

Family Influences on Early Grade ReadingTHE EARLY GRADE READING STUDY (EGRS)

August 2017









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Abbreviations

ABBREVIATIONS

DBE - Department of Basic Education EGRS - Early Grade Reading Study RCT - Randomised Control Trial

1. INTRODUCTION

This report presents the findings of analysis that was undertaken on the home characteristics data from the Early Grade Reading Study (EGRS). The low levels of reading proficiency among South African learners are well-documented both locally and internationally. Results of systemic evaluations at both Grades 3 and 6 have shown that learners achieve average results that are far below locally-set proficiency standards (Department of Education, 2003, 2006). On average, South African learners perform worse than their peers of comparable socio-economic status elsewhere in the Southern African region and beyond (van der Berg, 2008; Zuze & Reddy, 2014).

The Department of Basic Education (DBE) is developing a number of strategies to address this problem. Between 2015 and 2017, the DBE has partnered with the North West Provincial Education Department to pilot and evaluate three interventions in a selection of schools. This project is called the Early Grade Reading Study (EGRS). Two of the interventions focused on providing support to teachers. The third was intended to increase parental involvement in developing the reading skills of their children and is the focus of this report. Allocation to each of the three intervention groups (50 schools each) and a control group (80 schools) was done using a computerised lottery, thus setting up a Randomised Control Trial (RCT).

The study tracked information on over 4,500 children (20 learners in each of 230 schools), their households and their schooling environments. The study commenced in 2015 when the learners were starting Grade 1. Three waves of data are available for the 230 schools in the North West province that took part in this study. Wave 1 was collected at the start of grade 1 in February 2015; Wave 2 was collected at the end of grade 1 in October/November 2015; Wave 3 was collected at the end of 2015 when learners were either in grade 2 or repeating grade 1. Alongside the background and assessment data, is information on which of the three interventions was assigned to a school and which schools represented the control sample. The home background dataset was compiled through a questionnaire that was sent home with children at the same time as other data collection activities. The home questionnaire provided information about the characteristics of the main care giver, their support for reading development and parental involvement in the learner's school life.

This report begins by comparing parental influences across interventions to determine whether there were any systematic differences in the behaviour of parents based on the different interventions. This discussion is followed by a description of how trends in home literacy practices changed at different points in the study. A series of analyses are undertaken to explain the relationship between family influences and reading achievement. Information on parents who attended the training workshops in the first and second years of the study was cleaned and merged to the main dataset in order to carry out further analysis. Attendance patterns are briefly discussed. How participation in the training workshops relates to household reading habits is analysed and discussed with reference to the broader goals of the study. The report concludes by discussing implications of the findings for policy.

2. DESCRIPTION OF PARENTS ACROSS INTERVENTIONS

How did the background characteristics of parents compare across interventions?

The primary objective of the EGRS was to evaluate whether each of the three interventions were effective at improving learner reading in the home language (Setswana). As the full project report describes, the parent involvement intervention had a small (but statistically insignificant) impact on reading outcomes at the end of two years. A secondary analysis would be to determine whether any aspects of parent involvement can be observed to have shifted as a result of the intervention.

Table 1 summarises the characteristics of parents across interventions based on the most common responses to items about their background and the home environment. These characteristics are unlikely to have shifted in response to the intervention. The table therefore allows for a check whether the four intervention groups were balanced in terms of household characteristics. The characteristics of households in the control group and the intervention groups were very similar. For example, regarding the question about the relationship of the learner to the head of the household, across intervention groups and the control group, about 90 per cent of respondents were the parent or grandparent of the learner. Across groups, between two-thirds and three-quarters of respondents were a parent while roughly one fifth were grandparents. Other responses, such as "sibling" or "other" were less common and thus omitted from this summary table.

Table 1: Comparing the intervention groups and the control group

	Control	Training	Coaching	Parents
Main care giver				
Yes	96%	95%	97%	95%
Learner relationship to head				
Parent	67%	72%	73%	69%
Grandparent	21%	19%	18%	17%
Age of main care giver				
Mean	39	40	40	39
Median	36	37	37	37
No. of books in the home				
no books	27%	27%	23%	26%
1 to 5 books	48%	51%	52%	55%
6 to 10 books	14%	12%	15%	11%

Source: EGRS Wave 3 data (November 2016), parent questionnaire

Descriptions of Parents

Almost all respondents were the main caregivers in the household. The mean age of the care giver differed by only a year across all four groups, as did the median. The median was slightly lower, suggesting that older care givers were having an undue influence on the mean value of age. Households were very similar in terms of the number of books that they owned. About a quarter had no books and roughly a half had between 1 and 5 books. Differences across the four groups in terms of numbers of books in the house were slight.

The next table investigates the extent to which dimensions of parental involvement may have shifted in response to the intervention, and does so using a set of Ordinary Least Squares (OLS) regressions. Each regression predicts an intermediate outcome that could have shifted. The key explanatory variable is being in Intervention 3 (relative to being in the control group of schools), although a set of control variables for baseline learner scores, learner age and gender, school and community poverty are included (though not reported on in the table). The intermediate outcomes are a parent's frequency of reading to the child, the frequency of checking homework, the frequency of playing games with the child, the number of parent meetings at the school that the parent attended, whether the parent feels that they are primarily responsible for their child's education (as opposed to the teacher or the government), the frequency of learner absence from school, how often the parent checks their child's school bag, the typical bed time of the child and whether the child sometimes stay up beyond 9pm to watch television.

