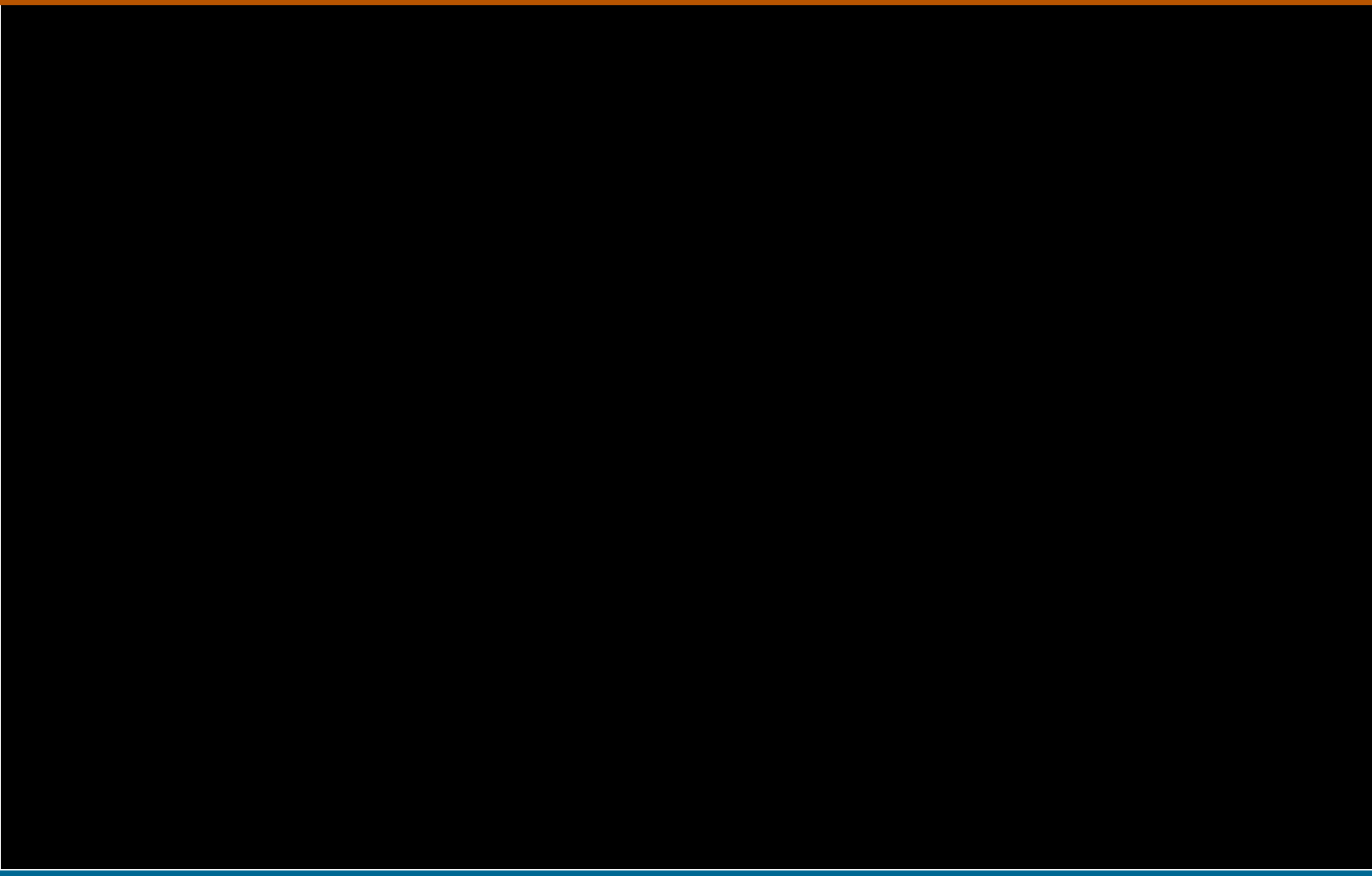

LANGUAGE DEVELOPMENT AND ENJOYMENT OF READING: IMPACTS OF EARLY PARENT-CHILD ACTIVITIES IN TWO GROWING UP IN SCOTLAND COHORTS

Growing Up in Scotland

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This document is available from our website at **www.scotland.gov.uk**.

ISBN: 978-1-78652-296-2 (web only)

The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

Published by the Scottish Government, June 2016

LANGUAGE DEVELOPMENT AND ENJOYMENT OF READING: IMPACTS OF EARLY PARENT-CHILD ACTIVITIES IN TWO GROWING UP IN SCOTLAND COHORTS

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Date: June 2016
Prepared for: The Scottish Government: Children and Families Analysis

ACKNOWLEDGEMENTS

First and foremost, the authors would like to thank all the families who have given up their time to take part in the study and have supported it continuously sweep by sweep.

The Growing Up in Scotland study is very much a collaborative venture. We owe a huge debt of gratitude to our colleagues in NatCen's operations and computing departments and to our team of interviewers and supervisors for conducting the interviews with such dedication and professionalism.

We would also like to thank everyone involved in the preparation of this report - particularly Liz Levy and colleagues at the Scottish Government who provided feedback on early drafts.

Responsibility for the opinions expressed in this report, and for all interpretation of the data, lies solely with the authors.

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EXECUTIVE SUMMARY

Growing Up in Scotland is a large-scale longitudinal project which is currently tracking the lives of two cohorts of Scottish children from the early years, through childhood and beyond. The study is funded by the Scottish Government.

This report uses data from the two birth cohorts in the Growing Up in Scotland study which were selected to be representative of children aged 10 months and living in Scotland in 2004/05 (Birth Cohort 1 or 'BC1') and 2010/11 (Birth Cohort 2 or 'BC2'). Data from both cohorts is used to compare language development at age 3 and explore whether any differences are linked to changes in early parent-child activities across the two cohorts. The report also explores whether any changes in home learning activities across the cohorts appear to be linked to the introduction of the Scottish Book Trust's Bookbug programme and the Scottish Government's PlayTalkRead campaign. These are national interventions aimed at improving parents' access to information and resources on parent-child activities in the early years. Although GUS was not designed to be an evaluation of these inititiatives, the timing of the two programmes meant that only the youngest GUS cohort of children (BC2) was exposed to them, meaning that GUS provides an interesting source for exploring these questions. The limitations of this analysis are set out below. Finally, data from children in the older cohort themselves is used to examine the relationship between early parent-child reading and enjoyment of reading at age 8.

Vocabulary at age 3

- Children who were aged 3 in 2013 had slightly better vocabulary than children aged 3 in 2007/08. This difference remained even when controlling for known differences between the cohorts such as parental level of education.
- The difference in vocabulary between the most and least advantaged children (as measured by parental level of education) appears to have reduced slightly between the two cohorts.

Participation in home learning by age 3

- At the time they were aged 10 months, children in BC2 (69%) were slightly more likely than children in BC1 (66%) to be read to or to be looking at books most days, whilst they were slightly less likely to sing every day or most days (88% in BC2 compared with 90% in BC1).
- The overall frequency of home learning activities undertaken with the children when they were aged 3 did not differ between the cohorts. However, children who were aged 3 in 2013 (59%) were slightly more likely than children aged 3 in 2007/08 (56%) to have played at recognising letters, words, numbers or shapes 'most days' in the last week.
- Children aged 3 in 2013 were more likely than children aged 3 in 2007/08 to be doing activities by themselves, with their mother, and with their father. Specifically, there was an increase in the proportion of children doing all four activities with their father. This increase was only partially explained by other differences between the cohorts such as maternal and paternal working patterns.
- In both cohorts, children living in advantaged circumstances were more likely to undertake frequent home learning activities than children living in less advantaged circumstances. Overall, this relationship was similar across the two cohorts. The analysis

found no evidence of any 'narrowing of the gap' in relation to the frequency of activities undertaken at age 10 months or 3 years.

- Amongst parents who read with their child once a week or less when the child was aged 10 months, almost nine out of ten had increased the frequency at which they read with their child by the time the child was aged 3. Parents in BC2 were slightly less likely to increase their frequency of reading than parents in BC1.

Relationship between participating in home learning and vocabulary ability at age 3

- In both cohorts, undertaking frequent home learning activities was positively associated with higher vocabulary scores at age 3. No evidence was found to suggest that this association had changed between the cohorts.
- The positive relationship between participating in frequent home learning activities and increased vocabulary scores applied equally to children whose parents had high levels of education and those who had no formal qualifications. This applied across both cohorts.

Relationship between home learning and receipt of the initial Bookbug pack and use of the PlayTalkRead website

Between the time children in the two GUS cohorts turned 3, two flagship invervention schemes focusing on home learning were introduced in Scotland. First, Bookbug, a universal book gifting scheme launched in 2010 that aims to encourage parents to share books with their child or children from an early age. Second, the PlayTalkRead campaign, launched in 2009, which provides parents and carers of children up to 3 years of age with free or low cost ideas of how to positively engage with their children in fun and playful ways.

As mentioned above, neither the questions asked in GUS nor the analysis presented here were designed to be an evaluation of these initiatives. This means that there are some limitations to what the analysis can take into account. First, the Bookbug scheme included free song and rhyme sessions and has since expanded to include outreach work targeted at children in disadvantaged circumstances. However, the questions asked in GUS allow us to establish only whether parents recalled receiving and using the initial Bookbug pack issued when their child was a baby. Second, the PlayTalkRead campaign has been delivered through a combination of TV, outdoor, online advertising, social media, PR, partnerships, a website, and a roadshow element. However, the questions asked in GUS focused only on whether the parent engaged with *one* element of the initiative - the website. Nevertheless, the GUS data present an interesting opportunity to explore the relationship between home learning practices and these specific elements of the inititiatives.

The points below set out the key findings which relate to the two initiatives.

- The majority of parents recalled having received a Bookbug pack by the time their child was aged 10 months. Of those who recalled receiving the Bookbug pack, the vast majority had used at least one of the items enclosed in the pack.
- At the time of the 10 month interview in 2010/11, 8% of parents had accessed the PlayTalkRead website. At the age 3 interviews in 2012/13 this figure had risen to 15%.
- Those living in more advantaged circumstances (such as in high income households, in the least deprived areas, and with high levels of educational qualifications) were more likely to report having received and used the Bookbug packs and were more likely to

have accessed the PlayTalkRead website.

- A child's main carer recalling having received and used the initial Bookbug pack was found to be positively associated with doing frequent reading activities with the child at 10 months. This relationship remained after controlling for other background factors known to affect reading frequency. The association was equally evident amongst all parents – including both those with lower and higher levels of education.
- A parent having accessed the PlayTalkRead website was found to be positively associated with doing frequent home learning activities both when the child was aged 10 months and 3 years. Again, this relationship remained significant after controlling for other factors. When the child was 10 months, this relationship was stronger in families where parents had higher levels of education. By age 3, however, no such variation was observed.
- While receipt and use of the initial Bookbug pack and having accessed the PlayTalkRead website were found to be positively associated with doing frequent home learning activities, it is not possible to conclude that using these resources led to home learning. It is possible that parents who were already predisposed to undertaking home learning activities were simply more likely to use or recall using them.

Relationship between vocabulary and receipt of the initial Bookbug pack and use of the PlayTalkRead website

- A positive association was found between a child's main carer having received and used the Bookbug pack and the child having better expressive vocabulary at age 3, also when other factors were controlled for. This relationship appeared to be stronger in families where parents had higher levels of education.
- While receipt and use of the initial Bookbug pack and having accessed the PlayTalkRead website were found to be positively associated with expressive vocabulary at age 3, it is not possible to conclude that using these resources led to better vocabulary. Again, it is possible that parents who were predisposed to undertaking home learning activities, which in turn would have improved their child's vocabulary, were simply more likely to use or recall using these resources.
- No evidence was found to suggest an independent association between a parent having accessed the PlayTalkRead website and their child's vocabulary score at age 3.

Enjoyment of reading at age 8

- At age 8, most (66%) children liked reading 'a lot', with around a quarter (24%) saying they liked it 'a bit', and one in ten not liking it.
- Girls were more likely to say they liked reading than boys (74% of girls liked reading 'a lot' compared with 58% of boys). There were no statistically significant differences by socio-economic characteristics.
- Unsurprisingly, enjoyment of reading was more common among children who had a more positive attitude to school (always looked forward to going to school, never hated school, liked doing number work; liked doing sports and outside games and enjoyed learning) than amongst those had a negative attitude to school.

- After controlling for other factors, neither being read to frequently at age 2 or age 5 was associated with liking reading 'a lot' at age 8.

Overall conclusions and recommendations

Overall, the results from this report present a mixed picture. On average, children aged 3 in Scotland in 2013 had better vocabulary ability than those aged 3 in 2007/08 and whilst there is still a large gap between the most and least advantaged children there is some suggestion that this has narrowed slightly.

Home learning activities continue to be positively associated with better vocabulary development at age 3 for all children. This implies that if more parents can be encouraged to engage frequently in home learning activities with their child or children, this could lead to an improvement in language outcomes for children and a narrowing of inequalities between children with different social backgrounds.

Although most parents engage frequently in home learning activities with their children at 10 months and age 3, social bias is still evident in the extent to which parents do so. It is parents in the most disadvantaged groups who are least likely to engage frequently in such activities. These parents were also less likely to have reported using a Bookbug pack when the child was very young and to report having accessed the PlayTalkRead website.

Effective communication of these benefits to all parents may improve uptake, and may lead to increased home learning activities for disadvantaged children and the benefits to early vocabulary development that this will bring. Given their close involvement in the lives of many children, it would also seem beneficial to ensure that grandparents are equally aware of the important benefits of these activities to their grandchildren.

The fact that the behaviour of parents and children who are the most disadvantaged had changed so little suggests that while universal initiatives like the Bookbug packs and the PlayTalkRead website may be helpful for engaging some parents, targeted and perhaps more creative approaches are needed to reach the most vulnerable. The targeted Bookbug and PlayTalkRead approaches which have been launched since the GUS data was collected are aimed at facilitating greater engagement from parents in more disadvantaged circumstances. For example, 'Bookbug for the Home' is targeted and delivered by professionals and volunteers who are already working with vulnerable families, and the roadshow element of PlayTalkRead, has a particular focus on areas of multiple deprivation. Going forward, it will be important to monitor the penetration of these initiatives amongst the target groups. Even when delivered in deprived areas there is a risk that it will be relatively advantaged families who will tend to use them, because of a greater recognition amongst these parents of the benefits of such activities.

Importantly, this analysis explored parents' use of the Bookbug pack and the PlayTalkRead website among only a single cohort of parents who were exposed to the initiatives shortly after they were introduced. As such, it has not explored whether use and reach of the resources extended as the initiatives matured.

In terms of the relationship between parent-child activities and children's enjoyment of reading, the analysis found no differences in enjoyment of reading according to the frequency the child was read to in their early years. This suggests that if a child is not frequently exposed to reading during the early years of their life this does not make them less likely to enjoy reading during later childhood. However, the measure of enjoyment used

here does not tell us anything about the frequency at which children read at age 8, or the extent to which they read for pleasure rather than as an exercise for school. Further research exploring these relationships would be useful to understand more about the influence of early reading on children's later reading behaviour. Encouragingly, at age 8 the vast majority of children enjoyed reading and a great many liked it 'a lot'. Also, whilst girls were more likely than boys to enjoy reading, there were no differences by socio-economic characteristics; children of all social backgrounds were similarly likely to enjoy reading.

In summary, there is modest evidence of improvement in parental involvement and child outcomes over this period. Given the limitations of the data that was collected in GUS, it is not possible to attribute these improvements directly to Bookbug or PlayTalkRead.

chapter 1

INTRODUCTION

This report uses data from the two birth cohorts in the Growing Up in Scotland study which are representative of children aged 10 months and living in Scotland in 2004/05 and 2010/11. Data from both cohorts is used to compare language development at age 3 and whether there is any evidence that this is linked to changes in early parent-child activities across the two cohorts. A secondary question explored in the report is whether any changes in home learning activities across the cohorts may be linked to the introduction of the Bookbug programme and the PlayTalkRead campaign – the timing of which meant that only Birth Cohort 2 would have been exposed to these. Finally, data from children themselves in the older cohort is used to examine the relationship between early parent-child reading and enjoyment of reading at age 8.

1.1 Growing Up in Scotland (GUS)

Growing Up in Scotland[1] is a longitudinal research study tracking the lives of thousands of children and their families in Scotland from the early years, through childhood and beyond. The main aim of the study is to provide new information to support policy-making in Scotland but it is also intended to provide a resource for practitioners, academics, the voluntary sector and parents. To date, the study has collected information about three 'cohorts' of children: a child cohort and two birth cohorts – altogether, information has been collected about 14,000 children. The child cohort included 3000 children born between June 2002 and May 2003. In total, four 'sweeps' of data were collected from these families: first when the children were aged just under 3, and then annually until the children were just under 6. The first birth cohort (BC1) comprised around 5000 children born between June 2004 and May 2005. For this cohort, data was collected annually from when the children were aged 10 months until they were just under 6 years old, and then at age 8 and during the time children were in Primary 6.[2] The second birth cohort (BC2) comprised approximately 6000 children who were born between March 2010 and February 2011. For this cohort, data has been collected when the children were aged 10 months, just under 3 years, just under 4 years, and just under 5 years.[3]

GUS has collected data on a wide variety of issues related to early child experiences, including the child's experience of reading (or being read to) and playing, but it also includes data from specific assessments of the child's oral language abilities at 3 years of age. When children in BC1 were around 8 years old (at sweep 7), they were asked to complete a short self-complete questionnaire as part of the data collection exercise. This included questions on whether they enjoyed reading. It is thus possible, using GUS data, to explore the relationship between the child's early exposure to reading (either reading or looking at books themselves or being read to) and their language ability at age 3, as well as to explore any relationship between their early reading and later enjoyment of reading.

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1 http://growingupinscotland.org.uk/
2 At the time of writing, the Primary 6 fieldwork is ongoing.
3 At the time of writing, the age 5 fieldwork is ongoing.

1.2 PlayTalkRead and Bookbug

Between the birth of children in the two cohorts the Scottish Government supported the introduction of two national interventions aimed at improving parents' access to information and resources on parent-child activities in the early years: the **PlayTalkRead** campaign and the Scottish Book Trust's **Bookbug** programme. PlayTalkRead and Bookbug both contribute to the Scottish Government's early years agenda. The initiatives are a key part of the commitment to early intervention initially set out in the *Early Years Framework*, *Equally Well, and Achieving Our Potential* (Scottish Government 2008a, 2008b, 2008c), and more recently in policies such as the *National Parenting Strategy* (Scottish Government, 2012) and the *Play Strategy* (Scottish Government, 2013).

PlayTalkRead is a Scottish Government campaign launched in 2009 which aims to support and encourage parents to stimulate their children from an early age through playing, talking and reading with them on a regular basis. The campaign seeks to achieve this through providing parents and carers of children up to 3 years' of age with free or low cost ideas of how to positively engage with their children in fun and playful ways. It has a particular focus on reaching parents in the most socio-economically disadvtanged groups (C2DE). Building on research evidence on child development, the campaign seeks to highlight the importance of play and playful interaction for boosting children's development within a number of areas including communication, literacy, motor and problem solving skills development (Working on Wheels, 2015). The campaign has been delivered through a combination of TV, outdoor, online advertising, social media, PR, partnerships, a website, and two PlayTalkRead buses (PlayTalkRead, 2015).

Two key elements of the campaign are the PlayTalkRead website and two PlayTalkRead buses that seek to bring the campaign to local communities across Scotland. Both elements are outsourced. The PlayTalkRead website contains hints, tips and ideas for stimulating children in cost-effective ways. Re-vamped in early 2011 and again in 2014, the website contains digital books and interactive videos, and parents can register for an online community where they can share experiences with other parents (Omerod, 2011).

The buses are an important element of the PlayTalkRead campaign in that they go into communities and provide play areas for young children and their parents or carers, with play workers available to support and encourage activities. From 2012, the purpose of the PlayTalkRead buses expanded to focus not only on providing play facilities but to also actively support parents and children to play through face-to-face engagement. Furthermore, from April 2012 onwards, there was an increased focus on ensuring that buses visited areas with high levels of deprivation[4].

Bookbug is the Scottish Government's early years book gifting programme; a universal book gifting scheme run by the Scottish Book Trust. The programme seeks to promote the importance of books and the benefits of early book sharing, and an important aim of the programme is to encourage parents to share books with their child or children from an early age. In addition to laying the foundations of early literacy, Bookbug aims to improve attachment between young children and their parents or carers, as well as to increase children's emotional intelligence, communication and listening skills. When launched in 2010,

[4] During 2012 and 2013, the PlayTalkRead buses visited every local authority in Scotland. However, there were differences in the number of visits made to each local authority, ranging from just one visit in West Dunbartonshire and West Lothian to 71 in Glasgow.

