

VU Research Portal

Parenting behavior and child outcomes in St. Lucia

Janssens, W.; Rosemberg Montes, C.; van Spijk, J.K.N.

2009

document version

Publisher's PDF, also known as Version of record

[Link to publication in VU Research Portal](#)

citation for published version (APA)

Janssens, W., Rosemberg Montes, C., & van Spijk, J. K. N. (2009). *Parenting behavior and child outcomes in St. Lucia*. (AIID Research Series; No. 09-02/1). Amsterdam Institute for International Development.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal ?

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

E-mail address:

vuresearchportal.ub@vu.nl

RCP IMPACT EVALUATION – ST LUCIA 2008

Parenting behavior and child outcomes 2008

Amsterdam Institute for International Development



Prepared by Wendy Janssens, Cristina Roseberg and Jeroen van Spijk

August 2009

Acknowledgements

The AIID would like to thank the Bernard van Leer Foundation and CCSI for their support during the years 2006 till 2008. In particular we would like to thank Huub Schreurs, Susan Branker-Lashley and Colleen Wint-Smith. Secondly, we would like to mention the continuous assistance and support of the Roving Caregivers Programme Unit of St. Lucia that has been very crucial throughout the year. We would like to thank in particular Ms. Ruth Fevrier who was very positive and very active throughout the year. We would also like to thank Mrs. Marguerite Gustave, Mr. Greenidge Giovanni Moses and all the very involved RCP supervisors Mrs. Fraser, Miss. Albertin, Mrs. Edwin, Mrs. Augustin and Mrs. Girard and Mrs. Johney. Thirdly, we would like to thank the staff of the St. Lucia Statistical Office whose contribution to the survey was again very helpful. We would like to thank in particular Mr. Edwin St. Catherine, Ms. Majella Louis and Ms. Euphemia Edmund. Fourthly, we would like to thank Dr. Eleanor Wint for her important contributions. Also we would like to thank all other contributors on the Island of St. Lucia in particular the staff of the Ministry of Education, the Ministry of Health, and the Ministry of Social Transformation. The principal Nursing Officer, Nurse Jolie, the Health Supervisors in the study region, the local health center nurses and the local health aids were very cooperative to make this research enterprise a success. We would also like to thank Ms Augustine, director of the Special Needs Center in Vieux-Fort, Mr. Brown from the Vieux Fort Town Hall and we would like to thank Dr Jackie Bird the Community Pediatrician. Finally, we would like to thank all the AIID child testers and appointment coordinators during the previous years Ms Alicia Sadoo, Ms Angella Paul, Ms Louisa Antoine, Ms Tecla Jn Baptiste, Ms. Tamar Estephane, Ms. Jana Felix, Ms. Gemma William, Ms. Heidi Khodra, Ms. Leah Edward, Roxanne Cox, Delta Thomas and Theona Jaklitsch and, in particular, Ms. Naomie Grandison the local AIID coordinator in St. Lucia for her valuable contributions to make this impact study a success throughout the period 2006 till 2008. We are also very grateful to professor Jacques van der Gaag and Marissa Popma for their valuable contributions especially in the early stages of the project.

Executive summary

This report is part of the short-term impact evaluation of the Roving Caregivers Programme (RCP) in St Lucia one year after program implementation and focuses on parenting behavior. The evaluation is based on a quasi-experimental longitudinal research design. The study follows approximately four hundred children over time. Half of the children were offered to participate in RCP after the baseline survey. Keeping in mind the limitations inherent to a quantitative study, this report provides insights into the relationships between RCP, parenting practices and child development outcomes

We use four groups of indicators to measure parenting practices: a) parent-child interactions (such as singing songs; story telling; providing care); b) disciplining methods (such as shouting, beating or giving time-out); c) parenting experiences (such as the joy of parenting) and the internationally used HOME inventory of parenting practices in the child's home environment. The HOME inventory was added to questionnaire in the follow-up survey, thus we have information for 2008 only. All these indicators are based on information gathered through closed- or open-style interviews, or on information collected by observation.

The objectives of this part of the evaluation are threefold. First, we estimate the importance of parenting behavior for child cognitive and socio-emotional development. We use a multivariate analysis to estimate to what extent the levels of cognitive and socio-emotional child outcomes are related to self-reported parenting practices, controlling for child, caregiver and household characteristics.

Second, we determine which parenting practices are more likely to take place given child, household and caregiver characteristics. We estimate the likelihood that a caregiver reports a certain parenting behavior as a function of a number of child and household characteristics

Finally, we look at the role of RCP in enhancing certain parenting practices. To estimate that we use the standard differences-in-differences methodology based on a fixed effects panel regression.

We find a number of interesting results. First, the evidence strongly suggests that RCP had had a significant positive impact on 'stimulating' and 'story-telling' parent-child interactions. This is supported by both the simple cross-tabulation and the multivariate analysis. This is particularly important since the analysis shows that 'stimulating' interactions and especially 'reading/story telling' are positively related to language development and/or socio-emotional development. Nevertheless we do not find a significant *direct* impact of RCP on these child outcomes (see Impact Report 2008). This may be due to the fact that the effects through this pathway are too subtle to be picked up in the general analysis, and perhaps they need more time to fully materialize.

Second, RCP has had a significant impact on parental aspirations. The multivariate analysis shows that the degree in which parents think they can influence their children's future has increased substantially more for caregivers in RCP communities than in non-RCP communities. In addition, feelings of control over a child's future are positively and significantly correlated with the language development. This is an important finding since parental aspirations have been found in other studies to have a strong positive effect on future

child performance in the longer term. In that sense, this may prove to be one of the important program effects in the longer run.

Third, the variety in disciplining methods has increased more among RCP caregivers than non-RCP caregivers. This concerns the use of “educative” punishment (such as time-out and talking) and “ignoring”, but also the use of physical punishment as a disciplining method. This suggests that RCP has broadened caregivers’ repertoire of disciplining, although the program has not been able to curb the excessive use of harsh physical punishment in the region. On the other hand, findings suggest that the *frequency* of the various disciplinary measures may have decreased in RCP families. Whereas the use of educative punishment is positively related to Language development, harsh verbal punishment is negatively related to Language development. Interesting enough we find that the results do not show any significant relationship between disciplining practices and child or family characteristics, such as the sex of the child or the income of the household. However, years of parental education do affect disciplining methods. This suggests that even though disciplining methods could be strongly rooted in local culture, they can be modified and improved through parental education. This may make it difficult for RCP to bring about substantial changes in a relatively short period of time.

Contents

List of tables.....	6
1 Introduction.....	7
2 Research design.....	8
2.1 Description of RCP in St Lucia.....	8
2.2 Design of the impact study.....	8
2.3 Measuring parenting behavior.....	9
2.3.1 <i>Daily parent-child interactions</i>	9
2.3.2 <i>Disciplining methods</i>	10
2.3.3 <i>Parenting experiences</i>	11
2.3.4 <i>The HOME environment</i>	12
2.4 Measuring child outcomes.....	14
2.5 Empirical strategy.....	14
2.5.1 <i>Descriptive analysis of parenting attitudes, practices and behavior</i>	14
2.5.2 <i>Relationship between parenting practices and child outcomes</i>	14
2.5.3 <i>Relationship between child/household characteristics and parenting practices</i>	15
2.5.4 <i>Impact of RCP on parenting practices</i>	15
3 Descriptive analysis of parenting behavior.....	17
3.1 Parent-child interactions.....	17
3.2 Disciplining methods.....	17
3.3 Parenting experiences: feelings of joy and control.....	21
3.4 HOME inventory.....	21
4 Parenting behavior and child outcomes.....	23
5 Household characteristics and parenting behavior.....	27
6 Impact of RCP on parenting behavior.....	31
7 Conclusion.....	34
Appendix A. Parenting section in caregiver questionnaire.....	37
Appendix B. Observation form.....	42

List of tables

Table 1: Parent-child interactions, Principal Component Analysis	10
Table 2: Disciplining methods	11
Table 3: HOME subscales	12
Table 4: Stimulating parent-child interactions	18
Table 5: Disciplining methods	19
Table 6: Parenting experiences	21
Table 7: HOME inventory (2008).....	22
Table 8: Parenting behavior and cognitive and socio-emotional child outcomes	25
Table 9: The relationship between parenting and child and household characteristics	29
Table 10: Impact of RCP on parenting	32

1 Introduction

This document is part of the quantitative evaluation of the Roving Caregivers Programme (RCP) in Saint Lucia (see Impact Report 2008). It presents findings on the relationship between parenting behavior, household characteristics and child cognitive and socio-emotional development. It also looks into the contribution of RCP on improving those parenting practices that are positively related to child development, one year after program implementation.

Naturally, a qualitative research methodology is much better equipped to fully capture and understand changes in parenting attitudes, practices and experiences; as well as their consequences for children. A quantitative approach is first of all constrained by its limited ability to adequately capture the diversity in practices and behavior. Second, a quantitative analysis using large-scale data can point out significant correlations between two variables of interest (e.g. disciplining methods and child outcomes), but it cannot explain *why* a certain correlation is significant. Third, it is very difficult to ascertain causality with quantitative data because of the many interconnections between the child's own behavior, development and temperament, the parent's behavior and individual character, as well as the role of siblings in family interactions. Despite these shortcomings, our results provide several interesting insights.

The report is organized as follows. Section 2 briefly describes the RCP program and the design of the impact study. It then discusses our measures of parenting and child outcomes. It ends with a description of the empirical research methodology. Section 3 starts with descriptive statistics of our quantitative measures of parenting behavior. In particular, the report looks at stimulating parent-child interactions, at disciplining methods used by parents when the child misbehaves, at parent's own experiences and at a comprehensive evaluation of the home environment. It discusses the changes in parenting between 2006 and 2008, as well as any differences between RCP and non-RCP communities. The multivariate analysis starts in section 4 which identifies the parenting practices that are significantly correlated with improved cognitive and socio-emotional development of children. Section 5 in turn analyzes which child and household characteristics are significantly related to parenting practices. Section 6 investigates whether RCP has had an impact on parenting behavior as measured in this report. Finally, section 7 concludes.