Table 2: Intermediate outcomes for parent involvement

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Readtochild	d CheckHW	Games	Meetings	Responsibl e	Absence	Check bag	Bed time	Late tv
Intervention 3	-0.0182	-0.200	0.0191	0.466***	-0.0364	-0.0766	-0.0284	-0.00381	-0.0299
	(0.119)	(0.140)	(0.0793)	(0.116)	(0.0271)	(0.0674)	(0.0757)	(0.0445)	(0.0307)
Constant	4.217***	4.494***	2.842***	1.423	0.217	2.207***	1.288**	2.011***	0.266
	(0.851)	(1.039)	(0.561)	(0.922)	(0.201)	(0.604)	(0.562)	(0.335)	(0.223)
	4 707	4.500	4.000	4.000	0.574	4 700	4 705	4 407	4.450
Observations	1,727	1,502	1,806	1,328	2,574	1,783	1,795	1,427	1,158
R-squared	0.028	0.090	0.020	0.049	0.122	0.038	0.067	0.052	0.049

Notes: All outcomes are taken from EGRS Wave 3, Parent Questionnaire; Controls for baseline learner scores, learner age and gender, school and community poverty included; Table 2 reveals that only the number of parent meetings attended was significantly higher in the Intervention group. This is a somewhat mechanical outcome since regular parent meetings were the mechanism through which any change would have occurred. The fact that no other indicators shifted substantially confirms that on average, there was no large change in parental behaviour in response to the intervention. In aggregate, there appears to be little difference between the control group and the intervention groups either prior to or after the intervention.

Were there any distinct patterns in the characteristics of the main care giver across waves?

In most cases, the questionnaire was completed by the main caregiver with only slight differences across the waves of the study. More than 95 per cent of respondents reported that they were the main care giver across waves of the study. There was little differentiation by urban or rural areas.

Table 3: Main care giver in rural and urban households, waves 1 to 3

Main Care	Wave 1		Wave 2			Wave 3			
Giver	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
No	2%	3%	2%	1%	3%	2%	5%	4%	4%
Yes	98%	97%	98%	99%	97%	98%	95%	96%	96%
Total	100%	100%	100%	100%	100%	100%	1 00%	100%	100%

Source: EGRS Waves 1, 2 and 3, Parent Questionnaires

Across waves, the questionnaire response usually came from a parent of the learner, but more so in urban areas. In rural areas there was a slightly higher level of response from grandparents and siblings of the learner than in urban areas, but parents still responded just more than 70 per cent of the time. There were more responses from parents in wave 1. Waves 2 and 3 had very similar responses.

Table 4: Respondent relationship to learner in rural and urban households, waves 1 to 3

Relationship to	Wave 1			Wave 2			Wave 3		
Learner	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Parent	81%	71%	75%	76%	69%	72%	75%	68%	71%
Grandparent	15%	22%	19%	14%	20%	18%	16%	21%	19%
Sibling	4%	7%	6%	6%	7%	6%	6%	8%	7%
Other	0%	0%	0%	3%	5%	4%	3%	3%	3%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%

Descriptions of Parents

The education levels of caregivers varied across the urban rural divide. Care givers in rural areas were more likely to have less than a matric, with 74 per cent of rural caregivers not completing schooling, compared to 64 per cent of urban caregivers. Only 7 per cent of main caregivers had some post-secondary education. Levels of education were unlikely to vary across the waves of the study and hence have only been examined for wave 3.

Table 5: Education levels of main care giver in rural and urban households, wave 3

Education of Caregivers	Urban	Rural	Total
< Gr12	64%	74%	70%
Gr12	29%	19%	23%
Certificate/Diploma	4%	3%	4%
Studying	1%	2%	2%
Degree	1%	2%	2%
Total	100%	100%	100%

Source: EGRS Wave 3, Parent Questionnaire

3. DESCRIPTION OF PARENTS ACROSS WAVES

What were the patterns of parental involvement across the duration of the study?

Access to books was limited for most households in the survey, with half having between 1 and 5 books. Urban households were slightly more likely to have some books. Only 5 per cent of households had more than 25 books in the house. There would be little variation in the supply of books across waves so the results reported here are for wave 3.

Table 6: Number of books in rural and urban households, wave 3

Number of Books in the House	Urban	Rural	Total
No books	23%	28%	26%
1 to 5 books	52%	49%	50%
6 to 10 books	14%	13%	13%
11 to 25 books	5%	4%	5%
> 25 books	6%	5%	5%
Total	100%	100%	100%

Where possible, analysis was performed across all three waves of the data. In some cases, there was no comparable question across all three waves. In the case of the languages games, there was no question to measure this variable in wave 1. There was also a slight difference between the question that was asked in wave 2 and in wave 3. In wave 2, the question was, "On how many days a week, and for how long, do you play games with your/the Grade 1 child?" In wave 3, the question was more specific about the type of games that were played with learners. The question in wave 3 was, "On how many days a week do you play language and sound games with your child?"

With these differences in mind, Table 7 shows that more than half of caregivers play games with learners at least 4 to 5 days a week. Caregivers in wave 2 played games with learners slightly more frequently than those in wave 3. In both waves, caregivers in rural areas were slightly more likely to never play language games or to do so every day. Those rural caregivers that did play games did so slightly less frequently. The differences across waves and location are small.

Table 7: Frequency of playing language games in rural and urban households, waves 2 and 3

Days/week play lang.		Wave 2		Wave 3		
games	Urban	Rural	Total	Urban	Rural	Total
Never	4%	8%	6%	5%	8%	7%
1 day	4%	7%	6%	6%	6%	6%
2 to 3 days	8%	10%	9%	12%	13%	13%
4 to 5 days	33%	26%	29%	33%	28%	30%
Every day	24%	21%	22%	22%	20%	20%
Total	100%	100%	100%	100%	100%	100%

Source: EGRS Waves 2 and 3, Parent Questionnaires; The question on frequency of playing games with the learner was not asked in wave 1.

Parents reading to their children has been linked to children having larger vocabularies and better literacy outcomes. In this sample, about a quarter of caregivers read to their children every day. Few caregivers did not read to learners at all and this was slightly more prevalent in rural areas. Reading frequency was very similar across waves.