Bookbug was primarily concerned with gifting book packs to babies, toddlers and ante-preschool children (age 3 years). Packs were distributed to all families in Scotland, typically through their health visitor or early years setting. In addition to this, free song and rhyme sessions were held, in local libraries and public spaces. Since 2010 the programme has expanded and a further book pack is now gifted to children when they start primary school. Furthermore, Bookbug now also involves 'assertive' outreach work targeted at children in disadvantaged circumstances (Scottish Book Trust, 2012), the main element of which is 'Bookbug for the Home' which involves trained practitioners taking elements of the Bookbug approach into family homes. Beginning in 2012, this was rolled out in 8 local authorities each year and is now available in all 32 local authorities.

Bookbug is a follow-up to Bookstart, a book gifting programme which started as a local project in Birmingham in 1992 and was subsequently rolled out across the UK. While Bookstart is still active in England and Wales, in Scotland it was replaced by Bookbug in 2010. Bookbug was developed as a specifically Scottish book gifting programme which featured more Scottish authors and illustrators and tied in with Scottish education and parenting policies.

Like Bookbug, Bookstart in Scotland consisted of a mixture of universal book gifting, free song and rhyme sessions, and some outreach work. Thus, prior to the roll out of Bookbug in June 2010, children in Scotland received at least one Bookstart book bag in their first years of life, and Bookstart Rhymetime sessions would have been available across the country.

1.2.1 The significance of the timing of BC1 and BC2

Because the same questions were asked of the parents of both cohorts and the same measure of language was used at 3 years it is possible to explore whether children in BC2 had better language skills than those in BC1 and whether their parents read to them more. Furthermore, because Bookbug and PlayTalkRead were introduced shortly before the children in BC2 were born (but not until BC1 had passed through their pre-school years), GUS gives us an opportunity to explore whether there is any evidence that changes in home learning activities across the cohorts might be linked to the introduction of these initiatives.

At their first interview, all BC2 respondents were asked whether they remembered having received a Bookbug pack, and to what extent they had made use of the different elements within the pack. In addition, parents in BC2 were also asked whether they had used the PlayTalkRead website when their child was 10 months and 3 years old, respectively. It should be noted that neither the questions asked in GUS, nor this analysis, were designed to be an evaluation of Bookbug or PlayTalkRead. The Bookbug scheme included free song and rhyme sessions and has since expanded to include outreach work targeted at children in disadvantaged circumstances. However, the questions asked in GUS allowed us to establish only whether parents recalled receiving and using the initial Bookbug pack issued when their child was a baby. The PlayTalkRead campaign has been delivered through a combination of TV, outdoor, online advertising, social media, PR, partnerships, a website, and a roadshow element, but the questions asked in GUS focused only on whether the parent engaged with one element of the initiative - the website. Nevertheless, GUS does present an opportunity to explore the relationship between home learning practices and these specific elements of the inititiatives.

1.3 Research questions

Within each of the topics being considered – early language development, home learning activities, use of interventions, and enjoyment of reading – this report aims to answer a number of distinct research questions.

1.3.1 Early language development and home learning acitivities

The research questions related to early language development and home learning activities are as follows:

- Was there an improvement in language development across the two cohorts?
- Did any improvement remain significant after taking account of other differences in family background between the cohorts that would have affected language development, especially parental level of education?
- Were there any changes in language development within particular socio-economic groups? For example, did the difference between the most and least advantaged groups change?
- Was there an increase in home learning activities across the cohorts overall?
- Did any increase remain statistically significant after taking account of other differences in family background between the cohorts that would have affected home learning, especially parental level of education?
- Were there any changes in the nature or frequency of home learning activities between cohorts within particular socio-economic groups? For example, did the difference between the most and least advantaged groups change?
- In BC2, was there an independent relationship between home learning activities and language development similar to that previously found in BC1 data?
- Did the strength of this relationship vary for different socio-economic groups?
- Was the relationship different (i.e. stronger or weaker) in BC2 than it was in BC1?
- Do early learning activities reduce the negative effects of disadvantage on language development

Consideration of language development initially explores the difference in language ability at age 3 between children in each cohort; first at an overall level and then amongst children with different social backgrounds.

The frequency of home learning activities is then explored with a particular focus on examing whether this has changed between cohorts both at an overall level and within sub-groups of parents with different levels of education. Change within sub-groups in this, and other sections, is considered in order to establish whether the relationship between social background and participation in home learning activities (or language development) has changed. In particular, whether the difference between those in the most and least advantaged groups has decreased.

1.3.2 Use of interventions

In relation to use of the Bookbug and PlayTalkRead interventions, the report seeks to answer the following questions:

- Did parents in BC2 receive and make use of the PlayTalkRead website and of the first Bookbug pack and did this use vary across different socio-economic groups?
- In BC2, was parents' receipt and use of the first Bookbug pack and having accessed the PlayTalkRead website associated with increased participation in home learning activities?
- In BC2, was parents' receipt and use Bookbug and having accessed the of PlayTalkRead website associated with children's language ability?

This analysis begins by considering knowledge and use of the first Bookbug pack and the PlayTalkRead website amongst parents in the younger cohort (BC2). As well as illustrating the overall proportion using these resources, differences in use by social background characteristics are also explored. Social background characteristics considered include parental level of education, annual household equivalised income and area deprivation.

The analysis then examines – for BC2 parents – whether, after controlling for background characteristics, parents who report accessing the PlayTalkRead website and/or using the first Bookbug pack showed differences in the activities they undertook with the child.

For BC2 parents, analysis is conducted to determine whether receipt and use of the Bookbug pack and accessing the PlayTalkRead website was independently associated with improved language ability after controlling for other potentially influencing factors.

The conclusions discuss the extent to which:

- Home learning activities could be improved/increased amongst parents and amongst which groups such improvement may lead to the greatest positive results
- The interventions, as measured in GUS, appear to play a role in doing that.

1.3.3 Enjoyment of reading

When considering enjoyment of reading, the questions we sought to answer were:

- How did enjoyment of reading vary amongst children at age 8?
- Was there an independent relationship between early parent-child reading and later enjoyment of reading? In other words, after controlling for other factors which may influence enjoyment of reading, did being read to in the early years increase the likelihood that children enjoyed reading at age 8?
- Did the strength of this relationship vary for different socio-economic groups?

In answering the first question, the report provides a descriptive overview of differences in children's enjoyment of reading. It explores variations according to key social and demographic characteristics such as gender and household income, as well as variations in other aspects of the child's life including enjoyment of school and other activities such as number work, sports and games and learning.

The second and third questions involve examining the relationship between exposure

to reading in the early years (this has been measured annually from birth to age 6) and enjoyment of reading at age 8, as reported by the child. This shows whether children who are read to more often in their early years are more likely to enjoy reading at age 8, and whether the relationship between early reading and later enjoyment is similar for children with different background characteristics. In considering these analyses, the conclusion will consider:

- Whether some of a child's later enjoyment of reading is due explicitly to having been read to when younger. Thus, do more children from advantaged circumstances enjoy reading at age 8 because they were more likely to be read to when younger? And are children from more disadvantaged backgrounds who were read to more often when younger more likely to enjoy reading than their peers who were not read to?
- If all children had the same early exposure to reading would children from more advantaged groups still be more likely to enjoy reading? In other words, does social background continue to have a direct effect on enjoyment of reading after controlling for differences in early exposure to reading?
- Whether the effect of early exposure to reading varies for children with different background circumstances? For example, is the relationship between early reading and later enjoyment stronger for children in more advantaged groups than in more disadvantaged groups (i.e. do they benefit more from it) or is there no difference?

1.4 What we already know from GUS about early language development and its relationship with home learning

Earlier reports from GUS have demonstrated stark variation in language development at ages 3 and 5 amongst children from different backgrounds. For example, Bromley (2009) found that at age 3, children from less advantaged families were outperformed by their more affluent counterparts and noted significant differences in ability according to, amongst other things, gender, maternal age, family composition, early development and birth weight. Bradshaw (2011) found these inequalities largely persisted at age 5. In these and other reports early language development has been shown to be associated with a wide range of factors present in children's lives including childcare and pre-school experience (Bradshaw *et al*., 2014; Bradshaw and Wasoff, 2009), maternal mental health (Marryat and Martin, 2010) and experience of poverty (Barnes *et al*., 2010). Of particular significiance, as far as the present report is concerned, several reports have demonstrated links between early home learning activities and language development (Bradshaw *et al*., 2014; Bradshaw 2011; Melhuish, 2010; Bromley, 2009). Indeed, participation in such activities – which include reading with the child, painting or drawing, and singing nursery rhymes – on a regular basis have been shown to be an important protective factor associated with better language development amongst children from more disadvantaged backgrounds.

1.5 The evidence base underpinning early book reading interventions

A great many studies have looked at the effects of different aspects of book reading. For example, dialogic book reading interventions, where parents are explicitly taught to actively engage their children in reading activities, have been shown to promote oral language and literacy skills and to be an important element in the pathway to school readiness, literacy and attainment more generally (Crain-Thoreson and Dale, 1992). Indeed, active parental

reading has been found to mediate almost all of the advantage in early language outcomes associated with higher levels of maternal education (Farrant and Zubrick, 2011). Examples of book reading interventions which have been identified by the Early Intervention Foundation (http://www.eif.org.uk/) as having a reasonable underpinning evidence base include Parents Early Education Partnership (PEEP) (Evandelou and Silva, 2003), Reach Out and Read (Sharif *et al*., 2002), Raising Early Achievement in Literacy (REAL) (Hannon, Nutbrown and Morgan, 2005), Hear and Say (Heubne and Meltzoff, 2005), Bookstart (Wade and Moore, 2000), Bookstart Corner (Demack *et al*., 2013) and Bookstart Plus (O'Hare and Connolly, 2010). Of particular interest is the role played by interventions focusing on promoting early dialogic book reading[5] with young children:this not only encourages familiarity with the process of looking at books and by extension reading them but also provides a structure to enhance parent-child interaction. The single most commonly cited review of the evidence (Bus *et al*., 1995) is a meta-analysis of the effects of targeted interventions to promote parental reading on language growth, emergent literacy and reading achievement. The overall effect size is relatively high and has triggered an understanding that the outcomes of interventions to promote dialogic book reading are positive. However, it is not clear what the key ingredients of such programmes are, how applicable they are as universal interventions, and whether there is a threshold in terms of the quality of intervention which needs to be reached before change can be expected.

Although dialogic book reading interventions have been a key feature of early interventions, there has also been a move towards book gifting programmes. This involves distributing children's books to families when the child is born, or soon afterwards, together with general advice about reading to the child but generally without any direct instruction. This practice grew out of a finding that the number of books in the home was indicative of later attainment. Simply having the books was thought to make a difference. Indeed, bookgifting programmes such as Bookstart became a standard component of many Surestart local programmes in the UK. Books were given to families with young children and sessions were provided in local libraries and children's centres. Yet rarely was explicit reference made to the literature in the planning of these services and where it was, the outcomes were often unclear. In a recent literature review by Burnett *et al*. (2014), commissioned by the Booktrust, the authors explore the impact of bookgifting programmes on literacy attainment more widely. The review is structured according to three dimensions which were identified as being promoted through Bookstart. The three dimensions are: reading for pleasure, book ownership and regular book sharing from an early age. The review's authors stress that while some studies have reported positive impacts on a number of measures, other studies have not. They reference a number of studies which found that parents who had participated in a book gifting programme reported reading more frequently and/or spending more time reading with their child(ren) than parents who had not participated in a book gifting scheme. A note of caution is provided, however, suggesting that the relationship between book gifting programme participation and book sharing frequency is likely to be stronger amongst families who engaged less in book sharing prior to participating in the

[5] Dialogic Book Reading is a technique used to improve children's oral language and preliteracy skills. It is a specific way of sharing a book with the child where instead of just reading a book to the child, the adult actively engages the child in a conversation by talking about what they see in the pictures. A variety of techniques can be used to do this, the most common being asking simple "what" questions, e.g. "What do you call this?" and then the parent repeats the child's answer back to them. The adult also expands on what the child says "What is the dog doing?", "What's your doggie called?" and then, if the child can manage these questions, asking open ended questions, e.g "What do you think he's trying to do?".

bookgifting programme (Burnett *et al*., 2014:36).The authors conclude '…we would suggest that whilst evidence on the impact of bookgifting is mixed, there is promising evidence that bookgifting is linked to later improvements in reading. We see the strongest evidence of this in evaluations focused on populations who have had little experience of booksharing in the past. Mounting evidence from evaluations suggests that bookgifting programmes can impact on: parental attitudes to sharing books with young children; children's enthusiasm for looking at books; the frequency and extent of booksharing; and book ownership and library membership.'

1.5.1 Evaluating early book reading interventions

Book gifting and these more general exhortations to parents to read more to their children tend to be "universal" interventions in the sense that all families are given books irrespective of any specific identified need, and the messages are readily available through publicity and social marketing campaigns, with many available on the internet etc. In order to evaluate the effectiveness of such programmes it is necessary to examine them in whole populations and to establish whether the effects are sustained over time. This can be difficult to achieve because of the potential scale of such studies but also because only very rarely are families followed up over time to see whether a given programme has had any lasting effect. The BC1 and BC2 cohorts in GUS arguably provide such an opportunity in two respects. First, the timing of the roll-out of the PlayTalkRead and Bookbug initiatives means that many families in BC2 were exposed to both initiatives, while BC1 families were not exposed to either (although BC1 families may have received packs from Bookbug's predecessor, Bookstart). Of course, comparing cohorts in this way does not establish a causal relationship between the availability of the programme materials and any changes in the cohorts, but it does allow us to establish what sort of changes are taking place over time. Second, because parents in BC2 were asked questions both about their use of the first Bookbug pack and one aspect of the PlayTalkRead (the website) and about the activities they undertook with their child, BC2 data itself enables an exploration of whether there was any association between engagement with these aspects of the initiatives and the frequency of home learning activities undertaken.

chapter

2 METHODS

2.1 The Growing Up in Scotland sample

The analysis in this report uses information from families in both birth cohorts predominantly when the cohort child was aged 3. Some families who initially took part in GUS did not do so for all of the subsequent sweeps. There are a number of reasons why respondents drop out from longitudinal surveys and such attrition is not random. All of the statistics have been weighted by a specially constructed longitudinal weight to adjust for non-response and sample selection. Only unweighted sample sizes are given in the tables. Standard errors have been adjusted to take account of the cluster sampling[6].

The study has been designed so that the sample of children is representative of all children living in Scotland at age 10 months who were born within a specific 12-month period. For BC1, this is June 2004 to May 2005 and for BC2 it is March 2010 to February 2011. As such, at age 3 the weighted sample is considered to be representative of all children living in Scotland aged 3. Thus BC1 is used interchangeably with 'children aged 3 in 2007/08' and BC2 is used similarly with 'children aged 3 in 2013'.

At each sweep/year of fieldwork, interviews took place around six weeks before the child's next birthday, therefore in the first year of the study, children were 10 months old. For the purposes of this report, beyond the first interview, the child's age is referred to in years. It is worth bearing in mind however that a 3-year-old child was actually 34 months old or just under 3.

2.2 Measuring language ability

Language ability was measured in both GUS birth cohorts via the naming vocabulary subtests of the British Ability Scales. This subtest is part of a cognitive assessment battery designed for children aged between 2 years and 6 months and 17 years and 11 months. Numerous tests of ability and intelligence exist but the BAS is particularly suitable for administration in a social survey like GUS.

The naming vocabulary assessment measures a child's language development. The test requires the child to name a series of pictures of everyday items and assesses the expressive language ability of children. There are 36 items in total in the naming vocabulary assessment. However, to reduce burden and to avoid children being upset by the experience of repeatedly failing items within the scale, the number of items administered to each child is dependent on their performance. For example, one of the criteria for terminating the naming vocabulary assessment is if five successive items are answered incorrectly.

Children in both cohorts have been asked to complete the same assessments when they were aged 3 years old (34 months) and when they were aged 5 years old (58 months –

[6] The GUS sample is generated in two stages. The first stage randomly selects geographic areas or clusters, the second stage selects individuals within those clusters. The standard errors are adjusted to take account of the geographic clustering of the sample at the first stage.

fieldwork undertaken during 2015).

On completion, a range of scores is available for each child: raw score, ability score and standardised or 't-score'. The raw score counts the number of items a child answers correctly. As different children are asked different item sets dependent on their age and performance, the raw score cannot be compared. Thus to allow comparison between children the raw score is converted to an ability score. The range of ability scores vary from one sub-test to the next. To allow comparison of a child's performance on different BAS sub-tests, t-scores are derived. T-scores for each assessment have an average of 50 and a standard deviation of 10. Therefore a child with a t-score of 50 has an average ability across all children in that age group. Those with a t-score greater than 50 scored above average and those with a score of less than 50 scored below average. By using the standardised scores it is possible to compare ability at age 3 and 5 and to consider whether children who scored above, below or about average at age 3 continued to do so at age 5.

Whilst the same BAS assessment – naming vocabulary – was used for both cohorts at the same age, the edition of BAS was different. For BC1, the 2nd edition assessment was used, whereas for BC2 the 3rd edition was used. Whilst the assessments are almost identical, there are a small number of differences – for example in the individual items, the order of the items and the stopping points – which would introduce caveats when making a straightforward comparison of ability scores. To allow this, the assessment authors provided a calibration formula which permitted comparison of the standardised ability scores (t-scores). Note that, because of this adjustment, it is not possible to convert differences in average cognitive ability scores to developmental age in months, as has been done in a previous GUS report (Bradshaw, 2011).

2.3 Analytic approach

Much of this report is concerned with exploring changes between the two cohorts both at an overall level and within major socio-economic sub-groups. The relationship between the outcome being examined (e.g. home learning activities or language ability) and the socio-economic indicator was examined separately for each cohort. This allowed us to identify any noteworthy differences in outcomes – within each cohort – between children in different groups. By then comparing the results for BC1 and BC2 using analysis which combined the cohorts, we were able to assess if there had been any change in the nature of the relationship between the outcome variable and socio-economic indicator across the cohorts. For example, whether there had been a narrowing or widening of the differences between outcomes for children in the different sub-groups.

The cohort or sub-group being examined in each table is clearly described and the numerical base is also shown. While all results have been calculated using weighted data, the bases shown provide the unweighted counts. It should therefore be noted that the results and bases presented cannot be used to calculate how many respondents gave a certain answer.

Many of the factors we are interested in are related to each other as well as being related to participation in home learning activities or early language development. For example, younger mothers are more likely to have lower qualifications, to be lone parents, and to live in areas of high deprivation. Simple analysis may identify a relationship between maternal age and home learning activities – for example, that younger mothers read with their children

less often. However, this relationship may be occuring because of the underlying association between maternal age and education. Thus, it is actually the lower education levels amongst younger mothers which is driving the association with frequency of reading rather than the fact that they are younger in age. To avoid this difficulty, multivariable regression analysis has been used. This analysis allows the examination of the relationships between an outcome variable (e.g. frequent parent-child reading or language ability score) and multiple explanatory variables (e.g. parental education, parental employment status, child gender, cohort) whilst controlling for the inter-relationships between each of the explanatory variables. This means it is possible to identify an independent relationship between any single explanatory variable and the outcome variable; to show, for example, that there is a relationship between parental employment status and home learning activities that does not simply occur because both education and maternal age are related.

Previous research has shown that socio-economic characteristics such as household income, parental level of education and social class are closely interrelated. Therefore, for analysis purposes we selected only one measure to reflect the child's social background, namely parental level of education. Parental level of education was chosen because previous GUS analysis (Bradshaw, 2011) showed that this was the socio-economic factor most strongly related to language development.

As a minimum, the following factors were controlled for in all multivariable regression models used throughout chapters 3 to 6:[7]

- Parental level of education (highest level in household)
- Number of children in household (one, two or three, or four or more)
- Whether child was first born
- Family type (whether one- or two-parent household)
- Languages spoken in the household (whether English only, English and other language, or other languages only)
- Child's sex
- Employment status of child's main carer (whether working full-time, working part-time, or not working)

It is worth noting that the influence of these factors is likely to vary as the child gets older. For example, a main carer who is 'not working' when the child is aged 10 months may reflect the fact that he or she is on maternity or paternity leave. As such, at this age, 'not working' may arguably be used as an indicator of how much time the main carer has available to spend with the child. At age 3, however, a main carer who is 'not working' may be be indicative of socio-economic disadvantage – something which has often been shown to be associated with a lower frequency of home learning activities. This means that employment status of the child's main carer may have a different relationship with the frequency of home learning activities at different ages. This should be borne in mind when interpreting the results.

