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Parents' perspectives: Children's use of technology in the Early Years

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National Literacy Trust

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Foreword

Technology is playing an increasingly large role in children's reading, writing and daily lives. In the last year use of tablet computers by five to 15-year-olds has increased three-fold (14% to 42%) and 28% of three to four-year-olds use a tablet computer[1]. However, little attention has been paid to the impact of new technologies on children's literacy practices. This is despite the fact that technology has become available that is more age-appropriate for children in the early years – particularly with the introduction of touch-screen devices.

In response to the lack of research evidence, the National Literacy Trust and Pearson developed the Early Years Literacy Survey. This survey explores how often parents and practitioners use books and touch-screen technology, attitudes to using books and technology with children, and how activities at home affect children's communication and language skills. The survey is planned to run on an annual basis to track changes over time in the use of touch screens and parents' attitudes towards their use.

[1] Ofcom (2013). Children and parents: Media use and attitudes report.

Executive summary

This report explores the activities parents engage in at home that support children's language and literacy development, and how these activities relate to communication and language outcomes at five years old. It also investigates how often parents use books and touch-screen devices (e.g. tablet computers or Smartphones) to engage in a variety of activities with their child at home, as well as parents' attitudes towards books and technology.

We also sought to establish the views and practices of practitioners who work with children aged three to five. These are included in a separate report which is available at http://www.literacytrust.org.uk/research/nlt_research/5958.

The findings in this report are based on data from our first annual Early Years Literacy Survey designed in partnership with Pearson. We commissioned YouGov to conduct an online survey of parents (N = 1,028) of children aged three to five in spring 2013.

Access to books and touch screens

Nearly all children (99.7%) have access to books in the home and three-quarters of children (72.9%) have access to a touch-screen device at home.

Looking at or reading stories

This research shows that a quarter (26.0%) of all children use a touch screen at home to look at or read stories in a typical week and nearly all children look at print-based stories in a typical week (95.2%). The more children look at or read print-based stories at home, the better their communication and language outcomes at age five.

Wider activities at home

Children are also likely to use a touch screen (e.g. apps, programmes or websites) when playing educational games (41.8%), painting or drawing (33.2%) or singing songs (23.7%) in a typical week. Parents engage in a variety of other activities to support their children – for example, parents visit the library once a month, go on outings four times a week and have an average of 89 children's books at home. Having a greater number of children's books in the home was associated with better communication and language outcomes at age five.

What parents do at home and how it impacts on their child

The more a parent enjoys reading, the more they think their child enjoys reading. Children's enjoyment of looking at or reading stories was associated with educational outcomes – the more children enjoy looking at or reading stories, the better their communication and language outcomes.

Nearly half of parents say they read print daily in a typical week (46.8%) and 45.2% of parents read on a touch screen daily in a typical a week. The more often parents read either print or using a touch screen, the more likely children are to look at or read print-based stories. The majority of parents think they are very good readers (75.6%) and the more skilled parents say they are at reading, the better their children's communication and language outcomes at age five.

Parents' attitudes towards print and technology

The majority of parents strongly agree or agree that it is important for their child to learn to use technology from an early age to get on at school (73.7%).

Socioeconomic status

This research identifies a different profile of activities, attitudes and impact on educational outcomes for children of different socioeconomic status. For example, children of lower socioeconomic status are less likely to have access to touch screens at home than their better-off peers (AB: 77.5%, C1: 72.9%, C2: 70.8%, DE: 63.3%). Yet, of those with access to a touch screen, children of lower socioeconomic status are twice as likely to look at or read stories on a touch screen daily (AB: 4.7%, C1: 2.5%, C2: 9.3%, DE: 6.7%).

The research has begun to show that there are benefits to looking at or sharing stories using both print and a touch screen compared with looking at stories in print alone, particularly for children of lower socioeconomic status. For all groups, looking at stories in print and on a touch screen was found to be associated with greater enjoyment, irrespective of socioeconomic status.

Nevertheless, children of lower socioeconomic status are more likely to be at risk of disadvantaged communication and language skills. For example, parents of lower socioeconomic status tend to say they have fewer books in the home and are less likely to say that they are very good readers, both of which we have shown to be associated with children's communication and language outcomes.

What this tells us

This research shows that technology is playing a large role in the lives of under-fives: three-quarters of three to five-year-olds have access to touch-screen technology at home.

Technology offers a route into reading for disadvantaged three to five-year-old children. Of children who have a touch screen at home, children of lower socioeconomic status are twice as likely to look at stories daily (16.0% vs. 7.2%). We also found that poorer children who use both books and touch screens to look at stories are less likely to perform below the expected standard for their age than if they only look at books. Not only does technology offer a route into reading for disadvantaged children, we also found that children are more likely to enjoy reading more if they look at stories using both books and a touch screen, compared with using books only (77.4% vs. 70.8%).

We found parents have positive attitudes to technology. Three-quarters of parents and practitioners say that using technology is important for children to get on at school. We found that parental engagement in a child's reading, whatever the medium, has a strong impact on literacy development. Not only does sharing stories with their parent increase children's love of reading, but also, the more parents look at or read books with their child, the stronger their child's literacy skills become.

Introduction

This report explores the activities that parents and children engage in at home that support language and literacy development, the impact of technology in supporting children's development and how this relates to children's communication and language outcomes at age five. To explore the role of technology, parents were asked how often their children engage in print-based activities, for example when using books and games, and how often they engage in the same activities using a touch screen such as a tablet computer or Smartphone.

We focus on children aged three to five years old as this covers the age that children move from being supported at home by parents to being supported within more formal early years education.

Evidence for the importance of children doing activities to support learning and development has come from several longitudinal research studies such as the Effective Provision of Pre-School (EPPE), Millennium Cohort Study (MCS) and Growing up in Scotland (GUS) research. These studies have shown that the more frequently parents look at or read stories with their child, teach letters, numbers, songs, poems or rhymes, visit the library and paint or draw, the better children's overall cognitive development at ages three to four[2][3][4]. Children's communication environment, language development and social background at age two are also associated with their later school readiness[5]. To be literate today, young children need to be capable of using different types of media (Flewitt, 2012). However, little attention has been paid to the impact of new technologies on children's literacy practices, and there tends to be a focus on print-based mediums with guidance on how to develop core literacy skills (Flewitt, 2012). The early years foundation stage curriculum has a focus on print-based and solitary activities, with clear guidance on how to develop traditional literacy skills, such as familiarity with text and mark-making.

In 2012, the early years foundation stage profile was updated to reflect the importance of technology that is measured in a single learning goal. However, the measure is broad and explores whether children can recognise technology used at home or in school, as well as their ability to select and use technology for particular purposes[6]. In recent years, technology has become available that is more age appropriate for children in the early years, particularly with the introduction of touch-

[2] Overall cognitive development as measured by 4 standardised tests of the British Ability Subscales (BAS: Block building, verbal comprehension, picture similarities and naming vocabulary)

[3] Melhuish, E., Sylva, K., Sammons, P., Siraj-Blatchford, I., & Taggart, B. (2001). Social/behavioural and cognitive development at three to four years in relation to family background. A range of other activities engaged in by parents with their children were also explored, but were not associated with children's later cognitive development. This included: children playing with friends, visiting friends and relatives, shopping, watching the television, having a regular bedtime and eating meals with their family. Activities engaged in by parents and children were measured in a parent interview, when children were aged between three and four years old.

[4] Melhuish, E. (2010). Cognitive outcomes were measured using two subscales of the BAS: Naming vocabulary and picture similarities. Activities engaged in by parents and children were measured at ages two and three and related to outcomes at age three.

[5] Roulstone, S., Law, J., Rush, R., Clegg, J., & Peters, T. (2010). Investigating the role of language in children's early years educational outcomes. Department for Education.

[6] Early years foundation stage profile handbook (2013). National curriculum assessments. Standards and teaching agency.

screen devices. It has been proposed that the interactive nature of touch-screen technology provides learning opportunities in advance of more traditional technology such as television and video[7]. Thus, the current research focuses on the use of touch screens with children.

Most of the evidence for children's use of digital technologies has come from children aged five and over, young people and adults and it is therefore timely to explore the use of technology by children in the early years. More recent research has begun to look at the media habits of children in the early years. For example, a recent Ofcom survey of parents found 28% of three to four-year-olds use a tablet computer at home (Ofcom, 2013). Between 2012 and 2013, ownership of tablet computers has more than doubled from 20% to 51% and use of tablet computer has increased three-fold in children and young people aged five to fifteen between 2012 and 2013 (7% vs. 23%). These changes in the use of media by young children may have significant implications for children's literacy and the ways in which literacy abilities are considered.

With the introduction of digital technologies to the early years, there is scope for parents to adapt the activities we more often associate with print materials. To explore this issue, we examine how many children have access to touch-screen devices and books at home and how often children use them to look at stories. We were also interested in how often children sing songs, play educational games and paint or draw at home and whether children use a touch screen for these activities. As well as examining if children use a touch screen to engage in activities at home, we explored parents' attitudes to children's use of books and technology and parents' own reading habits.

We were interested in the answers to four key questions:

- Do children use a touch screen when looking at stories, singing songs, playing educational games and painting or drawing?
- Are the activities children engage in at home associated with their educational outcomes?
- Are there differences in engagement in activities at home and outcomes for children from different socioeconomic backgrounds?
- Does technology provide any additional benefit to children?

To examine these questions we commissioned YouGov to survey parents of children aged three to five. 1,028 parents participated in our first annual online Early Years Literacy Survey between May and June 2013.

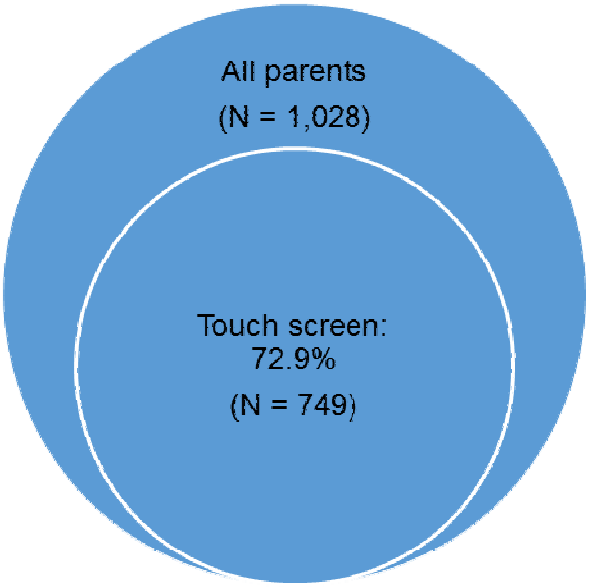
To explore the relationship between children's literacy practices at home and their educational outcomes, we explored a subsample of parents' survey responses and children's language and communication outcomes at age five for whom data was available (also see Appendix).

[7] Kirkorian, H.L. & Pempek, T.A. (2013). Toddlers and touch screens: Potential for Early Learning? Zero to Three Journal, 33, 4.

Children's access to print and technology at home

Nearly all children (99.7%) have access to books at home and three-quarters of parents say their child has access to a touch screen at home (72.9%; see Figure 1, also Table 18).

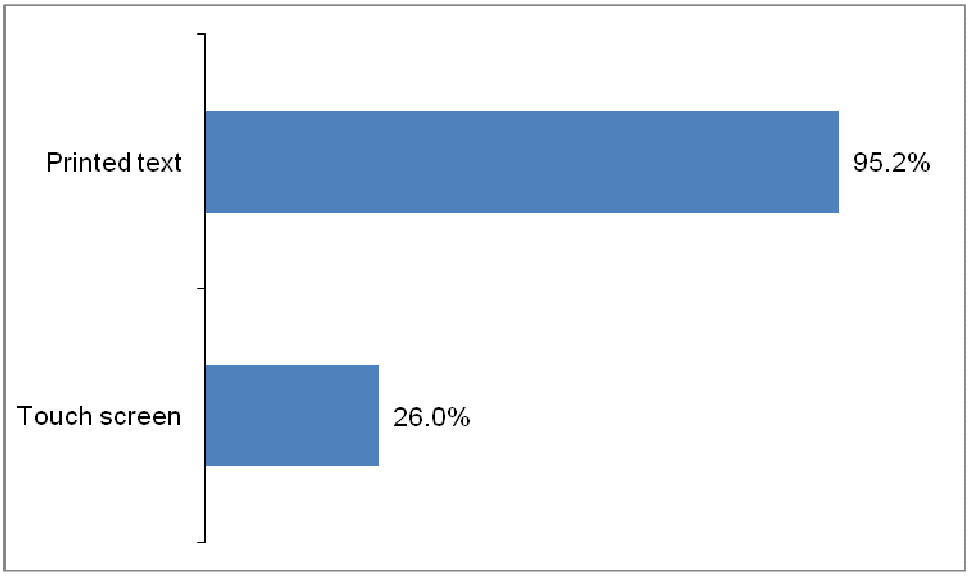
Figure 1: How many children have access to a touch screen?