Table 8: Frequency of reading to the child in rural and urban households, waves 2 and 3

Read to		Wave 2		Wave 3		
Child	Urban	Rural	Total	Urban	Rural	Total
Never	4%	9%	8%	5%	8%	7%
< once a month	4%	7%	6%	6%	6%	6%
Once/twice a month	8%	10%	10%	12%	13%	12%
Once/twice week	32%	26%	28%	33%	28%	30%
3/4 times a week	24%	20%	22%	22%	20%	20%
Everyday	27%	28%	27%	22%	25%	24%
Total	100%	100%	100%	100%	100%	100%

Source: EGRS Waves 2 and 3, Parent Questionnaires; The question on frequency of reading to the learner had different response categories in wave 1, which could not be directly compared to the responses allowed in waves 2 and 3.

Descriptions of Parents

In wave 2, nearly 70 per cent of parents checked homework every day, an encouraging level of parental involvement. Only 6 per cent of parents never checked homework, and there was a slight rural bias in the share of households where homework was not checked. It appears that checking of homework declined in frequency between wave 2 and wave 3.

Table 9: Frequency of checking homework in rural and urban households, waves 2 and 3

Check		Wave 2		Wave 3		
homework	Urban	Rural	Total	Urban	Rural	Total
Never	4%	7%	6%	4%	6%	6%
< once a month	1%	4%	3%	3%	5%	4%
Once/twice a month	4%	4%	4%	6%	8%	7%
Once/twice week	8%	10%	10%	11%	11%	11%
3/4 times a week	10%	9%	9%	12%	13%	12%
Everyday	74%	66%	69%	64%	57%	60%
Total	100%	100%	100%	100%	100%	100%

Source: EGRS Waves 2 and 3, Parent Questionnaires; The question on frequency of checking homework had different response categories in wave 1, which could not be directly compared to the responses allowed in waves 2 and 3.

The question about who was most responsible for the learner's reading outcomes was asked in all 3 waves of the survey but with slightly different possible answers. In waves 2 and 3, the allowed responses were "Teacher", "Parent/Caregiver" or "Government". In wave 1, the same responses were allowed as well as another option, "Both Teacher and Parent".

In wave 1, 71 per cent of caregivers thought that both parents and the teacher were most responsible for reading outcomes. Urban dwellers held this view more strongly than their rural counterparts. Parents alone were viewed to play the main role by only 23 per cent of caregivers. In waves 2 and 3, parents alone took a much greater part of the responsibility for reading outcomes. In wave 2 parents bore the main responsibility according to 73 per cent of households, escalating slightly to 82 per cent in wave 3. The share of households believing that government was most responsible fell to 0 in wave 2 and only 1 per cent in the third wave. There was greater similarity between urban and rural responses in subsequent waves.

Table 10: Opinions about who is most responsible for reading outcomes in rural and urban households, waves 1 to 3

Most responsible	Wave 1			Wave 2			Wave 3		
for reading outcome	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Teacher	3%	8%	6%	25%	28%	26%	15%	18%	17%
Parent/ Caregiver	23%	23%	23%	75%	72%	73%	83%	81%	82%
Both Teacher & Parent	74%	69%	71%	N/A	7%	N/A	N/A	N/A	N/A
Government	1%	1%	1%	1%	0%	0%	2%	1%	1%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: EGRS Waves 1, 2 and 3, Parent Questionnaires;

There was a noticeable decline in parents who believed that teachers were responsible for outcomes between wave 2 and wave 3. Parents in rural areas were slightly more likely to believe that teachers are mostly responsible for outcomes, while those in urban areas were more likely to take responsibility themselves.

Table 11: Days absent from school for learners in rural and urban households, waves 2 and 3

Days/week play lang.		Wave 2		V		
games	Urban	Rural	Total	Urban	Rural	Total
Never	33%	27%	29%	32%	29%	30%
1 day	25%	26%	26%	24%	26%	25%
2 to 5 days	34%	36%	35%	36%	34%	34%
6 to10 days	5%	7%	6%	6%	7%	7%
More than 10 days	3%	4%	4%	3%	5%	4%
Total	100%	100%	100%	100%	100%	100%

 $Source: \textit{EGRS Waves 2} \ and \ \textit{3, Parent Questionnaires;} \ \textit{The item on days absent from school was not asked in wave 1.}$

Absenteeism was very similar across waves 2 and 3. About 90 per cent of learners had been absent less than 5 days in total. Absenteeism rates were slightly higher in rural areas than in urban areas.

Table 12: Frequency of checking school bag in rural and urban households, wave 3

Checking School Bag	Urban	Rural	Total
Never	5%	9%	7%
Once a month	6%	10%	8%
Once a week	25%	25%	25%
Most days	65%	56%	59%
Total	100%	100%	100%

Source: EGRS Wave 3, Parent Questionnaire; The item on frequency of checking school bags was not asked in waves 1 and 2.

The question on the frequency of checking school bags was only asked in wave 3. In general, the percentage of parents checking bags was high, with 84 per cent of parents checking bags more frequently than once a week. Urban parents checked school bags on most days more often than their rural counterparts. Only 5 per cent of parents in urban areas and 9 per cent of rural parents never checked their child's school bag.

Table 13: Perceptions of child's reading ability in rural and urban households, wave 3

How well does child's reading compare	Urban	Rural	Total
Better than others	21%	22%	22%
Same as others	49%	46%	47%
Not as well	16%	17%	17%
Don't know	14%	14%	14%
Total	100%	100%	100%

Source: EGRS Wave 3, Parent Questionnaire; The item on perceptions of relative reading ability was not asked in waves 1 and 2.

Nearly half of all parents thought that their child read at a level similar to their peers. There was very little difference in how this question was answered in rural and urban areas. Slightly fewer parents thought their child was reading worse than their peers, than thought that their child was reading slightly better.