The main factors influencing a child's enjoyment of reading at age 8 are likely to be different to those influencing frequency of parent-child activities undertaken with a baby or toddler.

[7] Cases with missing values on any of the variables were excluded from the models.

Therefore, the multivariable models used in chapter 7 to explore the relationship between early reading and enjoyment of reading at age 8 controlled for parental level of education (highest level in household) and child's sex only.

For certain analyses – for example, to consider whether the relationship between parental education and language ability was different in each cohort or whether the relationship between home learning activities and early language was different for parents with different education levels – 'interactions' were included in the multivariable models. Where an interaction is statistically significant this indicates that the relationship between the explanatory variable (e.g. home learning activities) and the outcome variable (e.g. language ability) is different either in each cohort or according to the value of the other explanatory variable (e.g. parental level of education). This may suggest, for example, that whilst frequent reading with the child is generally associated with improved language ability, the relationship is stronger amongst children whose parents have lower qualifications.

The multivariable analysis uses both linear and logistic regression models. Full results of the models are included in the Technical Annex along with notes on how to interpret them.

The statistical analysis and approach used in this report represents one of many available techniques capable of exploring this data. Other analytical approaches may produce different results from those reported here.

chapter 3

COMPARING VOCABULARY AT AGE 3 ACROSS THE TWO COHORTS

3.1 Introduction

This chapter considers the difference in language ability between children aged 3 in 2007/08 and children aged 3 in 2013.[8] It will also explore differences amongst children in different social groups and whether differences between children from more and less advantaged backgrounds have changed over time.

3.2 Key findings

- Children who were aged 3 in 2013 had slightly higher vocabulary scores than children aged 3 in 2007/08. This difference remained even when controlling for known differences between the cohorts such as parental level of education.
- Scores increased by a similar margin amongst children in all sub-groups.
- The difference in vocabulary between the most and least advantaged children (as measured by parental level of education) appears to have reduced slightly between the two cohorts.

3.3 Vocabulary ability at age 3 across the two cohorts

As outlined in section 2.2, language ability was measured via the naming vocabulary subtests of the British Ability Scales, with standardised t-scores assigned to enable comparison across the cohorts. The mean t-scores for each cohort are shown in Table 3.1. As the data show, children in BC2 had a slightly higher vocabulary score than children in BC1.

Table 3.1 Mean vocabulary t-scores, by cohort

	BC1	BC2
Mean vocabulary t-score	47.6	50.0
Unweighted bases	*3930*	*4625*

Differences by cohort: $p < .001$

Children whose parents had higher educational qualifications tended to have higher average ability scores than those whose parents had lower qualifications (Table 3.2). This pattern is evident in both cohorts. Differences by parental level of education and within each cohort are statistically significant.

With the exception of those in the lower Standard Grade group, there was an increased vocabulary score between BC1 and BC2 among children from all parental educational backgrounds. The level of increase was broadly similar in most sub-groups but the difference between children with degree educated parents and those whose parents have

[8] A detailed descriptive comparison of cognitive ability scores across the two cohorts at age 3 is provided in Bradshaw, Knudsen and Mabelis (2015).

no qualifications is slightly reduced for BC2 compared with BC1 (8.3 for BC1 compared with 8.1 for BC2). This tentative trend towards a weakening of the relationship between lower education and poorer vocabulary is evidenced by further results discussed below.

Patterns were similar for children in different income groups and those living in areas with different deprivation levels. On both measures and in both cohorts, children from more disadvantaged circumstances had lower average scores than those in more advantaged circumstances. Furthermore, ability increased between BC1 and BC2 amongst children in all sub-groups of each measure and by a similar margin.

Table 3.2 Mean standardised vocabulary t-scores, by parental level of education and cohort

	Parental level of education				
	No qualifi-cations	**Lower Standard Grades or VQs or Other**	**Upper level SGs or Intermediate VQs**	**Higher grades and upper level VQs**	**Degree level academic and voca-tional qualifi-cations**
BC1	42.1	44.8	45.0	47.7	50.4
BC2	44.6	43.3	46.6	50.1	52.7
Unweighted bases – BC1	*174*	*179*	*745*	*1309*	*1516*
Unweighted bases – BC2	*124*	*168*	*652*	*1322*	*2204*

Differences by education level - $p < .001$; differences by cohort – $p < .001$; cohort*income p = NS

3.3.1 Controlling for known differences between the cohorts

As noted elsewhere (e.g. Bradshaw, Knudsen and Mabelis, 2015), there are some notable differences in the socio-economic and demographic characteristics of parents and families in the two cohorts.[9] One particular difference is that a higher proportion of parents of BC2 children than of BC1 children were educated to degree level or equivalent (42% compared with 34%). In previous analysis of GUS language data (Bradshaw, 2011), as well as in a wide range of other analyses, parental level of education has been shown to be an important predictor of early language ability. As such, it is possible that the increased language ability seen in BC2 children is a function of the higher education level of parents in that cohort.

Further analysis was undertaken to determine whether children in BC2 still had higher average vocabulary ability than children in BC1 after controlling for differences in parental education levels between the cohorts[10]. The results indicate that, after controlling for differences in the education levels of parents in both cohorts, as well as other cohort differences, children in BC2 are still more likely than those in BC1 to have a higher

[9] A summary of the socio-economic and other characteristics of families in each cohort when the child was aged 3 is provided in the Appendix B. For a more detailed consideration of these differences please see Bradshaw, Knudsen and Mabelis (2015).

[10] Full results are provided in Table A.1.1 in the Technical Annex.

vocabulary t-score. The remaining results are as may be expected: Lower vocabulary ability is associated with lower parental education levels, being a boy, having older siblings/not being first born, living in a household where other languages are spoken and being younger at the time of assessment.

In addition to controlling for known differences between the cohorts, the multivariate regression analysis also allowed consideration of whether the relationship between these factors (e.g. parental level of education) and early language development was different for children in each cohort through adding interaction effects to the model. The results indicate that the relationship between language ability and each of the following factors were different in each cohort: parental level of education, whether the child is first born, and languages spoken at home. To explore these apparent differences further, separate multivariable models were run for each cohort.[11] These indicated that the difference in vocabulary ability between children whose parents had no qualifications and those whose parents were degree-educated was lower in BC2 than in BC1. However, the difference between children whose parents were degree-educated and those with other qualifications had increased. There was also a stronger relationship between having older siblings/not being first born and poorer language ability in BC2 than in BC1. Similarly, being in a household where no English was spoken or English and another language were spoken was more strongly associated with poorer language ability in BC2 than in BC1.

This seems to suggest that the difference in language between the most and least advantaged children (as measured by parental level of education) has reduced between cohorts.

[11] Full results are provided in Table A.1.2 in the Technical Annex.

chapter

4 COMPARING PARTICIPATION IN HOME LEARNING ACTIVITIES ACROSS THE TWO COHORTS

4.1 Introduction

Encouraging parents to undertake home learning activities with their child from an early age has long been high on the agenda for both policy makers and academics interested in children's outcomes and development. This chapter sets out the frequency of early home learning activities undertaken by parents and children in each cohort when the children were aged 10 months and 3 years old and how this varies by socio-economic characteristics. The focus is on exploring whether children in BC2 were more likely to experience these sorts of activities than children in BC1. Changes in reading frequency as children got older are also explored for each cohort and between cohorts, with variations by socio-economic circumstances shown. The chapter also outlines who children did activities with at age 3, again including whether there were any differences between the two cohorts. Further to this, the chapter looks at whether the frequency of participating in home learning activities (at both 10 months and 3 years) is related to vocabulary score at age 3.

4.2 Key findings

- At the time they were aged 10 months, children in BC2 (69%) were slightly more likely than children in BC1 (66%) to be read to or to be looking at books most days, whilst they were slightly less likely to sing every day or most days (88% in BC2 compared with 90% in BC1).
- The overall frequency of home learning activities undertaken with the children when they were aged 3 did not differ between the cohorts. However, children who were aged 3 in 2013 (59%) were slightly more likely than children aged 3 in 2007/08 (56%) to have played at recognising letters, words, numbers or shapes 'most days' in the last week in the last week.
- In both cohorts, children living in advantaged circumstances were more likely to undertake frequent home learning activities than children living in less advantaged circumstances. Overall, this relationship was similar across the two cohorts.
- Amongst parents who read with their child once a week or less when the child was aged 10 months, almost nine out of ten had increased the frequency at which they read with their child by the time the child was aged 3. Parents in BC2 were slightly less likely to increase their frequency of reading than parents in BC1.
- Children aged 3 in 2013 were more likely than children aged 3 in 2007/08 to be doing activities both by themselves, with their mother, and with their father.
- In both cohorts, undertaking frequent home learning activities was positively associated with higher vocabulary scores at age 3. No evidence was found to suggest that this association had changed between the cohorts.
- The positive relationship between participating in frequent home learning activities and increased vocabulary scores applied equally to children whose parents had high levels of education and those who had no formal qualifications. This applied across both cohorts.

4.3 Home learning activities at 10 months and age 3

When the cohort children were 10 months old, parents were asked how often they or their partner looked at books or read stories and recited nursery rhymes or sang songs with the child. Answer categories ranged from 'Every day/most days' to 'Never'. At age 3, the questions varied slightly - parents were asked on how many days in the last week the child did one of four activities. For each activity the child had done, parents were then asked who the child did the activity with.[12] The four activities were:

- Looking at books or reading stories
- Singing songs or reciting nursery rhymes
- Drawing or painting
- Playing at recognising letters, words, numbers or shapes

Throughout this chapter, when reference is made to an activity at age 3 being done 'frequently', or 'most days' this is defined as having done the activity on at least four days in the last week.

4.3.1 Home learning activities at 10 months

As shown in previous findings from GUS (Bradshaw et al., 2013) in both 2005/06 and in 2011 the majority of 10-month-old children living in Scotland frequently engaged in activities such as looking at books and reading stories, or reciting nursery rhymes and singing. Table 4.1 shows that around two thirds of children, in both cohorts, read or looked at books most days, while almost everyone recited nursery rhymes or sang songs most days. Around one in five children (21% in both cohorts) were read to or looked at books once or twice a week, while just under one in ten sang songs once or twice a week (BC1 7%, BC2 9%).

[12] The answer categories for this question differed slightly between the cohorts. For BC2, the list of answer categories consisted of four items: By him/herself, with his/her mother, with his/her father, or with someone else. For BC1, the list of answer categories was more extensive, also including, for example, grandparents and nursery teachers. For the purposes of analysis in this report, the BC1 categories have been combined to match the BC2 categories.

Table 4.1 Frequency of activities at 10 months, by cohort

	BC1	BC2
	%	%
Reading or looking at books		
Most days	66	69
A few days a week	21	21
Less often	13	10
Unweighted bases	*5216*	*6126*
Singing songs or reciting nursery rhymes		
Most days	90	88
A few days a week	7	9
Less often	3	3
Unweighted bases	*5215*	*6127*

Sig testing on 'Most days':
Reading: $p < .01$
Singing: $p < .05$

At 10 months, children in BC2 (69%) were slightly more likely than children in BC1 (66%) to be read to or to be looking at books most days, whilst they were slightly less likely to sing every day or most days (88% in BC2 compared with 90% in BC1). These differences between the cohorts remained even when controlling for other factors.[13] [14]

4.3.2 Home learning activities at age 3

As Table 4.2 shows, by age 3, the vast majority of children were reading or looking at books most days (90% in both cohorts), whilst the proportion who sang songs or recited nursery rhymes had decreased slightly – at age 3, 82% of children in BC1 and 80% of children in BC2 did singing most days. Further to this, over half of children in both cohorts did painting or drawing most days (BC1 60%, BC2 58%) and over half played at recognising letters, words, numbers or shapes most days.

Children in BC2 (59%) were slightly more likely than children in BC1 (56%) to be playing at recognising letters, words, numbers or shapes most days. This difference remained significant when controlling for other factors.[15]

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[13] Factors controlled for: Parental level of education, family type, number of children in the household, whether child was first born, the child's sex, languages spoken in the household, and employment status of the child's main carer. Outcomes are presented in Tables A.2.1 and A.3.1 in the Technical Annex.

[14] The figures presented here differ slightly to those reported by Bradshaw et al. (2013) though the pattern of change is the same (i.e. an increase in reading in BC2). This is due to a difference in the bases used for the analysis. The analysis conducted by Bradshaw et al. (2013) was restricted to singleton births and cases where interviews were conducted with the child's natural mother, while the analysis presented in this report includes all cases where valid data was available (i.e. the analysis presented here includes cases which were not singleton births and cases where the interview was conducted with someone other than the child's natural mother). The prior analysis was part of a broader section on parenting where it was deemed appropriate to minimise variation on these factors.

[15] Multivariable regression analysis was undertaken. Outputs are provided in Tables A.4.1 and A.4.2 in the

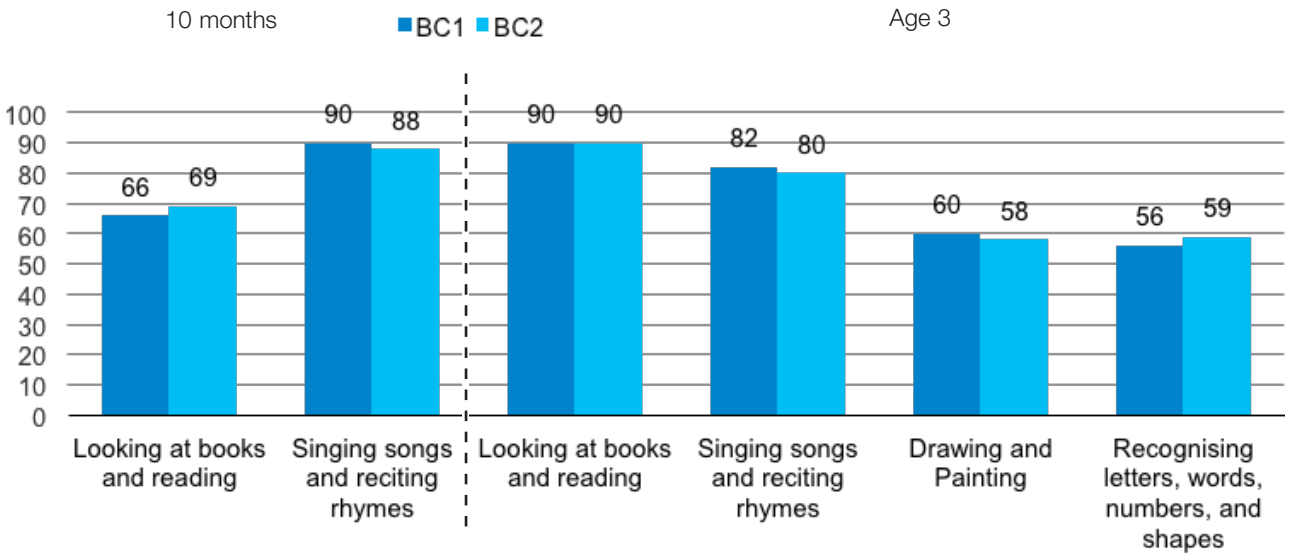
Table 4.2 Frequency of activities at age 3, by cohort

	BC1	BC2
	%	%
Reading or looking at books		
Most days	90	90
A few days a week	8	8
Less often	1	2
Unweighted bases	*4192*	*5016*
Singing songs or reciting nursery rhymes		
Most days	82	80
A few days a week	14	15
Less often	4	5
Unweighted bases	*4191*	*5014*
Drawing or painting		
Most days	60	58
A few days a week	36	39
Less often	4	3
Unweighted bases	*4191*	*5013*
Playing at recognising letters, words, numbers or shapes		
Most days	56	59
A few days a week	31	30
Less often	13	10
Unweighted bases	*4184*	*5000*

Sig testing on 'Most days': Reading = NS; Singing = NS (p=.06); Drawing/painting = NS (p=.064); Recognising letters etc. = $p < .05$

Figure 4-A shows the proportion of children in each cohort doing each of the measured activities frequently at 10 months and 3 years, respectively.

Figure 4-A % doing parent-child activities every day or most days at 10 months and age 3



Unweighted bases: Base sizes varied slightly for each item. Lowest base sizes: 10 months: BC1: n=5215, BC2: n=6126; *Age 3*: BC1: n=4184, BC2: n=5000.

When looking at the overall frequency of activities children had engaged in in the last week (measured as the total number of days children had done each of the four activities), more than eight out of ten children, in both cohorts, had undertaken frequent activities[16] - 82% in BC1 and 83% in BC2. There was no statistically significant difference between the cohorts on this measure.

4.3.3 Variation in doing frequent activities by socio-economic circumstances

Previous analyses of BC1 data have shown that socio-economic circumstances, particularly parental level of education were some of the strongest factors associated with the frequency of home learning activities in the early years (e.g. Bradshaw, 2011; Bromley and Cunningham-Burley, 2011). Children living in more advantaged circumstances were more likely to do activities most days than children living in less advantaged circumstances. By comparing the patterns in frequent activities by socio-economic characteristics for BC2 it is possible to see whether the nature of the relationship changed and, in particular, whether the gap between the most and least advantaged children reduced between 2007/08 and 2013.

The analysis showed that differences in doing frequent activities by socio-economic characteristics for BC2 children were similar to those for BC1 children. In relation to looking at books and reading at 10 months, as well as for each of the measured activites at age 3, differences by socio-economic characteristics (parental level of education, household income, and area deprivation) showed no significant change.[17] For singing songs at 10 months, the relationship between parental education and frequency of singing appeared to be stronger in BC2 than in BC1. That is, when looking at the proportion of children singing

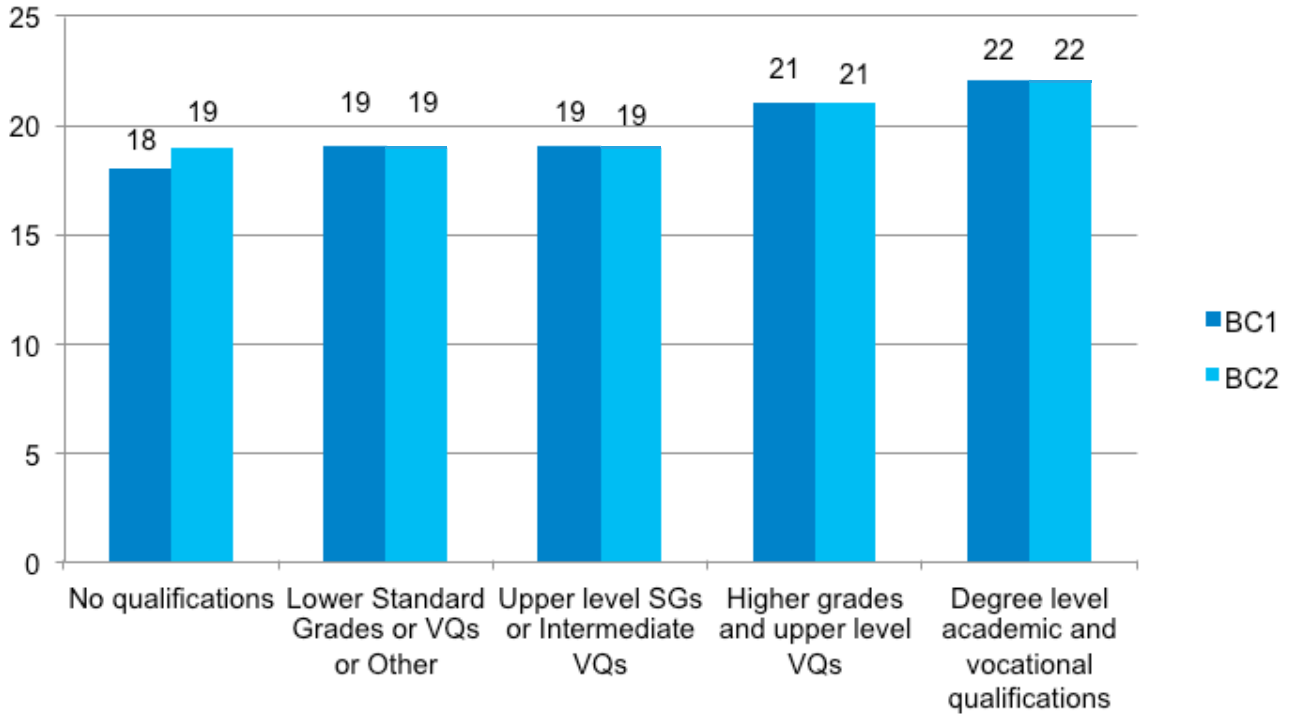
[16] Doing frequent activities is defined here as having a score of at least 16 out of a possible total of 28 across the four types of activities. This is equivalent to having done, on average, each of the four activities on at least four days in the last week.