2 Research design

2.1 Description of RCP in St Lucia

The Roving Caregivers Program aims to enhance child development for vulnerable children aged birth to three through changing inappropriate parenting practices. Once per week, an RCP facilitator –the “Rover”, visits the home of the child. In the presence of the caregiver the Rover engages in age-appropriate stimulating activities with the child through play such as singing songs, playing with blocks or learning colors. The caregiver is strongly encouraged to join in the activities such that she or he is able to continue the interaction also outside the Rover-visits. In addition, the Rover discusses developmental topics with the caregiver such as issues pertaining to nutrition or disciplining. A separate component of RCP is the monthly parenting meetings in local community centers.

The program in St Lucia applies four main eligibility criteria: vulnerability in socio-economic terms, little access to alternative ECD services, presence of the caregiver and an age limit. To reach the most vulnerable children, RCP is introduced into communities with an above average poverty rate. Within communities, no further income criteria apply to the individual child. All children can join, although RCP concentrates its mobilizing efforts on the poorer families.

Most participating mothers or primary caregivers will be unemployed as they need to be present during Rover visits. If another caregiver such as the grandmother or aunt takes care of the child during the day, then this person can participate. However, once the child enrolls in a daycare center, he or she is supposed to exit the program.

Children with their caregivers can enroll from birth. When the child reaches the age limit of 36 months, he or she cannot continue participation in RCP. The latter aspect of the program has previously raised concerns that program impact will dissipate due to a lack of continuity of child services for the three to five year old group in many St Lucian communities.

2.2 Design of the impact study

The impact study is set up as a quasi-experimental study that follows children in fifteen villages over time. In eight of the communities, the RCP program was introduced after the baseline survey in 2006. These communities are called ‘program villages’, ‘treatment villages’ or ‘RCP villages’ in the remainder of the report. In the other seven communities, RCP has not (yet) been introduced. They are referred to in this report as the ‘control villages’ or the ‘non-RCP villages’.

The fifteen villages are located in the southern Vieux-Fort region and the western Anse-la-Rayé region. They fall within the three main RCP selection criteria for communities, i.e. high poverty rates, little access to ECD facilities and a high number of children aged birth to three. The Baseline Report 2006 describes in more detail how the program and the control villages were selected.

In the baseline surveys 2006/2007, a total of 487 children in the study age range of birth to 24 months were identified. Only children, who participated in the child assessment at baseline, were subsequently tracked in 2008 for the follow-up survey round. Overall, there are 389 children in our sample who were assessed both at baseline and in 2008. These are 207 children in control communities and 182 children in the RCP communities.

A comparison of child development outcomes at baseline shows that the two groups are statistically highly comparable in terms of their cognitive and socio-emotional development status (Baseline Report 2006). A detailed analysis of child, caregiver and household characteristics shows that many of the explanatory variables are comparable across the two groups as well. However, the treatment group is substantially poorer at baseline with a less extended social support network compared to the control group (see the Descriptive Report 2008 for further details).

2.3 Measuring parenting behavior

To measure parenting behavior we use four different measures. In each survey round, the caregivers of the children in our sample were interviewed using a structured questionnaire. In addition to basic modules on household composition, education and wealth, the questionnaire includes four sets of questions on parenting: a) daily parent-child interactions, b) disciplining methods, c) feelings of joy or stress related to parenting and d) (in 2008 only) an extensive module on the home environment. These four measures will be discussed in turn.

2.3.1 Daily parent-child interactions

In both 2006 and 2008, caregivers were asked to describe the activities that they would do with their child on a daily or regular basis. The interviewer would not suggest any activity but simply let the caregiver speak and tick the appropriate boxes on the questionnaire. The interviewer would probe (“anything else?”) before moving on to the next question. The interviewers registered 21 different activities (see Table 1).

The separate inclusion of each of those individual daily parent-child interactions in our regressions could dampen their individual statistical significance and explanatory power, since most of them are highly correlated. Therefore, and to make this number of activities more manageable, we use a principal component analysis (similar to factor analysis) in order to classify the separate activities into broader categories. Principal component analysis permits to identify variables that move together as a group and that jointly reflect an underlying attitude or behavioral pattern. In other words, we do not decide how to group activities into categories ourselves, but let the data show which activities ‘belong’ with each other since they are highly correlated.

Using the analysis, we can classify the 21 activities into four broad categories that we name as follows: 1) stimulating parent-child interactions, 2) nurturing/caring parent-child interaction, 3) story-telling and 4) variety of experiences. In Table 1, the activities are already ordered by category. For example, caregivers who mention they sing songs on a daily basis with the child are also more likely to mention clapping hands together or holding/hugging the child. Parents who regularly tell stories to their child are also more likely

to read books. The fifth category seems to be a rest category and is left out of the rest of this analysis.

Table 1: Parent-child interactions, Principal Component Analysis

	Factor1 Stimulation	Factor2 Nurturing	Factor3 Story-telling	Factor4 Variety	Factor5 Other
Daily activity - sing song	0,5062	-0,0478	0,1380	0,0793	0,1022
Daily activity - clap hands	0,4986	0,0651	-0,0182	-0,1969	0,1307
Daily activity - make funny faces	0,4545	-0,2083	-0,1988	-0,1731	-0,1138
Daily activity - hold/hug	0,4162	-0,0703	-0,1082	-0,2126	0,0082
Daily activity - talk to	0,4067	-0,1149	-0,0482	0,1025	0,0422
Daily activity - tickle	0,3853	-0,1542	-0,1413	-0,1619	-0,0736
Daily activity - sit with child	0,3776	-0,0402	0,1899	-0,0137	0,0281
Daily activity - stroke/rub	0,3573	-0,1188	-0,1665	-0,0045	0,0128
Daily activity - comb hair	0,2776	0,5274	0,0014	-0,0004	0,0171
Daily activity - dress	0,2819	0,5222	-0,0663	-0,0955	-0,0341
Daily activity - bath	0,1337	0,3093	-0,1982	0,1853	-0,0877
Daily activity - feed	0,1015	0,1595	-0,0164	0,0851	-0,1021
Daily activity - tell stories	0,2270	-0,0075	0,3785	-0,0087	-0,0771
Daily activity - read book	0,2290	-0,0277	0,3720	0,0896	-0,1293
Daily activity - play little games	0,2090	-0,1616	-0,1053	0,2507	-0,0815
Daily activity - take around	0,2775	-0,0790	-0,1343	0,2220	-0,1033
Daily activity - watch TV	0,3034	-0,0067	0,2644	0,0520	-0,1095
Daily activity - put in cot	0,2611	-0,0257	0,0487	0,1502	0,2017
Daily activity - get angry	0,1587	0,0296	0,0120	0,1377	0,1319
Daily activity - put in bed	0,1266	-0,0291	-0,1926	0,2827	0,0115
Daily activity - others	0,0207	-0,0116	0,0318	0,0535	0,2583

The values in each column represent the factor loadings of the individual activities, i.e. how much a specific activity contributes to each of the categories.

Based on the principal component analysis, we construct four new variables, one per category. Each of the four variables receives a value of one if the primary caregiver report doing at least one of the activities that belong to that specific group and a value of zero otherwise. These dummy variables are the main variables used in the analysis. We also report the descriptive statistics for the underlying activities.

2.3.2 *Disciplining methods*

In a separate question, the caregivers were first asked in an open question what they would do if their child a) behaves badly to get his/her own way, and b) makes the parent angry. Answers to these two questions were very similar. See Table 2 with the questionnaire format. Again, the interviewer would not suggest any disciplinary method but simply let the caregiver speak and tick the appropriate boxes on the questionnaire. The interviewer would probe (“anything else?”) before moving on to the next question. The interviewers registered 9 different disciplinary methods (a few additional actions were so rare that they are not included in the analysis) as well as the option “not applicable” (see Table 2).

A third question asked “In the past week, how often did you have to ... your child because he/she behaved badly or made you angry?”. For the analysis we use a dummy variable to identify parents who did or did not use a disciplining method in the last week. For the former group, we also estimate how often they used it (*coded from 1. “once or twice” to 4. “all the time”*).

In the analysis, we distinguish between the following broader categories in disciplining: 1) Harsh verbal punishment (shouting, yelling, swearing, cursing), 2) Physical punishment (slapping, beating), 3) Ignoring the child (walking away, ignoring, not doing anything), and 4) Educative punishment (time-out, talking to the child). A fifth category is the option “not applicable” which indicates that the child would never misbehave. Unfortunately, ‘praise and reward’ was not included as a potential disciplining method in the survey. In the analysis, the categories have a value of one if at least one of the underlying practices is coded as one, and zero otherwise.

Table 2: Disciplining methods

	What do you do if [NAME] behaves bad to get his/her own way?	What do you do if [NAME] makes you angry?	How often did you need to [...] in the past week?
	INTERVIEWER: TICK ALL THAT APPLY	INTERVIEWER: TICK ALL THAT APPLY	1. not at all 2. once or twice 3. several times 4. often 5. all the time
Harsh verbal punishment			
Shout/yell			
Swear/curse			
Physical punishment			
Slap			
Beat			
Ignore			
Walk away			
Ignore			
Do nothing			
Educative punishment			
Time out			
Talk to the child			
Not applicable			

2.3.3 Parenting experiences

Third, we include three questions related to the experience of parenting. These are:

- 1) How much do you enjoy being a parent? (*coded from 1. “not at all” to 4. “a great deal”*).
- 2) Do you think that parenting is hard? (*coded from 1. “yes, very hard” to 4. “no, not hard at all”*).
- 3) How much influence do you think you have on your child’s future? (*coded from 1. “no influence at all” to 4. “a lot of influence”*)

Other related questions showed vary little variation in the data and are not included in the analysis.

2.3.4 The HOME environment

Finally, in 2008 the Infant/Toddler Home Observation for Measurement of the Environment (HOME) instrument was added to the questionnaire.¹ The HOME tool is a standardized measurement tool that has been used extensively throughout the region to measure how stimulating the home environment is to the child’s development. It consists of 45 questions that can be classified into 6 subscales and summarized into one HOME summary score.