Looking at stories at home in a typical week

To explore children's literacy practices at home, we asked parents if their child looks at or reads print-based stories at home at least once in a typical week and if their child uses a touch screen to look at stories at home. Figure 2 shows that over a quarter (26.0%) of children use a touch screen to look at stories and nearly all children look at print-based stories (95.2%) at least once in a typical week.

Figure 2: Looking at stories at home at least once in a typical week in print or on a touch screen



How often children look at or read stories in a typical week at home

Parents were also asked how often their child looks at or reads stories in a typical week. Over half of children look at print-based stories every day (52.4%), while 3 in 10 (29.6%) look at or read stories every few days and 13.3% read only once or twice in a typical week. Only 2.4% of parents do not read with their child at all in a typical week (see Table 1).

More parents say their child looks at or reads stories on a touch screen once or twice a week (14.8%) than every few days (8.7%) or daily (2.6%). However, the majority of parents say their child would not use a touch screen to look at stories in a typical week (72.0%) and 2.0% said they did not know if they use a touch screen to read in a typical week.

Table 1: How often children look at stories using printed text or a touch screen

	No access %	*Would not do at all* %	*Total don't do activity* %	*Once or twice a week* %	*A few times a week* %	*Daily* %	*Total do activity* %	*Don't know* %
Printed text	0.3%	2.1%	2.4%	13.3%	29.6%	52.3%	95.2%	2.4%
Touch screen	27.1%	44.9%	72.0%	14.8%	8.7%	2.6%	26.0%	2.0%

Up to this point, we have been examining the whole group (N = 1,028). However, as Figure 1 shows, not all children have access to a touch screen at home (27.1%). It is therefore important to also consider the literacy habits of children who have access to a touch screen (N = 749, see Table 1) if we are to realise the impact of tablet computers on children's literacy habits.

Of children who have access to a touch screen at home, Table 2 shows that half use a touch screen to look at stories at least once in a typical week (50.8%). As previously found, children are more likely to look at stories on a touch screen once or twice a week (28.9%) than they are to look at stories a few times a week (16.9%) or daily (5.0%).

Table 2: How often children who have access to a touch screen look at stories on a touch screen in a typical week

	Would not do at all %	*Total don't do activity* %	*Once or twice a week* %	*A few times a week* %	*Daily* %	*Total do activity* %	*Don't know* %
Look at stories on a touch screen	45.5%	45.5%	28.9%	16.9%	5.0%	50.8%	3.8%

Looking at stories and children's educational outcomes at age five

We explored the association between how often children look at stories and their communication and language outcomes at age five, using early years foundation stage profile data.

Table 3 shows that the more children look at print-based stories, the better their communication and language outcomes at age five. For example, children who read stories daily are not only less likely to have an emerging reading score, they are also more likely to have an exceeding reading score than children who look at stories less often. A similar profile of performance is found for the other four communication and language outcomes.

Table 3: Relationship between how often children look at print-based stories at home and children's communication and language outcomes

		Emerging %	*Expected %*	*Exceeding %*
Reading	**Would not do at all**	25.0%	75.0%	0.0%
	Once or twice a week	44.4%	55.6%	0.0%
	A few times a week	27.1%	59.4%	13.5%
	Daily	17.9%	61.3%	20.8%
Writing	**Would not do at all**	25.0%	75.0%	0.0%
	Once or twice a week	44.4%	55.6%	0.0%
	A few times a week	27.1%	59.4%	13.5%
	Daily	17.9%	61.3%	20.8%
Listening and attention	**Would not do at all**	25.0%	75.0%	0.0%
	Once or twice a week	38.9%	61.1%	0.0%
	A few times a week	16.1%	72.9%	10.9%
	Daily	14.5%	63.8%	21.7%
Understanding	**Would not do at all**	0.0%	100.0%	0.0%
	Once or twice a week	27.8%	72.2%	0.0%
	A few times a week	17.2%	65.1%	17.7%
	Daily	12.1%	64.2%	23.6%
Speaking	**Would not do at all**	50.0%	50.0%	0.0%
	Once or twice a week	38.9%	61.1%	0.0%
	A few times a week	24.0%	65.6%	10.4%
	Daily	13.6%	74.8%	11.6%

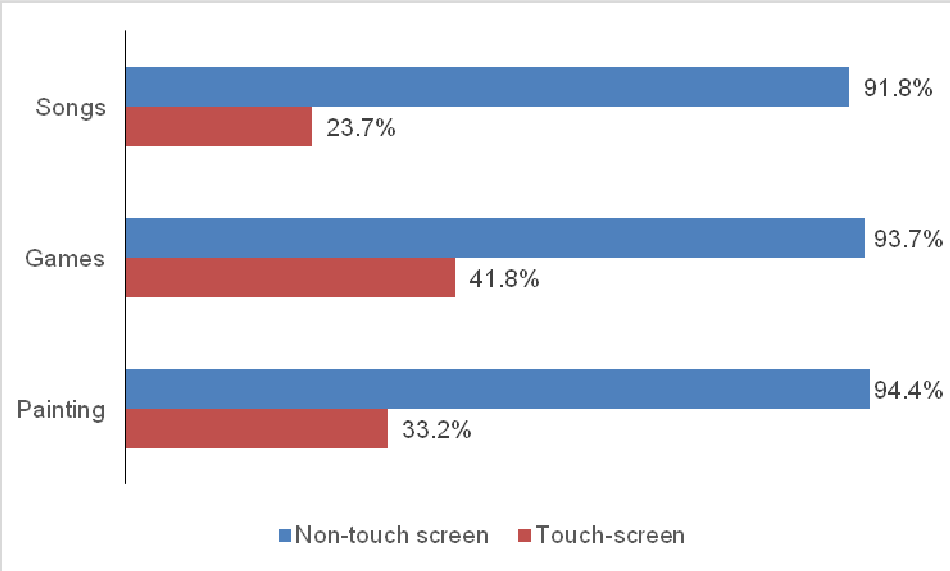
However there were no clear or consistent relationships between children looking at stories on a touch screen and their language and communication outcomes.

Other activities at home

In addition to looking at or sharing stories, we examined if children sing songs, play educational games or paint and draw at least once in a typical week – and if they use apps, programmes or websites on a touch screen for these activities (Figure 3).

Figure 3 shows that a considerable proportion of children use a touch screen for activities. Playing educational games (41.8%) is the most popular activity on a touch screen, followed by painting and drawing (33.2%), looking at stories (26.0%, see Figure 2) and singing songs (23.7%). While two-fifths of children play educational games on their touch screen, they are still twice as likely to play educational games not using technology at least once in a typical week. Similarly, they are also nearly four times as likely to sing songs and three times as likely to paint not using apps.

Figure 3: Do children sing songs, play educational games or paint and draw at home at least once in a typical week – and do they use a touch screen for these activities?



We examined if these activities were associated with better communication and language outcomes at age five. However, there were no associations between how often children engage in these activities, whether using a touch screen or not, and their attainment at age five.

Wider activities and resources at home

We also examined the wider activities and resources children have access to at home. These include visits to the library, outings and the number of books in the home, all of which have been previously related to children's future educational outcomes. In addition, we examined how often children watch the television, which has been shown to have a negative impact on children's school readiness at age five[8].

Library visits, outings and books in the home

On average, parents and children visit the library once in a typical month and go on outings[9] four times in a typical week (Table 25). Parents reported owning a large number of books; on average parents said they own over twice as many non-children's books as books for children but they also reported having twice as many borrowed children's books as non-children's books at home (see Table 4 and Table 24).

Table 4: Average number of books in the home

	Children's books		*Non-children's books*	
	Owned N	*Borrowed N*	*Owned N*	*Borrowed N*
Number of books	89	4	218	2

[8] Roulstone et al., (2010). Investigating the role of language in children's early educational outcomes. Department for Education.
[9] This includes outings to visit friends and family and outings to visit places of interest.

At age five the more children's books owned or borrowed by parents, the better a child's reading attainment (see Table 5). The relationship with reading attainment was slightly stronger for borrowed than for owned children's books (r = .34, r = .32). The more children's books owned the better children's speaking (r = .35), writing (r = .28) and understanding outcomes (r = .23).

Table 5: Number of books in the home and children's attainment

	Children's communication and language attainment				
	Reading	*Listening*	*Understanding*	*Speaking*	*Writing*
Owned children's books	**.32**	.16	**.23**	**.35**	**.28**
Borrowed children's books	**.34**	.17	.19	.20	**.22**
Owned non-children's books	**.33**	.16	.16	**.30**	**.22**
Borrowed non-children's books	.02	.02	.03	.12	.09

A higher value indicates a stronger relationship, 1.0 indicates a strong positive correlation and 0.0 indicates no significant correlation. Items in bold indicate statistically significant correlations.

Children whose parents own more non-children's books also have better communication and language outcomes across reading, speaking and writing (for example, reading: r = .33). However, borrowing more non-children's books was not associated significantly with children's communication and language abilities at age five (Table 5).

Television viewing

We explored how much television children watch at home and found that on average children watch television for an hour a day (54 minutes, Table 26). The television also tends to be on in families' homes for around five hours in a typical day (297 minutes). However we did not find any association between how long the television is on in the house and children's educational outcomes.

How parents' reading habits influence their children

In addition to the number of books in the home and visits to the library and other places, past research has shown that parents' reading habits are associated with children's reading[10]. Reading enjoyment is also key to children's own literacy practices, and children's reading enjoyment is more important than socioeconomic status in determining children's educational outcomes (Sullivan and Brown, 2013).

To explore these issues, parents were asked how often they read, if they prefer reading print or on screen and how much parents and their children enjoy reading. We also explored parents' ratings of their own reading skill as not only are poor literacy skills often intergenerational[11], they are also known to impact on both adults' and their children's life chances[12].

[10] Mol, S. & Bus, A. (2011). To read or not to read: A meta-analysis of print exposure from infancy to early adulthood. Psychological Bulletin, 137, 2.
[11] De Coulon, A., Meschi, E., & Vignoles, A. (2008). Parents' basic skills and their children's test scores. London: National Research and Development Centre for Adult Literacy and Numeracy.
[12] Parsons, S., & Bynner, J. (2007). Illuminating disadvantage: Profiling the experiences of adults with Entry level literacy or numeracy over the life course. London: National Research and Development Centre for Adult Literacy and Numeracy.

How often parents read at home

In this section, we explore how often parents read print at home in a typical week and how often they read using a touch screen. Nearly half of parents (46.8%) read printed text daily; of those who have a touch screen, 4 in 10 (40.9%) use it to read daily (Table 6). This shows that parents are more likely to read print or a touch screen daily than they are to read once or twice a week or every few days.