[17] Frequency of playing at recognising letters, words, shapes or numbers at age 3 did not vary significantly by area deprivation.

songs and reciting nursery rhymes most days, there was a larger gap between those with highly educated parents and those whose parents had lower level or no qualifications in BC2 compared with BC1. However, by age 3 this difference in variation by education was no longer significant.

Figure 4-B illustrates how, for both cohorts, frequency of activities at age 3 varied by parental level of education.[18] The number of days reported for each activity – reading or looking at books, singing songs or reciting rhymes, drawing or painting, or playing at recognising letters, words, numbers or shapes – were counted separately and then added together. Thus for each child possible scores range from 0 (the child had not done any of the four activities in the last week) to 28 (the child had done all four activities every day in the last week). The graph gives the average scores for children in each education sub-group.

Figure 4-B Doing frequent activities at age 3, by parental education (mean score)



Unweighted bases: BC1: n=4182, BC2: n=4989.

Although Figure 4-B shows an increase in doing frequent activities amongst children living in families where the parent or parents had no formal educational qualifications, this change was not statistically significant and the overall relationship between parental level of education and doing frequent activities at age 3 did not differ between the cohorts. In other words, the analysis found no statistically significant evidence of any 'narrowing of the gap' in relation to the frequency of activities undertaken at age 3.

4.4 Changes in frequency of reading between 10 months and age 3

Of particular interest in relation to reading and sharing books with children from an early age

[18] For both age 10 months and 3 years, figures showing frequency of activities by household income and level of area deprivation are provided in appendix C.

is the extent to which parents who did not read frequently with their child at 10 months may be encouraged to read more with their child as he or she gets older. Because frequency of looking at books and reading with the child was measured at both 10 months and 3 years for both cohorts, GUS data provides a possibility for assessing any increase in frequency of reading between these two age points and comparing this across the two cohorts.

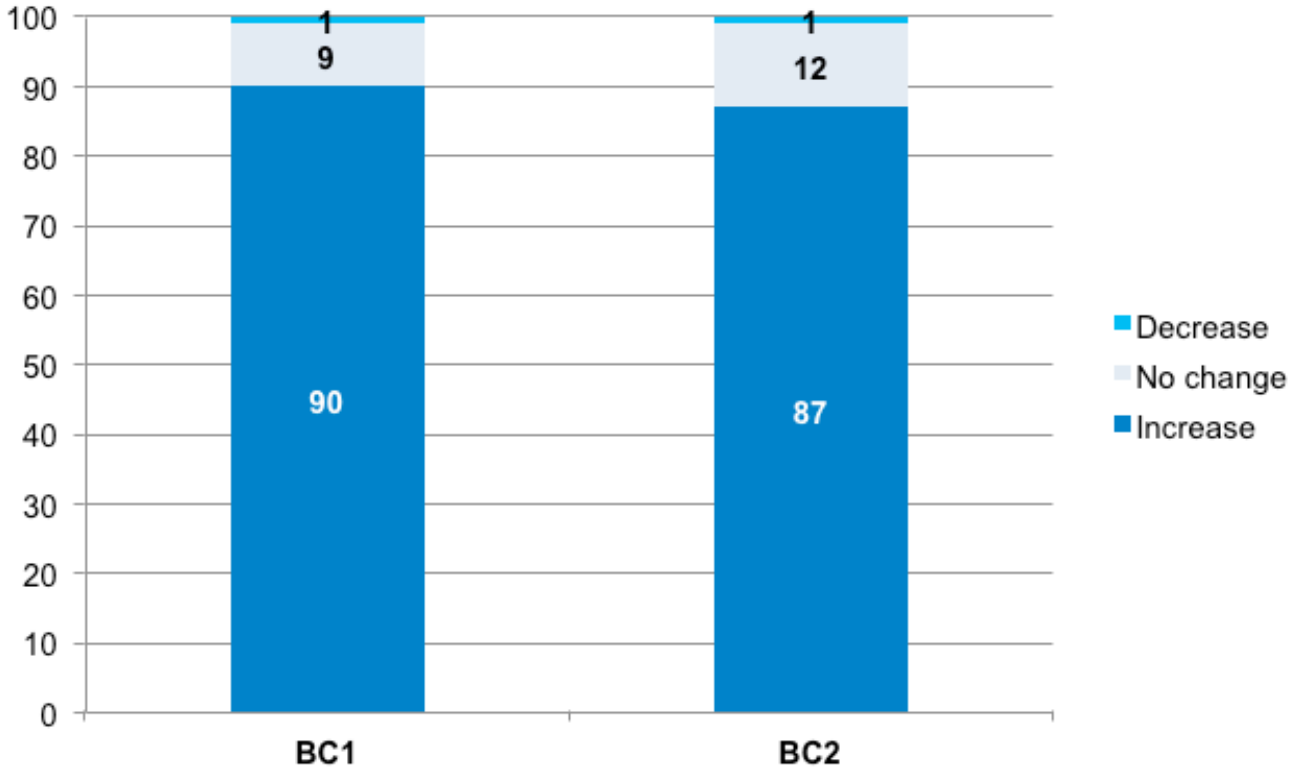
Answer categories differed across the two age points. Therefore, for the purposes of measuring a change in reading frequency, the following categories have been derived:

- 'Most days' (corresponding to 'Every day/most days' at 10 months and the child having looked at books on four to seven days in the last week at age 3)
- 'Less often but at least once a week' (corresponding to 'Once or twice a week' at 10 months and one to three days in the last week at age 3)
- 'Less often than once a week' (corresponding to all answers indicating the child looking at books less than once a week at 10 months, and the child not having looked at books in the last week at age 3 (i.e. a score of 0)

Amongst parents who read to their child less often than 'most days' at 10 months, almost nine out of ten had increased the number of days they read with their child by the time the child was aged 3. This increase may reflect more parents being aware of the benefits of sharing stories and reading with toddlers, as opposed to babies, and therefore being more likely to participate in the activity when their children reach the later stage. However, it may also reflect that reading with children at age 3 is more widely understood as 'expected' behaviour for parents, possibly causing some parents to exaggerate their responses. As such, responses at age 3 may be more susceptible to bias with parents potentially more likely to report doing more frequent reading activities with their child than was actually the case.

Figure 4-C shows the change in reading frequency between the two age points amongst those who looked at books or read stories with their child less often than 'most days' when the child was 10 months old.

Figure 4-C Change in frequency of reading between 10 months and age 3 (%)



Unweighted bases: Respondents who read with their child twice a week or less when the child was aged 10 months: BC1: n=1322, BC2: n=1449.

As Figure 4-C illustrates, amongst parents who read to their child less frequently than most days at 10 months, those in BC2 (87%) were slightly less likely to increase their frequency of reading than parents in BC1 (90%). This difference between the cohorts was even more pronounced when looking solely at those with the lowest levels of education[19] – amongst this group only 39% of parents in BC2 increased the frequency of reading with their child, compared with 46% of parents in BC1. However, when controlling for other factors which differed between the cohorts, including parental level of education, differences in the change in frequency of reading between 10 months and 3 years between the cohorts were no longer significant.[20]

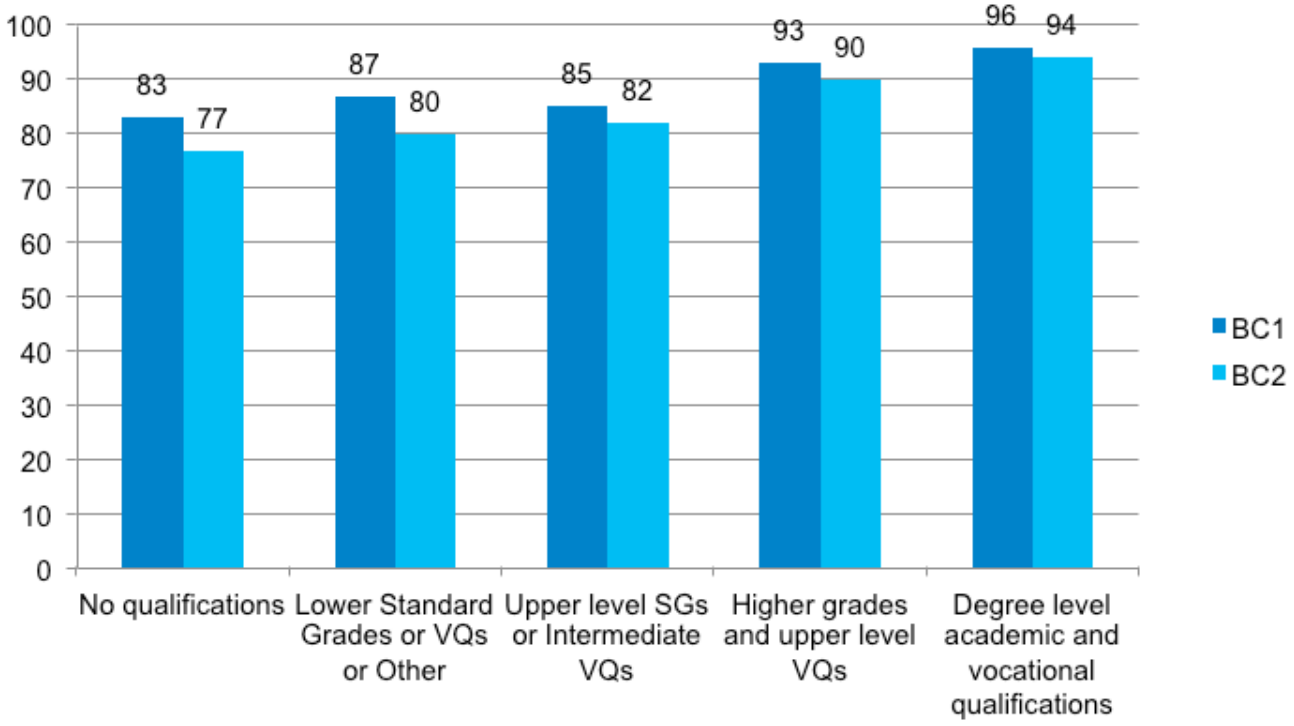
4.4.1 Variation in change in reading by socio-economic circumstances

Section 4.3.3 above set out how frequency of doing activities at a single age point varied by socio-economic circumstances. A similar pattern was evident for increases in the frequency of reading from age 10 months to 3 years: parents living in more advantaged circumstances were more likely to increase their frequency of reading with the child. Figure 4-D shows the proportion of parents in each education sub-group who reported an increase in reading frequency. It shows that the relationship between parental level of education and change in reading frequency was similar across the two cohorts, and that the increase in frequency of reading was lower in BC2 than in BC1 across all sub-groups of parental education.

[19] Here defined as those with no formal qualifications, and those with lower Standard Grades or equivalent.

[20] Multivariable logistic regression analysis was undertaken. Factors controlled for: Parental level of education, number of children in household, whether child was first born, family type, languages spoken in the household, child's sex, and employment status of child's main carer. Note that this analysis was undertaken for all cases across the two cohorts, i.e. across all levels of parental education. Analysis outcomes are presented in Table A.5 in the Technical Annex.

Figure 4-D % of parents who increased frequency of reading with child between 10 months and age 3, by parental level of education



Unweighted bases: Respondents who read with their child twice a week or less when the child was aged 10 months: BC1: n=1322, BC2: n=1449.

4.5 Who children did activities with at age 3

As part of the GUS age 3 interview, parents were asked who the child did activities with. Across all four activities, the vast majority of children did activities with their mother. For example, of children who had looked at books or read stories in the last week at age 3, almost all (93% in both cohorts) had done this with their mother, while two thirds had done so with their father (67% in BC1, 66% in BC2). BC2 children were more likely than BC1 children to also look at books by themselves (76% in BC2 compared with 68% in BC1).

Across all four activities, the proportion of children doing activities by themselves has increased between the cohorts. The proportion doing activities with their mother had also increased for drawing and painting, and for playing at recognising letters, words, numbers or shapes. It is also worth noting that the proportion doing activities with their father had increased for all activities except for looking at books and reading stories (where no difference between the cohorts was found).

Further analysis was undertaken to explore factors associated with fathers participating in all four activities (i.e. reading or looking at books; singing songs or reciting nursery rhymes; drawing or painting and playing at recognising letters, words, numbers or shapes).[21] This showed that main carer's partners (in most cases the child's father) who worked part-time

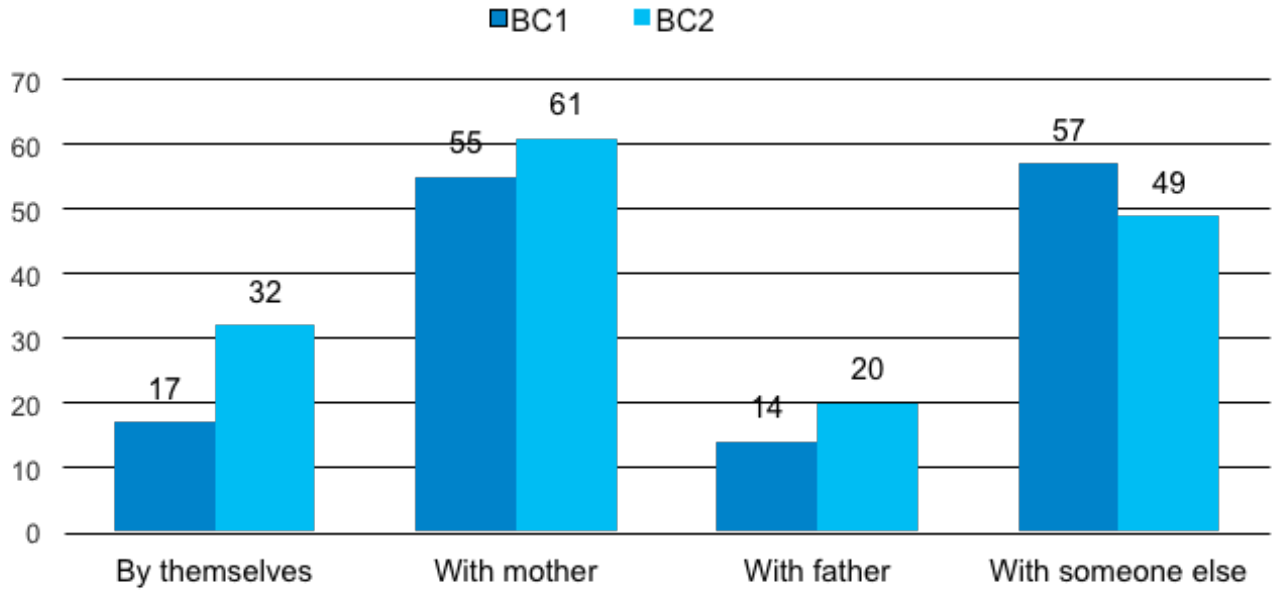
[21] Multivariable logistic regression analysis was undertaken to explore factors associated with a child having done all four activities with his or her father. Note that the analysis included only cases where 1) a child had undertaken all four measured activities in the last week and 2) where a partner was present in the household (family type was therefore not included as an independent variable). Analysis outputs are provided in Table A.6 in the Technical Annex.

were more likely to engage in all four activities with their child than those who worked full-time. As noted elsewhere (see Bradshaw, Knudsen and Mabelis, 2015), fathers in BC2 were slightly less likely than fathers in BC1 to work full-time. This may suggest that changes in fathers' employment patterns between cohorts contributed to the increase in children who did all four activities with their father.

A number of other factors were also independently associated with fathers taking part in all four activities, which suggests a more complex explanation than just simply changes in employment patterns.[22] Notably, even after controlling for a range of variables known to influence the frequency of home learning activities, children in BC2 were still more likely to do all four activities with their father than children in BC1. Altogether, this suggests that there has been an increase in the number of activities 3-year-old children undertake with their father which cannot simply be explained by changes in employment patterns. This opens up an array of further questions related to fathers' engagement in early home learning activities which are beyond the scope of this report.

Figure 4-E shows the proportion of children in each cohort who did all four activities by themselves, with their mother, with their father, or with someone else.

Figure 4-E % of children doing all four activities with person



Unweighted bases: children who did all four activities in the last week. BC1 – N = 3457, BC2 – N = 4227

4.6 Relationship between early activities and vocabulary at age 3

Previous analyses of GUS BC1 data found associations between early parent-child activities and early language development (Bradshaw, 2011; Bromley and Cunningham-Burley, 2009). This section considers the relationship, for both cohorts, between frequency of parent-child activities (at both 10 months and age 3) and expressive vocabulary ability at age 3. In particular, it considers whether this relationship changed between the cohorts.

[22] In addition to partner's employment status, the following factors were also significantly associated with children having done all four activities with their father: cohort, parental level of education, whether child was first born, number of children living in the household, languages spoken in the household, child's sex, and maternal employment status.

To explore whether frequency of reading at 10 months and children's level of home learning activities at age 3 were associated with vocabulary, these factors were added to the model alongside other factors known to be associated with vocabulary at age 3, namely employment status of main carer and family type.[23]

The results show that for both cohorts, frequency of reading at 10 months and frequency of doing non-reading activities at age 3 were independently associated with children's expressive vocabulary at age 3, after controlling for differences in socio-economic and other factors. Children who looked at books or read stories most days at 10 months had better vocabulary than those who were read to less often at 10 months. Similarly, doing more frequent activities at age 3 was associated with higher vocabulary scores. No evidence was found to suggest that the association between parent-child activities and vocabulary ability had changed between cohorts.[24]

Further analysis suggested there was no difference in the relationship between doing frequent activities and vocabulary score according to parental education in either of the cohorts.[25] Thus the positive relationship between participating in frequent home learning activities and increased vocabulary scores applied equally to children whose parents had high levels of education and those who had no formal qualifications – in line with findings from previous analysis on GUS (see e.g. Bradshaw, 2011). This relationship persisted in both cohorts.

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[23] The vast majority of those who were read to frequently at 10 months were also read to frequently at age 3 (95% in both cohorts). Thus including both measures risks a high degree of overlap in the cases they identify which can affect the results of the analysis. By not including reading activities in the age 3 activity variable it is possible to test if there are any independent associations between non-reading activities and expressive vocabulary while still being able to test associations with frequency of reading through the inclusion of the measure of frequency of reading at 10 months.

[24] See Table A.7.1 in the Technical Annex.

[25] An interaction effect between parental education and each of the two activity measures (frequency of being read to at 10 months and frequency of doing non-reading activities at age 3) was added to the multivariable models to test whether the association between doing frequent activities and better vocabulary differed according to parental level of education. This tested, for example, whether the association was stronger or weaker amongst children whose parents had lower levels of education, compared with those whose parents had higher levels of education. This analysis was carried out separately for each of the two cohorts. Outputs are provided in Table 7.2 in the Technical Annex.

chapter 5

PARENTAL ENGAGEMENT WITH BOOKBUG AND PLAYTALKREAD

5.1 Introduction

This chapter specifically considers aspects of two initiatives aimed at encouraging early parent-child activities: the PlayTalkRead campaign which aims to encourage and support parents in engaging actively with their young children, and the Bookbug initiative which seeks to encourage early reading and booksharing through book gifting. As previously noted, GUS children in BC2 were born shortly after each campaign launched, and parents were asked specifically about receipt and use of the initial Bookbug pack and whether they had accessed the PlayTalkRead website. On this basis, GUS BC2 data constitutes an interesting source of information about parents' engagement with these initiatives, although the measures cover only one aspect of each campaign (cf. section 1.2 above)

This chapter outlines receipt and use of the initial Bookbug pack amongst BC2 parents, and the extent to which BC2 parents accessed the PlayTalkRead website. It also describes how engagement with the two initiatives varied by socioeconomic circumstances.

5.2 Key findings

- 77% of parents recalled having received a Bookbug pack by the time their child was aged 10 months. Of those who recalled receiving the Bookbug pack, the vast majority had used at least one of the items enclosed in the pack.
- At the time of the 10 month interview, only 8% of parents had accessed the PlayTalkRead website. At the age 3 interviews this figure had risen to 15%. 82% of parents had not accessed the PlayTalkRead website at either age.
- Those living in more advantaged circumstances (such as in high income households, in the least deprived areas, and with high levels of educational qualifications) were more likely to report having received and used the Bookbug packs and were more likely to have accessed the PlayTalkRead website.