The RESPONSIVITY scale describes the extent to which the parents responds to the child’s behavior, offering verbal, tactile, and emotional reinforcement for desired behavior and communicating freely through words and actions. Some of these items are based on responsiveness of the parent to the interviewer rather than the child. This is based on the assumption that the parent’s style of responding will reflect habitual patterns of social response and will also predict interaction modes between parent and child.

The ACCEPTANCE scale covers parental acceptance of less than optimal behavior from the child and the avoidance of undue restriction and punishment.

The ORGANIZATION scale refers to the extent to which there is regularity and predictability (without monotony) in the family’s schedule, to the safety of the physical environment, and to the utilization of community services as part of the family support system.

The LEARNING MATERIALS scale deals with the provision of appropriate play and learning materials capable of stimulating development.

The INVOLVEMENT scale defines the extent to which the parent is actively involved in the child’s learning and provides stimulation for increasingly mature behavior.

The VARIETY scale encompasses the inclusion in daily life of people and events that bring some variety (without disorganization) into the child’s life.

Table 3: HOME subscales

	Highest score possible	Median score in USA reference population
RESPONSIVITY	11	9
1 Parent permits child to engage in “messy” play (I)		
2 Parent spontaneously vocalizes to child at least twice (O)		
3 Parent responds verbally to child’s vocalizations or verbalizations (O)		
4 Parent tells child name of objet or person during visit (O)		
5 Parent’s speech is distinct, clear and audible (O)		
6 Parent initiates verbal interchanges with Interviewer (O)		
7 Parent converses freely and easily (O)		
8 Parent spontaneously praises child at least twice (O)		
9 Parent’s voice conveys positive feelings toward child (O)		
10 Parent caresses or kisses child at least once (O)		
11 Parent responds positively to praise of child offered by interviewer (O)		

¹ See Caldwell, B.M. and R.H. Bradley (2003), “HOME Inventory Administration Manual: Comprehensive Edition”, University of Arkansas, Little Rock, AR: Print Design, Inc

ACCEPTANCE	8	6
12 No more than 1 instance of physical punishment during past week (I)		
13 Family has pet (E)		
14 Parent does not shout at child (O)		
15 Parent does not express overt annoyance with or hostility to child (O)		
16 Parent neither slaps nor spansks child during visit (O)		
17 Parent does not scold or criticize child during visit (O)		
18 Parent does not interfere with or restrict child more than 3 times during visit (O)		
19 At least 10 books are present and visible (E)		
ORGANIZATION	6	5
20 Child care, if used, is provided by one of at most 3 regular substitutes (I)		
21 Child is taken to grocery store at least once a week (I)		
22 Child gets out of house at least 4 times a week (I)		
23 Child is taken regularly to doctor's office or clinic (I)		
24 Child has a special place for toys and treasures (E)		
25 Child's play environment is safe (O)		
LEARNING MATERIALS	9	7
26 Muscle activity toys or equipment (E)		
27 Push or pull toy (E)		
28 Stroller or walker, kiddie car, scooter, or tricycle (E)		
29 Cuddly toy or role-playing toys (E)		
30 Learning facilitators- mobile, table and chair, high chair, play pen (E)		
31 Simple eye-hand coordination toys (E)		
32 Complex eye-hand coordination toys (E)		
33 Toys for literature and music (E)		
34 Parent provides toys for child to play with during visit (O)		
INVOLVEMENT	6	4
35 Parent talks to child while doing household work (I)		
36 Parent consciously encourages developmental advance (I)		
37 Parent invests in maturing toys with value via personal attention (I)		
38 Parent structures child's play periods (I)		
39 Parent provides toys that challenge child to develop new skills (I)		
40 Parent keeps child in visual range, looks at often (O)		
VARIETY	5	3
41 Father provides some care daily (I)		
42 Parent reads stories to child at least 3 times weekly (I)		
43 Child eats at least one meal a day with mother and father (I)		
44 Family visits relatives or receives visits once a month or so (I)		
45 Child has 3 or more books of his/her own (E)		
TOTAL SCORE	45	32

Some of the items are directly asked from the caregiver in an open-style interview (“I”). Other items must be scored by observation (“O”). And some can be scored in either way (“E”). Therefore, part of the HOME tool is included in the caregiver interview as an additional module (see Appendix A). The remaining HOME items were coded during the

interview with the caregiver based on observation of a range of spontaneously occurring parent-child interactions during the interview (see Appendix B). In contrast with the questionnaire, this form was filled out by the interviewer by observing the child's environment, rather than directly asking the parents about it.

2.4 Measuring child outcomes

Child outcomes are measured using two standardized instruments that reflect cognitive and socio-emotional development respectively. We measure cognitive development using the Mullen Scales of Early Learning. The Mullen's consists of five subscales: 1) gross motor skills, 2) fine motor skills, 3) visual reception; 4) receptive language; and 5) expressive language. It also yields a composite score that summarizes the five subscales.

The Mullen's is an age-standardized tool (based on a North-American reference population) that can be used with children from birth to 68 months of age. However, the subscale that measure gross motor skills ends at 36 months. Each subscale has a standardized average score of 50 points and a standard deviation of 10 points. The average standardized composite score is 100 points with a standard deviation of 15 points.²

Socio-emotional development is measured using the Vineland Socio-Emotional Early Childhood instrument. The Vineland consists of three subscales: 1) interpersonal relations, 2) leisure and play, and 3) coping skills. It also contains a composite score that summarizes the three subscales. It is a standardized tool that has been widely used throughout the region. This instrument can be used with children from birth to 71 months of age. The coping skills subscale starts at the age of 24 months only. The three subscales and the summary score are standardized to average at 100 with a standard deviation of 15 points.

2.5 Empirical strategy

2.5.1 Descriptive analysis of parenting attitudes, practices and behavior

Our empirical strategy consists of four steps. First, we will look at the descriptive statistics on parenting behavior using bivariate methods. We will discuss whether certain practices have increased or decreased over time since 2006 and whether behavior differs between caregivers in RCP and non-RCP villages.

2.5.2 Relationship between parenting practices and child outcomes

Next, we will use a multivariate analysis to examine the relationship between parenting practices and child outcomes. In particular, we will estimate to what extent the levels of cognitive and socio-emotional child outcomes are related to self-reported parenting practices, controlling for child, caregiver and household characteristics. The analysis uses the

² This implies that the average child in the reference population has a composite T-score of 100 and that approximately two thirds of all children in the reference population score between 85 and 115 (i.e. 68% scores between plus or minus 1 standard deviation from the mean). Moreover, 95 percent of all children have a T-score between 70 and 130, i.e. plus or minus 2 standard deviations from the mean.

information from both the baseline and the follow-up survey round for all children (regardless of whether they live in a RCP or a non-RCP community).³

We look at the four groups of parenting behaviors in turn as described in 2.3: (1) parent-child interactions, (2) disciplining methods, (3) parenting experiences, and (4) the home environment (this is measured only in 2008). The child outcomes were described in section 2.4.

In this analysis we control for the standard explanatory variables from the literature. We include as child characteristics the sex and the age in months. For household characteristics, we include household size and the number of children in the household; the age, the education and the employment status of the primary caregiver; a measure of the wealth of the household; and the gender of the head of household.

We also include year dummy variables to control for general trends over time; district fixed effects that capture any time-invariant differences between the Anse-la-Raye region in the west and the Vieux-Fort region in the south; and interviewer fixed effects to control for scoring differences between child testers.

2.5.3 Relationship between child/household characteristics and parenting practices

Third, we will use a multivariate analysis to examine which child, caregiver and household characteristics are significantly related to parenting behavior.⁴ This will enhance understanding of which practices are most common in which families, although it cannot explain *why* this is the case.

In particular, we estimate the likelihood that a caregiver reports a certain parenting behavior as a function of a number of child and household characteristics. This will show which independent characteristics affect the likelihood of certain parent-child interactions, disciplining methods, parenting experience and the HOME environment. In these estimations, again we include all basic explanatory variables as discussed in the previous subsection.

2.5.4 Impact of RCP on parenting practices

Finally, we look at the role of RCP in enhancing certain parenting practices. That is, using the limited information that we can derive from the quantitative data, we will estimate the impact of the program on parenting behavior.

To do so, we will use the standard differences-in-differences methodology based on a fixed effects panel regression. This was described extensively in the Impact Report 2008. Such an approach takes into account any initial differences between the children at baseline, and focuses on the changes over time. It estimates whether the increase (or decrease) in self-reported parenting behavior for caregivers in the RCP villages is significantly different from the behavior for caregivers in non-RCP villages, controlling for any baseline parenting differences as well as child, caregiver and household characteristics.

The impact estimate is an “Intention-to-Treat” (ITT) impact estimator. It measures the effect on parenting behavior of living in an RCP village regardless of whether the parent (and

³ In econometric terms, the analysis is based on a random effects panel regression.

⁴ Idem.

his/her child) actually enrolled in RCP or not. Therefore it is a lower bound of the impact that RCP has on participants in the program. However, a comparison of only participating parents with the caregivers in control villages would be difficult to interpret because of the potential selection bias inherent to such an approach: participants may be substantially different from the average population, for example in their knowledge of or interest in early child development, which may affect both their decision to participate in RCP and their parenting behavior.

3 Descriptive analysis of parenting behavior

3.1 Parent-child interactions

Table 4 shows that two thirds of all caregivers in both rounds (66% in 2006/07 and 64% in 2008) mentioned at least one stimulating parent-child activity. At 99% in both years, almost all parents mentioned at least one nurturing activity. Story-telling and/or book reading is substantially less common at 22% at baseline although it has increased significantly over time to 37% in 2008. Finally, variety in experiences shows a significant decrease from 88% at baseline to 71% in 2008. This is mainly due to a drop in playing games and taking the child around; watching TV has increased since baseline. The changes in parenting behavior are statistically significant in almost all the categories between the baseline and follow-up survey. Many of these changes are probably due to the fact that children are older, and parents display different behavior accordingly.