Table 6: How often parents read printed text or on a touch screen

	Would not do at all %	*Once or twice a week* %	*Every few days* %	*Daily* %	*Total who do activity* %	*Don't know* %
Printed text	7.1%	15.7%	26.8%	46.8%	89.3%	3.5%
Touch screen	19.6%	12.8%	18.8%	45.2%	76.8%	3.6%

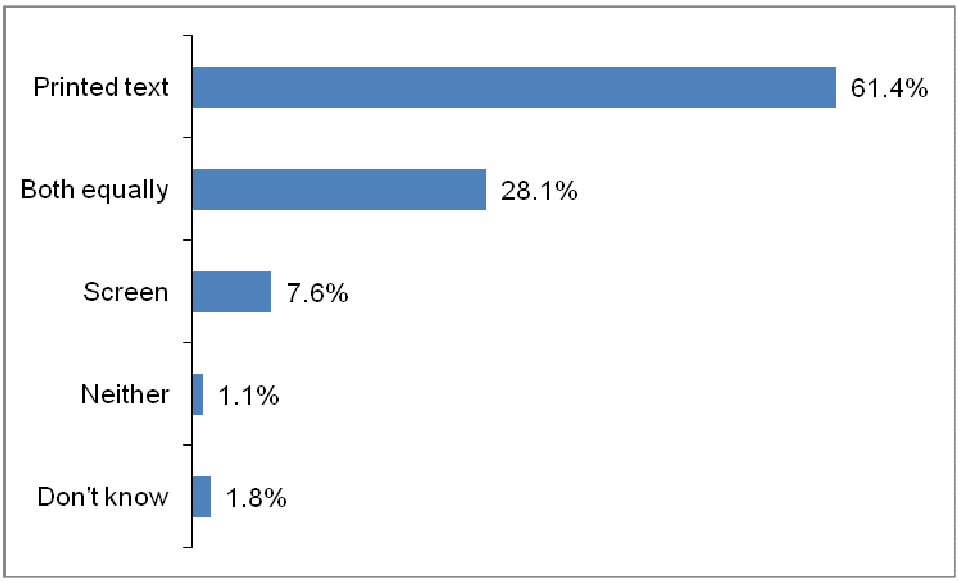
How often parents read and how often their child looks at stories at home

We explored whether the frequency of parents reading print or on a touch screen was associated with how often children look at or read stories using both types of media. This showed that the more often parents read print or on screen, the more their child looks at print-based stories (r = .36, r = .17). There were no associations between how often parents read and how often children look at or read stories on a touch screen (see Table 31).

Parents' reading preference

Parents were asked if they prefer reading books or printed text, or if they prefer reading a screen at home. Six in 10 parents say they prefer reading print (61.4%) and over a quarter of parents say they enjoy reading print and on screen equally (28.1%). Fewer than 1 in 10 parents (7.6%) say they prefer reading on a touch screen at home (see Figure 4).

Figure 4: Parents' reading preferences



Enjoyment of looking at or reading stories

Parents were asked how much they enjoy reading and how much they think their child enjoys looking at or reading stories (Figure 5).

Figure 5: Parent and child enjoyment of looking at or reading stories

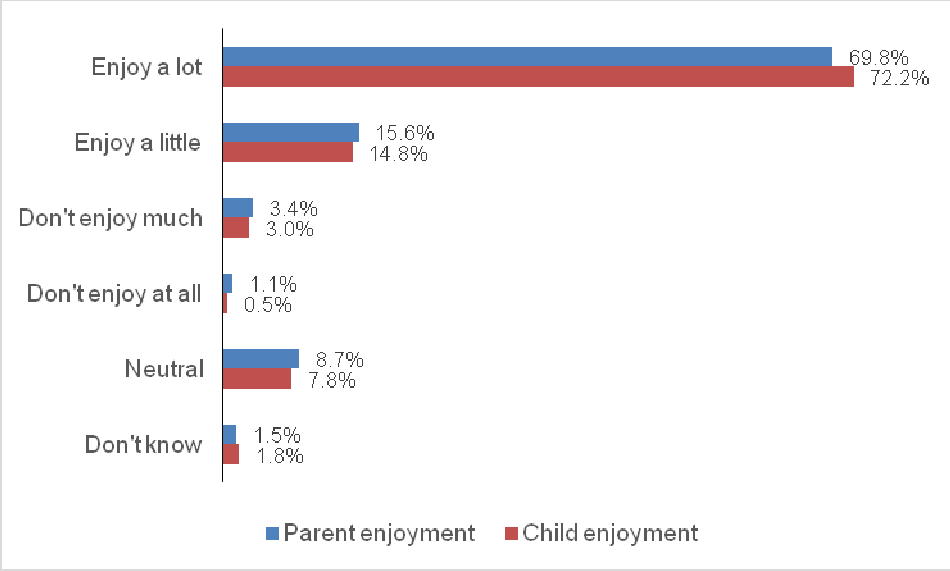


Figure 5 shows that the majority of parents say they enjoy reading a lot (69.8%) and nearly three-quarters of parents say that their child enjoys reading a lot (72.2%). Very few parents say that they or their child do not enjoy reading at all (1.1%, 0.5%).

We also explored the relationship between parents' and children's enjoyment of looking at or reading stories. This showed that the more parents enjoy reading, the more likely they are to say that their child enjoys reading (r = .34, see Table 31).

Relationship between enjoyment and children's outcomes

We explored the association between parents' and children's enjoyment of looking at or reading stories with children's communication and language outcomes at age five (Table 7).

Children's enjoyment of looking at stories is associated with their writing, reading, speaking and listening outcomes at age five. There were no such associations between parents' enjoyment of reading and children's educational outcomes.

Table 7: Association between enjoyment of reading and children's educational outcomes at age five

	Children's educational outcomes				
	Reading	***Listening***	***Understanding***	***Speaking***	***Writing***
Parents' enjoyment	.08	-.11	-.05	.08	.008
Children's enjoyment	**.38**	**.26**	.21	**.30**	**.39**

A higher value indicates a stronger relationship, 1.0 indicates a strong positive correlation and 0.0 indicates no significant correlation. Items in bold indicate statistically significant correlations.

Indeed, Table 8 shows a consistent association between how much parents say children enjoy looking at or reading stories and their educational outcomes – children who enjoy looking at or reading stories a lot are more likely to have above average educational outcomes and less likely to have below average communication and language outcomes.

Table 8: Relationship between children's enjoyment of reading and educational outcomes

	Child's enjoyment	*Emerging %*	*Expected %*	*Exceeding %*
Reading	**A lot**	17.1%	61.0%	22.0%
	A little	44.4%	55.6%	0.0%
	Not much	100.0%	0.0%	0.0%
	Not at all	0.0%	0.0%	0.0%
	Neutral	33.3%	66.7%	0.0%
	Don't know	0.0%	0.0%	0.0%
Writing	**A lot**	34.1%	51.2%	14.6%
	A little	66.7%	33.3%	0.0%
	Not much	100.0%	0.0%	0.0%
	Not at all	0.0%	0.0%	0.0%
	Neutral	33.3%	66.7%	0.0%
	Don't know	0.0%	0.0%	0.0%
Listening and attention	**A lot**	14.6%	70.7%	14.6%
	A little	33.3%	55.6%	11.1%
	Not much	100.0%	0.0%	0.0%
	Not at all	0.0%	0.0%	0.0%
	Neutral	0.0%	100.0%	0.0%
	Don't know	0.0%	0.0%	0.0%
Understanding	**A lot**	17.1%	61.0%	22.0%
	A little	22.2%	66.7%	11.1%
	Not much	50.0%	50.0%	0.0%
	Not at all	0.0%	0.0%	0.0%
	Neutral	0.0%	100.0%	0.0%
	Don't know	0.0%	0.0%	0.0%
Speaking	**A lot**	17.1%	70.7%	12.2%
	A little	44.4%	55.6%	0.0%
	Not much	50.0%	50.0%	0.0%
	Not at all	0.0%	0.0%	0.0%
	Neutral	33.3%	66.7%	0.0%
	Don't know	0.0%	0.0%	0.0%

Parents' reading skills

As explained previously, parents' reading skills have been associated with children's reading abilities. To explore parents' self-reported reading skills, parents were asked whether they think their reading skills are good or poor.

Figure 6: Parents' self-reported reading skills

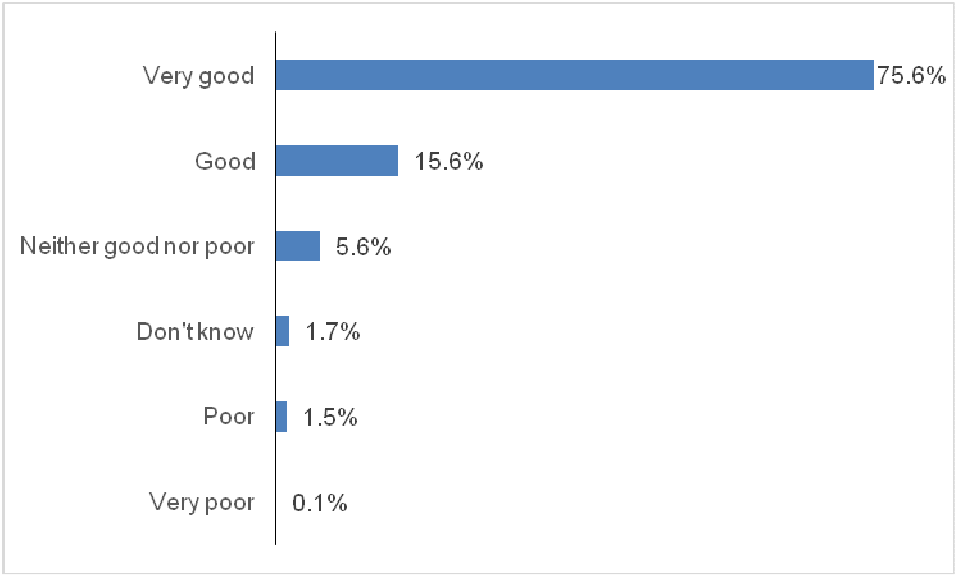


Figure 6 shows that three-quarters of parents say that their reading skill is very good (75.6%) and that nearly one parent in six says their reading skill is good (15.6%). Very few parents say they have poor (1.5%) or very poor reading skills (0.1%). The association between parents' self-reported reading skills and children's educational outcomes at age five is examined in Table 9.

Table 9: Correlation between parents' reading skills and children's educational outcomes

	Children's attainment				
	Reading	***Listening***	***Understanding***	***Speaking***	***Writing***
Parents' reading skills	.09	**.25**	.10	**.27**	.07

A higher value indicates a stronger relationship, 1.0 indicates a strong positive correlation and 0.0 indicates no significant correlation. Items in bold indicate statistically significant correlations.

We also found that the more highly parents rate their own reading skills, the better their children's speaking and listening outcomes at age five (.27, .25, Table 9).

Barriers

Our survey showed that although half of parents say their children look at stories daily (52.4%), 42.9% say their children look at stories less often in a typical week and nearly 4.8% of parents say their children do not engage in these activities at all (2.4% would not look at stories, 2.4% of parents don't know how often their child looks at stories, see Table 12).

We therefore explored the types of things that parents say stop them participating in activities with their child at home (Figure 7). Parents report a range of factors, the most prevalent being not having enough time to spend with their child.

Figure 7: Barriers

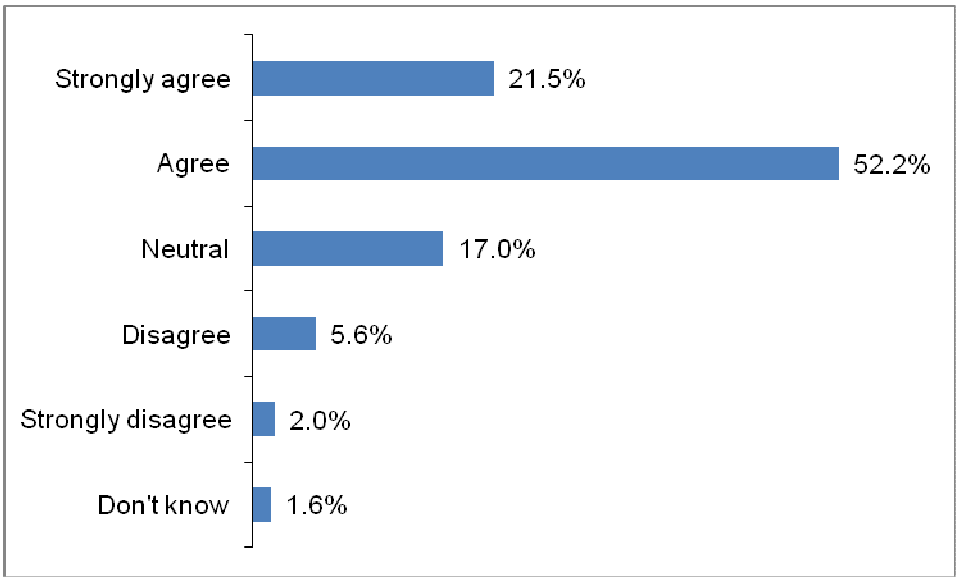
Parents' attitudes to books and technology

Parents' attitudes to the value of books and technology for their children's learning and development are explored in this section. We asked parents how much they agree or disagree with the following two statements:

- To help them get on at school, it is important children learn how to use computers and other technology from an early age.
- Traditional objects such as books, toys and alphabet blocks are more educational than computer-based games with sounds and letters.