4. PARENTAL FACTORS RELATED TO EARLY GRADE READING

Which family influences made a difference to reading skills development?

Parental involvement plays an important role in a child's educational development. Research consistently shows that South African learners whose parents are less educated and less likely to be employed, tend to have poorer educational outcomes (Branson, Lam, & Zuze, 2012; Case & Deaton, 1999; Fleisch, 2008). Family support for learning is certainly not restricted to well-educated parents. Parents can support the cognitive and emotional development of their children in many other ways. This includes time spent playing with children (Ginsburg, 2007), involvement in school and community activities and the provision of nutrition and a secure living environment (Desforges & Abouchaar, 2003).

There is a growing body of literature to show that parental involvement is important in the development of early literacy skills (Sénéchal & LeFevre, 2002). Support for early reading can take many different forms. Research suggests that the relationship between different types of home literacy activities and reading development can be varied (LeFevre, 2001; Storch & Whitehurst, 2001). However, there are some relationships that have remained constant across time and in different environments. Studies have shown that parent-child reading interactions are significantly associated with emergent literacy. These effects remain significant even when demographic characteristics are accounted for (Bracken & Fischel, 2008). Family reading behaviour helps to shape young children's attitudes towards reading. Children who come from homes where reading is viewed as enjoyable tend to be more motivated to learn to read (Baker, Scher, & Mackler, 1997). These findings should help to shape interventions programs that encourage family literacy.

In this study, support for reading skills development was represented by the following variables: how often parents read to the child, how often they checked homework, the number of books in the home and how often parents played language games with their children.

Figure 1below provides a first look at how parental behaviour relates to reading scores by showing how reading scores were associated with the frequency of bag checking by parents and their perceptions of how well their child reads compared to their classmates. The figure shows that parental perceptions of how well their child reads was positively associated with an objective measure of reading performance. This implies that parents tended to have a relatively accurate idea about how well their child reads. Secondly, more frequent bag checks, a proxy variable for parental involvement, was also associated with higher reading scores. Thirdly, these variables tended to reinforce each other.

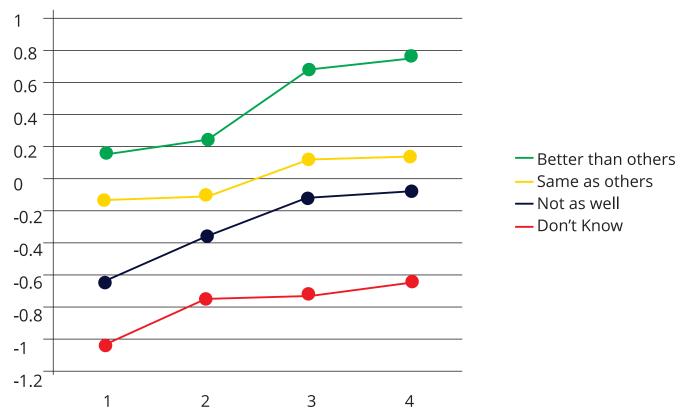


Figure 1: Association of reading scores, parental perceptions and parental involvement, wave 3.

Source: EGRS Wave 3, parent questionnaire

Learners whose parents thought that they read better than their peers at school and whose bags were checked more regularly, performed better on the reading test. More specifically, if a learner's school bag was checked on most days or at least once a week, and the parent of the child thought that the child read better than their peers, then these learners achieved significantly better results on the reading test.

An accurate perception of how well a child reads could also be seen as another indicator of parental involvement. Interestingly, less than 5% of parents appeared to have an "inflated" view of their child's reading (defined as regarding their child as "better than others" when in fact their child is in the bottom 50% of the class) and similarly less than 5% of parents appeared to have a "deflated" view of their child's reading (defined as regarding their child as "worse than others" when in fact their child is in the top 50% of the class).

Table 14: OLS regression on composite test scores

VARIABLES

Picture comprehension /10	-0.000624	0.0203
reture comprehension / ro	(0.0130)	(0.0137)
letters correct	0.0186***	0.0204***
	(0.00216)	(0.00227)
digit span total /10	0.0410***	0.0423***
0.1	(0.00819)	(0.00858)
phonemic awareness /12	-0.00140	-0.00142
	(0.00707)	(0.00745)
words correct	0.000491	-0.00378
	(0.00405)	(0.00427)
sentence reading comprehension /3	0.0323**	0.0255
	(0.0161)	(0.0169)
number of sentence words correct /15	-0.0282***	-0.0278***
	(0.00649)	(0.00683)
pared = 2, Gr12	0.128***	0.148***
	(0.0410)	(0.0435)
pared = 3, Cer/Dipl	0.320***	0.330***
	(0.0903)	(0.0939)
pared = 4, Studying (Degree)	0.0737	0.0369
	(0.151)	(0.156)
pared = 5, At least a degree	0.115	0.103
	(0.124)	(0.131)
Girl	0.222***	0.256***
	(0.0338)	(0.0356)
howell $2 = 2$, same as others	0.697***	0.709***
	(0.0479)	(0.0504)
howell $2 = 3$, better than others	1.164***	1.215***
	(0.0557)	(0.0587)
howell2 = 4, don't know	0.523***	0.510***
C2044 OP 11 1 1	(0.0600)	(0.0634)
C2011_SP_wealth_index	0.0112	0.0140*
D' ' D	(0.00715)	(0.00763)
District Dummy	0.0386	-0.0352
1 1110 W2 - 2 <	(0.0441)	(0.0472)
readchld2_W3 = 2 , <once a="" month<="" td=""><td>-0.0981</td><td>-0.110</td></once>	-0.0981	-0.110
m = 1.112 W/2 = 2 On = / $m = 1.112$	(0.0962) 0.0294	(0.102)
readchld2_W3 = 3, Once/twice a month	(0.0846)	0.0413
readchld2_W3 = 4, Once/twice a week	0.040)	(0.0897) -0.00904
readchidz_w3 = 4, Once/twice a week	(0.0781)	(0.0830)
readchld2_W3 = 5 , $3/4$ times a week	0.134*	0.129
readind2_w3 = 3, 3/4 times a week	(0.0815)	(0.0866)
readchld2_W3 = 6 , every day	0.0375	0.0341
readenida_vvo o, every day	(0.0801)	(0.0851)
bagck2 = 2, once a month	0.00791	0.0592
agent 2, once a month	(0.0854)	(0.0901)
	(0.0054)	(0.0701)