5.3 Bookbug

As part of the interview undertaken when their child was 10 months old, parents in BC2 were asked whether they recalled having received a Bookbug pack of books for their child and if so, which items (if any) they had used.[26]

The majority (77%) of BC2 parents recalled having received a Bookbug pack by the time their child was 10 months old (Table 5.1). Of those who recalled receiving the Bookbug pack, the vast majority used one or more of the items enclosed in the pack. Amongst those who used the Bookbug resource, the most popular items in the pack were the books: 73% of parents who recalled having received the Bookbug pack regularly read the books to their child, while 20% had read the Bookbug books to their child once. In addition to this, 26% of parents had read the enclosed magazine, 22% regularly listened to the CD, and 22% had listened to the CD once.

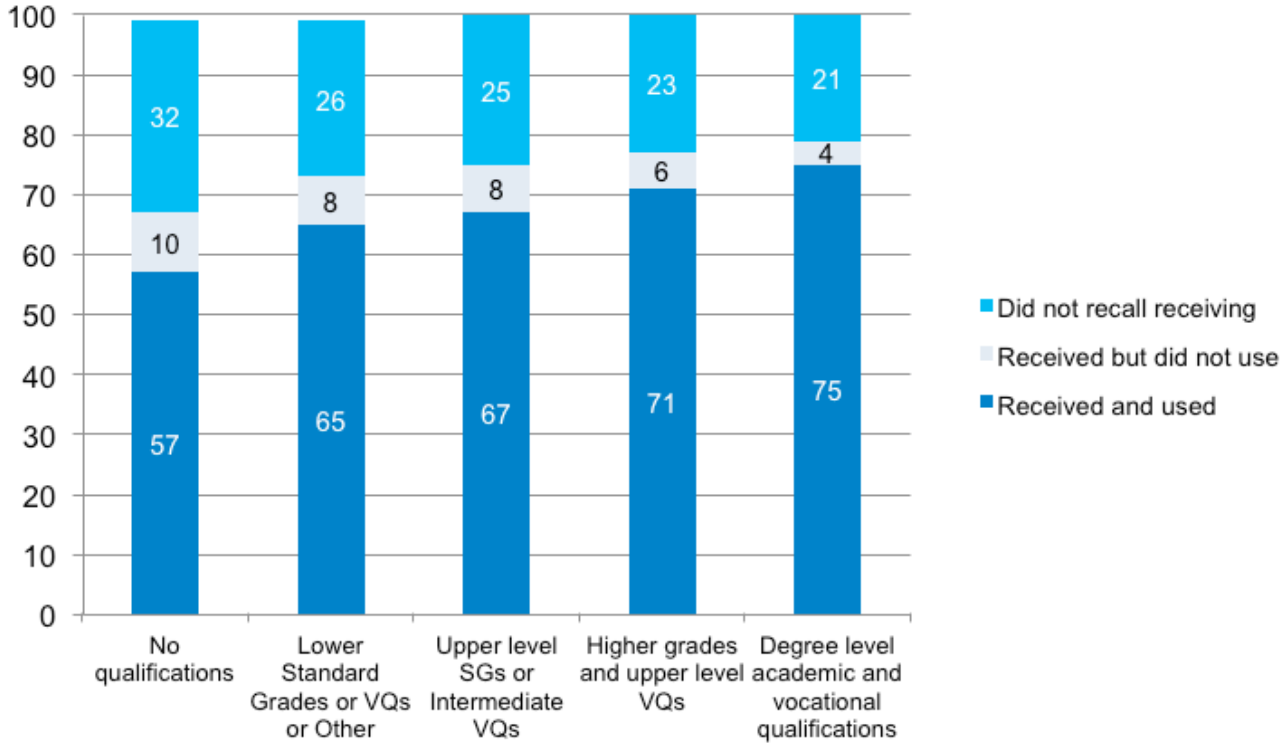
[26] Those who remembered receiving the Bookbug pack but who didn't remember if they had used any of the resources have been classified as 'Received but did not use'.

Table 5.1 Receipt and use of Bookbug

		Whether recalled receiving and using Bookbug		
		Received and used	Received but did not use	Did not recall receiving
BC2	%	71	6	23
Unweighted bases		*4389*	*349*	*1365*

Receipt and use of Bookbug resources varied by socio-economic measures of disadvantage, with parents living in the most advantaged circumstances more likely to have received and used the Bookbug resources. Figure 5-A below illustrates these differences by showing receipt and use of the Bookbug resources by parental level of education. Similar patterns were identified for household level of income and for area deprivation. For example, 76% of BC2 parents in the highest income quintile had received and used Bookbug, compared with 64% of parents in the lowest income quintile. 75% of parents living in the least deprived areas had received and used Bookbug compared with 62% of those in the most deprived areas.[27]

Figure 5-A Receipt and use of Bookbug pack, by parental level of education (%)



Unweighted base: BC2: n=6103.

5.4 PlayTalkRead website

At both the age 10 month and age 3 interviews, GUS respondents were asked whether they

[27] Charts outlining receipt and use of Bookbug by household income and level of area deprivation are provided in Appendix C.

had accessed a number of government services and schemes aimed at helping parents and families. Amongst these was the PlayTalkRead website. As such, GUS data includes a useful measure of whether parents had used the PlayTalkRead website when their child was 10 months and 3 years old, respectively. Again, note that this is not a measure of parents' awareness of or engagement with the PlayTalkRead campaign as a whole (cf. section 1.2).

At the time of the 10 month interview, only 8% of parents had accessed the website. At the age 3 interviews this figure had risen to 15%. Overall, 4% of BC2 parents reported that they had accessed the PlayTalkRead website at both the 10 month and the age 3 interviews, while 14% had accessed the website either by the 10 month interview or the age 3 interview. The vast majority (82%) had not accessed the PlayTalkRead website at all.

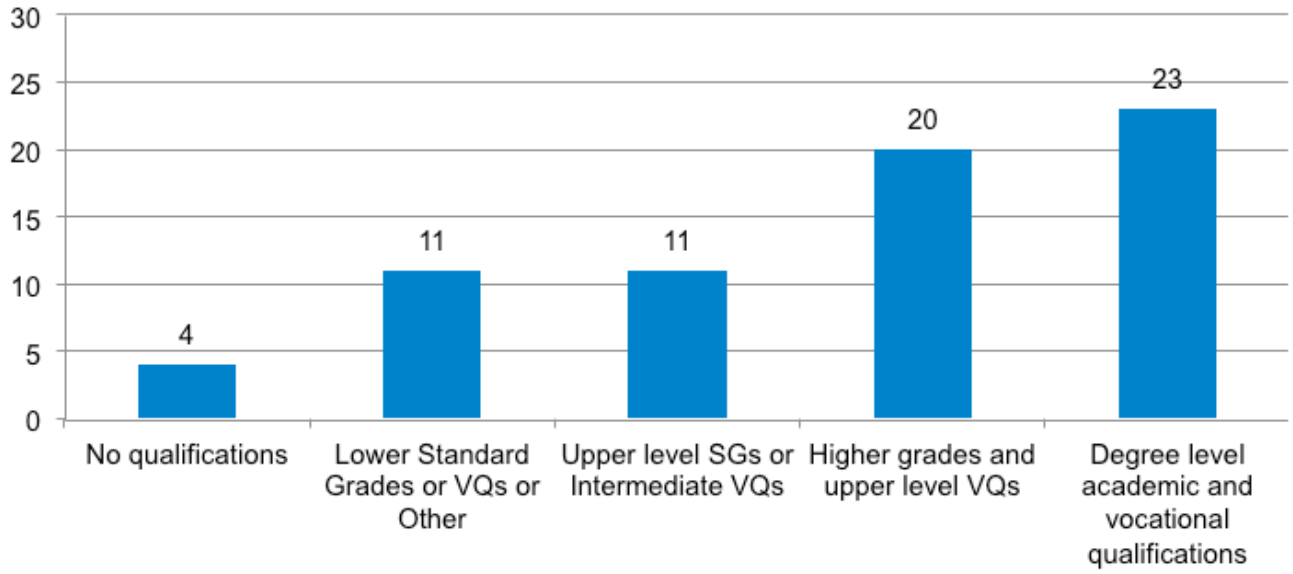
Table 5.2 Whether accessed PlayTalkRead website

	Whether accessed PlayTalkRead website		
	Accessed at both ages	Accessed at one age only	Did not access
BC2 %	4	14	82
Unweighted bases	*234*	*728*	*4051*

Similar to receipt and use of the Bookbug resources, accessing the PlayTalkRead website varied by socio-economic circumstances, with those living in more advantaged circumstances (such as in high income households, in the least deprived areas, and with high levels of educational qualifications) more likely to have accessed the website. For example, 24% of parents in the highest income quintile had accessed the PlayTalkRead website, while only 13% of those in the lowest income quintile had done so. 21% of parents living in the least deprived areas had accessed the PlayTalkRead website, compared with 15% of parents living in the most deprived areas. Figure 5-B below shows that amongst families where at least one adult in the household was educated to degree level, 23% had accessed the PlayTalkRead website compared with only 4% amongst those who had no formal qualifications.[28]

[28] Charts outlining the % of parents who had accessed PlayTalkRead by household income and level of area deprivation are provided in appendix C.

Figure 5-B % of parents who accessed the PlayTalkRead website



Unweighted base: BC2: n=5018.

chapter 6

RELATIONSHIP BETWEEN ASPECTS OF THE POLICY INITIATIVES AND HOME LEARNING ACTIVITIES AND VOCABULARY ABILITY

6.1 Introduction

Earlier analysis demonstrated how frequency of undertaking home learning activities varied by socio-economic circumstances for both BC1 and BC2. This chapter examines whether the frequency of undertaking home learning activities also varied according to whether or not parents had reported reciept and use of the initial Bookbug pack and visiting the PlayTalkRead website. This chapter draws solely on BC2 data.

The chapter will explore, first, the relationship between receipt and use of the initial Bookbug pack and frequency of reading and, second, the relationship between a parent having accessed the PlayTalkRead website and their child doing frequent activities. It also considers whether there is any variation in these relationships according to socio-economic circumstances.

Multivariable logistic regression analysis is used to test whether parental engagement with the initial Bookbug pack and/or the PlayTalkRead website was independently associated with undertaking frequent home learning activities when controlling for other factors known to be associated with home learning activities.Finally, the chapter uses the same techniques to explore whether there is any relationship between parental engagement with these aspects of Bookbug and PlayTalkRead and their child's language ability.

6.2 Key findings

- A child's main carer recalling having received and used the initial Bookbug pack was found to be positively associated with doing frequent reading activities with the child at 10 months. This relationship remained after controlling for other background factors. The association was equally evident amongst all parents – including both those with lower and higher levels of education.
- A parent having accessed the PlayTalkRead website was found to be positively associated with doing frequent home learning activities both when the child was aged 10 months and 3 years. Again, this relationship remained significant after controlling for other factors. When the child was 10 months, this relationship was stronger in families where parents had higher levels of education. By age 3, however, no such variation was observed.
- While receipt and use of the initial Bookbug pack and having accessed the PlayTalkRead website were found to be positively associated with doing frequent home learning activities, it is not possible to conclude that using these resources led to home learning. It is possible that parents who were already predisposed to undertaking home learning activities were simply more likely to use or recall using of them.
- A positive association was found between a child's main carer having received and used the initial Bookbug pack and the child having better expressive vocabulary at age 3, also when other factors were controlled for. This relationship appeared to be stronger in families where parents had higher levels of education.

- While receipt and use of the initial Bookbug pack was found to be positively associated with expressive vocabulary at age 3, it is not possible to conclude that using this resource led to better vocabulary. Again, it is possible that parents who were predisposed to undertaking home learning activities, which in turn would have improved their child's vocabulary, were simply more likely to use or recall using this resource.
- No evidence was found to suggest an independent association between a parent having accessed the PlayTalkRead website and their child's vocabulary score at age 3.

6.3 Bookbug and frequency of early reading activities

As noted earlier, a key aim of the Bookbug programme is to encourage parents to share books with their children. This section explores whether receipt and use of the initial Bookbug pack was associated with reading frequency at 10 months and 3 years, or with an increase in reading frequency between the two age points.

Table 6.1 below shows the frequency of reading or looking at books by whether the parent had received and used the Bookbug pack. The table shows that parents who received and used the pack read or looked at books more frequently with their child at both ages than parents who did not receive or use Bookbug.

Table 6.1 Frequency of looking at books and reading, by Bookbug receipt and use

	Bookbug receipt and use (BC2)		
	Received and used	Received but did not use	Did not receive
	%	%	%
Reading frequency 10 months			
Most days	74	39	64
A few days a week	19	27	23
Less often	7	33	13
Unweighted bases	*4389*	*348*	*1365*
Reading frequency at age 3			
Most days	92	84	87
A few days a week	7	13	10
Less often	1	3	3
Unweighted bases	*3644*	*288*	*1068*
*Change in reading frequency between 10 months and 3 years**			
Increase in reading frequency %	88	89	84
Unweighted bases	*919*	*170*	*353*

*Only including those who looked at books less frequently at 10 months.

10 months – sig testing on most days: p<.001; Age 3 – sig testing on most days: p<.001; Change in reading – sig testing on increase: NS

The relationship between receipt and use of the Bookbug pack and reading frequency shown in Table 6.1 may simply be explained by the fact that those who recalled receiving and using the resources were already predisposed to engage in more frequent reading with their child. It was possible to control for this predisposition to some extent. As demonstrated in sections 5.3 and 4.3.3 above, both receipt and use of the Bookbug pack and doing frequent home learning activities are strongly associated with socio-economic advantage. Multivariable analysis was therefore undertaken to test the relationship between receipt and use of the pack and frequency of home learning activities while controlling for differences in socio-economic characteristics and other differences in circumstances known to influence reading frequency. [29] This showed that irrespective of socio-economic circumstances, parents who reported receipt and use of the Bookbug pack were more likely to read more frequently with their child when their child was aged 10 months and 3 years.

When the child was aged 10 months, receipt and use of the Bookbug pack was positively associated with doing frequent reading activities, even after controlling for other background factors that are known to affect reading frequency. However, when frequency of reading at 10 months was included in the model predicting frequent reading at age 3, there was no longer an independent relationship between receipt and use of the Bookbug pack and frequency of reading at this age. Thus any association between Bookbug and frequency of parent-child reading at age 3 may simply be a consquence of an association at 10 months and the subsequent relationship between early and later parent-child reading.

Encouragingly, the relationship between receipt of and use of the Bookbug pack and home learning activities does not appear to be confined to the most advantaged socio-economic groups. Earlier analysis showed that parents with higher levels of education were both more likely to have received and used the pack and to read frequently with their child. As a result, we may have expected the relationship between receipt and use of the Bookbug pack and frequent reading to be stronger amongst parents with higher levels of education than amongst those with lower levels of education. Analysis was undertaken to test whether the relationship between having received and used the pack and frequent reading at age 10 months varied by level of parental education.[30] The analysis showed that there was no difference in this relationship according to parental education.

Whether or not parents had received and used Bookbug was not associated with an increase in reading frequency between the age 10 months and 3 years.

6.4 PlayTalkRead website and frequency of activities

As noted earlier, a key aim of the PlayTalkRead campaign is to encourage parents to do more activities with their young children. The following sections explore whether accessing one aspect of this campaign - the PlayTalkRead website - was associated with the frequency of undertaking parent-child activities when the cohort child was aged 10 months and 3 years.

Table 6.2 shows the proportion of parents who looked at books or read stories, or sang songs or recited nursery rhymes with their child most days by whether they had accessed the PlayTalkRead website by the time of the 10 months interview.

[29] See outcomes in Tables A.8 and A.9 in the Technical Annex.

[30] This was done by fitting an interaction effect between receipt and use of Bookbug and parental level of education to the multivariable regression model predicting frequency of reading. Outputs are provided in Table A.8 in the Technical Annex.

Table 6.2 Activities at 10 months, by whether accessed PlayTalkRead website

	Whether accessed PlayTalkRead website (BC2)	
	Accessed website	Did not access website
	%	%
Overall frequency of activities at 10 months		
Did both activities most days	78	63
Did one activity most days and other activity less frequently	20	29
Did both activities once a week or less	2	7
Unweighted bases	*488*	*5630*

Sig testing on 'Did both activities most days': p<.001

Those who had accessed the PlayTalkRead website were more likely to read and sing frequently with their child at 10 months than those who had not accessed the website. This association remained significant when controlling for additional factors, including parental level of education.[31] Interestingly, when testing the association between the child doing frequent activities at 10 months and the child's parent having accessed the PlayTalkRead website separately for the two activities (i.e. looking at books or reading stories, and singing songs or reciting rhymes), the association remains significant for reading, but not for singing.

Table 6.3 below compares the mean score of how many days in the last week BC2 children did the four activities at age 3 – looking at books or reading stories; singing songs or reciting nursery rhymes; painting or drawing; and playing at recognising words, letters, shapes and numbers – by whether their parents had accessed the PlayTalkRead website (either when the child was 10 months or 3 years old).

Table 6.3 Frequency of activities at age 3, by whether parents had accessed PlayTalkRead website

	Mean score (BC2)
Accessed PlayTalkRead website	21.8
Did not access PlayTalkRead website	20.3

[31] Multivariable logistic regression analysis was undertaken. Further factors controlled for: Number of children in household, whether child was first born, family type, languages spoken in the household, child's sex, and employment status of child's main carer. Analysis outputs are provided in Table A.10.1 in the Technical Annex.

On average, at age 3, children whose parents had accessed the website had engaged in a slightly higher number of activities in the previous week than those whose parents had not accessed the website. This relationship remains significant when controlling for differences in parental level of education and a range of other factors.[32,33]

As with Bookbug, earlier analysis showed that parents with higher levels of education were both more likely to have accessed the PlayTalkRead website and to undertake frequent activities with their child. As a result, we may have expected the correlation between a parent accessing the PlayTalkRead website and their child doing frequent activities to be stronger amongst parents with higher levels of education than parents with lower levels of education. Additional analysis suggested that the relationship between accessing the PlayTalkRead website and undertaking frequent activities varied by parental level of education at age 10 months but not at age 3.[34] At 10 months, it appears that the relationship between having accessed the PlayTalkRead website and the child undertaking frequent home learning activities is stronger in families where parents had higher levels of education.[35]

Caution must be taken when interpreting these results. It is not possible, based on the analysis presented here, to make any inferences about the direction of the relationship between parents accessing the PlayTalkRead website and doing frequent activities with their child. That is, based on this analysis we do not know whether parents started doing (more) frequent activities with their child as a result of accessing the website, or whether the parents who accessed the PlayTalkRead website were already doing frequent activities with their child and were simply accessing the website as one out of a number of resources to support them in their parenting.

6.5 Bookbug pack and PlayTalkRead website: Associations with vocabulary at age 3

Findings showing that frequency of early home learning activities are independently associated with vocabulary ability at age 3 arguably support the rationale behind initiatives such as Bookbug and PlayTalkRead which seek to encourage parents to undertake frequent home learning activities with their children from an early age. As outlined above, for children in BC2, frequency of reading at 10 months was independently associated with their parents

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[32] Multivariablee linear regression analysis was undertaken. The factors included are those outlined previously. Outputs are provided in Table A.11 in the Technical Annex. The activity variable used as the dependent variable at age 3 included all four activities measured: Reading or looking at books; singing songs or reciting nursery rhymes; drawing or painting; and playing at recognising letters, words, numbers or shapes.

[33] This relationship was also significant when using an activity variable consisting only of non-reading activities, i.e. singing songs or reciting nursery rhymes; drawing or painting; and playing at recognising letters, words, numbers or shapes. Outputs are provided in Table A.12 in the Technical Annex.

[34] An interaction effect was fitted between accessing PlayTalkRead website and parental level of education in the multivariable regression models predicting frequent activities at 10 months and age 3. Outcomes are provided in Tables A.10.1 and A.11 in the Technical Annex. The activity variable used as the dependent variable at age 3 included all four activities measured: reading or looking at books; singing songs or reciting nursery rhymes; drawing or painting; and playing at recognising letters, words, numbers or shapes.