Most parents either strongly agree (21.5%) or agree (52.5%) with the statement that it is important for children to learn to use technology from an early age (Figure 8).

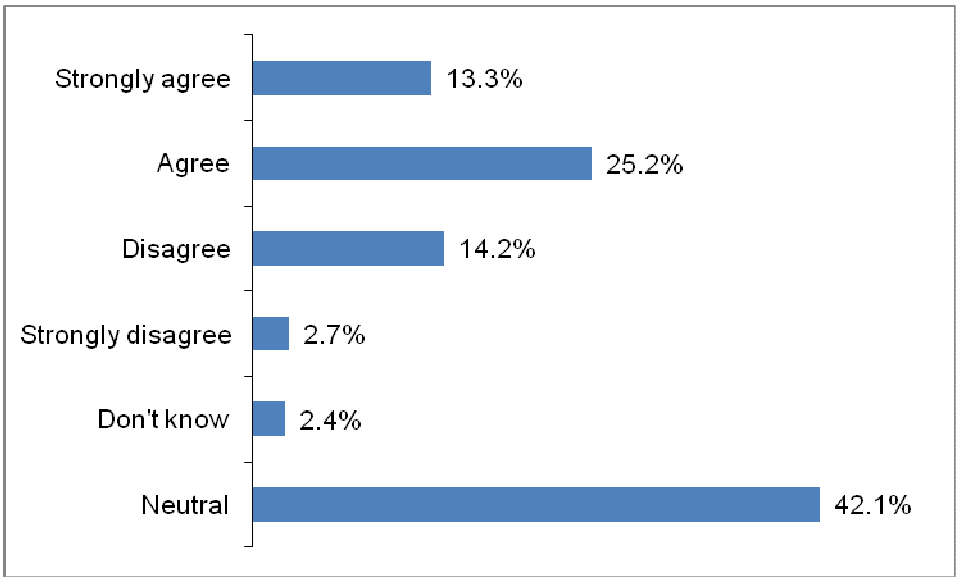
Figure 8: Percentage agreement or disagreement with the statement: To help them get on at school, it is important children learn how to use computers and other technology from an early age



Parents were more likely to say that they neither agreed nor disagreed (neutral) whether traditional objects such as books, games and alphabet blocks are more

educational than computer-based games with sounds and letters (42.1%, see Figure 9).

Figure 9: Percentage agreement or disagreement with the statement: Traditional objects such as books, games and alphabet blocks are more educational than computer-based games with sounds and letters



Looking at stories using mixed media and children's outcomes

So far we have explored children's attainment in relation to whether children use print or a touch screen to read. However, we also explored whether technology provides an additional benefit to children's educational outcomes.

To do this, we investigated the association between children who look at or read stories using only print, compared to children who look at or read stories using both print and a touch screen. We examined the association between the type of media children use to look at stories, how often children look at stories and children's enjoyment of looking at stories.

Table 10: Relationship between children's attainment and looking at or sharing stories using print and touch screen compared to print only

	Print only			*Print and screen*		
	Emerging %	*Expected %*	*Exceeding %*	*Emerging %*	*Expected %*	*Exceeding %*
Reading	20.8%	52.9%	20.8%	29.0%	58.1%	12.9%
Writing	33.3%	45.8%	20.8%	48.4%	48.4%	3.2%
Listening	16.7%	62.5%	20.8%	22.6%	71.0%	6.5%
Understanding	12.5%	58.3%	29.2%	22.6%	67.7%	9.7%
Speaking	16.7%	66.7%	16.7%	29.0%	67.7%	3.2%

Table 10 shows that children who look at or share stories at home using print only are more likely to score above average and are less likely to score below average on our language and communication outcomes than those who look at or share stories

using both print and screen. This suggests that children who read using print only have better outcomes than children who look at or read stories using a touch screen.

However, when we explored the relationship between the media children use and their enjoyment of reading, we found that more children who read using print and touch screen enjoy reading a lot than children who read using print only (77.4% vs. 70.8%, see Table 11).

Table 11: Relationship between the media children use to look at or share stories at home and children's enjoyment

	Enjoy a lot %	*Enjoy a little* %	*Don't enjoy much* %	*Don't enjoy at all* %	*Neutral* %	*Don't know* %
Print	70.8%	20.8%	4.2%	-	4.2%	-
Print and screen	77.4%	12.9%	6.5%	-	3.2%	-

So while our data suggest that children who look at only print-based stories have better education outcomes, there are benefits of including technology in the literacy practices at home on the "softer" outcomes, that is, children's enjoyment. We know that enjoyment is a key predictor of success for older children's outcomes - is this finding the first indicator of the benefit of technology to young children's outcomes?

Access, activities and attitudes of parents from different backgrounds

In this section, we explore the impact of socioeconomic status on our key measures – access to books and technology at home, looking at stories, enjoyment and parents' reading skills, and children's outcomes[13]. We also explore whether children who read using mixed media have better educational outcomes than children who read using print.

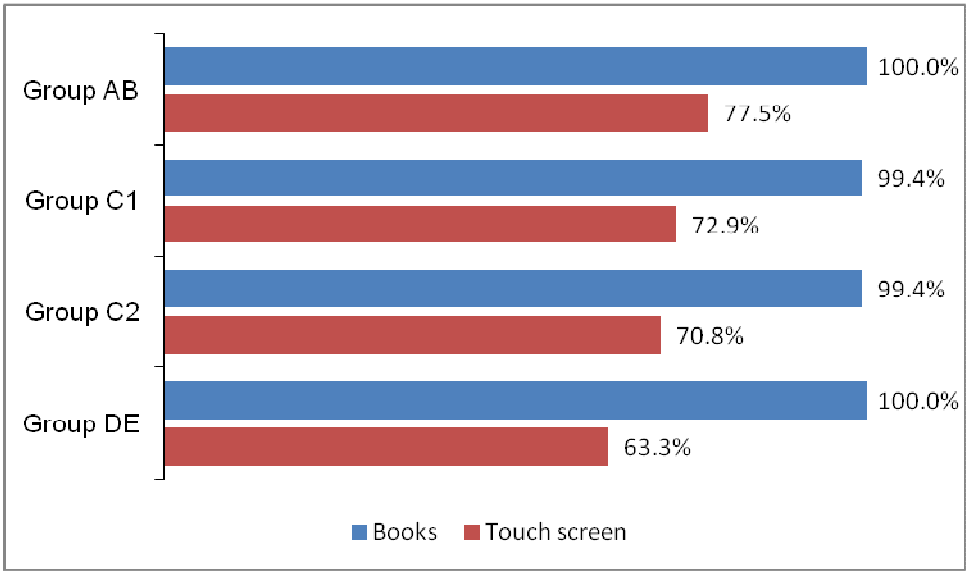
Access to books and touch-screen technology

Figure 10 shows that children of lower socioeconomic status are less likely to have access to a touch screen at home than children of higher socioeconomic status.

All children regardless of socioeconomic status have access to children's books at home, but children from higher socioeconomic status have more books in the home (AB: 103, C1: 86, C2: 78, DE: 72, Table 24).

[13] There were also differences in how often children engage in other activities (singing songs, playing educational games and painting) and wider activities, parents' reading habits and attitudes but these were not associated with children's outcomes.

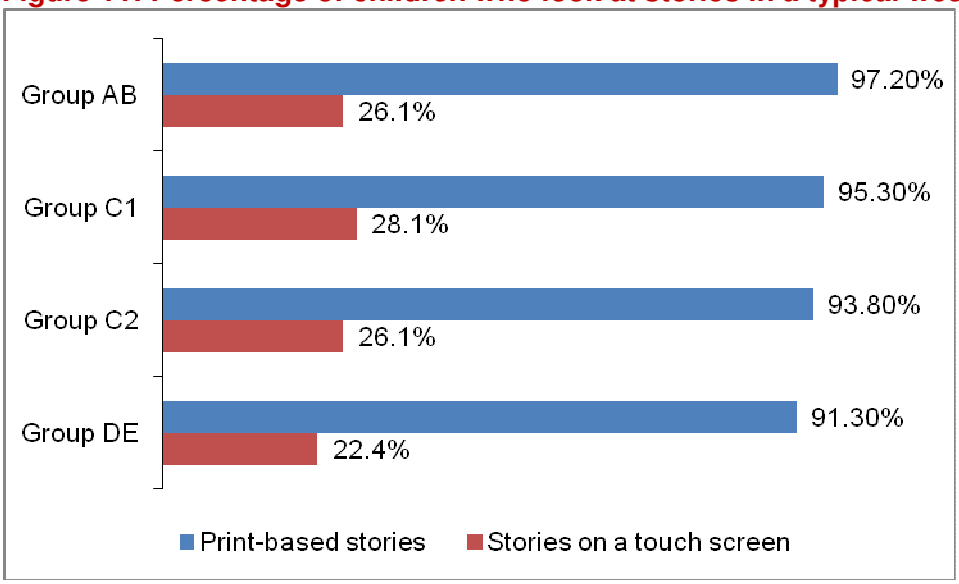
Figure 10: Children's use of touch-screen technology by socioeconomic status



Looking at or reading stories

Children of lower socioeconomic status are less likely to look at print-based stories and also stories on a touch screen (Figure 11).

Figure 11: Percentage of children who look at stories in a typical week



However, as children of lower socioeconomic status also have less access to a touch screen at home, it is important to explore story reading for the subsample of children who do have access to a touch screen at home (N = 749).

How often children look at stories at home

We examined how often children look at or read print-based stories or stories on a touch screen in a typical week and found that children of lower socioeconomic status are much less likely to look at print-based stories at home daily (for example, DE: 42.1% vs. AB: 59.3%, see Table 12).

Of children who have a touch screen at home (N = 749), children of lower socioeconomic status are in fact twice as likely to look at stories. For example, children of lower socioeconomic status are twice as likely as children of higher socioeconomic status to look at stories daily (AB: 4.7%, C1: 2.5%, C2: 9.3%, DE: 6.7%) in a typical week (Table 12).

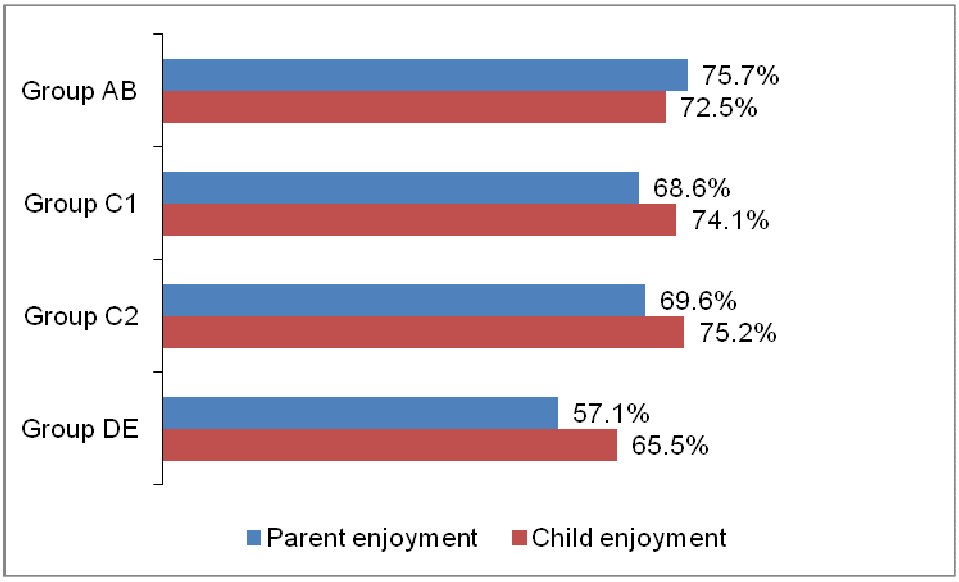
Table 12: How often children look at print-based stories and stories on a touch screen by parents' socioeconomic status

Activity	Socio-economic status	Would not do at all %	Once or twice a week %	A few times a week %	Daily %	Total who do activity %	Don't know %
Print-based stories	AB	1.7%	13.1%	24.9%	59.3%	97.3%	1.0%
	C1	3.0%	11.4%	32.4%	51.6%	95.4%	1.8%
	C2	2.8%	16.1%	31.4%	46.3%	93.8%	3.4%
	DE	2.8%	13.8%	35.3%	42.1%	91.2%	5.9%
Touch-screen stories	AB	48.9%	27.8%	16.3%	4.7%	48.7%	2.5%
	C1	46.4%	31.1%	16.5%	2.5%	50.1%	3.5%
	C2	39.0%	27.0%	18.8%	9.3%	55.1%	6.0%
	DE	40.8%	28.7%	17.5%	6.7%	52.9%	6.4%

Enjoyment of looking at or reading stories

All parents except group AB are more likely to say that their child enjoys reading a lot compared to their own enjoyment of reading. In addition, parents of lower socioeconomic status are less likely than all other groups to say that both they (57.1%) and their child (65.5%) enjoy reading a lot (see Figure 12, also see Table 27 and Table 28).

