomfield, L., Kendall, S., Applin, L., RHV, V. A. R., Dearnley, K., Edwards, L., Hin- shelwood, L., Lloyd, P., and Newcombe, T. (2005). A qualitative study exploring the experiences and views of mothers, health visitors and family support centre workers on the challenges and difficulties of parenting. *Health & social care in the community*, 13(1):46–55.
- ^{xv} Bandura, A. and Adams, N. E. (1977). Analysis of self-efficacy theory of behavioral change. *Cognitive therapy and research*, 1(4):287–310.
- ^{xvi} Francesconi M. and Heckman J.J: Child development and parental investment: introduction, *The Economic Journal* (2016); Jun Hyung Kim, Wolfgang Schulz, Tanja Zimmerman, Kurt Hahlweg, Parent-Child Interactions and Child Outcomes: Evidence from Randomized Intervention, *Labour Economics* (2018)