A comparison of RCP and non-RCP families shows the following. Stimulating parent-child interactions have increased substantially more since baseline in RCP families versus non-RCP families with 72% of the former reporting at least one such interaction versus only 57% in the latter group. In 2008, caregivers in RCP communities are much more likely to sing songs with their children (reversing the prior ranking) and more likely to sit with the child. Differences across the two groups in nurturing activities are less pronounced. Whereas at baseline caregivers in the non-RCP communities were substantially more likely to read books to their children, RCP caregivers have fully caught up since then. Moreover, they are also substantially more likely to tell stories to their children compared to parents in the control communities. Differences in variety of experiences, which again was more common in non-RCP villages at baseline, have also dissipated over time. There were some statistically significant differences between control and treatment sample in the baseline survey (2006-07). In particular, parents from the control sample include more good practices in their daily activities, in comparison with the parents from the treatment sample.

3.2 Disciplining methods

Regarding training and discipline, there is a very clear pattern over time: almost all disciplining methods have significantly increased since the baseline (see Table 5, Panel A). These are all spontaneously mentioned disciplining practices. The percentage of caregivers who report that their child never misbehaves, decreases from 17% in 2006/07 to 0% in 2008. The occurrence of harsh verbal punishment, such as shouting, yelling, swearing or cursing the child increases from 8% to 29%. Physical punishment such as slapping or beating the child doubles in prevalence from 32% at baseline to 63% in 2008. Ignoring the child's behavior remains stable at 25% of the respondents although caregivers are more likely to walk away if their child misbehaves in 2008 than the years before. Finally, educative punishment (talking, time out) has also almost doubled from 38% to 65%. In general, these figures strongly suggest that disciplining becomes an increasingly important topic as the child grows older. Worrying is the very high percentage of parents (49%) who reports to have beaten their child in the past week. Among those who report doing so, there is also an increase in the average frequency with which they discipline (see Table 5, Panel B and Panel C).

Table 4: Stimulating parent-child interactions

	Baseline (06-07)				Total	P-value 2006 vs 2008	2008		
	Total	Control	Treatment	P-value C-T			Control	Treatment	P-value C-T
PANEL A: Stimulating parent-child interactions	0,66	0,66	0,67	0,895	0,64	0,584	0,57	0,72	0,002***
Sing song	0,33	0,39	0,25	0,005***	0,28	0,127	0,23	0,33	0,022**
Clap hands	0,09	0,10	0,09	0,716	0,13	0,105	0,10	0,16	0,085*
Make funny faces	0,08	0,10	0,05	0,098*	0,02	0,000***	0,03	0,01	0,051*
Tickle	0,06	0,08	0,04	0,092*	0,02	0,001***	0,02	0,01	0,139
Hold/hug	0,18	0,18	0,17	0,855	0,14	0,191	0,15	0,13	0,630
Talk to	0,53	0,54	0,52	0,608	0,40	0,000***	0,37	0,44	0,134
Sit with child	0,15	0,15	0,15	0,917	0,21	0,033**	0,17	0,25	0,054*
Stroke/rub	0,05	0,06	0,03	0,278	0,01	0,000***	0,01	0,00	0,186
PANEL B: Nurturing parent-child interactions	0,99	1,00	0,99	0,905	0,99	0,671	0,99	1,00	0,104
Bath	0,97	0,98	0,97	0,362	0,93	0,005***	0,92	0,94	0,525
Feed	0,97	0,98	0,96	0,377	0,98	0,228	0,98	0,98	0,840
Dress	0,59	0,62	0,56	0,294	0,75	0,000***	0,76	0,74	0,602
Comb hair	0,49	0,52	0,46	0,211	0,62	0,000***	0,57	0,67	0,045**
PANEL C: Story-telling	0,22	0,26	0,17	0,025**	0,37	0,000***	0,39	0,34	0,371
Read book	0,20	0,25	0,14	0,009***	0,34	0,000***	0,37	0,30	0,127
Tell stories	0,05	0,04	0,05	0,714	0,10	0,005***	0,05	0,15	0,001***
PANEL D: Variety in experience	0,88	0,93	0,82	0,001***	0,71	0,000***	0,69	0,73	0,407
Play little games	0,78	0,82	0,72	0,025**	0,48	0,000***	0,47	0,49	0,730
Take around	0,48	0,57	0,37	0,000***	0,28	0,000***	0,29	0,27	0,590
Watch TV	0,26	0,28	0,24	0,363	0,34	0,013**	0,36	0,31	0,327

Significance level: *: p-value<.100; **: p-value<.050; ***: p-value<.010

Table 5: Disciplining methods

	Baseline (06-07)				2008				
	Total	Control	Treatment	P-value C-T	Total	P-value 2006 vs 2008	Control	Treatment	P-value C-T
PANEL A: Which disciplining method do you use when child misbehaves? :									
Harsh verbal punishment	0,08	0,07	0,09	0,389	0,29	0,000***	0,25	0,34	0,049**
Shout/yell	0,08	0,07	0,09	0,389	0,29	0,000***	0,25	0,34	0,049**
Swear/curse	0,00	0,00	0,00	.	0,02	0,015**	0,01	0,02	0,869
Physical punishment	0,32	0,37	0,25	0,012**	0,63	0,000***	0,64	0,62	0,786
Slap	0,20	0,22	0,18	0,329	0,34	0,000***	0,32	0,35	0,613
Beat	0,13	0,17	0,09	0,026**	0,40	0,000***	0,38	0,43	0,325
Ignore	0,24	0,24	0,24	0,872	0,26	0,559	0,19	0,34	0,001***
Walk away	0,05	0,05	0,05	0,907	0,09	0,036**	0,06	0,12	0,041**
Ignore	0,15	0,14	0,16	0,694	0,19	0,109	0,14	0,25	0,007***
Do nothing	0,07	0,07	0,06	0,853	0,02	0,004***	0,00	0,04	0,010***
Educative punishment	0,38	0,30	0,48	0,000***	0,65	0,000***	0,67	0,63	0,449
Time out	0,04	0,04	0,05	0,546	0,14	0,000***	0,12	0,17	0,159
Talk to the child	0,37	0,29	0,46	0,000***	0,57	0,000***	0,57	0,56	0,739
Not applicable	0,17	0,18	0,16	0,451	0,00	0,000***	0,00	0,00	0,350
PANEL B: Did parent use any of the following disciplining methods in the past week?									
Harsh verbal punishment	0,48	0,46	0,52	0,237	0,74	0,000***	0,74	0,75	0,966
Shout/yell	0,46	0,43	0,49	0,244	0,73	0,000***	0,73	0,74	0,880
Swear/curse	0,06	0,07	0,04	0,235	0,13	0,001***	0,13	0,12	0,778
Physical punishment	0,40	0,43	0,36	0,166	0,72	0,000***	0,68	0,76	0,061*
Slap	0,32	0,35	0,30	0,284	0,54	0,000***	0,54	0,55	0,795
Beat	0,16	0,19	0,12	0,068*	0,49	0,000***	0,46	0,53	0,211
Ignore	0,48	0,47	0,49	0,733	0,75	0,000***	0,74	0,76	0,689

Walk away	0,29	0,31	0,27	0,334	0,50	0,000***	0,55	0,45	0,049*
Ignore	0,40	0,40	0,40	0,914	0,63	0,000***	0,66	0,60	0,241
Do nothing	0,00	0,00	0,00	.	0,05		0,02	0,09	0,005
Positive punishment	0,86	0,88	0,84	0,341	0,97	0,000***	0,98	0,96	0,275
Time out	0,22	0,26	0,18	0,061*	0,34	0,000***	0,32	0,35	0,561
Talk to the child	0,84	0,87	0,81	0,097*	0,95	0,000***	0,96	0,93	0,154

PANEL C: If so (PANEL B), how often?

(1: once or twice, 4: all the time)

Harsh verbal punishment	1,99	1,97	2,02	0,547	2,39	0,000***	2,44	2,34	0,358
Shout/yell	1,85	1,80	1,90	0,547	2,33	0,000***	2,54	2,10	0,003**
Swear/curse	1,30	1,33	1,25	0,742	1,71	0,086*	1,89	1,50	0,205
Physical punishment	1,88	1,85	1,91	0,520	2,22	0,000***	2,24	2,20	0,697
Slap	1,44	1,46	1,43	0,830	1,60	0,109	1,63	1,57	0,623
Beat	1,18	1,15	1,23	0,609	1,66	0,000***	1,73	1,58	0,270
Ignore	2,15	2,27	2,01	0,021**	2,69	0,000***	2,89	2,46	0,000***
Walk away	1,56	1,65	1,45	0,193	2,07	0,000***	2,27	1,79	0,003**
Ignore	1,54	1,67	1,39	0,026**	2,11	0,000***	2,32	1,85	0,002**
Do nothing									
Educative punishment	2,93	2,97	2,88	0,338	3,13	0,001***	3,11	3,16	0,514
Time out	1,89	2,00	1,70	0,221	1,72	0,253	1,84	1,59	0,174
Talk to the child	3,26	3,26	3,26	0,979	3,50	0,001***	3,62	3,36	0,006**

Significance level: *: p-value<.100; **: p-value<.050; ***: p-value<.010

Patterns are less clear for the difference between RCP and non-RCP parents. In the baseline round more parents from the treatment group opt for talking to the child when she/he misbehaves (46%) in comparison with the parents of the control group (29%). Parents in the control communities were instead significantly more likely to report beating their child at 17% versus 9% in the treatment communities. In 2008, these differences have disappeared. Both physical and educative punishment are now much higher and equally common. Caregivers in RCP communities are also substantially more likely to report having shouted or yelled at the child and ignoring misbehavior. That is, RCP parents report a larger variety of disciplining methods including harsh verbal punishment and physical punishment.

However, once we include the *frequency* of disciplinary methods in the analysis, the results suggest that RCP parents used those disciplining methods less often than parents of the control communities. This is clearer in 2008. Parents of the control communities, that report to have used a disciplining method in the week prior to the interview, report a higher frequency of shouting and yelling, ignoring and talking to the child, although this is mostly statistically insignificant

3.3 Parenting experiences: feelings of joy and control

Regarding parenting experiences, Table 6 shows that there are very little differences over the years in the evaluation of parenting experiences. Most parents enjoy parenting a lot, they think parenting is not so hard and they feel they can exert quite some influence on the future of their children. There are no significant differences between RCP and non-RCP parents either at the baseline or in the follow-up survey in 2008.