Parental Factors

bagck2 = 3, once a week	0.132*	0.235***
	(0.0746)	(0.0783)
bagck2 = 4, on most days days	0.145**	0.254***
	(0.0710)	(0.0744)
Rural	-0.00638	-0.00107
	(0.0395)	(0.0415)
Repeating	-0.802***	
	(0.0498)	
Pupill_age		0.732**
		(0.334)
pupill_age_Squared		-0.0425**
		(0.0208)
Constant	-1.025***	-4.517***
	(0.148)	(1.335)
Observations	2,330	2,331
R-squared	0.366	0.297

The dependent variable is W3_LT_totscore, a composite score calculated through principle component analysis on a rnage of tests. BL_score_A is the baseline score for picture comprehension, similarly BL_score_B refers to letters correct, BL_score_C is digit span total, BL_score_D is phonemic awareness, BL_score_E is words correct. Pared refers to parental education levels with the base case being less than matric, 2 being matric, 3 a certificate or diploma, 4 being studying towards a degree and 5 being at least a degree. The dummy variable that takes a value of 1 when a learner is female is pupil_female. The categorical variable howell2 refers to how a parent perceives their child's reading ability compared to classmates, with the base case (1) being less well, 2 being the same, 3 being better than average and 4 being don't know. Socioeconomic status is captured by C2011_SP_wealth_index, while district captures the district a leaner lives in. The categorical variable readchId2_W3 takes a value of 1 for never, 2 for once a week, 3 for 2 to 3 days a week, 4 for 4 to 5 days a week and 5 for every day. Similarly, bagck2 takes a value of 1 for never, 2 for once a month, 3 for once a week and 4 for on most days. Rural is a dummy variable taking the value of 1 if a learner lives in a rural area. Repeating takes on a value of 1 if a learner is repeating the grade. Pupil_age is the age of the pupil while pupil_age_Squared is the square of the learner's age.

Table 14 above presents the results of a regression of parental factors on the combined reading test score outcome for wave 3. Performance on the baseline questionnaire is an important determinant of reading scores with learners who performed better on the baseline scores achieving better reading outcomes. The score on the test for the "letters correct", the "digit span" test, "sentence reading comprehension" and "number of sentence words correct" were all highly significant.

Parental education levels were only important up to the point of having a matric or a certificate. Further levels of education did not have an impact on reading performance, although the numbers of parents in this sample with further levels of education were small. In general, girls read better than boys and this relationship is significant and robust.

Parent's perceptions about how well their children read are well correlated with the learner's reading performance. This confirms that parents are relatively well-informed about how their child is progressing.

The dummy variable for the district the child lives in, socioeconomic status and the dummy variable for living in a rural area were not statistically significant. In addition, the variable for the frequency of reading to the child was not significant. This is because the other behavioural variables (such as perceptions of the child's reading and checking their bags) measure much of the same information. Removing these variables from the regression, leads to the coefficient on reading to the child becoming significant (see Table 21 in the Appendix). Checking the child's school bag only became significant at frequent levels of bag checking.

Grade repetition was a strong predictor of weaker scores, as one would expect if indeed the school's decision to repeat the child at the end of grade 1 was related to their learning progress. The age of the learner was positively related to literacy scores. Using the coefficient from the square of the learner's age, shows that scores peak at an age of 8.8 years. Younger and older learners performed less well. Regression specifications with both the repetition dummy and the age variables showed that only repetition was significant. This may reflect that many of the learners repeating grade 1 were relatively young.

Overall, the main influence on reading achievement appears to come from baseline assessments (which reflects early childhood stimulation), the education levels of parents, and the ongoing involvement of parents in their schooling, as seen in the variables on checking school bags and reading to the child.

A logisitic regression run on the variable for repeating students confirmed the impact of family behaviour on learner performance. Learners whose bags were checked regularly, whose caregiver thought they were a better reader than their peers, and who were girls were less likely to be repeating the grade (see Table 21 in the Appendix).

5. OVERVIEW OF PARENTAL ATTENDANCE IN YEARS 1 AND 2

Parental participation in training workshops was recorded through a learner tracker spreadsheet. The attendance register included the school name, the learner names (surnames and first names) and the number of workshop topics that the parents attended. A data cleaning exercise was carried out to link the attendance data to the main EGRS data file. School names and learner names were matched to school and learner numerical identifiers using statistical software packages.¹ These packages are designed to match records with spelling and formatting differences. The software is able to match records that are less than 100 per cent identical by comparing segments of text and allowing users to decide on the level of similarity that they consider acceptable. The process of matching was supplemented by manual verification. The data was then linked to the EGRS master file so that attendance could be linked to other family characteristics.

The table below shows that the matching rates were 92 per cent in year 1 and 75 per cent in year 2. When data were pooled across the two years to see if parents attended workshops in either of the two years, then 945 records were matched. In each year, some of the matched cases included learners who were in the attrition group. This seems to imply that parents participated in the workshops even if they were planning to withdraw their learners from the school. Attrition in year 2 most likely meant that learners were absent on the day that the learner assessment took place.