Figure 12: Percentage of parents and children who enjoy reading a lot



Parents' reading skills

Earlier we showed that parents' self-reported reading skill was associated with children's communication and language skills at age five. The data also shows that parents of lower socioeconomic status are at risk of rating their own reading skill more poorly and are also less likely to say their reading skill is very good than parents of higher socioeconomic status (AB: 83.3%, C1: 74.9%, C2: 67.7%, DE: 65.0%, see Table 30).

Socioeconomic status, enjoyment and outcomes

We examined the impact of children's socioeconomic status on language and communication outcomes.

Children of lower socioeconomic status are more likely to have emerging language and communication skills. Children of higher socioeconomic status are also more likely to have better than average (exceeding) reading, writing and understanding scores than children of lower socioeconomic status (see Table 35).

We examined if children's reading enjoyment was associated with children's socioeconomic status. All parents are more likely to say their child enjoys reading a lot than they are to say their child enjoys reading a little or does not enjoy reading. For example, six parents in 10 of lower socioeconomic status say their child enjoys reading a lot (58.3%), while one parent in six says their child enjoys reading a little (16.7%), and less than one in ten says their child doesn't enjoy reading much (8.3%; 16.7% parents say they have a neutral opinion).

Parents of higher socioeconomic status are more likely to say their child enjoys looking at or reading stories a lot than parents of lower socioeconomic status (83.3% vs. 78.8%, 59.3%, see Table 13).

Table 13: Relationship between children's socioeconomic status and reading enjoyment

	Enjoy a lot %	*Enjoy a little* %	*Don't enjoy much* %	*Don't enjoy at all* %	*Neutral* %	*Don't know* %
Lowest income	58.3%	16.7%	8.3%	-	16.7%	-
Middle income	78.8%	15.2%	3.0%	-	3.0%.	-
Highest income	83.3%	16.7%	-	-	-	-

Socioeconomic status – a benefit of using mixed media?

To answer if children of lower socioeconomic status benefit from using mixed media (print and a touch screen) to look at stories compared to using print only, we explored whether there are differences in their educational outcomes compared with children of different socioeconomic status (see Table 14), as well as their enjoyment and educational outcomes (Table 15).

Table 14 provides evidence of a benefit of sharing stories using both print and a touch screen for children of lower and middle socioeconomic status, but not for children of higher socioeconomic status. For example, children of lower socioeconomic status are less likely to have emerging reading skills if they look at stories using print and screen compared to print only (54.5% vs. 100.0%).

Table 14: Relationship between children's socioeconomic status, communication and language outcomes

		Print only			Print and screen		
		Emerging %	Expected %	Exceeding %	Emerging %	Expected %	Exceeding %
Reading	Lower income	100.0%	0.0%	0.0%	54.5%	45.5%	0.0%
	Middle income	17.6%	58.8%	23.5%	14.3%	64.3%	21.4%
	Higher income	16.7%	66.7%	16.7%	16.7%	66.7%	16.7%
Writing	Lower income	100.0%	0.0%	0.0%	72.7%	27.3%	0.0%
	Middle income	29.4%	52.9%	17.6%	28.6%	71.4%	0.0%
	Higher income	33.3%	33.3%	33.3%	50.0%	33.3%	16.7%
Listening and attention	Lower income	0.0%	100.0%	0.0%	36.4%	63.6%	0.0%
	Middle income	17.6%	64.7%	17.6%	14.3%	78.6%	7.1%
	Higher income	16.7%	50.0%	33.3%	16.7%	66.7%	16.7%
Understanding	Lower income	0.0%	100.0%	0.0%	36.4%	63.6%	0.0%
	Middle income	17.6%	58.8%	23.5%	14.3%	78.6%	7.1%
	Higher income	0.0%	50.0%	50.0%	16.7%	50.0%	33.3%
Speaking	Lower income	100.0%	0.0%	0.0%	54.5%	45.5%	0.0%
	Middle income	11.8%	76.5%	11.8%	14.3%	85.7%	0.0%
	Higher income	16.7%	50.0%	33.3%	16.7%	66.7%	16.7%

Children of lower socioeconomic status who look at stories in mixed-mediums are also more likely to have expected reading skills (45.5% vs. 0.0%) compared to children of lower socioeconomic status who look at print-based stories only. This suggests that sharing stories using mixed media is associated with better outcomes for children of lower socioeconomic status.

We then explored the relationship between children's reading habits, their socioeconomic status and their enjoyment (see Table 15). The results show that for all socioeconomic groups, children are more likely to enjoy reading a lot if they use print and a touch screen to look at or share stories, compared to using print only (e.g. lowest income: 0 vs. 63.6%; middle income: 76.5% vs. 78.6%; highest income 66.7% vs. 100.0%).

Table 15: Relationship between children's reading habits, socioeconomic status and enjoyment

		Enjoy a lot %	Enjoy a little %	Don't enjoy much %	Don't enjoy at all %	Neutral %	Don't know %
Print	Lowest income	-	100%	-	-	-	-
	Middle income	76.5%	11.8%	5.9%	-	5.9%	-
	Highest income	66.7%	33.3%	-	-	-	-
Print and screen	Lowest income	63.6%	9.1%	9.1%	-	18.2%	-
	Middle income	78.6%	21.4%	-	-	-	-
	Highest income	100%	-	-	-	-	-

As shown in Table 15, children who read using print and screen are more likely to enjoy reading a lot and children of higher socioeconomic status are more likely to enjoy reading a lot. This profile is consistent across all socioeconomic groups – that is, all children are more likely to enjoy reading if they use print and a touch screen to look at or share stories at home.

Overall, these findings show that looking at both print-based stories and stories on a touch screen improves reading outcomes for children of lower socioeconomic status compared to reading print alone, and that looking at print-based stories and stories on a touch screen improves all children's enjoyment.

Conclusions

This research explored children's access to books and to touch screens, the activities that children engage in at home; and parents' attitudes to books and technology. Our research shows that technology is playing a large role in the lives of young children. Three-quarters of three to five-year-olds use a touch screen at home. We found that a significant percentage of children are using a touch screen to look at stories, sing songs, play educational games and to paint and draw. We also found that the activities children engage in at home (specifically, looking at or reading stories) are associated with children's communication and language outcomes.

Technology offers a route into reading for disadvantaged three to five-year-old children. For example, of children who have a touch screen at home, children of lower socioeconomic status are twice more likely to look at stories daily than their more advantaged peers (7.2% vs. 16.0%). This is despite children from less advantaged backgrounds having less access to touch screens at home than those from more privileged backgrounds (67.0% vs. 75.2%).

All children are more likely to enjoy reading more if they use both books and a touch screen to look at stories, compared to books only (77.4% vs. 70.8%). This should make them set to do better at school as National Literacy Trust research has found that increased enjoyment of reading leads to better literacy outcomes.

We also found that parents think learning to use technology is important for early years education: three-quarters of parents said that using technology from an early ages is important for children to get on at school. Parental engagement in a child's reading remains important whatever the medium, as it has a strong impact on literacy development. Not only does sharing stories with their parent increase children's love of reading, but also, the more parents look at or read books with their child the stronger their child's literacy skills become.

Future research might want to explore the reasons parents use particular technologies and parents' communication with children when looking at or reading stories in print or on a touch screen.

Appendix

Communication and language outcomes

To explore children's outcomes we examined communication and language outcomes for a subsample of children for whom Early Years Foundation Stage Profiles (EYFSP) were available.

Language and communication outcomes were teacher reported, and collected as part of children's EYFSP. This profile includes five Early Learning Goals (ELG) that explore children's communication and language skills: reading, listening, understanding, speaking and writing. Teachers report if children's skill is emerging, expected, or exceeding in each ELG.

Tables and data

The following pages present information for each of our survey questions in tables. Each table contains information showing the sample as a whole (top row) as well as information broken down by sociodemographic information according to *parent, child and family factors. Parent factors* include parents' gender, age, socioeconomic status and highest qualification (no formal qualifications, non-university qualifications and university qualifications). *Child factors* include child age, gender and age by gender. *Family factors* include family size (total number of children aged under 18 in the household). The total percentage of children who do/do not engage in each activity at least once in a typical week are highlighted in the tables (shaded in pink and purple respectively).

Each table presents data for children that engage in activities with a parent, followed by children that engage in activities without a parent. All children had access to books at home, however not all children had access to a touch screen at home. Therefore, we split those that do not engage in activities in a typical week into three categories: no touch screen at home; have a touch screen – use with a parent, but not without a parent or vice-versa; have a touch screen – but do not use for activity.

Please note that due to rounding, the data in the tables will not necessarily add up to 100 per cent exactly.

Table 16: Who we surveyed

		Number	*Percentage*
All parents		1,028	100.0%
Parent gender	**Fathers**	522	50.8%
	Mothers	506	49.2%
Parent age	**18-30 years**	154	15.0%
	31-35 years	292	28.4%
	36-40 years	306	29.8%
	Over 41 years	276	26.8%
Socioeconomic status	**Group AB**	432	42.1%
	Group C1	255	24.9%
	Group C2	161	15.7%
	Group DE	177	17.3%
Parent qualifications	**None**	27	2.6%
	Non-university	407	39.6%
	University	593	57.7%
Child gender	**Boys**	513	50.0%
	Girls	514	50.0%
Child age	**3-year-old**	286	27.8%
	4-year-old	368	35.8%
	5-year-old	373	36.3%
Child age and gender	**Boy 3-year-old**	142	13.8%
	Girl 3-year-old	144	14.0%
	Boy 4-year-old	199	19.4%
	Girl 4-year-old	169	16.5%
	Boy 5-year-old	172	16.7%
	Girl 5-year-old	201	19.6%
Family size	**1 child**	238	23.2%
	2 children	557	54.2%
	3 children	175	17.0%
	4 children	39	3.8%
	5+ children	19	1.8%

Parents stated which ethnic group they felt they belonged to. However, the BME categories were too small to be statistically significant and therefore parents' ethnicity was not included in the analysis.

Table 17: Settings attended

	Number	*Percentage*
Reception class	302	29.4%
Preschool	185	18.0%
Day nursery	155	15.1%
Nursery class (primary school)	147	14.3%
Nursery school	101	9.8%
Child minder	86	8.4%
Playgroup	56	5.5%
Children's centre	30	2.9%
Nanny	16	1.6%
Other	93	9.1%

NB. Numbers do not add up to total sample – 71.6% attend one setting, 19.6% attend two or more settings and 7.8% do not attend any setting.