Table 6: Parenting experiences

	Baseline (06-07)				P-value 2006 vs 2008	2008		P- value C-T
	Total	Control	Treat.	P-value C-T		Control	Treat.	
Enjoy being a parent (from 1: not at all, to 4: a great deal)	3,63	3,65	3,60	0,431	0,068*	3,58	3,49	0,212
Parenting is hard (from 1: no, not hard at all, to 4: yes, very hard)	2,58	2,64	2,52	0,256	0,724	2,54	2,59	0,633
How much influence parent thinks she has on child future (from 1: not influence at all, to 4: a lot of influence)	3,47	3,52	3,41	0,135	0,935	3,41	3,53	0,119

*: p-value<.100; **: p-value<.050; ***: p-value<.010

3.4 HOME inventory

Table 7 shows the descriptive statistics for the HOME inventory in 2008. The total HOME score is not significantly different between families in RCP and non-RCP communities. Also, parents from the control and treatment groups have similar mean scores for the

Responsivity, Acceptance, Organization and Involvement subscales. However, families in the non-RCP group have a better mean score in the Learning Materials subscale. It implies that their children have more access toy that enhances different child developmental functions (e.g. muscle activity toys, complex eye-hand coordination toys, toys for literature and music). On average, they have also a slightly better mean score on the Variety subscale. If we compare the difference in medians for the scales we only find a statistically significant difference in this last subscale. It should be noted that both groups have median scores that are comparable to the median scores in the (North-American) reference population *except* for the score on the Learning Materials scale which is substantially lower in St Lucia. This is similar to findings in other Caribbean countries such as Jamaica.

Table 7: HOME inventory (2008)

	Mean				Median			
	Total	Control	Treat.	P-value	Total	Control	Treat.	P-value
Responsivity (11 items)	8,28	8,37	8,18	0,412	9	9	9	0,837
Acceptance (8 items)	6,16	6,17	6,14	0,788	6	6	6	0,955
Organization (6 items)	5,20	5,25	5,16	0,319	5	5	5	0,284
Learning materials (9 items)	5,07	5,30	4,80	0,058*	5	5	5	0,447
Involvement (6 items)	4,01	4,09	3,93	0,306	4	4	4	0,234
Variety (5 items)	2,79	2,92	2,65	0,031**	3	3	3	0,016**
HOME (Total)	31,20	31,71	30,67	0,162	32	32,5	31	0,145

4 Parenting behavior and child outcomes

This section focuses on the relationship between parenting behavior and children's cognitive and socio-emotional development. The analysis is based on a multivariate regression analysis using the longitudinal data from 2006/07 and 2008. The main results of the analysis are given in Table 8. The Table only shows the coefficients of interest (i.e. the parenting variables). Each coefficient is taken from a separate regression that includes control variables such as child, household and caregiver characteristics. All regressions also include dummies for child tester and for region. The coefficients indicate whether a specific parenting behavior is significantly correlated with the child outcome as specified in the column above. In parentheses are the standard errors that measure the level of statistical significance. Statistical significance is also indicated by the stars behind the coefficient. *: significant at the 90% confidence level, **: significant at the 95% confidence level, ***: significant at the 99% confidence level.

It should be emphasized that the results **cannot** be interpreted as a causal effect from parenting behavior to child outcomes. It is very well possible that causality runs in the reverse direction (e.g. how well a child can speak may affect the behavior of the caregiver towards her). Or third factors may affect both child outcomes and parenting practices, such as the temperament of the child or the behavior of siblings in the family for example. However, the results show which types of parenting practices are correlated with higher or instead lower child outcomes, pointing out to directions for further research into underlying developmental processes.

Panel A looks at the four (crude) measures of parent-child interactions. It shows that Composite Cognitive development score and Receptive Language development (a component of cognitive development) is significantly higher for children whose caregivers report to regularly engage in stimulating parent-child interactions. Consistent with prior findings, storytelling (reading a book, telling a story) has a positive significant relationship with Receptive Language development (hearing) and Expressive Language development (speech). This activity also has a positive effect on socio-emotional development (in particular, the Play and Leisure subscale). There is no evidence that nurturing interactions or variety in experiences have an effect on child outcomes, at least not in the way it is measured in our questionnaire.

Panel B shows the results on the relationship between disciplining methods and child outcomes. Most coefficients are not statistically significant. However there are two interesting findings with respect to cognitive development. The use of harsh verbal punishment (e.g. shouting, yelling) is negatively related to Expressive Language scores. In contrast, the use of Educative Punishment when child misbehaves (e.g. talk to the child) is positively related to Receptive Language scores (hearing). Surprisingly enough is the finding that Physical Punishment is positive related to Expressive Language scores.

Panel C shows that there is a consistently positive and significant relationship between the joy of parenting and cognitive child development. Caregivers who enjoy being a parent are more likely to have a child who scores high on four out of five cognitive subscales as well as the summary score. The other subscales are also positive but not statistically significant. Of course, causality may run both ways. On the other hand, caregivers are substantially more

likely to indicate that they feel parenting is hard if their child scores relatively high on either the cognitive or socio-emotional scales. Here, virtually all coefficients have a positive sign although the relationship is significant only for one cognitive subscale. Feelings of control over a child's future are positively and significantly correlated with the language development.

Table 8 Panel D shows relationship between parenting and child's cognitive and socio-emotional development using the HOME inventory. The Responsivity scale (e.g. parent permits child to engage in "messy" play, parent's speech is distinct, clear and audible) is positive correlated with language development and with the Interpersonal Relationship scale. The Learning Materials scale (e.g. child has muscle activity toy or equipment, child has toys for literature and music) has a significant and positive relation with the child's Visual Reception scale. In addition, the Involvement scale (e.g. parent talks to the child while doing household work, parent structures play periods) is positively related to the child's Coping Skills. It is surprising to find that the Organization scale (e.g. child gets out of the house at least 4 times a week, child has a special place for toys and treasures) has a negative and significant correlation with the Composite Cognitive Development scale and the child's Visual Reception scale. The remaining individual subscales are not significant in any of the regressions.

The results are much stronger once we look at the total HOME summary score. The total HOME score is significantly and positively related to the Expressive Language subscales as well as to the Socio-Emotional summary score, the Interpersonal Relationships scale and the Play and Leisure scale.

Table 8: Parenting behavior and cognitive and socio-emotional child outcomes

Random effects	Cognitive summary score	Gross Motor Skills	Visual reception	Fine Motor Skills	Receptive Language (hearing)	Expressive Language (speech)	Socio- emot. summary score	Interpersonal relationships	Play and leisure	Coping skills
	Coefficient (standard error)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)
PANEL A: PARENT-CHILD INTERACTIONS										
Stimulating parent-child interactions	2,041* (1,232)	1,474 (0,924)	0,658 (0,835)	1,377 (0,979)	1,586** (0,785)	0,636 (0,762)	1,603 (0,985)	1,242 (1,045)	1,051 (0,982)	
Nurturing/caring parent-child interactions	-3,041 (8,518)	-4,123 (5,587)	-7,531 (5,772)	-4,209 (6,772)	4,069 (5,427)	-0,626 (5,265)	5,582 (6,739)	3,574 (7,147)	5,677 (6,714)	
Story-telling	2,092 (1,307)	0,819 (1,011)	0,718 (0,884)	-0,790 (1,033)	2,814*** (0,832)	1,847** (0,805)	0,996 (1,053)	-0,313 (1,116)	2,715*** (1,044)	
Variety in experience	-0,040 (1,480)	1,864 (1,209)	0,533 (1,003)	0,524 (1,177)	-0,269 (0,943)	-0,714 (0,915)	1,294 (1,184)	2,032 (1,256)	1,482 (1,180)	
PANEL B: DISCIPLINING METHODS										
<i>(Disciplining method used by the parent when child misbehaves)</i>										
Harsh verbal punishment	-2,812* (1,568)	0,419 (1,279)	-1,528 (1,063)	-1,454 (1,249)	-0,053 (1,003)	-2,698*** (0,967)	-0,583 (1,269)	-0,213 (1,346)	-0,334 (1,278)	
Physical punishment	0,794 (1,237)	0,667 (0,945)	0,118 (0,837)	-0,001 (0,980)	0,508 (0,791)	1,406* (0,759)	-1,535 (1,003)	-1,703 (1,061)	-0,532 (1,001)	
Ignore	1,147 (1,335)	-0,681 (1,024)	1,184 (0,904)	0,474 (1,062)	0,552 (0,854)	0,580 (0,822)	-0,196 (1,076)	0,138 (1,141)	-0,060 (1,082)	
Educative punishment	1,700 (1,199)	-0,059 (0,931)	0,270 (0,812)	0,214 (0,951)	2,488*** (0,767)	0,956 (0,737)	0,524 (0,967)	-0,385 (1,023)	0,797 (0,967)	

PANEL C: PARENTING JOY

Enjoy being a parent	2,684*** (0,875)	0,911 (0,694)	1,364** (0,591)	1,747** (0,691)	1,398** (0,561)	1,136** (0,539)	0,311 (0,721)	0,922 (0,759)	0,461 (0,714)
Parenting is hard	0,805 (0,599)	0,687 (0,462)	0,959** (0,404)	0,500 (0,471)	0,315 (0,384)	-0,037 (0,367)	0,233 (0,489)	0,477 (0,514)	0,250 (0,483)
How much influence parent thinks she has on child future	0,329 (0,785)	-0,313 (0,616)	-0,013 (0,531)	-0,683 (0,622)	0,918* (0,504)	0,584 (0,485)	0,318 (0,637)	0,634 (0,673)	0,188 (0,636)
# of observations	685	513	685	685	685	685	666	666	666