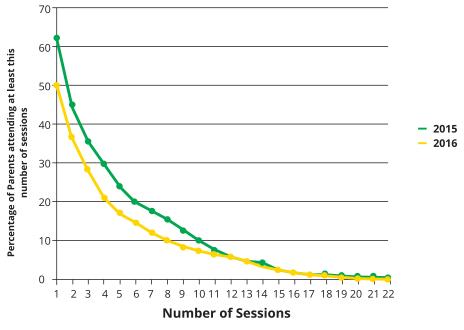
Table 15: Summary of matching rates for attendance data, years 1 and 2

Matching Rate		Matching Rate Completed Data*	
Number of parents in intervention	999	Number of parents in intervention	698
Matched cases year 1	919	Matched cases year 1	649
Percentage matched year 1	92%	Percentage matched year 1	93%
Matched year 2	748	Matched year 2	573
Percentage matched year 2	75%	Percentage matched year 2	82%
Matched pooled data**	945	Matched pooled data*	666
Matched cases attrition group year 1	235		
Matched cases attrition group year 2	149		

^{*}Sample excluding attrition on learner outcome

Figure 2 below shows the total number of workshop sessions attended by parents in each year. Although the overall trend was very similar, the number of parents attending sessions was consistently higher in year 1 at virtually every point in the distribution. In both years, however, attendance was low. In 2015, approximately 50% of children were never represented at an EGRS

Figure 2: Distribution of total sessions attended, years 1 and 2



Source: Class Act parent attendance records

Attendance of parent meetings was in fact somewhat higher in rural schools than in urban schools, both in 2015 and in 2016. It is possible that factors such as employment, which may cause a clash, had an influence on this pattern.

^{**}Highest value in either year 1 or year 2

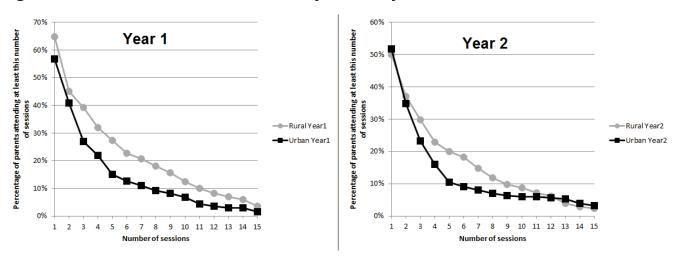


Figure 3: Distribution of sessions attended by location, years 1 and 2

To investigate the relationship between workshop attendance and family reading habits, the attendance data was pooled across the two years. The higher attendance value for each household across the two years was taken to represent overall attendance. In Table 16, odds ratios from a series of logistic regression are shown. The probability of parents engaging in positive reading activities was compared based on workshop attendance patterns. Parents who attended four or more sessions in either year 1 or year 2 were significantly more likely to check their children's school bags on a regular basis and to read to their child on a daily basis in wave 3. There was no variable available on checking bags in the previous waves. Therefore no comparison can be made. The relationship between attendance and playing language games was not statistically significant in either waves 2 or 3, where the variable was available. Also worth noting is that the relationship between reading to a child and attending workshop sessions was equally significant when the wave 1 variable for reading to a child was tested. This seems to suggest that higher workshop attendance was more likely amongst parents who were initially predisposed to greater involvement in their child's reading development, and that the supportive behaviours observed in Wave 3 were not necessarily shaped by the intervention. It could have been a case of "preaching to the converted".

Table 16: Probability of reading skills development based on workshop attendance

	Bag check (Wave 3)	Read to child Wave 3	Read to child Wave 1	Games Wave 3	Games Wave 2
VARIABLES	odds ratio	odds ratio	odds ratio	odds ratio	odds ratio
Ref (No sessions attended)					
one to three	0.974	1.090	1.577*	0.926	1.223
	(0.205)	(0.240)	(0.392)	(0.245)	(0.320)
four or more	1.525**	1.757***	1.827**	0.917	1.090
	(0.314)	(0.368)	(0.453)	(0.232)	(0.284)
Constant	1.319*	0.644***	0.833	0.241***	0.204***
Constant	(0.211)	(0.109)	(0.160)	(0.0474)	(0.0424)
Observations	642	612	441	650	679

In Table 17, workshop attendance is related to the odds of parents taking responsibility for their child's reading. The odds of parents expressing this view were positive but insignificant in wave 1 but highly significant in wave 3. In wave 3, parents who attended four or more sessions were more than three times as likely to take responsibility for their child's reading behaviour, compared to parents who did not attend any sessions. In this case, then, it would seem that those who attended more regularly were somewhat more likely to already be "converted" at the start of the intervention, but became even more likely to be converted by the end.

Table 17: Probability of parental responsibility for reading development based on workshop attendance

	Parents responsible	Parents responsible
VARIABLES	Wave 1	Wave 3
VIIIVIIII	Odds Ratio	Odds Ratio
Ref (No sessions attended)		
One to three	1.150	1.627*
	(0.354)	(0.408)
Four or more	1.546	3.242***
	(0.457)	(0.879)
Constant	0.239***	2.628***
	(0.0568)	(0.471)
Observations	430	624

6. PARENTAL ATTENDANCE AND READING SKILLS DEVELOPMENT

The importance of parent and learner background characteristics for influencing participation in workshop training was analysed and the results are shown below. Parental education levels, proxies for parental employment, literacy and views about responsibility for literacy development were included. Logistic regression was used to analyse the data and the results are presented as odds ratios. The odds of attending four or more sessions were significantly lower for parents who reported that the reason for not participating in school meetings was due to work (a proxy for employment). This result seems to suggest that parents would be in a position to attend workshops if they were not constrained by work commitments.

The other result to emerge from this analysis related to perspectives about responsibility for their child's reading. Parents who felt that they were primarily responsible for developing their children's reading skills were more likely to attend workshop sessions when compared to parents who felt it was primarily the responsibility of teachers to develop a child's reading skills.