[35] Separate multivariable regression models were run for sub-groups of parents with different levels of education: 1) Lower levels of parental education, incl. No qualifications, Lower Standard Grades (SGs) or Vocational Qualifications (VQs) or 'Other' qualifications, and Upper level SGs or Intmed VQs; 2) Higher levels of parental education, incl. Higher Grades or Upper level VQs and Degree level or VQs). Analysis outputs are provided in Table A.10.2 in the Technical Annex.

having received and used Bookbug, and with their parent having accessed the PlayTalkRead website. Frequency of activities at age 3 was also independently associated with their parent having accessed the PlayTalkRead website. Given this, it is feasible to suggest that – through their independent associations with frequency of reading at 10 months, and frequency of doing activities at age 3, respectively – the child's main carer having used and received the initial Bookbug pack and having accessed the PlayTalkRead website may also be associated with the child having better expressive vocabulary at age 3.

In order to test this, the multivariable model outlined in section 4.6 was amended to include receipt and use of Bookbug and whether the parent had accessed the PlayTalkRead website (either when the child was 10 months or 3 years old). The analysis showed that there was an independent association between the child's main carer having received and used Bookbug and the child having better expressive vocabulary at age 3, when other factors were controlled for. There was no direct relationship between accessing the PlayTalkRead website and children's vocabulary ability.

Further analysis suggested that the relationship between having received and used Bookbug and having good vocabulary at age 3 was stronger in families where parents had higher levels of education.[36]

It is important to note that the analysis does not allow us to conclude anything about causality – that is, we cannot conclude that parents receiving and using Bookbug leads automatically to their child having better vocabulary at age 3.

The lack of a direct relationship between parents having accessed the PlayTalkRead website and vocabulary was arguably not surprising given it does not tell us anything about how often they visited the website and the extent to which they used the information provided. Furthermore, it gives us no information on whether or not parents were aware of or engaged with the wider PlayTalkRead campaign.

[36] First, an interaction effect between receipt and use of Bookbug and parental level of education was fitted to the multivariable regression model – results are provided in Table A13.1 in the Technical Annex. Second, separate multivariable regression models were run for sub-groups of parents with different levels of education: 1) Lower levels of parental education, incl. No qualifications, Lower SGs or VQs or 'Other' quals, and Upper level SGs or Intmed VQs; 2) Higher levels of parental education, incl. Higher Grades or Upper level VQs and Degree level or VQs). Results from this analysis are provided in Table A.13.2 in the Technical Annex.

chapter 7

ENJOYMENT OF READING AT AGE 8

7.1 Introduction

When aged 8, children in GUS were invited to complete a short questionnaire as part of the wider data collection exercise. One of the questions included asked children how much they enjoyed reading. Children could indicate they liked it 'a lot', 'a bit', or 'not at all'.

Combining these data with that from the wider study, this section provides a detailed insight into differences in children's enjoyment of reading and the factors associated with it. It explores variations in level of enjoyment according to key social and demographic characteristics, as well as variations in other aspects of the child's life including their enjoyment of school and other activities. The relationship between exposure to reading in the early years – examined in detail in the previous two sections - and enjoyment of reading is also explored. These analyses seek to determine whether children who are read to more often in their early years are more likely to enjoy reading at age 8, and whether the relationship between early reading and later enjoyment is similar for children with different background characteristics.

7.2 Key findings

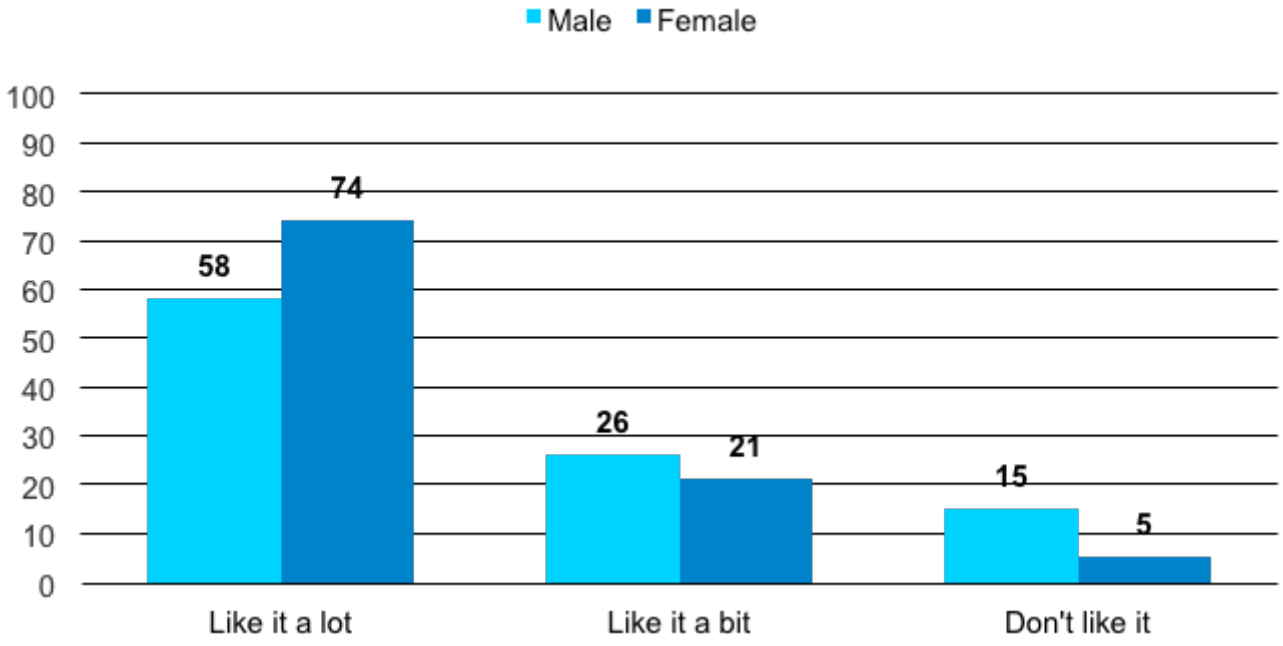
- At age 8, most (66%) children liked reading 'a lot', with around a quarter (24%) saying they liked it 'a bit', and one in ten not liking it.
- Girls were more likely to say they liked reading than boys (74% of girls liked reading 'a lot' compared with 58% of boys).
- Unsurprisingly, enjoyment of reading was more common among children who had a more positive attitude to school (always looked forward to going to school, never hated school, liked doing number work; liked doing sports and outside games and enjoyed learning) than amongst those had a negative attitude to school.
- After controlling for other factors, there was no relationship between frequency of early reading and enjoyment of reading at age 8. Children who read or were read to more frequently at ages 2 or 5 were not more likely to enjoy reading 'a lot' than those who read or were read to less frequently at those ages.

7.3 Differences in enjoyment of reading by socio-economic and school factors

At age 8, most (66%) of the cohort children said they liked reading 'a lot', with around a quarter (24%) saying they liked it 'a bit', and one in ten not liking it.

This varied with certain socio-economic characteristics. For example, enjoyment of reading (as indicated by liking it 'a lot') was higher among girls than boys (74% compared with 58%, Figure 7-A).

Figure 7-A Child's enjoyment of reading at age 8, by gender (%)



Unweighted base: BC1: n=4511.

However, no significant differences in enjoyment were found by child's ethnicity, parental level of education, maternal age at the child's birth, area deprivation or household income quintile. Considering 'not liking reading' on the other hand, shows some small differences by household income. Higher proportions of children in the lowest income groups than those in the highest income groups said they did not like reading (11-12% in quintiles one, two and three compared with 7% in quintiles four and five). There was no statistically significant variation by either parental level of education or area deprivation for 'not liking reading'.

A breakdown of enjoyment of reading at age 8 by parental level of education, household income and area deprivation is shown in Table 7.1.

Table 7.1 Child's enjoyment of reading, by parental level of education, household income and area deprivation

		Like reading a lot	Like reading a bit	Don't like reading	*Unweighted bases*
Parental level of education					
No qualifications	%	69	21	10	*119*
Lower standard grades or VQs	%	68	20	12	*122*
Upper level SGs or intermediate VQs	%	62	24	14	*535*
Higher grades and upper level VQs	%	67	23	11	*1097*
Degree level academic or VQs	%	66	26	8	*1484*
Household income					
Bottom quintile	%	67	21	12	*671*
2nd quintile	%	65	25	11	*552*
3rd quintile	%	65	24	11	*625*
4th quintile	%	67	25	7	*603*
Top quintile	%	67	27	7	*643*
Level of area deprivation (SIMD)					
Most deprived quintile	%	69	20	11	*552*
2nd	%	64	24	12	*529*
3rd	%	65	24	11	*704*
4th	%	65	26	9	*732*
Least deprived quintile	%	66	26	8	*771*

Reading enjoyment at age 8 also varied depending on attitudes to school. In particular, and as may be expected, enjoyment of reading was more common among children who had a more positive attitude to school (always looked forward to going to school, never hated school, liked doing number work; liked doing sports and outside games and enjoyed learning) than amongst those had a negative attitude to school.

7.4 Frequency of early reading and enjoyment of reading at age 8

The data in Table 7.2 show how reading enjoyment at age 8 varies with frequency of reading at ages 10 months through to 6 years. The relationship varies slightly at each age point. Up to age 5, the only age at which the relationship between early reading frequency and later enjoyment of reading is significant is at age 2. In contrast, frequency of reading at ages 5 and 6 are both associated with later enjoyment of reading. For example, 66% of children

who were read to on four or more days a week at age 5 liked reading 'a lot' compared with 58% who were read to less often at age 5.

Table 7.2 Frequency of early reading, by enjoyment of reading at age 8

		Like reading a lot	Like reading a bit	Don't like reading	*Unweighted bases*
Age 10mths:	%				
Every/most days		65	25	10	*2099*
Less often		66	22	12	*949*
Age 2:	%				
Four or more days/wk		66	24	10	*2783*
Less often		60	24	17	*264*
Age 3:	%				
Four or more days/wk		66	24	10	*2836*
Less often		63	21	17	*212*
Age 4:	%				
Four or more days/wk		66	24	10	*2819*
Less often		61	23	15	*218*
Age 5:	%				
Four or more days/wk		66	24	10	*2739*
Less often		58	24	18	*309*
Age 6:	%				
Four or more days/wk		68	23	9	*2601*
Less often		55	28	17	*447*
Frequency reading score across age 2-6 (see note below):	%				
Low score		58	25	17	*140*
Medium score		62	23	15	*605*
High score		67	24	9	*2301*

Scores were assigned based on answers to these frequency questions (0 to 7 days)
Scores across the 5 ages were summed to give a total score
Scores of 0-19 were classified as 'low'; scores of 20 to 29 were classified as 'medium'; scores of 30 to 35 were classified as 'high'.

Taking an overall frequency of reading into account (based on frequency of reading at ages 2, 3, 4, 5 and 6 – the last row of the table) shows that those who score higher – indicating being read to more often from birth to age 6 - are more likely to say they enjoy reading 'a lot' at age 8 than those who are read to less often. 67% of the high score group said they enjoyed reading 'a lot' at age 8 compared with 58% of the low score group.

It should be noted that with only one measure of enjoyment of reading, the direction of the relationship between frequency of reading and enjoyment cannot be precisely determined. It is possible that early enjoyment of reading (for which we do not have a measure) influenced the frequency at which the child read or was read to in the early years rather than the frequency of early reading leading to enjoyment.

Thus a relationship was found between frequency of reading at ages 2, 5 and 6 - and enjoyment of reading at age 8: those children who were read to more often at these ages were more likely than those who read less often to enjoy reading at age 8. However, earlier analysis in this report showed very clearly that children in more advantaged circumstances tended to be read to more often in their early years than those in disadvantaged circumstance. As such, the relationship between frequent early reading and later enjoyment may be a reflection of this underlying social bias in early reading habits – that is, the apparent relationship between early reading frequency and later enjoyment of reading may be a result of both factors being associated with socio-economic status rather than them being independently associated with each other. To test this, multivariable regression analysis was used to explore the relationship between reading at age 2 and reading at age 5 with enjoyment of reading at age 8 whilst controlling for other factors, such as the child's sex and parental level of education.

The multivariable analysis found no independent association between frequent early reading, either at age 2 or age 5, and later enjoyment of reading after controlling for other factors. [37] In other words, being read to more often at these ages was not independently related to a greater likelihood of enjoying reading at age 8. In addition, as with the bivariate analysis noted earlier, parental level of education was not found to be associated with enjoyment of reading. Child's sex was associated with enjoyment of reading with the odds of boys enjoying reading 'a lot' lower than for girls.

[37] Results of this multivariable analysis are shown in Tables A.14.1 and A.14.2 in the Technical Annex.

chapter 8

DISCUSSION AND RECOMMENDATIONS

The Growing Up in Scotland study offers a unique opportunity to consider a range of important issues related to early years policy on supporting parent-child activities and improving children's early language development. Using data from the two birth cohorts, born six years apart, this report has considered changes in the frequency and nature of parent-child activities and in children's language ability. In particular, the report has examined whether known social differences in both of these aspects have changed over time and what may have influenced such change. In addition, data from the second birth cohort was used to measure parents' engagement with aspects of the Bookbug and PlayTalkRead initiatives – for Bookbug, receipt and use of the initial Bookbug packs; for PlayTalkRead, whether parents had accessed the website. This makes it possible to assess the penetration of these particular aspects of the initiatives amongst parents with young children in Scotland. It also allows us to see how penetration varies amongst parents with different social characteristics. Finally, it allows us to assess the extent to which engagement with these programme elements is associated with participation in home learning activities and early language development.

Children's early language development

Children's vocabulary ability increased slightly between the two cohorts. This increase remained after controlling for differences in the education levels of parents in both cohorts, and other cohort differences. The increase was seen among children from all parental educational backgrounds, with the exception of those in the lower Standard Grade group, i.e. those in the middle of the distribution. The level of increase was broadly similar in each of these sub-groups. That said there is a small but significant reduction in the vocabulary disparity between the highest and lowest social groups.

Frequency of reading at 10 months and frequency of stimulation other than reading (e.g. painting/drawing, singing songs/nursery rhymes) at age 3 were each independently associated with children's expressive vocabulary at age 3 in both cohorts, after controlling for differences in socio-economic and other factors. This mirrors earlier findings from GUS.

The positive relationship between parent-child activities and vocabulary development is evident across both GUS cohorts. In addition, the benefits of undertaking parent-child activities, in terms of improved vocabulary ability, did not appear to differ according to parental level of education. Rather, early parent-child activities – as measured in GUS - appear to be mutually beneficial for all children.

Engagement in parent-child activities

At age 10 months and 3 years, children whose parents lived in more socio-economically advantageous circumstances were more likely than those in disadvantaged circumstances to regularly participate in home learning activities. This trend was observed in both cohorts with little change over time.

However, there were some differences in participation in individual home learning activities between the cohorts. For example, at 10 months, children in BC2 were slightly more likely

than children in BC1 to be read to or to be looking at books most days. These differences remained even after controlling for other differences between the cohorts, such as parental education levels. At age 3, children in BC2 were a little more likely than those in BC1 to be playing at recognising letters, words, numbers or shapes most days. Virtually all children in both cohorts were reading or looking at books most days at age 3, with no difference between the cohorts. Taking all activities together at age 3, more than eight out of ten children, in both cohorts, had participated in frequent activities in the last week with no statistically significant difference between the cohorts.

Almost all parents who read to their child less often than 'most days' at 10 months had increased the number of days they read with their child by the time the child was aged 3. These trends were apparent and the increases similar in both cohorts. As such there is no evidence that parents in BC2 who were reading less often when the child was 10 months were more likely to have increased the frequency of reading with their child at age 3 than was the case with BC1. Of course, the proportion of parents already reading frequently at 10 months was higher in BC2 than in BC1. The remaining group – those who were not reading frequently at 10 months – being smaller in BC2, may therefore consist of a greater proportion of harder to reach parents than the equivalent group in BC1. This is a group of parents whose behaviour may be considered more difficult to influence. As such, it is perhaps unsurprising that an increase in reading frequency was not seen. This implies that more intensive efforts and support are required to influence those parents who continue to undertake less frequent reading activities with their child.

Parents in more advantaged circumstances were more likely to increase the number of days they read to their child between age 10 months and 3 years than those in disadvantaged circumstances. Furthermore, there were no notable differences between the cohorts within key sub-groups. In other words, parents with lower educational qualifications in BC2 were just as likely as parents with lower educational qualifications in BC1 to show an increase in reading frequency between 10 months and age 3.

So far we have focused on the activities themselves but we were also interested in who carried out the activities with the children. Especially noteworthy here is the increased role played by fathers across the two cohorts. There is a suggestion from the GUS data that changes in fathers' employment status may be contributing to this, at least in part. In BC2, a greater proportion of partners were working part-time than in BC1, and those who worked part-time were more likely to have engaged in all four parent-child activities than those who worked full-time. However, we have given this only rudimentary consideration in this report and further analysis is required to provide a fuller understanding of the drivers and impact of fathers' involvement in activities and why this has increased over time. With evidence increasingly suggesting the important influencing role that fathers can play in promoting positive child development, this is an encouraging finding that warrants more focused consideration.

Engagement with the Bookbug pack and PlayTalkRead website

This report has shown that parents were far more likely to be aware of and to have used the initial Bookbug pack than the PlayTalkRead website. Arguably, this is unsurprising given the difference in how the resources are accessed: Bookbug packs are predominantly distributed directly to families by health visitors and early years settings whereas the PlayTalkRead website relied largely on parents taking the initiative to access the site (and having the means

to do so) in response to various marketing campaigns and promotional materials. A little over three-quarters of BC2 parents remembered receiving their initial Bookbug pack, dispatched during the child's first year. Of those who did, the vast majority used one or more of the items enclosed in the pack. By contrast, around eight in ten parents had not accessed the PlayTalkRead website at all by the time their child was aged 3.

Despite a universal approach to their rollout and availability, parents were not equally likely to have engaged with the initiatives. Parents living in the most advantaged circumstances were more likely than those in more disadvantaged circumstances to have received and used the Bookbug resources and to have accessed the PlayTalkRead website. This is not an unusual finding for resources of this nature. Parents in more advantaged circumstances, particularly those with higher educational qualifications, are known to do more research about what factors may enhance their child's developmental journey and are more likely to engage in behaviours which support positive development for that reason. As a result of this, and because more affluent parents are more likely to have the web access necessary to use the site, the social gradient is perhaps unsurprising in relation to the PlayTalkRead website; it is likely to be used more by those parents who are more motivated to seek out the resource and who have the technology to do so. Bookbug packs, however, were distributed to all parents, so explaining the social differences in receipt of these is more difficult. Of course, parents may have received their Bookbug pack many months before the point when they were asked the question and may simply not have recalled receiving it. However, if parents were regularly making use of the resources through reading or playing with their child, they are arguably also more likely to recall receiving the Bookbug pack. As such, the findings seem to suggest that parents in more disadvantaged circumstances were less likely to have received the Bookbug pack in the first place and/or were less likely to remember receiving it because they used the materials less often.

Policy initiatives and parent-child activities

A key objective of the Bookbug programme is to encourage parents to share books with their child or children from an early age. The analysis conducted for this report showed that, after controlling for other factors, parents who received or used the initial Bookbug pack read or looked at books more frequently with their child at 10 months than parents who did not receive or use the pack. When frequency of reading at 10 months was included in the model predicting frequent reading at age 3, there was no independent relationship between receipt and use of Bookbug and frequency of reading at this age. Nor was it related to an increase in reading frequency between 10 months and age 3. The association at younger rather than later ages is not surprising, given that only the initial element of the Bookbug programme was asked about. This initial element, involving a book gifted in the first few months following the child's birth, may therefore only be expected to be associated with reading behaviour in the first year. However, given that more frequent reading at 10 months was found to be associated with more frequent reading at later stages, the association between Bookbug and early reading is nevertheless notable.

It is important to emphasise that these findings do not indicate causality. That is, we cannot conclude that receipt of Bookbug resulted in parents reading more frequently with their child and that without Bookbug this would not have happened. It is possible that those parents who remembered receiving and using the Bookbug pack were also those who were already more inclined to read more frequently with their child. Yet the finding does suggest that Bookbug helps support more frequent reading behaviour before one year of age.

At the time GUS data was collected on Bookbug, the programme was universal in nature. It is perhaps unsurprising therefore, that the association between receipt and use of Bookbug and more frequent reading behaviour was equally evident amongst all parents – including both those with lower and higher levels of education. This is an important finding. There is a danger that initiatives of this nature will solely or more strongly benefit those families who are already more predisposed to engage in reading behaviour. This does not appear to be the case here.