PANEL D: HOME INVENTORY

Responsitivity	0,657 (0,421)	-0,107 (0,351)	0,333 (0,310)	0,318 (0,362)	0,287 (0,239)	0,409* (0,233)	0,412 (0,390)	0,854* (0,475)	0,185 (0,385)	0,037 (0,360)
Acceptance	-0,503 (0,740)	-0,106 (0,575)	-0,762 (0,545)	-0,065 (0,635)	-0,318 (0,419)	0,019 (0,409)	0,493 (0,689)	-0,514 (0,840)	0,512 (0,681)	1,180* (0,652)
Organization	-1,758* (1,061)	-0,609 (0,854)	-1,554** (0,781)	-0,440 (0,911)	-0,850 (0,601)	-0,645 (0,586)	0,495 (0,978)	-0,225 (1,192)	1,147 (0,967)	0,313 (0,943)
Learning materials	0,409 (0,456)	-0,052 (0,373)	0,717** (0,336)	-0,050 (0,392)	-0,001 (0,259)	0,160 (0,252)	0,137 (0,424)	0,711 (0,517)	-0,165 (0,419)	-0,594 (0,400)
Involvement	0,639 (0,669)	-0,474 (0,543)	0,087 (0,493)	0,536 (0,574)	0,542 (0,379)	0,209 (0,369)	0,974 (0,623)	0,572 (0,760)	0,554 (0,616)	1,518*** (0,582)
Variety	0,309 (0,804)	0,357 (0,693)	-0,326 (0,592)	-0,372 (0,691)	0,594 (0,456)	0,617 (0,444)	0,261 (0,761)	-0,246 (0,928)	0,854 (0,752)	0,299 (0,716)
# of observations	243	125	243	2437	243	243	228	228	228	211
HOME TOTAL SCORE	0,239 (0,154)	-0,154 (0,125)	0,090 (0,115)	0,071 (0,132)	0,125 (0,088)	0,199** (0,085)	0,415*** (0,142)	0,441** (0,174)	0,320** (0,141)	0,238* (0,139)
# of observations	257	130	257	257	257	257	242	242	242	225

The three regressions include controls for child and household characteristics, year and interviewers. Standard errors are given in parentheses. *: p-value<.100; **: p-value<.050; ***: p-value<.010

5 Household characteristics and parenting behavior

Parenting behavior may be associated with characteristics of the child. For example, parents may behave differently towards boys or girls, or towards younger versus older children. Parenting may also be related to socio-economic characteristics of the household and the caregiver. For instance, more educated parents may use different disciplinary methods. Or parents in large families may have less time to read to their child. Table 9 takes a closer look at the relationship between child or households characteristics and parenting behavior. The analysis is based on the two survey rounds. It estimates to what extent the likelihood that a certain behavior occurs is related to the child, household, caregiver and community characteristics. The table should be read row by row (instead of column by column as is more common for regression results).

First of all, a noteworthy finding is that we do not find significant differences dependent on the sex of the child. The only exception is telling stories and the Variety scale which occurs more for girls than boys. But the remainder of the stimulating and disciplining actions as well as the parenting experiences and the HOME inventory are not related to the child's sex.

Age of the child on the other hand plays an important role. The likelihood of story telling (either through books or through memory) increases with 2 percent for each month that the child grows older. Similarly, the disciplinary methods increase in prevalence with the age of the child, again with 3 to 5 percent for every additional month. However, parents become less appreciative of their role as a parent as the child ages, perhaps because it becomes increasingly difficult. Only the Responsitivity scale of the HOME environment changes with the age of the child, but in a very small extent.

The combination of a large household size and the number of children below age 18 yields some interesting results. Reading books and telling stories to a young child is negatively related with household size but positively related with the number of siblings. This suggests that there may be time constraints for adults in larger households but that older siblings in fact may interact significantly more with their younger siblings and read books or tell stories. Note that caregivers find it harder and harder to be a parent if the number of children increases. Acceptance of suboptimal behavior is less likely in large families but more likely if there are more children for a given family size.

In general, the age of the caregiver appears to have a positive effect on most parenting behaviors. Older caregivers are more likely to report stimulating interactions, and to tell stories to their child. They are less likely to physically punish the child but instead make more use of time out and talks. Older caregiver also scores higher on the Responsitivity and Variety scales of the HOME tool. These positive practices seem to be reflected in their own experiences: older caregivers are significantly more likely to enjoy being a parent. Nonetheless, they are also more likely to acknowledge that rearing a child is difficult.

Years of education of the caregiver has a strong positive effect on parent-child interactions, in particular on reading books to the child (which in turn is positively related to cognitive development, as the previous chapters showed). Disciplinary methods are also related to parental education. More educated parents are more likely to use educative punishment, and less likely to use physical punishment. In addition, better educated parents feel more in

control over the child's future. Higher parental education is significantly related to a higher overall score on the HOME tool (and particularly with the Responsivity, Organization, Learning Materials and Involvement scales), which in turn is substantially related to improved socio-emotional and language development.

The employment status of the caregiver has no relationship with either stimulating parent-child interactions or disciplining methods (after controlling for the other variables such as education and income). Employed parents are more likely to enjoy being a parent, and more likely to think it is easy to be a parent. This is most likely related to the reduced stress due to economic factors compared to unemployed mothers. Indeed, the Organization and Involvement sub-scores are higher when the caregiver is employed. This is probably related to the fact that being employed requires a certain amount of structure and regularity in family life which in turn is beneficial for the child. It is not clear why employed parents would be more actively involved in their child's learning processes. Perhaps they are more consciously interacting with their child during the scarce hours that they have together.

Finally, income is significantly related to book reading, most likely because there is more money available to buy books in the first place. Disciplining is not related to the wealth or poverty of a family. Wealthier caregivers seem to enjoy being a parent more than the poorer caregivers, probably due to the economic distress that poor households face. The most consistent finding however is that income is significantly and substantially related to higher scores on each of the HOME subscales as well as the total HOME score. This is a very important finding, in particular in light of previous results that a higher HOME score is in turn related to improved child development. This finding calls for further and more in-depth analysis of the various pathways through which income affects the environment in which the child grows and which determines in part the development outcomes of the child.

To summarize, story telling and book reading increase substantially with the age of the child as well as the age of the caregiver, with the number of older siblings in the household and with parental education and income. A larger household size on the other hand has a negative effect on story-telling. Disciplinary methods are unrelated to the child's sex as well as to the standard socio-economic indicators (parental education, income, employment). However, harsh punishment becomes substantially more prevalent as the child grows older. A HOME environment conducive to child development is most significantly related to the wealth of the family. Further analysis is necessary to understand which aspects of the home environment are most affected by wealth.

Table 9: The relationship between parenting and child and household characteristics

	Child characteristics		Household characteristics			Caregiver characteristics			Community
Random Effects	Sex of child (female=1)	Age of child (months)	Number of children aged 0-17	Household size	Income indicator	Age of the primary caregiver	Years of education of primary caregiver	Employment status of primary caregiver	(Vieux Fort=1)
DEPENDENT VARIABLE									
PANEL A: Parent-child interactions									
1. Stimulating parent-child interactions	-0,095	-0,005	0,02	0,035	0,122*	0,016**	0,009	-0,147	-0,552***
2. Nurturing parent-child interactions	-								
3. Story-telling	0,103	0,020***	0,003	-0,070*	0,121	0,019**	0,048***	0,113	-0,215
<i>Read book</i>	0,084	0,020***	-0,005	-0,076**	0,171**	0,015	0,047***	0,119	-0,095
<i>Tell stories</i>	0,369**	0,013**	0,159*	-0,141**	0,067	0,018	0,005	-0,022	-0,548***
4. Variety in experience	-0,088	-0,025***	-0,009	0,028	-0,119*	-0,017**	0,031*	0,034	-0,04
PANEL B: Disciplining methods									
1. Harsh verbal punishment	-0,058	0,031***	0,017	0,04	-0,046	-0,007	-0,019	-0,036	-0,437***
2. Physical punishment	-0,013	0,050***	0,005	-0,005	0,04	-0,026***	-0,029*	-0,047	-0,023
3. Ignore	0,005	0,009*	0,085	-0,013	-0,063	-0,014	0,008	0,063	-0,002
4. Educative punishment	0,103	0,034***	-0,078	0,016	-0,034	0,017**	0,031*	-0,135	-0,118
PANEL C: Parenting experiences									
1. Enjoy being a parent (<i>a reasonable amount, a great deal=1</i>)	-0,146	-0,026***	-0,047	-0,029	0,334***	0,058***	0,036	0,624***	-0,121
2. Parenting is hard (<i>quiet hard, very hard=1</i>)	-0,206	-0,009*	0,178***	-0,029	-0,139	0,035***	0,029	-0,379**	0,079

3. How much influence parent thinks she has on child future (some influence, a lot of influence=1)	0,075	-0,008	0,007	-0,058	0,124	0,01	0,042**	0,164	-0,902***
--	-------	--------	-------	--------	-------	------	---------	-------	-----------

PANEL D: HOME (2008)

(1 if scale is above the median, 0 otherwise)

1. Responsitivity	0,061	-0,007*	-0,008	-0,021	0,088**	0,012***	0,016*	-0,007	-0,051
2. Acceptance	-0,009	-0,002	0,046**	-0,031**	0,084***	0,004	0,004	0,006	-0,049
3. Organization	0,034	-0,001	-0,001	-0,012	0,080***	0,001	0,012*	0,087**	0,082*
4. Learning materials	0,002	0	-0,014	-0,028*	0,219***	0,001	0,025***	0,032	0,089
5. Involvement	0,042	0	-0,003	-0,018	0,142***	0,006	0,016**	0,162***	0,007
6. Variety	0,101*	0,001	-0,023	-0,02	0,103***	0,010**	0,011	0,044	-0,072
7. HOME	0,089	-0,006	-0,012	-0,025	0,172***	0,008*	0,036***	0,098	0,026

6 Impact of RCP on parenting behavior

We estimate the impact of RCP on parenting behavior using a so-called “child fixed effect” model. This implies that we take into account any initial differences at baseline between children in RCP and non-RCP communities, and only look at *changes* over time. This is comparable to the differences-in-differences methodology as adopted in the St Lucia Impact Report 2008. It is important to do so because the descriptive statistics in chapter 3 suggested that there were some initial differences in parent-child interaction between the two groups.⁵

Table 10 shows the impact of RCP on parent-child interactions, disciplining methods, and parent experiences. We cannot analyze the impact of the program on the HOME inventory, because baseline data are not available. The coefficients represent the impact of RCP on the behavior in each row, controlling for child, household and community characteristics as described in chapter 2.