Table 18: Probability of parents attending workshop sessions based on parent and learner background

VARIABLES	Odds of attending any sessions year 1 or 2	Odds of attending four or more sessions year 1 or 2
Parental education (ref=less than grade 12)		
finished grade 12	1.542	1.211
	(0.480)	(0.318)
more than grade 12	1.722	0.908
	(0.992)	(0.427)
Difficult attending school meetings (work)	1.017	0.594**
	(0.274)	(0.147)
Relationship to learner (ref=parent)		
Grandparent	1.301	0.887
	(0.466)	(0.269)
Other	0.864	0.619
	(0.339)	(0.235)
Number of school meetings attended	1.024	1.021
<u> </u>	(0.0691)	(0.0603)
Proxy for parental literacy (based on description of games		
played with learner)	0.890	0.770
	(0.300)	(0.224)
Who is responsible for a child's reading (ref=teacher)		
parent responsible	1.824*	2.355**
	(0.587)	(0.811)
government responsible	1.856	3.935
	(2.246)	(4.233)
Female	0.799	0.698
	(0.203)	(0.159)
Constant	1.800	0.499
	(0.851)	(0.228)
Observations	354	354

In Table 19, results of analysis of attendance and parental support for reading skills development are summarised. The results show that parents who read to their children at least 3 to 4 times a week were more than three times as likely to attend four or more workshop sessions in either year. Moreover, this result remained significant even when parental education was controlled for (see in Appendix 1). Parents who were actively building a home literacy environment were also more likely to attend workshop to reinforce their positive literacy practices. However, as noted earlier, this behaviour seems to have been shaped by events that preceded the intervention.

Table 19: Probability of parents attending workshop sessions based on support for reading development

	Odds of attending any sessions	Odds of attending four or more sessions
VARIABLES	year 1 or 2	year 1 or 2
VIIII DILLO	year 1 01 2	year 1 01 2
Checking school bag (ref=never)		
once a month	0.585	1.126
	(0.292)	(0.527)
once a week	0.817	0.482*
	(0.373)	(0.203)
on most days days	0.892	0.988
How often read to child (ref=never)	(0.394)	(0.394)
<once a="" month<="" td=""><td>1.806</td><td>2.446</td></once>	1.806	2.446
	(1.092)	(1.398)
Once/twice a month	1.047	1.979
	(0.490)	(0.952)
Once/twice a week	1.433	1.701
	(0.630)	(0.767)
3/4 times a week	1.726	3.382***
	(0.813)	(1.582)
every day	1.696	2.896**
Play language games (ref=never)	(0.818)	(1.382)
1 day	1.758	1.067
	(0.641)	(0.365)
2 to 3 days	1.744*	1.275
•	(0.567)	(0.396)
4 to 5 days	1.381	0.756
·	(0.536)	(0.276)
every day	1.451	0.865
	(0.578)	(0.317)
don't know	1.035	0.946
How well learner reads (ref=not as well)	(0.368)	(0.304)
same as others	0.968	0.860
	(0.266)	(0.212)
better than others	1.359	1.318
	(0.464)	(0.381)
Constant	1.656	0.384**
	(0.751)	(0.177)
Observations	586	586

7. SUMMARY AND CONCLUSIONS

Results of our analysis revealed that the home environment of learners was similar across interventions and waves of data collection. Most learners were cared for by a parent or grandparent although children in rural areas were more likely to be cared for by a grandparent as well. Seventy per cent of respondents to the parent questionnaire had less than a Grade 12 education but parents in urban areas tended to be better educated. The home literacy environments were very similar across location, intervention group and time. Homes typically had few books and limited engagement with learners in reading activities.

In spite of similar parental demographics, children from urban homes were exposed to better home literacy practices than children from rural areas. A higher percentage of urban parents played language games with their children, read regularly, checked school bags and checked homework of learners. Urban parents also took greater responsibility for developing their children's reading skills. Overall, the percentage of parents taking on this role increased with time and the urban rural gap narrowed. Half of parents felt that their children read at a similar level to their peers and there were no geographical differences based on this question.

Regression analysis showed that the strongest predictors of reading achievement were baseline assessments and indicators of the home literacy environment, checking school bags and reading to the child. Consistent with findings of other studies, girls achieved better test scores than boys. A multiple regression of parental data on attendance patterns showed that attendance was negatively related to employment and positively related to a sense of responsibility about a child's reading. Once again, reading to a child on a regular basis stood out as having a positive association with attendance, even when parental education was taken into account. However, parents who read to their children appeared to do so prior to the intervention. It would seem that this was a case of preaching to the converted.

There are three key findings from the analysis of the parent data. The first is that parents from resource-poor homes and communities harbour different views about their role in developing their child's reading. The second is that this perspective matters. It is related to how well learners read and how involved parents are in training interventions. The third point is that many of the family influences that made a difference to emergent literacy were tried and tested, 'low-tech' solutions such as reading to a child on a regular basis and an ongoing awareness of what a child was doing at school (through checking a school bag and being aware of a child's reading levels). Put simply, showing up and showing an interest in a child's reading practices show the greatest promise. These are the activities that can reinforce the positive interventions being rolled out at low quintile schools. This is encouraging from a policy perspective because it confirms that significant ground can be covered by developing simple reading strategies for parents to follow regularly and consistently. Finally, the one attitude that seemed to be positively shaped by the intervention was that parents assumed a greater level of responsibility for their child's reading by the end of the study. This is an important finding because virtually all other home reading practices hinge on parents being accountable for their child's reading progress. The overall smallness of the impact of the parent involvement intervention on reading scores, however, implies that the challenge remains how to get better attendance rates at parent meetings amongst those parents who are "unconverted" to the opportunities for being involved in their child's reading development.