Table 18: Percentage of children who have access to touch screens at home

		Access to books		Access to touch screen		
		No books at home	Have books at home	None	Have access, but do not use	Use a touch screen
		%	%	%	%	%
All parents		0.3%	99.7%	11.7%	15.5%	72.9%
Parent gender	Fathers	0.5%	99.5%	9.8%	13.0%	77.2%
	Mothers	-	100.0%	13.6%	18.0%	68.4%
Parent age	18-30 years	-	100.0%	13.6%	16.2%	70.1%
	31-35 years	0.9%	99.1%	12.0%	18.5%	69.5%
	36-40 years	-	100.0%	7.8%	11.8%	80.4%
	Over 41 years	-	100.0%	14.5%	15.9%	69.6%
Socio-economic status	Group AB	-	100.0%	9.3%	13.2%	77.5%
	Group C1	0.6%	99.4%	11.8%	15.3%	72.9%
	Group C2	0.6%	99.4%	11.2%	18.0%	70.8%
	Group DE	-	100.0%	17.5%	19.2%	63.3%
Parent qualifications	None	-	100.0%	18.5%	11.1%	70.4%
	Non-university	0.2%	99.8%	12.3%	17.4%	70.3%
	University	0.3%	99.7%	10.8%	14.3%	74.9%
Child gender	Boys	0.5%	99.5%	10.9%	16.6%	72.5%
	Girls	-	100.0%	12.5%	14.4%	73.2%
Child age	3-year-old	0.3%	99.7%	14.3%	17.5%	68.2%
	4-year-old	0.3%	99.7%	9.5%	15.5%	75.0%
	5-year-old	0.1%	99.9%	11.8%	13.9%	74.3%
Child age and gender	Boy 3-year-old	0.7%	99.3%	14.1%	20.4%	65.5%
	Girl 3-year-old	-	100.0%	14.6%	14.6%	70.8%
	Boy 4-year-old	0.5%	99.5%	8.5%	17.6%	73.9%
	Girl 4-year-old	-	100.0%	10.7%	13.0%	76.3%
	Boy 5-year-old	0.3%	99.7%	11.0%	12.2%	76.7%
	Girl 5-year-old	-	100.0%	12.4%	15.4%	72.1%
Family size	1 child	-	100.0%	12.2%	15.1%	72.7%
	2 children	-	100.0%	10.4%	16.7%	72.9%
	3 children	0.6%	99.4%	14.9%	12.6%	72.6%
	4 children	1.3%	98.7%	10.3%	12.8%	76.9%
	5+ children	5.3%	94.7%	15.8%	15.8%	68.4%

Table 19: Percentage of children who look at stories using print at home in a typical week

		No access	Would not do	Total do not	Once or twice a week	A few times a week	Daily	Total do	Don't know
		%	%	%	%	%	%	%	%
All parents		0.3%	2.1%	2.4%	13.3%	29.6%	52.3%	95.2%	2.4%
Parent gender	Fathers	0.5%	2.4%	2.9%	14.9%	30.0%	48.8%	93.7%	3.4%
	Mothers	-	1.9%	1.9%	11.6%	29.2%	56.0%	96.8%	1.4%
Parent age	18-30 years	-	0.7%	0.7%	18.5%	35.4%	41.2%	95.1%	4.2%
	31-35 years	0.9%	1.9%	2.8%	13.0%	27.2%	54.5%	94.7%	2.6%
	36-40 years	-	2.8%	2.8%	10.5%	26.3%	59.2%	96.0%	1.3%
	Over 41 years	-	2.6%	2.6%	13.8%	32.4%	48.7%	94.9%	2.5%
Socio-economic status	Group AB	-	1.7%	1.7%	13.1%	24.9%	59.3%	97.3%	1.0%
	Group C1	0.6%	2.4%	3.0%	11.4%	32.4%	51.6%	95.4%	1.8%
	Group C2	0.6%	2.2%	2.8%	16.1%	31.4%	46.3%	93.8%	3.4%
	Group DE	-	2.8%	2.8%	13.8%	35.3%	42.1%	91.2%	5.9%
Parent qualifications	None	-	-	0.0%	22.2%	44.4%	24.1%	90.7%	9.3%
	Non-university	0.2%	2.3%	2.5%	16.6%	31.7%	45.4%	93.7%	4.0%
	University	0.3%	2.1%	2.4%	10.6%	27.5%	58.3%	96.4%	1.1%
Child gender	Boys	0.5%	2.9%	3.4%	15.0%	29.3%	49.2%	93.5%	3.1%
	Girls	-	1.4%	1.4%	11.5%	30.0%	55.4%	96.9%	1.8%
Child age	3-year-old	0.3%	2.4%	2.7%	11.4%	29.2%	54.6%	95.2%	2.1%
	4-year-old	0.3%	3.1%	3.4%	13.0%	28.9%	51.4%	93.3%	3.3%
	5-year-old	0.1%	0.9%	1.0%	14.9%	30.6%	51.6%	97.1%	1.9%
Child age and gender	Boy 3-year-old	0.7%	3.2%	3.9%	14.1%	32.4%	46.8%	93.3%	2.8%
	Girl 3-year-old	-	1.7%	1.7%	8.7%	26.0%	62.2%	96.9%	1.4%
	Boy 4-year-old	0.5%	4.0%	4.5%	14.6%	28.1%	48.5%	91.2%	4.3%
	Girl 4-year-old	-	2.1%	2.1%	11.2%	29.9%	54.7%	95.8%	2.1%
	Boy 5-year-old	0.3%	1.5%	1.8%	16.3%	27.9%	52.0%	96.2%	2.0%
	Girl 5-year-old	-	0.5%	0.5%	13.7%	32.8%	51.2%	97.7%	1.7%
Family size	1 child	-	2.3%	2.3%	12.0%	31.1%	53.8%	96.9%	0.8%
	2 children	-	2.2%	2.2%	12.1%	27.4%	55.7%	95.2%	2.6%
	3 children	0.6%	2.3%	2.9%	18.6%	31.1%	44.0%	93.7%	3.4%
	4 children	1.3%	1.3%	2.6%	10.3%	42.3%	38.5%	91.1%	6.4%
	5+ children	5.3%	-	5.3%	21.1%	34.2%	39.5%	94.8%	0.0%

Table 20: Percentage of children who look at or read stories on a touch screen in a typical week

		No access	Would not do	Total do not	Once or twice a week	A few times a week	Daily	Total do	Don't know
		%	%	%	%	%	%	%	%
All parents		27.1%	44.9%	72.0%	14.8%	8.7%	2.6%	26.0%	2.0%
Parent gender	Fathers	28.0%	43.5%	71.5%	14.8%	9.0%	2.7%	26.4%	2.1%
	Mothers	26.3%	46.3%	72.5%	14.9%	8.2%	2.5%	25.6%	1.9%
Parent age	18-30 years	28.6%	35.8%	64.3%	19.8%	9.4%	3.6%	32.8%	2.9%
	31-35 years	25.3%	48.3%	73.6%	14.4%	7.9%	2.1%	24.3%	2.1%
	36-40 years	25.8%	47.1%	72.9%	13.0%	9.2%	3.0%	25.0%	2.2%
	Over 41 years	29.7%	43.9%	73.6%	14.7%	8.3%	2.2%	25.2%	1.3%
Socio-economic status	Group AB	24.3%	48.3%	72.6%	15.0%	8.6%	2.6%	26.1%	1.4%
	Group C1	21.6%	48.5%	70.0%	17.5%	9.2%	1.4%	28.1%	2.0%
	Group C2	31.1%	40.1%	71.1%	12.7%	9.1%	4.4%	26.1%	2.8%
	Group DE	39.0%	35.9%	74.9%	12.2%	7.4%	2.9%	22.4%	2.9%
Parent qualifications	None	29.6%	38.9%	68.6%	18.5%	3.7%	3.7%	25.9%	5.6%
	Non-university	28.7%	43.8%	72.5%	11.7%	10.2%	3.2%	25.1%	2.5%
	University	26.0%	45.8%	71.8%	16.9%	7.8%	2.2%	26.8%	1.6%
Child gender	Boys	26.9%	46.5%	73.4%	13.7%	8.9%	2.1%	24.7%	2.0%
	Girls	27.4%	43.2%	70.6%	16.0%	8.4%	3.0%	27.4%	2.1%
Child age	3-year-old	28.7%	41.5%	70.1%	16.3%	10.2%	2.8%	29.2%	0.7%
	4-year-old	27.7%	44.2%	71.9%	15.5%	7.9%	2.6%	26.0%	2.2%
	5-year-old	25.5%	48.2%	73.6%	13.0%	8.2%	2.4%	23.6%	2.8%
Child age and gender	Boy 3-year-old	28.2%	43.0%	71.1%	17.6%	9.2%	1.8%	28.6%	0.4%
	Girl 3-year-old	29.2%	40.0%	69.1%	15.0%	11.1%	3.9%	29.9%	1.1%
	Boy 4-year-old	30.7%	42.7%	73.4%	12.4%	9.1%	3.0%	24.4%	2.3%
	Girl 4-year-old	24.3%	45.9%	70.1%	19.3%	6.5%	2.1%	27.9%	2.1%
	Boy 5-year-old	21.5%	53.8%	75.3%	11.9%	8.4%	1.5%	21.8%	2.9%
	Girl 5-year-old	28.9%	43.3%	72.1%	13.9%	8.0%	3.3%	25.2%	2.8%
Family size	1 child	25.2%	45.6%	70.8%	15.1%	9.9%	2.3%	27.3%	1.9%
	2 children	27.6%	45.9%	73.5%	14.5%	8.1%	2.4%	24.9%	1.7%
	3 children	27.4%	42.9%	70.3%	15.2%	8.3%	4.3%	27.7%	2.0%
	4 children	25.6%	38.5%	64.1%	16.7%	10.3%	0.0%	26.9%	9.0%
	5+ children	36.8%	36.9%	73.7%	15.8%	7.9%	2.7%	26.3%	0.0%

Table 21: Of children who have a touch screen, how often do children look at or read stories using a touch screen in a typical week?

		Would not do %	*Once or twice a week* %	*A few times a week* %	*Daily* %	*Total do* %	*Don't know* %
All parents		45.5%	28.9%	16.9%	5.0%	50.8%	3.8%
Parent gender	**Fathers**	44.7%	28.5%	17.6%	5.4%	51.4%	4.0%
	Mothers	46.3%	29.3%	16.2%	4.7%	50.1%	3.7%
Parent age	**18-30 years**	33.7%	36.9%	17.3%	6.8%	60.9%	5.5%
	31-35 years	48.3%	28.4%	15.6%	4.0%	47.9%	3.8%
	36-40 years	48.2%	24.6%	17.8%	5.5%	47.9%	4.1%
	Over 41 years	46.3%	29.7%	17.2%	4.4%	51.3%	2.5%
Socio-economic status	**Group AB**	48.9%	27.8%	16.3%	4.7%	48.7%	2.5%
	Group C1	46.4%	31.1%	16.5%	2.5%	50.1%	3.5%
	Group C2	39.0%	27.0%	18.8%	9.3%	55.1%	6.0%
	Group DE	40.8%	28.7%	17.5%	6.7%	52.9%	6.4%
Parent qualifications	**None**	29.3%	41.5%	8.6%	8.6%	58.6%	12.%
	Non-university	43.1%	24.3%	21.1%	6.6%	52.0%	5.0%
	University	47.4%	31.3%	14.7%	3.9%	49.9%	2.8%
Child gender	**Boys**	47.3%	27.1%	17.6%	4.3%	48.9%	3.9%
	Girls	43.8%	30.5%	16.3%	5.7%	52.5%	3.8%
Child age	**3-year-old**	40.4%	32.4%	20.6%	5.4%	58.4%	1.3%
	4-year-old	45.7%	30.1%	15.3%	5.1%	50.4%	4.0%
	5-year-old	49.2%	24.9%	15.9%	4.7%	45.4%	5.5%
Child age and gender	**Boy 3-year-old**	39.6%	36.4%	19.9%	3.6%	59.9%	0.6%
	Girl 3-year-old	40.8%	28.8%	21.4%	7.2%	57.3%	1.9%
	Boy 4-year-old	46.4%	24.9%	18.0%	6.3%	49.1%	4.5%
	Girl 4-year-old	44.9%	35.8%	12.4%	3.7%	51.8%	3.4%
	Boy 5-year-old	53.7%	22.4%	15.8%	2.8%	40.9%	5.5%
	Girl 5-year-old	45.2%	27.1%	16.0%	6.4%	49.5%	5.5%
Family size	**1 child**	44.7%	28.4%	19.0%	4.4%	51.8%	3.6%
	2 children	48.0%	28.3%	16.2%	4.6%	49.0%	3.1%
	3 children	42.3%	29.2%	16.2%	8.5%	53.8%	4.0%
	4 children	31.5%	31.3%	20.5%	0.0%	51.8%	16.8%
	5+ children	34.8%	39.3%	18.8%	7.2%	65.2%	-

Table 22: Percentage of children who do other activities in a typical week using non-technology or a touch screen