Panel A shows that RCP has had a significant and positive influence on the likelihood that parents in RCP communities sing songs with their children. This propensity has increased substantially more in RCP than in non-RCP communities. The overall ‘stimulating interactions’ indicator is positive but not significant at conventional levels. Similarly, caregivers in RCP communities are significantly more likely than those in control communities to tell stories to their child. As chapter 4 showed, such stimulating interactions are positively related to cognitive development, in particular to language development as well as socio-emotional development. Thus, there are indications that stimulating interactions have increased for RCP families which in turn is beneficial for the child’s development. However, changes so far are perhaps not strong enough to show up in the overall impact results of RCP on language and social development (see the Impact Report 2008).

Panel B1 is less reassuring. One element of the RCP curriculum is to provide parents with alternative disciplining methods such as talking and praise instead of beating and shouting. However, there are no indications that RCP families have become less likely to ever beat their child. On the contrary, the differences at baseline when they reported less beating (see chapter 3) have largely disappeared in the past two years. Similarly, there is no evidence that RCP parents would talk more to their child when she or he misbehaves. Again, it appears that any positive differences in this respect between RCP and non-RCP families at baseline have dissipated over time. The two groups are now very much alike in their methods of disciplining. This does *not* imply that RCP has enhanced the ‘wrong’ kind of disciplinary methods. For instance, RCP parents are more likely to ignore the child when she misbehaves, which can be seen as positive, depending on the circumstances. However, the results seem to suggest that there are certain culturally determined patterns in how to deal with misbehavior; and that these patterns are not easy to change through a parenting program.

Panels B2 and B3 suggest however that RCP caregivers show a larger increase in the *variety* in methods used in the past week compared to non-RCP caregivers. This suggests a broader repertoire of disciplining measures. Also, the *frequency* of disciplining practices in the past week has decreased more among RCP caregivers, suggesting more restraint.

⁵ However, a random effects model (that does not include child fixed effects) yields the same results.

Panel C. shows that parents living in RCP communities are significantly more likely to think that parenting is hard. This effect of the program may be related to a greater awareness of the complexities of child development and child rearing. Another interesting and promising result in panel C. is the impact of RCP in parents' feelings of control. Caregivers in RCP communities are significantly more likely to think that they can influence their child's future. A very important factor in children's future performance in school is related to parental aspirations and motivations. This is rarely measured in studies of child development and indeed very difficult to capture. Of course, the one question "*How much influence to you think you have on your child's future*" can give at most a hint towards this issue but it is suggestive of a positive development.

Table 10: Impact of RCP on parenting

Fixed effects	RCP	
	<i>Coefficient</i>	<i>Standard error</i>
On the following dependent variables:		
PANEL A: Parent-child interactions		
1. Stimulating parent-child interactions	0,112	0,07
<i>Sing song</i>	0,253***	0,07
2. Nurturing/caring parent-child interactions	0,008	0,01
3. Story-telling	0,039	0,06
<i>Read book</i>	0,023	0,06
<i>Tell stories</i>	0,091**	0,04
4. Variety in experience	0,136**	0,06
PANEL B: Disciplining methods		
B1: Which disciplining method does the parent use when child misbehaves		
1. Harsh verbal punishment	0,079	0,06
2. Physical punishment	0,088	0,07
<i>Beat</i>	0,113*	0,06
3. Ignore	0,171***	0,06
4. Educative punishment	-0,194***	0,07
<i>Talk to the child</i>	-0,192***	0,07
5. Not applicable	0,015	0,04
B2: Did parent have to use the disciplining method last week?		
1. Harsh verbal punishment	-0,053	0,069
2. Physical punishment	0,164**	0,068
3. Ignore	-0,014	0,064
<i>Nothing</i>	0,046**	0,022
4. Educative punishment	0,016	0,045
<i>Time out</i>	0,141*	0,074
B3: If so, how often?		

1. Harsh verbal punishment	-0,2	0,195
<i>Shout</i>	-0,651**	0,317
2. Physical punishment	-0,081	0,167
3. Ignore	-0,032	0,215
4. Educative punishment	0,17	0,134
<i>Talk to the child</i>	-0,319*	0,162

PANEL C: Parenting Joy

1. Enjoy being a parent	-0,042	0,09
<i>(from 1: not at all, to 4: a great deal)</i>		
2. Parenting is hard	0,222*	0,12
<i>(from 1: no, not hard at all, to 4: yes, very hard)</i>		
3. How much influence parent thinks she has on child future	0,254**	0,10
<i>(from 1: not influence at all, to 4: a lot of influence)</i>		

7 Conclusion

Parenting behavior is very difficult to measure adequately with a large-scale quantitative survey. Therefore this report can only provide a first indication of the prevalence of certain parenting practices and developments over time in the study villages. To be meaningful the findings need to be combined with a more in-depth qualitative understanding of the underlying processes, parental motivations and local situations. It is based on four groups of indicators: a) parent-child interactions (such as singing songs; story telling; providing care); b) disciplining methods (such as shouting, beating or giving time-out); c) parenting experiences (such as the joy of parenting) and the internationally used HOME inventory of parenting practices in the child's home environment.

In both survey rounds, all parents in all villages report at least one daily 'caring' parent-child interaction. Two thirds report at least one 'stimulating' interaction such as singing songs. At baseline, there is no difference between RCP and non-RCP caregivers in this respect; but in 2008 this percentage is significantly higher among RCP parents than non-RCP parents. Overall, substantially less caregivers report to read books or tell stories on a daily basis, although the percentage increases significantly from 22 percent at baseline to 37 percent in 2008. Whereas at baseline, non-RCP parents scored higher on reading and story telling, in 2008 differences between the two groups have completely vanished. The findings from the simple cross-tabulations are supported by the multivariate regression analysis: RCP has had a significant positive impact on 'stimulating' and 'story-telling' parent-child interactions.

This is important because the analysis shows that both 'stimulating' interactions and especially 'reading/story telling' are positively related to language development and/or socio-emotional development. Nevertheless we do not find a significant direct impact of RCP on these child outcomes (see Impact Report 2008). This may be due to the fact that the effects through this pathway are too subtle to be picked up in the general analysis, and perhaps they need more time to fully materialize. Further analysis shows that the prevalence of story-telling in a family increases with the age of the child, the age of the caregiver, as well as years of maternal education and household income. Household size has a negative relationship with the occurrence of daily reading and story telling but the presence of older siblings is beneficial.

Our next parenting indicator concerns disciplining methods. Important to note is that in 2006, when children were at most 24 months old, 17 percent of parents indicate that they never need to discipline their child. This percentage has gone to zero in 2008 when children are almost two years older. Approximately one third of caregivers at baseline reported using 'educative' punishment such as giving time-out or talking to a misbehaving child. Similarly, one third spontaneously reports to resort to physical punishment such as slapping or beating the child. Both percentages have doubled between the two survey rounds. Any prior differences between the two groups that were favourable for RCP have largely disappeared in 2008. In 2008, 29 percent of parents regularly shouts or yells at their child, going up from a mere 8 percent at baseline. Finally, a quarter of parents in both years indicates to 'ignore' misbehavior from time to time. For both disciplining methods ('harsh verbal punishment' and 'ignoring') there were no baseline differences between the two groups, but in 2008 this

percentage is higher among RCP caregivers. In other words, it seems that caregivers in RCP villages have lost some of their “advantage” since baseline in terms of educative punishment and caught up with or surpassed the non-RCP parents in terms of harsh verbal and physical punishment. This is also confirmed in the multivariate analysis. However, further analysis suggests that the *repertoire* of disciplining methods may have increased more for RCP than for non-RCP caregivers. However, the *frequency* of disciplinary actions in the past week has significantly decreased in the program group compared to the control group.

Interesting is that –apart from the age of the child and the age of the caregiver—the results do not show any significant relationship between disciplining practices and characteristics such as the sex of the child or the income of the household. However, years of parental education do affect disciplining methods. More educated parents are less likely to use physical punishment and more likely to use educative punishment. This suggests that even though disciplining methods could be strongly rooted in local culture, they can be modified and improved through parental education. This may make it difficult for RCP to bring about substantial changes in a relatively short period of time.

Do disciplining methods matter for child outcomes? There are some indications they do. The analysis shows that harsh verbal punishment is *negatively* related with language development, whereas educative punishment is *positively* related with language development. However, for the majority of methods and child outcomes, the results are not statistically significant.

In terms of parenting experiences, it seems that the vast majority of respondents enjoy being a parent a great deal. This does not differ over the two treatment groups. Interesting enough, the joy of parenting is strongly correlated with the performance of the child: if children score higher on any of the cognitive development scales, their caregiver is substantially more likely to enjoy the role of parenting. In addition, employed caregivers and those in the wealthier families are more likely to enjoy being a parent. This could reflect the economic hardship and financial worries faced by poorer households.

Most parents also think they have quite some influence on the future of their children, the better educated more so than the lower educated. In addition, feelings of control over a child’s future are positively and significantly correlated with the language development. This is an important finding since parental aspirations have been found in other studies to have a strong positive effect on future child performance in the longer term. The multivariate analysis shows that this indicator has increased substantially more for caregivers in RCP communities than in non-RCP communities. This may prove to be one of the important program effects in the longer run.

Finally, the quantitative survey in 2008 includes the HOME assessment tool that looks at six dimensions of parenting practices: “Responsivity”, “Acceptance”, “Organization”, “Learning materials”, “Involvement” and “Variety”. The general analysis shows that the HOME total score is a significant predictor, especially of the total and subscales of socio-emotional development. Unfortunately these data were not collected in the baseline survey, hence the analysis cannot look at the impact of RCP controlling for baseline differences. In 2008, the two groups are comparable on the summary score as well as most subscales except for the “Learning materials” and “Variety” score which are lower in RCP families.