8. APPENDIXES

Table 20: Probability of parents attending workshop sessions based on support for reading development (parental education included)

	Odds of attending four or more
	sessions
VARIABLES	year 1 or 2
Parental education (ref=less than grade 12)	
finished grade 12	1.261
	(0.268)
more than grade 12	0.952
Checking school bag (ref=never)	(0.337)
once a month	1.201
	(0.565)
once a week	0.498*
	(0.210)
on most days	1.002
How often read to child (ref=never)	(0.402)
<once a="" month<="" td=""><td>2.226</td></once>	2.226
	(1.283)
Once/twice a month	1.830
	(0.891)
Once/twice a week	1.518
	(0.695)
3/4 times a week	3.141**
	(1.488)
every day	2.641**
Play language games (ref=never)	(1.276)
1 day	1.078
•	(0.370)
2 to 3 days	1.304
•	(0.407)
4 to 5 days	0.752
,	(0.277)
every day	0.873
	(0.323)
don't know	0.995
How well learner reads (ref=not as well)	(0.322)
same as others	0.867
	(0.215)
better than others	1.280
	(0.372)
Constant	0.386**
	(0.177)
Observations	580

Table 21: Expanded Results of Ordinary Least Squares Regression

VARIABLES	Composite Score	Composite Score	Composite Score
Picture comprehension /10	-0.000624	0.0203	0.00382
retaile completionout / 10	(0.0130)	(0.0137)	(0.0141)
letters correct	0.0186***	0.0204***	0.0234***
	(0.00216)	(0.00227)	(0.00231)
digit span total /10	0.0410***	0.0423***	0.0461***
	(0.00819)	(0.00858)	(0.00880)
phonemic awareness /12	-0.00140	-0.00142	0.00427
	(0.00707)	(0.00745)	(0.00758)
words correct	0.000491	-0.00378	-0.00464
	(0.00405)	(0.00427)	(0.00437)
sentence reading comprehension /3	0.0323**	0.0255	0.0438**
	(0.0161)	(0.0169)	(0.0172)
number of sentence words correct /15	-0.0282***	-0.0278***	-0.0302***
	(0.00649)	(0.00683)	(0.00697)
pared = 2 , Gr12	0.128***	0.148***	0.179***
	(0.0410)	(0.0435)	(0.0435)
pared = 3, Cer/Dipl	0.320***	0.330***	0.332***
	(0.0903)	(0.0939)	(0.0986)
pared = 4, Studying (Degree)	0.0737	0.0369	0.0959
	(0.151)	(0.156)	(0.160)
pared = 5, At least a degree	0.115	0.103	0.0781
	(0.124)	(0.131)	(0.136)
Girl	0.222***	0.256***	0.304***
	(0.0338)	(0.0356)	(0.0360)
howell2 = 2, same as others	0.697***	0.709***	
	(0.0479)	(0.0504)	
howell2 = 3, better than others	1.164***	1.215***	
	(0.0557)	(0.0587)	
howell2 = 4, don't know	0.523***	0.510***	
	(0.0600)	(0.0634)	

Appendixes

C2011_SP_wealth_index	0.0112	0.0140*	0.00753
	(0.00715)	(0.00763)	(0.00769)
District Dummy	0.0386	-0.0352	0.0596
	(0.0441)	(0.0472)	(0.0470)
readchld2 $_W3 = 2$, < once a month	-0.0981	-0.110	-0.00709
	(0.0962)	(0.102)	(0.101)
readchld2_W3 = 3, Once/twice a month	0.0294	0.0413	0.194**
	(0.0846)	(0.0897)	(0.0859)
readchld2_W3 = 4, Once/twice a week	0.0124	-0.00904	0.180**
	(0.0781)	(0.0830)	(0.0774)
readchld2_W3 = 5 , $3/4$ times a week	0.134*	0.129	0.401***
	(0.0815)	(0.0866)	(0.0810)
readchld2 $_{W3} = 6$, every day	0.0375	0.0341	0.314***
	(0.0801)	(0.0851)	(0.0789)
bagck2 = 2, once a month	0.00791	0.0592	
	(0.0854)	(0.0901)	
bagck2 = 3, once a week	0.132*	0.235***	
	(0.0746)	(0.0783)	
bagck2 = 4, on most days days	0.145**	0.254***	
	(0.0710)	(0.0744)	
Rural	-0.00638	-0.00107	0.0201
	(0.0395)	(0.0415)	(0.0423)
Repeating	-0.802***		-0.864***
	(0.0498)		(0.0532)
Pupillage		0.732**	
		(0.334)	
pupilageSQ		-0.0425**	
		(0.0208)	
Constant	-1.025***	-4.517***	-0.624***
	(0.148)	(1.335)	(0.146)
Observations	2,330	2,331	2,428
R-squared	0.366	0.297	0.235

Table 22 : Logistic Regression on Repeating, Odds Ratios

	Repeating
	riopenang
2.bagck2	0.733
	(0.188)
3.bagck2	0.466***
	(0.108)
4.bagck2	0.444***
	(0.0953)
2.readchld2_W3	0.933
	(0.295)
3.readchld2_W3	0.692
	(0.201)
4.readchld2_W3	1.099
	(0.274)
5.readchld2_W3	1.003
	(0.266)
6.readchld2_W3	0.840
	(0.222)
1.howell2	1.143
	(0.187)
3.howell2	0.507***
	(0.0991)
4.howell2	1.210
	(0.206)
2.pared	0.772
	(0.124)
3.pared	0.619
	(0.237)
4.pared	1.443
	(0.731)
5.pared	1.252
	(0.509)
pupil_female	0.713***
	(0.0894)
C2011_SP_wealth_index	1.014
	(0.0242)
rural	0.943
	(0.133)
Constant	0.470***
	(0.132)
Observations	2,335

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