		Songs		Games		Painting	
		Non-technology %	Touch screen %	Non-technology %	Touch screen %	Non-technology %	Touch screen %
All parents		91.8%	23.7%	93.7%	41.8%	94.4%	33.2%
Parent gender	**Fathers**	88.6%	23.5%	92.8%	41.3%	94.1%	33.9%
	Mothers	95.2%	23.8%	94.7%	42.3%	94.7%	32.3%
Parent age	**18-30 years**	92.6%	30.9%	92.3%	46.1%	94.2%	37.4%
	31-35 years	92.0%	21.8%	94.6%	41.1%	94.9%	34.9%
	36-40 years	93.3%	23.9%	94.0%	42.8%	96.4%	31.6%
	Over 41 years	89.7%	21.4%	93.5%	39.0%	91.7%	30.6%
Socio-economic status	**Group AB**	93.4%	22.9%	94.9%	44.8%	94.8%	35.1%
	Group C1	91.8%	23.7%	94.7%	45.1%	96.1%	34.3%
	Group C2	91.3%	26.7%	91.6%	37.3%	93.8%	32.0%
	Group DE	88.4%	22.0%	91.3%	33.1%	91.3%	27.1%
Parent qualifications	**None**	92.6%	18.5%	88.9%	25.9%	90.8%	25.9%
	Non-university	88.2%	25.5%	92.8%	39.5%	93.5%	32.4%
	University	94.3%	22.6%	94.6%	44.0%	95.1%	33.9%
Child gender	**Boys**	88.3%	22.2%	92.1%	39.7%	92.0%	30.6%
	Girls	95.4%	25.1%	95.4%	43.9%	96.7%	35.6%
Child age	**3-year-old**	94.8%	29.7%	94.6%	42.3%	95.3%	35.9%
	4-year-old	92.7%	21.5%	92.8%	41.2%	93.8%	33.9%
	5-year-old	88.7%	21.1%	94.0%	42.0%	94.2%	30.3%
Child age and gender	**Boy 3-year-old**	93.0%	28.5%	93.7%	40.9%	92.3%	34.5%
	Girl 3-year-old	96.5%	30.9%	95.5%	43.8%	98.3%	37.2%
	Boy 4-year-old	89.4%	20.1%	90.5%	38.5%	91.3%	31.5%
	Girl 4-year-old	96.5%	23.1%	95.6%	44.4%	96.8%	36.7%
	Boy 5-year-old	83.2%	19.2%	92.8%	40.1%	92.8%	26.5%
	Girl 5-year-old	93.5%	22.7%	95.0%	43.6%	95.5%	33.6%
Family size	**1 child**	94.1%	24.8%	94.8%	44.4%	96.7%	35.5%
	2 children	92.0%	21.6%	93.7%	41.1%	93.8%	33.0%
	3 children	89.2%	27.8%	93.5%	42.3%	94.9%	31.5%
	4 children	84.6%	28.2%	91.0%	37.2%	89.7%	30.8%
	5+ children	97.4%	21.1%	92.1%	34.2%	89.5%	29.0%

Table 23: Relationship between how often children look at stories on a touch screen at home and children's communication and language outcomes (only those who use a screen)

		Emerging %	*Expected %*	*Exceeding %*
Reading	**Would not do at all**	0.0%	75.0%	25.0%
	Once or twice a week	23.3%	66.4%	10.3%
	A few times a week	29.9%	64.6%	5.6%
	Daily	66.7%	33.3%	0.0%
Writing	**Would not do at all**	37.5%	62.5%	0.0%
	Once or twice a week	46.2%	51.6%	2.3%
	A few times a week	46.5%	53.5%	0.0%
	Daily	83.3%	16.7%	0.0%
Listening and attention	**Would not do at all**	0.0%	100.0%	0.0%
	Once or twice a week	10.0%	83.6%	6.5%
	A few times a week	23.6%	76.4%	0.0%
	Daily	66.7%	16.7%	16.7%
Understanding	**Would not do at all**	0.0%	100.0%	0.0%
	Once or twice a week	10.0%	79.4%	10.7%
	A few times a week	23.6%	76.4%	0.0%
	Daily	66.7%	16.7%	16.7%
Speaking	**Would not do at all**	0.0%	100.0%	0.0%
	Once or twice a week	18.4%	79.4%	2.3%
	A few times a week	29.2%	70.8%	0.0%
	Daily	66.7%	16.7%	16.7%

Table 24: Average number of books in the home

		Children's books		Non-children's books	
		Owned Mean (s.d)	Borrowed Mean (s.d)	Owned Mean (s.d.)	Borrowed Mean (s.d.)
All parents		89 (108.9)	4 (8.4)	218 (469.9)	2 (6.6)
Parent gender	**Fathers**	86 (116.7)	4 (8.6)	227 (440.8)	2 (6.5)
	Mothers	93 (100.4)	4 (8.2)	209 (497.6)	2 (6.7)
Parent age	**18-30 years**	54 (66.7)	3 (8.8)	81 (199.8)	1 (2.7)
	31-35 years	84 (80.0)	4 (9.8)	149 (227.0)	3 (8.7)
	36-40 years	98 (96.3)	4 (5.5)	248 (445.7)	2 (6.4)
	Over 41 years	105 (154.3)	4 (9.2)	335 (705.7)	2 (5.5)
Socio-economic status	**Group AB**	103 (126)	5 (9.8)	282 (532.3)	3 (8.6)
	Group C1	86 (94.0)	4 (6.2)	196 (374.3)	2 (4.7)
	Group C2	78 (85.2)	4 (6.9)	158 (435.5)	2 (5.0)
	Group DE	72 (98.0)	3 (8.7)	147 (427.0)	2 (3.5)
Parent qualifications	**None**	35 (30.7)	7 (18.5)	82 (209.5)	5 (13.4)
	Non-university	76 (101.3)	3 (8.6)	118 (304.2)	2 (7.6)
	University	102 (114.5)	4 (7.5)	294 (551.7)	2 (5.2)
Child gender	**Boys**	87 (122.7)	4 (7.2)	210 (482.8)	2 (6.1)
	Girls	92 (93.4)	4 (9.4)	226 (456.4)	2 (6.7)
Child age	**3-year-old**	93 (156.7)	4 (8.1)	226.2 (477.8)	2 (8.8)
	4-year-old	84 (79.5)	4 (7.9)	210 (442.5)	2 (5.4)
	5-year-old	92 (87.5)	4 (9.2)	220 (489.9)	2 (5.5)
Child age and gender	**Boy 3-year-old**	93 (177.2)	5 (9.7)	251 (516)	3 (8.9)
	Girl 3-year-old	92 (133.0)	3 (6.0)	200 (435)	2 (8.8)
	Boy 4-year-old	77 (77.5)	3 (8.4)	222 (416.6)	2 (4.6)
	Girl 4-year-old	92 (81.0)	4 (7.3)	198 (468.6)	2 (6.1)
	Boy 5-year-old	89 (86.8)	4 (7.9)	214 (401.5)	2 (5.9)
	Girl 5-year-old	95 (88.4)	5 (10.4)	226 (567.2)	2 (5.0)
Family size	**1 child**	69 (59.8)	3 (4.2)	206 (430.8)	2 (4.1)
	2 children	96 (122.7)	4 (8.6)	235 (526.2)	2 (7.6)
	3 children	95 (113.0)	5 (12.0)	210 (390.0)	2 (6.4)
	4 children	99 (107.7)	3 (5.3)	115 (131.5)	2 (3.4)
	5+ children	90 (99.5)	3 (4.4)	152 (198.3)	3 (5.7)

Table 25: Number of library visits and outings

		Library visits in a month Mean (s.d)	*Outings in a week Mean (s.d)*
All parents		1.3 (1.5)	4.4 (3.4)
Parent gender	**Fathers**	1.3 (1.5)	4.4 (3.8)
	Mothers	1.2 (1.5)	4.3 (2.9)
Parent age	**18-30 years**	1.3 (1.4)	4.3 (2.8)
	31-35 years	1.3 (1.4)	4.3 (2.8)
	36-40 years	1.3 (1.4)	4.2 (3.6)
	Over 41 years	1.4 (1.8)	4.4 (3.6)
Socioeconomic status	**Group AB**	1.4 (1.6)	4.2 (2.8)
	Group C1	1.1 (1.4)	4.5 (3.8)
	Group C2	1.3 (1.6)	4.7 (4.1)
	Group DE	1.3 (1.5)	4.2 (3.2)
Parent qualifications	**None**	1.4 (2.2)	5.2 (7.2)
	Non-university	1.1 (1.6)	4.4 (3.8)
	University	1.4 (1.5)	4.3 (2.7)
Child gender	**Boys**	1.3 (1.5)	4.1 (2.6)
	Girls	1.3 (1.6)	4.6 (4.0)
Child age	**3-year-old**	1.4 (1.8)	4.9 (4.0)
	4-year-old	1.3 (1.4)	4.6 (3.1)
	5-year-old	1.2 (1.5)	3.8 (3.0)
Child age and gender	**Boy 3-year-old**	1.4 (1.9)	4.6 (2.9)
	Girl 3-year-old	1.4 (1.6)	5.2 (4.8)
	Boy 4-year-old	1.2 (1.3)	4.4 (2.9)
	Girl 4-year-old	1.3 (1.5)	4.8 (3.3)
	Boy 5-year-old	1.2 (1.3)	3.4 (1.8)
	Girl 5-year-old	1.2 (1.5)	4.1 (3.8)
Family size	**1 child**	1.2 (1.6)	4.4 (3.6)
	2 children	1.3 (1.6)	4.3 (2.7)
	3 children	1.3 (1.5)	4.5 (4.6)
	4 children	1.0 (1.0)	4.4 (4.4)
	5+ children	1.2 (1.1)	3.7 (2.6)

Table 26: Amount of television watched at home (in minutes)

		TV on in house Mean (s.d.)	*TV child on own Mean (s.d.)*
All parents		296.8 (190.7)	54.1 (95.9)
Parent gender	**Fathers**	291.0 (186.2)	57.8 (114.3)
	Mothers	302.8 (195.1)	50.3 (71.9)
Parent age	**18-30 years**	306.33 (236.2)	65.4 (99.3)
	31-35 years	299.3 (176.7)	54.3 (117.7)
	36-40 years	286.2 (174.7)	49.7 (89.6)
	Over 41 years	300.7 (194.0)	52.6 (72.0)
Socio-economic status	**Group AB**	257.0 (164.6)	48.8 (93.1)
	Group C1	287.7 (167.0)	55.6 (112.9)
	Group C2	358.1 (212.8)	58.9 (62.3)
	Group DE	352.6 (231.5)	60.5 (101.6)
Parent qualifications	**None**	350.9 (256.4)	85.2 (121.6)
	Non-university	330.0 (204.7)	67.6 (117.7)
	University	271.5 (172.9)	43.6 (74.2)
Child gender	**Boys**	302.1 (196.4)	53.0 (89.3)
	Girls	291.9 (184.8)	55.2 (102.1)
Child age	**3-year-old**	299.6 (180.2)	57.8 (114.5)
	4-year-old	313.9 (194.7)	63.7 (101.8)
	5-year-old	278.2 (193.3)	41.8 (69.7)
Child age and gender	**Boy 3-year-old**	304.2 (192.2)	55.1 (89.1)
	Girl 3-year-old	295.2 (168.1)	60.5 (135.2)
	Boy 4-year-old	319.0 (201.5)	63.9 (110.6)
	Girl 4-year-old	308.0 (186.8)	63.4 (90.7)
	Boy 5-year-old	280.9 (193.0)	38.8 (53.3)
	Girl 5-year-old	275.9 (193.9)	44.4 (81.2)
Family size	**1 child**	294.2 (193.8)	57.0 (87.4)
	2 children	279.6 (168.2)	48.2 (88.2)
	3 children	329.7 (219.2)	70.4 (115.6)
	4 children	343.2 (261.2)	45.9 (55.6)
	5+ children	434.2 (229.6)	57.9 (65.3)