One important finding is common to both treatment groups. Compared to the North-American reference population, the St Lucian families in our study score on the median

equally well. There is however one important exception, and that is the presence of “Learning materials” in the home. The presence of stimulating learning materials is significantly related to cognitive development, especially Visual Reception (part of eye-hand coordination). Not surprisingly, richer families score substantially higher on this HOME subscale than other households. Similarly, better educated families perform better as well. Given the lack of baseline data, it is not clear how RCP families scored in 2006 compared to 2008. However, the program emphasizes the use of stimulating materials. Since Visual reception is one of the outcomes that improved substantially for RCP children, this may be one of the potential pathways.

Appendix A. Parenting section in caregiver questionnaire

We now start with the section on parenting. I am going to ask you some questions about daily life in your household. Things you might do together with [NAME], toys you have for [NAME] to play with; things like that.

JOINT ACTIVITIES

*A good way to get a picture of what [NAME]'s days are like is to have you **think of a normal day which you spend with him/her, and tell me everything that happened to him/her as well as you can remember. Start with the things that happened when s/he first woke up. (IF NECESSARY, PROBE ONCE: Anything else?)***

(5.01) ON ANY NORMAL DAY, WHAT DOES THE CAREGIVER DO WITH THE CHILD? (Tick all that apply)

01	BATH	0
02	FEED	0
03	DRESS	0
04	COMB HAIR	0
05	PUT IN BED	0
06	TAKE AROUND	0
07	LOOK AT TV	0
08	LEAVE IN COT	0
09	SIT WITH CHILD	0
10	SING SONG	0
11	TALK TO	0
12	CLAP HANDS	0
13	STROKE / RUB	0
14	TICKLE	0
15	PLAY LITTLE GAMES	0
16	MAKE FUNNY FACES	0
17	HOLD/HUG	0
18	READ BOOK	0
19	TELL STORIES	0
20	GET ANGRY	0
21	OTHER, SPECIFY:	0

Do you ever read stories to [NAME]? How often?

(5.02) CAREGIVER READS STORIES TO CHILD AT
LEAST THREE TIMES WEEKLY

OUTSIDE TRIPS

Do you ever take [NAME] out in the yard and let him/her play in the yard, or walk him/her in a stroller? About how often?

- (5.03) CHILD GETS OUT OF THE HOUSE AT LEAST 4 TIMES A WEEK. Yes No

Young children need to be looked after all of the time. Who takes care of [NAME] when you are away? Can you usually count on her/him, or do you have to get a different person each time?

- (5.04) CHILD CARE, IF USED, IS PROVIDED BY ONE OF AT MOST 3 REGULAR SUBSTITUTES. Yes No

Tell me about some of the places you go and take [NAME] with you. Do you ever take [NAME] to the grocery store or the market? And to the doctor's office or clinic? About how often do you make these trips?

- (5.05) CHILD IS TAKEN TO GROCERY STORE (OR MARKET) AT LEAST ONCE A WEEK. Yes No

- (5.06) CHILD IS TAKEN REGULARLY TO DOCTOR'S OFFICE OR CLINIC. Yes No

TOYS AND LEARNING MATERIALS AVAILABLE TO THE CHILD

I am interested in knowing something about the kinds of toys that [NAME] likes to play with. ASK THE CHILD: Could you get some of your toys and show them to me?

IF NOT AMONG THE SHOWN TOYS, ASK EXPLICITLY FOR:

Does [NAME] have any toys which make him/her move and use his/her muscles as s/he plays with them, such as a ball, a rocking horse, a swing or any other toy? Can you show it to me?

- (5.07) MUSCLE ACTIVITY TOYS OR EQUIPMENT. Yes No

Does [NAME] have any push or pull toys, such as a toy attached to a string which s/he can pull or a toy on wheels to push or any other such toy?

- (5.08) PUSH OR PULL TOY. Yes No

Do you have anything for [NAME] with wheels that s/he can ride on or in, such as a stroller or walker, a kiddie-car or a small bicycle?

- (5.09) STROLLER, WALKER, KIDDIE CAR, SCOOTER, OR TRICYCLE. Yes No

Does [NAME] have **any cuddly toy**, a teddy bear, a doll or a stuffed animal to play with? (Does s/he have any **make-believe or dress-up clothes** such as a cowboy suit or a policehat?)

(5.10) CUDDLY TOY OR ROLE-PLAYING TOYS. Yes No

Do you have **special furniture** for [NAME], such as a small table and chair, or a high chair or a play pen where you let him/her play?

(5.11) LEARNING FACILITATORS (SMALL TABLE AND CHAIR, HIGH CHAIR, PLAY PEN). Yes No

Does [NAME] have any **eye-hand coordination toys**? For example, **small toys that motivate him/her to make precise movements with his/her hands** while playing with it, such as small objects that can be put in and out of a box?

(5.12) SIMPLE EYE-HAND COORDINATION TOYS. Yes No

Does [NAME] have any **more complex eye-hand coordination toys**, such as toys that consists of **different shapes** (such as a shape sorter box) or **with which s/he can build things** (such as Lego blocks) or so?

(5.13) COMPLEX EYE-HAND COORDINATION TOYS. Yes No

Do you feel that toys are important for children to learn new skills? Do you keep this in mind when you provide toys? (Ask for example)

(5.14) CAREGIVER PROVIDES TOYS THAT CHALLENGE CHILD TO DEVELOP NEW SKILLS. Yes No

Where does [NAME] keep most of his/her toys? Have you set aside a special place for them?

(5.15) CHILD HAS SPECIAL PLACE FOR TOYS AND TREASURES. Yes No

Does [NAME] have any **musical toys**, such as toy musical instruments, or a tape recorder or radio that s/he is allowed to play with?

(5.16) TOY FOR MUSIC. Yes No

Does [NAME] have any **child books or tapes and CDs with stories** to listen to?

(5.17) TOY FOR LITERATURE. Yes No

Skip to Q(5.19) if Q(5.17 is "NO")

Does [NAME] have any **books that are completely her/his own?** About how many?

(5.18) CHILD HAS 3 OR MORE BOOKS OF HIS/HER OWN. Yes No

Does your family have a pet?

(5.19) FAMILY HAS PET. Yes No

FAMILY ROUTINES

*How do you arrange things when you need to do the dishes or the laundry or clean the house? **When you do housework, do you concentrate entirely on it, or do you sometimes make conversation with [NAME] while you do your work?***

(5.20) CAREGIVER TALKS TO CHILD WHILE DOING HOUSEHOLD WORK. Yes No

*Does [NAME] ever go through a little routine of acting like s/he has nothing to do, nothing to play with, and maybe whines or acts bored? If this happens, what do you do? **Do you let him/her select what s/he wants to do, or do you make some suggestions to him/her or maybe get out certain toys?***

(5.21) CAREGIVER STRUCTURES CHILD'S PLAY PERIODS. Yes No

Do you like to sit down and play with him/her sometimes?

IF YES: What are some of the things that you have tried to teach [NAME] to do?

(5.22) CAREGIVER CONSCIOUSLY ENCOURAGES DEVELOPMENTAL ADVANCE. Yes No

*Sometimes we provide all sorts of creative toys for our children and then they don't seem to like to play with them. **How do you get her/him to play with a toy that you think is an especially good one?***

(5.23) CAREGIVER INVESTS IN MATURING TOYS WITH VALUE VIA PERSONAL ATTENTION. Yes No

Children love to play in things that get them all messy and dirty -- mud, water, their food, and so on. How do you feel about that?

(5.24) CAREGIVER PERMITS CHILD TO ENGAGE IN "MESSY" PLAY. Yes No

ONLY IF NOT OBSERVED:

Do you get time to read? Do you have any books for yourself here in the house? About how many?

(5.25) NUMBER OF BOOKS IN THE HOUSE

ONLY ASK THE FOLLOWING TWO ITEMS IF THERE IS A FATHER (FIGURE) IN THE HOME (CHECK HOUSEHOLD ROSTER).

Does [NAME] eat at the table with the rest of the family? Is her/his father (figure) there for at least one meal each day?

(5.26) CHILD EATS AT LEAST ONE MEAL A DAY WITH MOTHER AND FATHER (FIGURE) TOGETHER. Yes No

Does her/his father (figure) give you any help with [NAME]? Does he do this regularly? (At least 15 minutes or so each day)

(5.27) FATHER (FIGURE) PROVIDES SOME DAILY CARE. Yes No

Appendix B. Observation form

(11.01) HOUSEHOLD ID-CODE
Community no. Household no.

(11.02) NAME OF CHILD

(11.03) ID-CODE OF CHILD

(11.04) Who is the caregiver who was observed?

PRIMARY CAREGIVER (FROM PART 5) 1

DAILY CAREGIVER (FROM PART 10) 2

(11.05) Approximate length of time that child was in sight during interview
minutes

RESPONSIVE CAREGIVER-CHILD INTERACTIONS

YES NO

- (11.06) Parent spontaneously vocalizes to child at least twice. 0 0
- (11.07) Parent responds verbally to child's vocalizations or verbalizations. 0 0
- (11.08) Parent tells child name of object or person during visit. 0 0
- (11.09) Parent caresses or kisses child at least once. 0 0
- (11.10) Parent provides toys for child to play with during visit. 0 0
- (11.11) Parent keeps child in visual range, looks at often. 0 0

COMMUNICATION TOWARDS INTERVIEWER

YES NO

- (11.12) Parent spontaneously praises child at least twice. 0 0
- (11.13) Parent's voice conveys positive feelings toward child. 0 0
- (11.14) Parent responds positively to praise of child offered by interviewer. 0 0
- (11.15) Parent's speech is distinct, clear and audible. 0 0
- (11.16) Parent initiates verbal interchanges with interviewer. 0 0
- (11.17) Parent converses freely and easily. 0 0

ACCEPTANCE		YES	NO
(11.18)	Parent shouts at child during visit.	0	0
(11.19)	Parent expresses overt annoyance with or hostility to child.	0	0
(11.20)	Parent slaps or spanks child during visit.	0	0
(11.21)	Parent scolds or criticizes child during visit.	0	0
(11.22)	Parent interferes with or restricts child more than 3 times during visit.	0	0
PLAY ENVIRONMENT		YES	NO
(11.23)	Child's play environment is safe.	0	0