PlayTalkRead has broadly similar aims to Bookbug in that it aims to support and encourage parents to stimulate their children from an early age through playing, talking and reading with them on a regular basis although it has quite a different approach to achieving these aims. Somewhat unexpectedly, given the limited measure of engagement with the campaign used in this report, we did find associations between accessing the PlayTalkRead website and an increase in early parent-child activities. The relationship between accessing the website and early parent-child activities was similar to that found for Bookbug: those parents who said they had accessed the website were more likely to read and sing frequently with their child at 10 months than those who had not accessed the website. The association with reading remained significant after controlling for differences in parental level of education. Again, care must be taken not to imply a causal influence here. Those parents who accessed the PlayTalkRead website may be those already more likely to engage in more frequent activities with their child. In fact, given the differences in social characteristics between those who did and did not use the site, there is some suggestion that this may be the case here.

Additional analysis suggested that the relationship between having accessed the PlayTalkRead website and the child undertaking frequent home learning activities was stronger in families where parents had higher levels of education. This bears out the risk mentioned above that initiatives of this nature, whilst intended as universal, are more likely to be used by those least in need of the advice and support they offer. The reliance on parents to be proactive in order to benefit from the PlayTalkRead website – that is, to take initiative themselves to seek out the resource and to have the means to do so (i.e. a device to access the internet and internet access itself) – means that this particular resource is more likely to be used by those parents who are already interested in supporting their child's development, a characteristic associated with higher education levels. Analysis of engagement with more targeted aspects of the PlayTalkRead campaign may have yielded different results. However, as engagement with these targeted elements was not measured in GUS such analysis has not been possible to undertake for this report.

After controlling for other factors, children whose parents reported receiving and using the Bookbug pack had a higher vocabulary ability than those whose parents did not recall receiving the Bookbug materials. Notably, however, further analysis suggested that the relationship between Bookbug and children's language development was apparent only in cases where parents had higher levels of education. This suggests that any ultimate effect on children's vocabulary which may stem from the Bookbug programme may be less about receipt of the books per se and more about how parents use the books – and, indeed, any other books or related resources – with their child or children, reflecting different reading styles which are more or less beneficial for children's language development. As noted in the introduction, dialogic book reading - where parents are explicitly taught to actively engage their children in reading activities - has been shown to promote oral language and literacy skills. Other research has shown more highly educated parents are more likely to read up

on and take advice about supporting children's development. As such, it is reasonable to assume that they may be generally more aware of the types of interaction/reading which most benefit children's language development and are more likely to engage in that style of reading.

There was no relationship between parents having accessed the PlayTalkRead website and children's vocabulary ability at age 3. With such small numbers having accessed the site (18% by the time the child was aged 3 in 2012/13), this is unsurprising. In addition, our measure of accessing the PlayTalkRead website is simply that – an indication of whether the parent was aware of and had visited the site. It does not measure the frequency of visits, the time spent considering the information, the commitment to applying the information to interactions with the child or any application as a result. Having more of this information would allow consideration of whether a certain intensity of engagement with the PlayTalkRead website is associated with better language development. Nevertheless, this would still be challenging with the small number of parents who reported using the site at all. It is also possible that a more comprehensive measure of engagement with the PlayTalkRead campaign (including the face-to-face elements) would have yielded different results.

Children's enjoyment of reading

At age eight, the vast majority of children enjoy reading and a great many like it 'a lot'. Whilst girls were more likely than boys to enjoy reading, there were no differences by socio-economic characteristics; children of all social backgrounds were similarly likely to enjoy reading. This is an encouraging finding. Whilst findings in this and other GUS reports show differences in cognitive development by social background are evident from a young age, there are no such differences in enjoyment of reading. Links between the time spent reading and positive cognitive development are well evidenced. If enjoyment of reading can therefore be translated into an increase in reading, especially among more disadvantaged children, this offers an important opportunity to address some of the inequality in cognitive development in the primary school years.

There were also no differences in enjoyment of reading according to the frequency the child was read to in their early years. Thus if a child is not frequently exposed to reading during the early years of their life this does not appear to make them less likely to enjoy reading during later childhood. However, the measure of enjoyment used here does not tell us anything about the frequency at which children read at age 8, or the extent to which they read for pleasure rather than as an exercise for school. Further research exploring these relationships would be useful in understanding more about the influence of early reading on children's later reading behaviour.

Concluding remarks

Overall, the results from this report present a mixed picture. On average, children aged 3 in Scotland in 2013 had better vocabulary ability than those aged 3 in 2007/08. Whilst there is still a large gap between the most and least advantaged children there is some suggestion that this has narrowed slightly. Most parents engage frequently in home learning activities with their children at 10 months and age 3, and the proportion of parents doing this when their child is aged 10 months has also increased over time.

These activities continue to be positively associated with better vocabulary development at age 3 for all children. This implies that if more parents can be encouraged to engage

frequently in home learning activities with their child or children, this may lead to an improvement in language outcomes for children and a narrowing of inequalities between children with different social backgrounds. Furthermore, other research evidence suggests that improving children's early outcomes will impact positively on their outcomes in later life.

It is with these sorts of intentions that initiatives such as Bookbug and PlayTalkRead were developed and the evidence in this report suggests that use of each initiative was associated with a higher frequency of parent-child activities. However, the coverage or use of the initial Bookbug packs and the PlayTalkRead website amongst eligible families could be higher – particularly for the PlayTalkRead website. Our data suggests that the PlayTalkRead website favours better educated and better resourced parents. This is partly an issue of access and availability – ensuring all parents have equal opportunity to receive and use the resource - and partly about improving knowledge and awareness of the benefits – that is, ensuring the resources are acknowledged as being worth using and for the benefits they will bring. In this context it is worth highlighting, once more, that the PlayTalkRead website was only one part of a much wider campaign delivered through a combination of TV, outdoor, online advertising, social media, PR, partnerships and PlayTalkRead buses. It is possible that if wider engagement with the campaign was measured in GUS (i.e. whether parents had seen the TV adverts, visited a PlayTalkRead bus), rather than just visiting the website, then the coverage seen amongst parents may have been higher.

Social bias is still evident in the extent to which parents engage in home learning activities with their children. It is parents in the most disadvantaged groups who are least likely to do so. These parents were also less likely to report using the Bookbug materials and the PlayTalkRead website. If the expectation is that these initiatives will help increase parent-child reading and other activities amongst the groups less likely to be doing so then it appears that a different approach should be considered for parents in more disadvantaged circumstances. The targeted Bookbug and PlayTalkRead approaches which have been launched since GUS data was collected are aimed at achieving this. Going forward, it will be important to monitor the penetration of these amongst the target groups. Even when delivered in deprived areas, there is a risk that it will be relatively advantaged families who will tend to use them, because of a greater recognition amongst these parents of the benefits of such activities. More effective communication of these benefits to all parents may improve uptake and may lead to increased home learning activities for disadvantaged children and the benefits to early vocabulary development that this will bring. Given their close involvement in the lives of many children[38], it would also seem beneficial to ensure that grandparents are equally aware of the important benefits of these activities to their grandchildren.

If we return to the evidence base underpinning early book related activities discussed in the introduction to this report it is unsurprising that we do not see the sort of effects commonly seen in dialogic book reading interventions. The amount of intervention is much more tightly controlled and is specifically targeted at showing parents and especially those that are not already engaged in such activities how to get the best from book reading. Again it is not surprising given the focus of this approach that improved language skills are commonly identified as an outcome. The evidence for book gifting and the sort of generalised reading promotion that we see in Bookbug and PlayTalkRead is much more mixed because it is

[38] See Tackling Inequalities in the Early Years: Key Messages from 10 years of the Growing Up in Scotland Study (Scottish Government, 2015) for a summary of evidence on grandparental involvement from GUS.

less the book itself than being shown how to best make use of it that is the issue. A parent driven process assumes that the parents, and especially parents who do not read to their children (10% of our population at 36 months) and may have experienced reading difficulties themselves, know what they should be doing or know where to find this information. If they do not have this information and do not know how to access it then the problem is likely to persist. Furthermore, whilst GUS data is extremely useful in providing some insight into differences in how the initial Bookbug packs and PlayTalkRead website have been used by parents, there are limits to how robustly existing data can be used to evaluate the reach and impact of national interventions such as these.

In summary, there is modest evidence of improvement in parental involvement and child outcomes over this period but it would be difficult to attribute these directly to the specific elements of the programmes explored in this report. The fact that the behaviour of parents and children who are the most disadvantaged has changed so little suggests that while universal initiatives like the Bookbug pack and the PlayTalkRead website may be helpful for engaging some parents, targeted and perhaps more creative approaches may be needed to reach the most vulnerable. We recognise that more targeted Bookbug and PlayTalkRead approaches have been launched since the GUS data was collected and that these are aimed at facilitating greater engagement from parents in more disadvantaged circumstances. For example, 'Bookbug for the Home' is targeted and delivered by professionals and volunteers who are already working with vulnerable families, and the roadshow element of PlayTalkRead, has a particular focus on areas of multiple deprivation. As noted above, it will be important to monitor the penetration of these amongst the target groups.

The analysis presented here explored parents' use of the Bookbug pack and the PlayTalkRead website among only a single cohort of parents who were exposed to the initiatives shortly after they were introduced. It has not explored whether use and reach of the resources extended as the initiatives matured.It is essential that these (and other) interventions are monitored carefully over time with particular attention to the relatively small proportion who are not engaging in book reading and other early learning activities.

chapter 9

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chapter

10 APPENDICES

APPENDIX A Further details of explanatory and outcome variables

Social background variables

Parental level of education

At the first wave of data collection, each parent was asked to provide information on the nature and level of any school and post-school qualifications they had obtained. The information is updated at each subsequent contact. Qualifications are grouped according to their equivalent position on the Scottish Credit and Qualifications Framework which ranges from Access 1 to Doctorate. These are further banded to create the following categories: Degree-level academic or vocational qualifications, Higher Grades or equivalent vocational qualification (e.g. SVQ 3), Upper-level Standard Grades (grades 1 to 4) or equivalent vocational qualification (e.g. SVQ 1 or 2), Lower-level Standard grades (grades 5 to 7) or equivalent vocational qualifications (e.g. Access 1 or 2, National Certificates). The highest qualification is defined for each parent and a household level variable is calculated. In couple families this corresponds to the highest classification amongst the respondent and his/her partner.

Equivalised annual household income

The income that a household needs to attain a given standard of living will depend on its size and composition. For example, a couple with dependent children will need a higher income than a single person with no children to attain the same material living standards. “Equivalisation” means adjusting a household’s income for size and composition so that we can look at the incomes of all households on a comparable basis.

Area deprivation (SIMD)

Area deprivation is measured using the Scottish Index of Multiple Deprivation (SIMD) which identifies small area concentrations of multiple deprivation across Scotland. It is based on 37 indicators in the seven individual domains of Current Income, Employment, Health, Education Skills and Training, Geographic Access to Services (including public transport travel times for the first time), Housing and a new Crime Domain. SIMD is presented at data zone level, enabling small pockets of deprivation to be identified. The data zones, which have a median population size of 769, are ranked from most deprived (1) to least deprived (6,505) on the overall SIMD and on each of the individual domains. The result is a comprehensive picture of relative area deprivation across Scotland.

In this report, the data zones are grouped into quintiles. Quintiles are percentiles which divide a distribution into fifths, i.e., the 20th, 40th, 60th, and 80th percentiles. Those respondents whose postcode falls into the first quintile are said to live in one of the 20% least deprived areas in Scotland. Those whose postcode falls into the fifth quintile are said to live in one of the 20% most deprived areas in Scotland.

Other variables

Household variables

GUS data also contains information about the composition of respondents' household. This includes information about all adults and children who reside at the respondent's address at the time of interview, and information about how household members are related to each other – for example, whether children in the household are biological siblings. The following household variables were used in the analysis undertaken for this report:

- **Whether child was first born**: States whether the cohort child has any older siblings – 'Yes' (cohort was first born); 'No' (cohort child has older sibling(s)).
- **Number of children in household**: States the number of children living in the household at the time of interview, including the cohort child. For the purposes of this report, the number of children in the household was grouped into three categories: 'Four or more children'; 'Two or three children'; and 'One child' (i.e. the cohort child is an only child).
- **Family type**: States whether the cohort child lives in a one-or two-parent household. Note that this variable makes no distinction between biological and non-biological parents/carers.

Languages spoken in household

At the first sweep of data collection, GUS respondents were asked whether English was the language usually spoken in the household and whether other languages were spoken – whether 'English only', 'English and other language(s)', or 'Other language(s) only'. At subsequent sweeps of data collection this information was updated in cases where a new partner had moved into the household.

Employment status

Details on respondents' and their partners' employment were collected at the first sweep of data collection and checked and updated at each subsequent sweep. In this report, variables have been derived which denote an individual's employment status as either 'Working full-time' (defined as 35 hours per week or more); 'Wokring part-time' (defined as less than 35 hours per week), or 'Not working'.

Note that 'Partner's employment status' includes only cases where a partner is resident in the household at the time of the interview. Note also that respondents who were on maternity leave at the time of the 10 month interview have been classified as 'Not working'.

APPENDIX B Comparison of selected socio-economic and other characteristics between the cohorts

Parental level of education, by cohort

	BC1	BC2
	%	%
No qualifications	6	5
Lower Standard Grades or VQs or Other	6	6
Upper level SGs or Intermediate VQs	21	17
Higher grades and upper level VQs	32	30
Degree level academic and vocational qualifications	34	42
Unweighted bases	*3926*	*4325*

Differences by cohort (on degree level): $p < .001$

Household equivalised income (quintiles), by cohort

	BC1	BC2
	%	%
Bottom Quintile (Lowest income group)	24	27
2nd Quintile	21	19
3rd Quintile	19	18
4th Quintile	20	16
Top Quintile (Highest income group)	16	20
Unweighted bases	*4186*	*4841*

Differences by cohort (on top quintile): $p < .001$

Age of child at interview (months), by cohort

	BC1	BC2
	%	%
33.00	1	.04
34.00	82	36
35.00	17	58
36.00	.2	3
37.00 or older	-	3
Unweighted bases	*3906*	*5019*

Mean age of child at interview (months), by cohort

	BC1	BC2
Mean age	34.6	34.7
Unweighted bases	*4193*	*5019*

$p < .001$

Cohort child's birth order amongst children in household, by cohort

	BC1	BC2
	%	%
1st	50	48
2nd	32	35
3rd	13	12
4th	3	3
5th or higher	1	1
Unweighted bases	*4193*	*5019*

On category '1st': p = NS

Child's sex, by cohort

	BC1	BC2
	%	%
Male	52	51
Female	48	49
Unweighted bases	*4193*	*5019*

p = NS

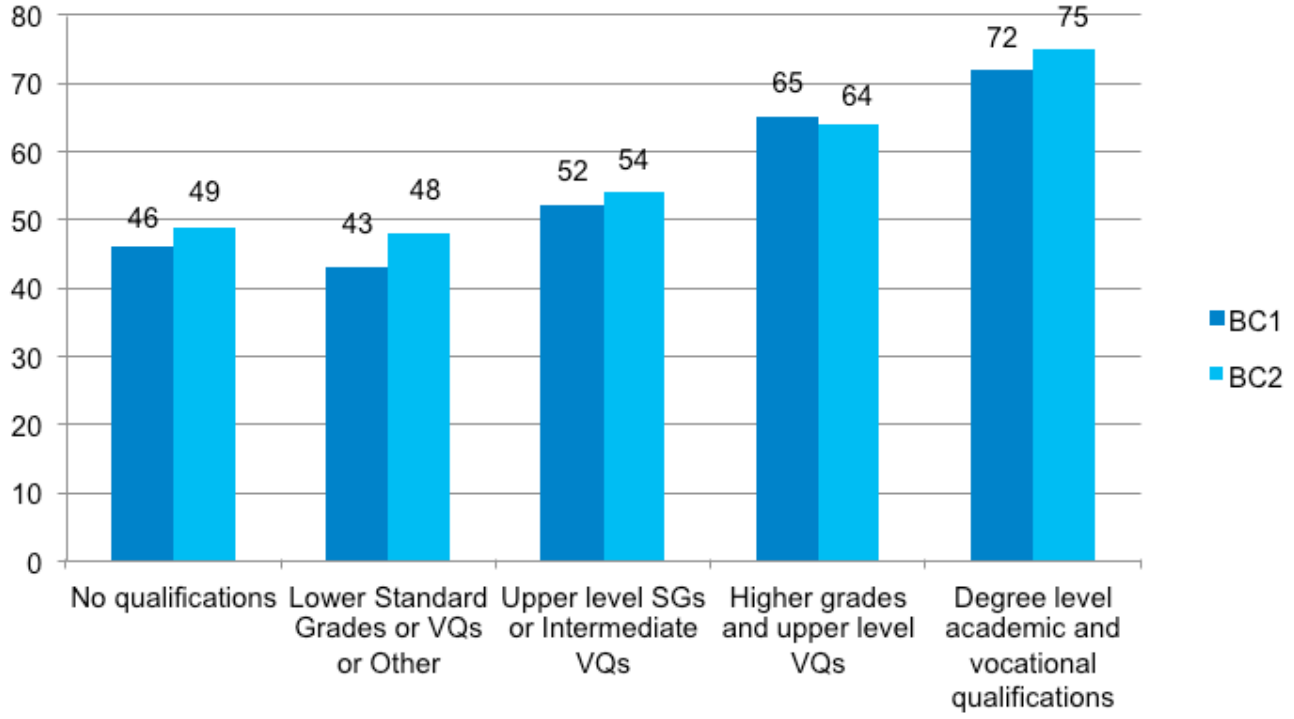
Whether English is language usually spoken at home, by cohort

	BC1	BC2
	%	%
Yes - English only	94	91
Yes - English & other language	5	7
No - other language(s) only	1	2
Unweighted bases	*4192*	*5014*

On category 'English only': $p < .01$

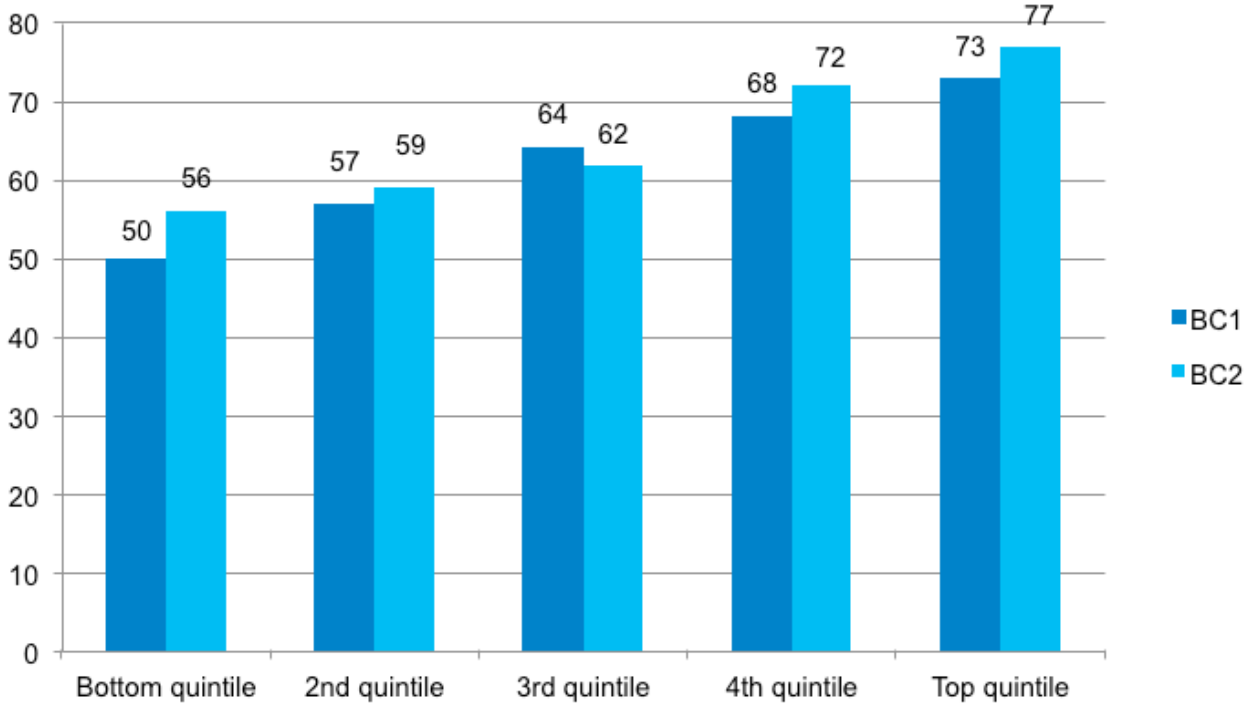
APPENDIX C ADDITIONAL CHARTS

Figure A.1 % of children doing both activities most days at 10 months, by parental level of education



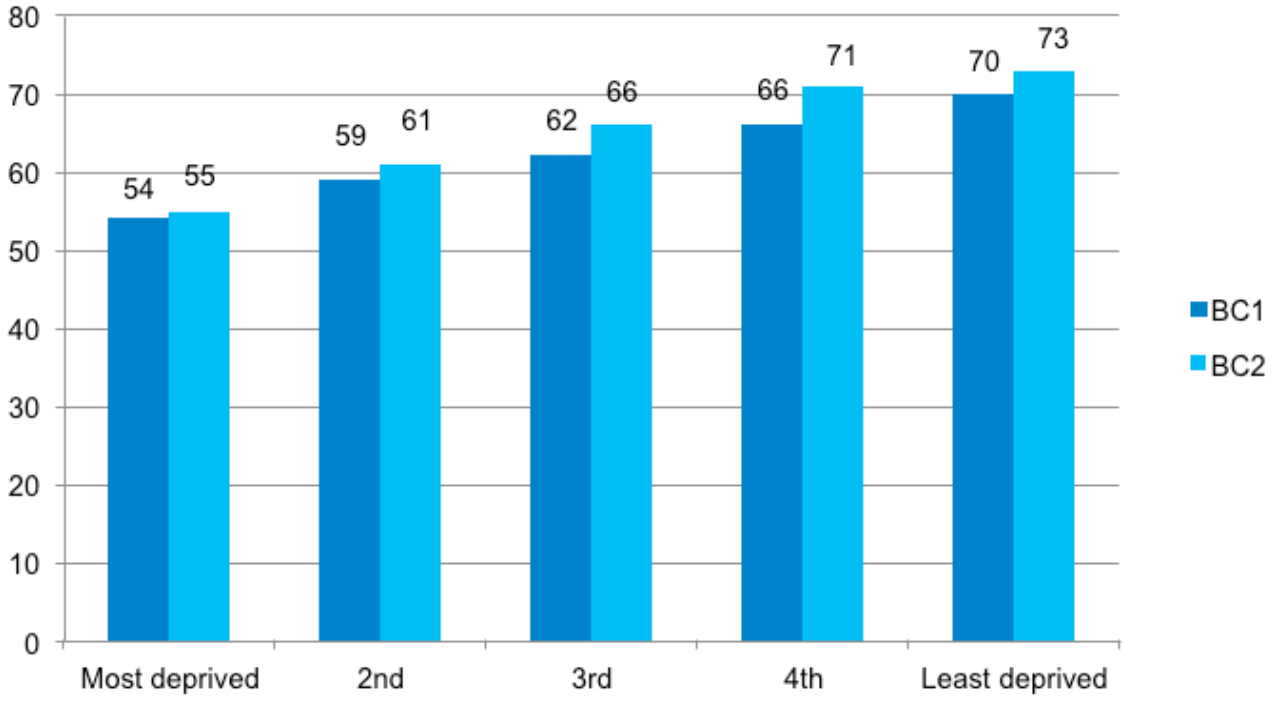
Unweighted bases: BC1: n=5215, BC2: n=6126.

Figure A.2 % of children doing both activities most days at 10 months, by equivalised household income



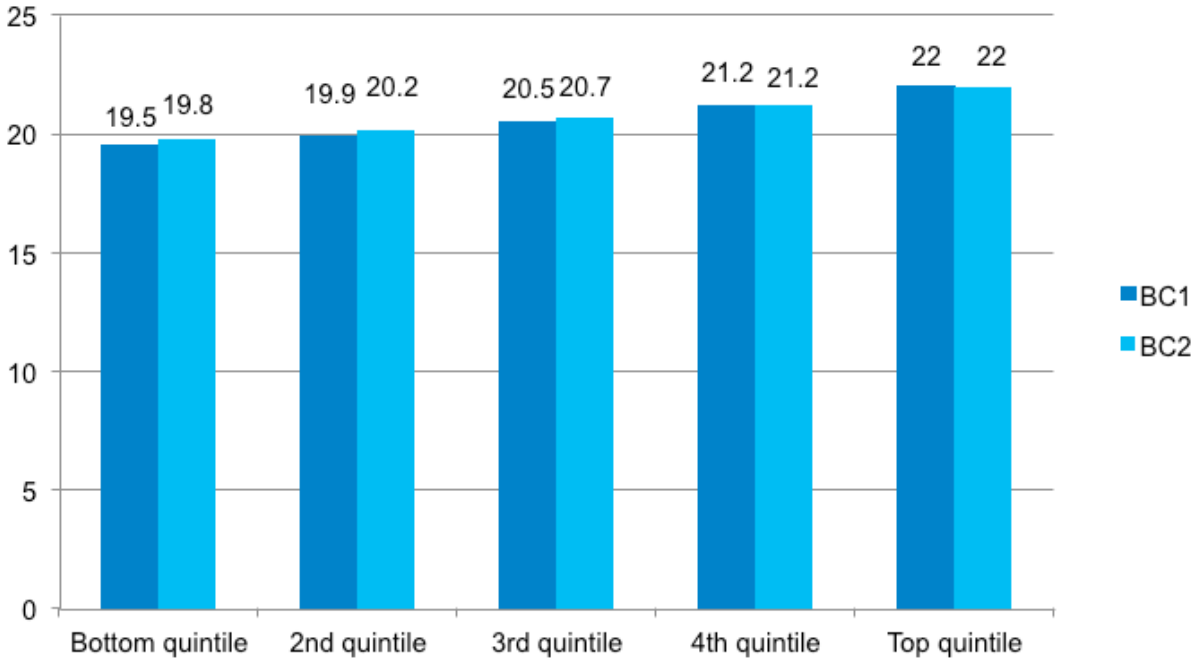
Unweighted bases: BC1: n=5215, BC2: n=6126.

Figure A.3 % of children doing both activities most days at 10 months, by level of area deprivation (SIMD)



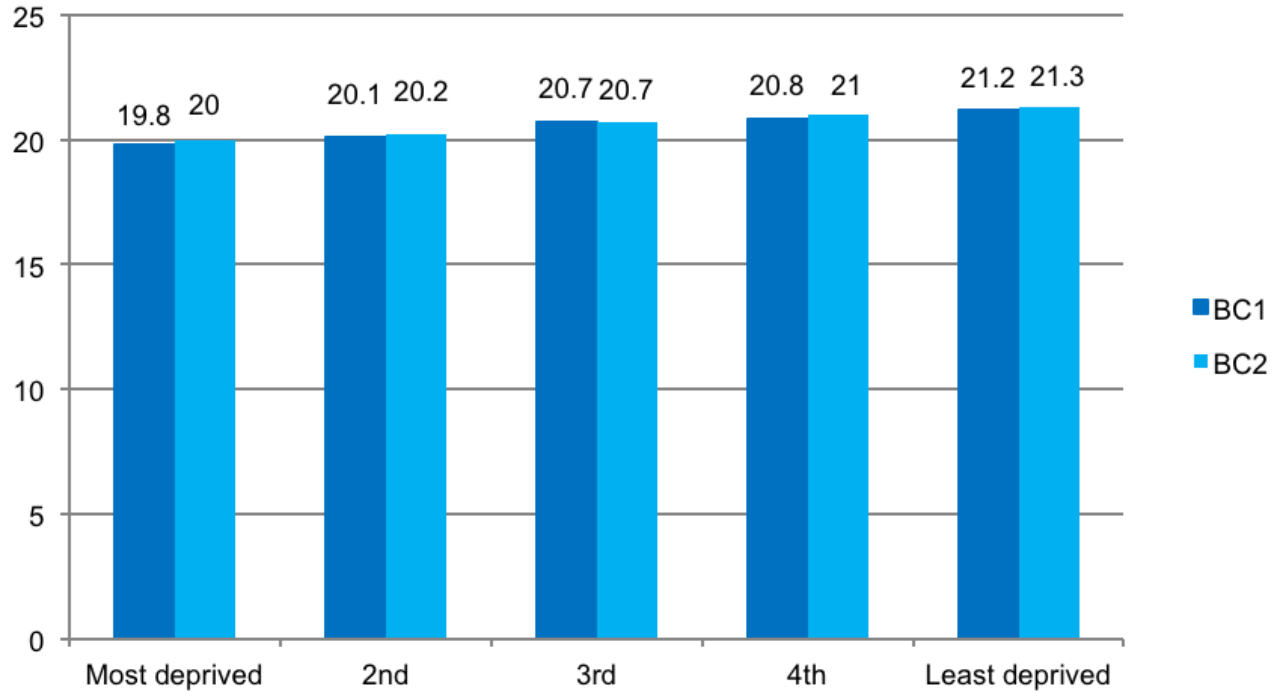
Unweighted bases: BC1: n=5215, BC2: n=6126.

Figure A.4 Doing frequent activities at age 3, by equivalised household income (mean score)



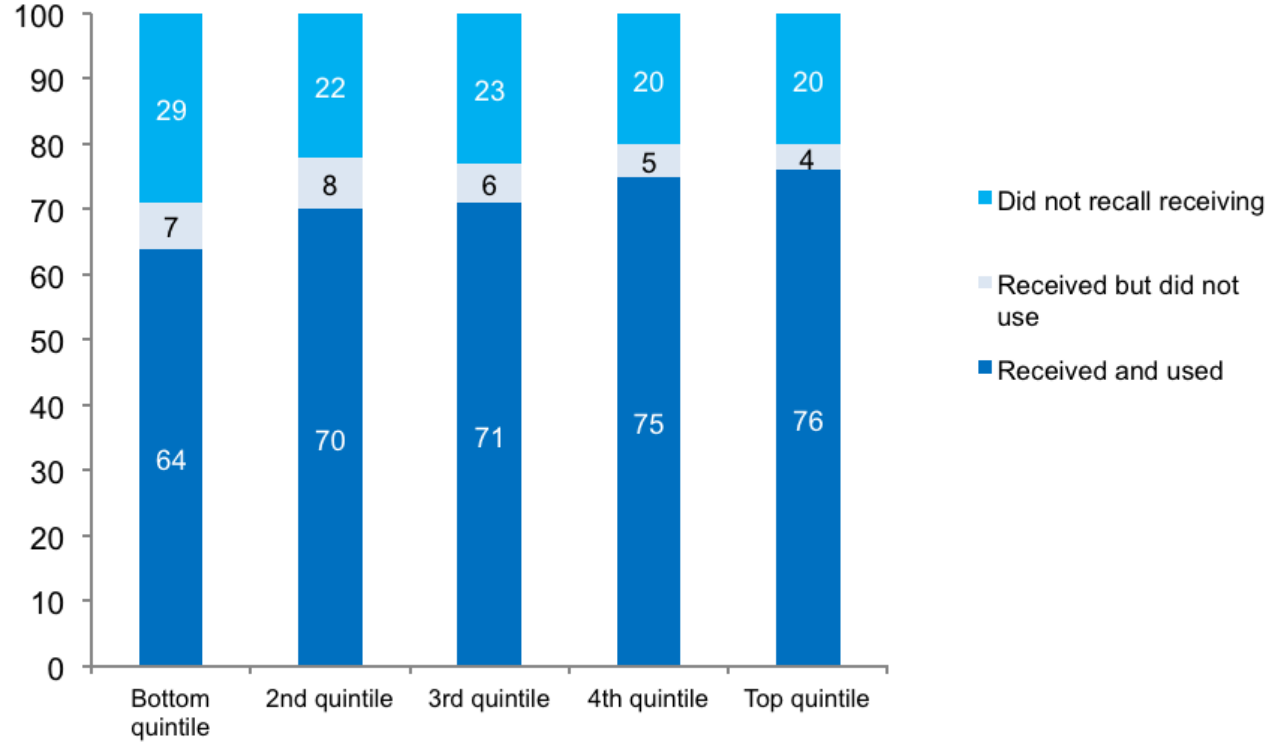
Unweighted bases: BC1: n=4182, BC2: n=4989.

Figure A.5 Doing frequent activities at age 3, by level of area deprivation (SIMD) (mean score)



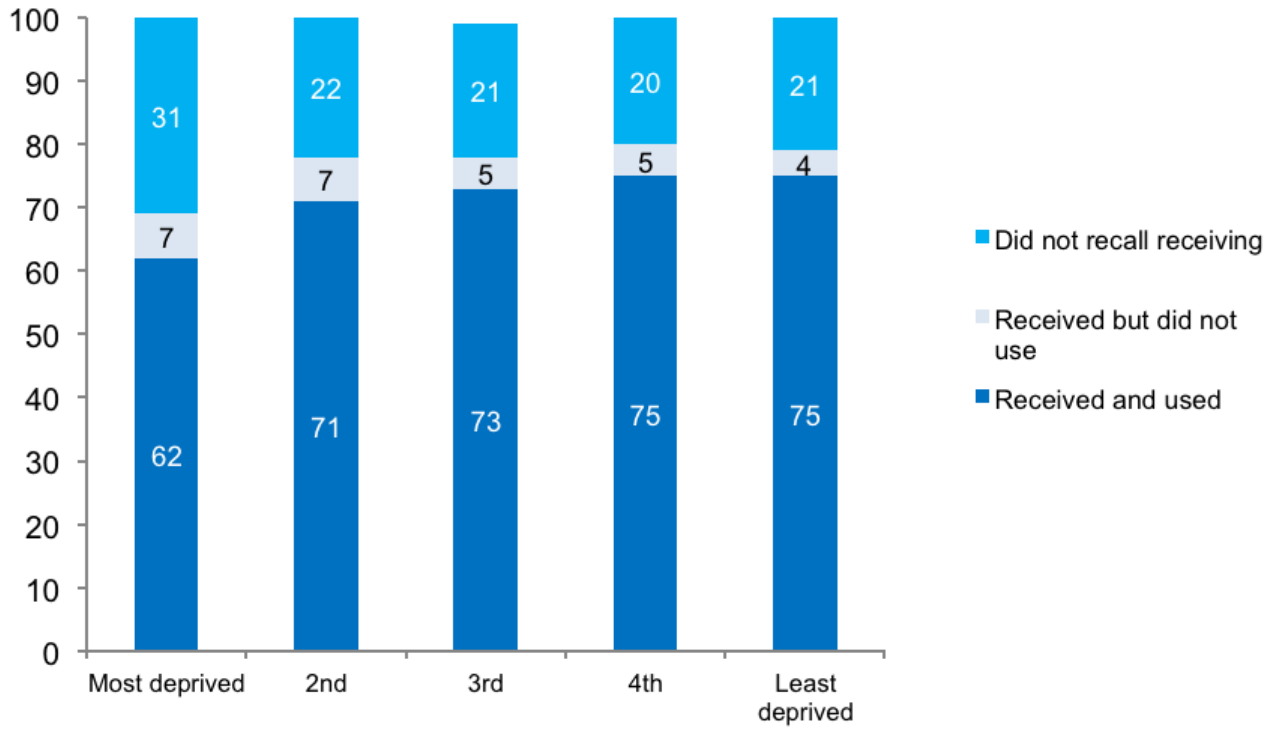
Unweighted bases: BC1: n=4182, BC2: n=4989.

Figure A.6 Receipt and use of Bookbug, by equivalised household income (%)



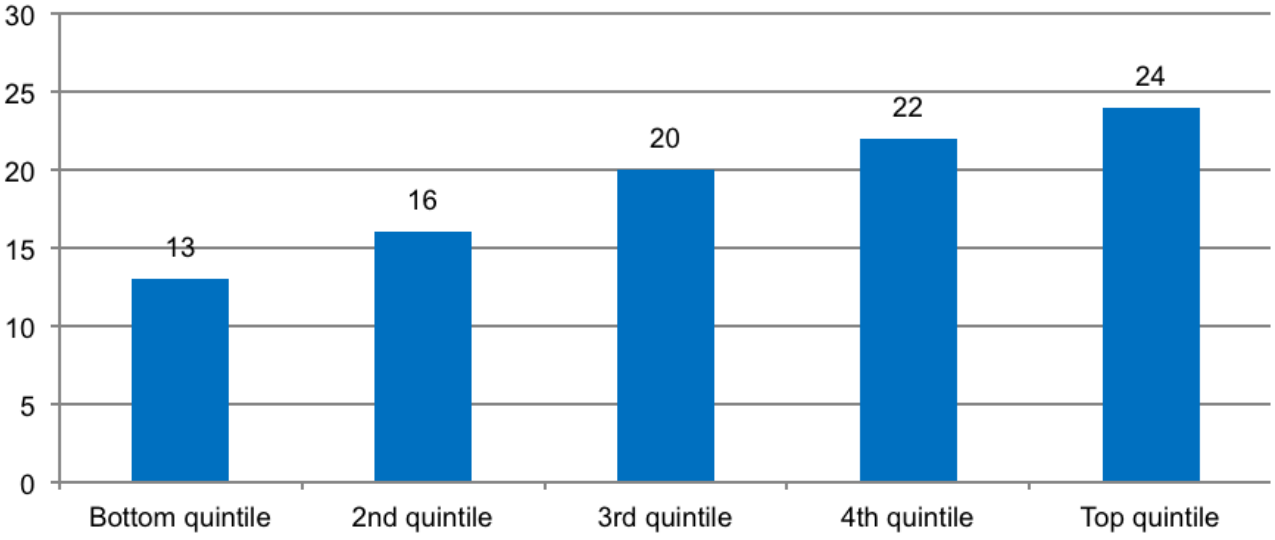
Unweighted base: BC2: n=6103.

Figure A.7 Receipt and use of Bookbug, by level of area deprivation (SIMD) (%)



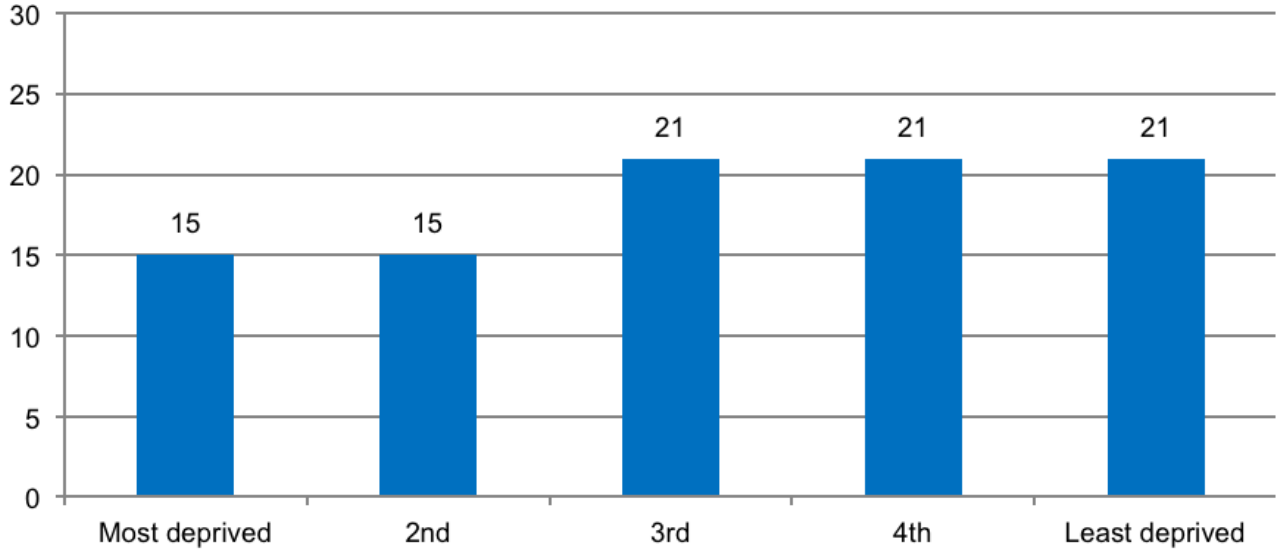
Unweighted base: BC2: n=6103.

Figure A.8 % of parents who accessed the PlayTalkRead website, by equivalised household income



Unweighted base: BC2: n=5013.

Figure A.9 % of parents who accessed the PlayTalkRead website, by level of area deprivation (SIMD)



Unweighted base: BC2: n=5013.

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ISBN: 978-1-78652-296-2 (web only)

Produced for The Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA
PPDAS72721 (06/16)

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