Table 27: How much parents enjoy reading

		Enjoy a lot %	Enjoy a little %	Overall enjoyment %	Don't enjoy much %	Don't enjoy at all %	Neutral %	Don't know %
All parents		69.8%	15.6%	85.4%	3.4%	1.1%	8.7%	1.5%
Parent gender	**Fathers**	64.2%	17.2%	81.4%	3.8%	1.5%	10.7%	2.5%
	Mothers	75.7%	13.8%	89.5%	3.0%	0.6%	6.5%	0.4%
Parent age	**18-30 years**	55.8%	16.9%	72.7%	10.4%	1.3%	13.6%	1.9%
	31-35 years	63.7%	20.2%	83.9%	3.1%	1.4%	10.3%	1.4%
	36-40 years	76.1%	14.1%	90.2%	2.0%	1.0%	5.9%	1.0%
	Over 41 years	77.2%	11.6%	88.8%	1.4%	0.7%	7.2%	1.8%
Socio-economic status	**Group AB**	75.7%	13.7%	89.4%	3.0%	0.7%	6.5%	0.5%
	Group C1	68.6%	18.0%	86.7%	2.4%	0.8%	9.4%	0.8%
	Group C2	69.6%	14.3%	83.9%	2.5%	2.5%	8.7%	2.5%
	Group DE	57.1%	18.1%	75.1%	6.8%	1.1%	13.0%	4.0%
Parent qualifications	**None**	59.3%	14.8%	74.1%	3.7%	3.7%	18.5%	0.0%
	Non-university	60.4%	18.9%	79.4%	5.7%	1.5%	10.8%	2.7%
	University	76.7%	13.3%	90.1%	1.9%	0.7%	6.7%	0.7%
Child gender	**Boys**	68.4%	16.2%	84.6%	3.1%	0.8%	9.9%	1.6%
	Girls	71.4%	14.8%	86.2%	3.7%	1.4%	7.4%	1.4%
Child age	**3-year-old**	68.5%	15.4%	83.9%	5.9%	0.3%	9.1%	0.7%
	4-year-old	70.4%	14.7%	85.1%	2.7%	0.5%	10.1%	1.6%
	5-year-old	70.5%	16.4%	86.9%	2.1%	2.1%	7.0%	1.9%
Child age and gender	**Boy 3-year-old**	62.7%	18.3%	81.0%	5.6%	0.7%	12.0%	0.7%
	Girl 3-year-old	74.3%	12.5%	86.8%	6.3%	0.0%	6.3%	0.7%
	Boy 4-year-old	69.3%	15.1%	84.4%	2.0%	0.5%	10.6%	2.5%
	Girl 4-year-old	71.6%	14.2%	85.8%	3.6%	0.6%	9.5%	0.6%
	Boy 5-year-old	72.1%	15.7%	87.8%	2.3%	1.2%	7.6%	1.2%
	Girl 5-year-old	69.2%	16.9%	86.1%	2.0%	3.0%	6.5%	2.5%
Family size	**1 child**	71.0%	15.1%	86.1%	3.8%	0.8%	8.8%	0.4%
	2 children	70.9%	15.6%	86.5%	2.7%	0.7%	8.3%	1.8%
	3 children	66.9%	15.4%	82.3%	5.7%	1.1%	9.7%	1.1%
	4 children	59.0%	20.5%	79.5%	2.6%	7.7%	5.1%	5.1%
	5+ children	73.7%	10.5%	84.2%	0.0%	0.0%	15.8%	0.0%

Table 28: How much children enjoy looking at or reading stories

		Enjoy a lot %	*Enjoy a little* %	*Overall enjoyment* %	*Don't enjoy much* %	*Don't enjoy at all* %	*Neutral* %	*Don't know* %
All parents		72.2%	14.8%	87.0%	3.0%	0.5%	7.8%	1.8%
Parent gender	**Fathers**	66.7%	17.0%	83.7%	3.1%	0.6%	10.2%	2.5%
	Mothers	77.9%	12.5%	90.3%	3.0%	0.4%	5.3%	1.0%
Parent age	**18-30 years**	66.9%	16.9%	83.8%	5.2%	0.6%	9.1%	1.3%
	31-35 years	73.3%	14.7%	88.0%	2.4%	0.3%	7.2%	2.1%
	36-40 years	73.9%	14.1%	87.9%	2.9%	0.3%	7.2%	1.6%
	Over 41 years	72.1%	14.5%	86.6%	2.5%	0.7%	8.3%	1.8%
Socio-economic status	**Group AB**	72.5%	14.6%	87.0%	3.7%	0.9%	7.6%	0.7%
	Group C1	74.1%	16.5%	90.6%	1.6%	0.4%	6.7%	0.8%
	Group C2	75.2%	12.4%	87.6%	1.9%	0.0%	6.8%	3.7%
	Group DE	65.5%	15.3%	80.8%	4.5%	0.0%	10.7%	4.0%
Parent qualifications	**None**	59.3%	14.8%	74.1%	0.0%	0.0%	14.8%	11.1%
	Non-university	65.4%	17.0%	82.3%	4.4%	0.7%	9.8%	2.7%
	University	77.4%	13.3%	90.7%	2.2%	0.3%	6.1%	0.7%
Child gender	**Boys**	64.5%	17.7%	82.3%	3.9%	0.6%	11.1%	2.1%
	Girls	80.0%	11.7%	91.6%	2.1%	0.4%	4.5%	1.4%
Child age	**3-year-old**	69.2%	13.6%	82.9%	4.5%	0.3%	10.1%	2.1%
	4-year-old	70.9%	16.3%	87.2%	3.3%	0.5%	7.3%	1.6%
	5-year-old	75.9%	13.9%	89.8%	1.6%	0.5%	6.4%	1.6%
Child age and gender	**Boy 3-year-old**	58.5%	19.0%	77.5%	5.6%	0.0%	14.1%	2.8%
	Girl 3-year-old	79.9%	8.3%	88.2%	3.5%	0.7%	6.3%	1.4%
	Boy 4-year-old	62.8%	19.1%	81.9%	4.5%	1.0%	10.6%	2.0%
	Girl 4-year-old	80.5%	13.0%	93.5%	1.8%	0.0%	3.6%	1.2%
	Boy 5-year-old	71.5%	15.1%	86.6%	1.7%	0.6%	9.3%	1.7%
	Girl 5-year-old	79.6%	12.9%	92.5%	1.5%	0.5%	4.0%	1.5%
Family size	**1 child**	75.2%	13.4%	88.7%	2.1%	0.0%	7.1%	2.1%
	2 children	74.3%	15.3%	89.6%	2.7%	0.4%	5.9%	1.4%
	3 children	64.0%	14.3%	78.3%	5.7%	1.1%	13.1%	1.7%
	4 children	66.7%	17.9%	84.6%	0.0%	2.6%	10.3%	2.6%
	5+ children	57.9%	15.8%	73.7%	5.3%	0.0%	15.8%	5.3%

Table 29: Parents' preference: Preference reading print and on a touch screen

		Prefer books %	*Prefer a screen %*	*Both equally %*	*Neither %*	*Don't know %*
All parents		61.4%	7.6%	28.1%	1.1%	1.8%
Parent gender	**Fathers**	55.0%	8.8%	32.2%	1.3%	2.7%
	Mothers	68.0%	6.3%	23.9%	0.8%	1.0%
Parent age	**18-30 years**	55.2%	11.7%	27.3%	1.3%	4.5%
	31-35 years	58.9%	8.6%	29.8%	1.4%	1.4%
	36-40 years	65.4%	5.9%	26.5%	1.0%	1.3%
	Over 41 years	63.0%	6.2%	28.6%	0.7%	1.4%
Socio-economic status	**Group AB**	61.8%	7.4%	29.9%	0.2%	0.7%
	Group C1	63.9%	8.2%	25.5%	1.2%	1.2%
	Group C2	64.6%	4.3%	25.5%	1.9%	3.7%
	Group DE	53.1%	10.2%	30.5%	2.3%	4.0%
Parent qualifications	**None**	51.9%	14.8%	22.2%	7.4%	3.7%
	Non-university	57.5%	9.6%	28.7%	1.2%	2.9%
	University	64.4%	5.9%	28.0%	0.7%	1.0%
Child gender	**Boys**	59.8%	9.6%	28.1%	1.0%	1.6%
	Girls	62.8%	5.6%	28.2%	1.2%	2.1%
Child age	**3-year-old**	59.4%	9.1%	30.1%	0.7%	0.7%
	4-year-old	60.1%	7.6%	28.8%	1.1%	2.4%
	5-year-old	64.1%	6.4%	26.0%	1.3%	2.1%
Child age and gender	**Boy 3-year-old**	57.0%	11.3%	30.3%	0.7%	0.7%
	Girl 3-year-old	61.8%	6.9%	29.9%	0.7%	0.7%
	Boy 4-year-old	61.3%	9.0%	26.6%	0.5%	2.5%
	Girl 4-year-old	58.6%	5.9%	31.4%	1.8%	2.4%
	Boy 5-year-old	60.5%	8.7%	27.9%	1.7%	1.2%
	Girl 5-year-old	67.2%	4.5%	24.4%	1.0%	3.0%
Family size	**1 child**	60.5%	10.1%	27.3%	0.8%	1.3%
	2 children	63.0%	6.5%	28.0%	0.5%	2.0%
	3 children	61.7%	7.4%	27.4%	1.1%	2.3%
	4 children	43.6%	12.8%	33.3%	7.7%	2.6%
	5+ children	57.9%	0.0%	36.8%	5.3%	0.0%

Table 30: Parents' self-reported reading skill

		Very Good %	Good %	Overall Good %	Poor %	Very Poor %	Neither good nor poor %	Don't know %
All parents		75.6%	15.6%	91.1%	1.5%	0.1%	5.6%	1.7%
Parent gender	**Fathers**	69.5%	19.2%	88.7%	1.5%	0.0%	6.9%	2.9%
	Mothers	81.8%	11.9%	93.7%	1.4%	0.2%	4.3%	0.4%
Parent age	**18-30 years**	61.7%	20.8%	82.5%	6.5%	0.0%	9.1%	1.9%
	31-35 years	74.0%	15.4%	89.4%	1.0%	0.3%	7.9%	1.4%
	36-40 years	77.8%	17.0%	94.8%	0.7%	0.0%	2.9%	1.6%
	Over 41 years	82.6%	11.2%	93.8%	0.0%	0.0%	4.3%	1.8%
Socio-economic status	**Group AB**	83.3%	11.8%	95.1%	1.4%	0.0%	2.8%	0.7%
	Group C1	74.9%	17.6%	92.5%	1.2%	0.0%	5.5%	0.8%
	Group C2	67.7%	23.0%	90.7%	0.6%	0.0%	6.2%	2.5%
	Group DE	65.0%	14.7%	79.7%	2.8%	0.6%	12.4%	4.5%
Parent qualifications	**None**	33.3%	44.4%	77.8%	0.0%	0.0%	22.2%	0.0%
	Non-university	66.6%	20.1%	86.7%	2.9%	0.2%	7.4%	2.7%
	University	83.6%	11.1%	94.8%	0.5%	0.0%	3.7%	1.0%
Child gender	**Boys**	75.8%	13.8%	89.7%	1.8%	0.2%	6.6%	1.8%
	Girls	75.3%	17.3%	92.6%	1.2%	0.0%	4.7%	1.6%
Child age	**3-year-old**	73.4%	16.1%	89.5%	2.1%	0.3%	7.3%	0.7%
	4-year-old	75.3%	15.8%	91.0%	1.4%	0.0%	5.7%	1.9%
	5-year-old	77.5%	15.0%	92.5%	1.1%	0.0%	4.3%	2.1%
Child age and gender	**Boy 3-year-old**	73.9%	14.1%	88.0%	2.8%	0.7%	7.7%	0.7%
	Girl 3-year-old	72.9%	18.1%	91.0%	1.4%	0.0%	6.9%	0.7%
	Boy 4-year-old	73.4%	15.6%	88.9%	1.5%	0.0%	6.5%	3.0%
	Girl 4-year-old	77.5%	16.0%	93.5%	1.2%	0.0%	4.7%	0.6%
	Boy 5-year-old	80.2%	11.6%	91.9%	1.2%	0.0%	5.8%	1.2%
	Girl 5-year-old	75.1%	17.9%	93.0%	1.0%	0.0%	3.0%	3.0%
Family size	**1 child**	73.5%	19.3%	92.9%	2.1%	0.0%	4.6%	0.4%
	2 children	77.6%	13.6%	91.2%	0.9%	0.0%	5.9%	2.0%
	3 children	73.1%	17.1%	90.3%	2.3%	0.6%	5.1%	1.7%
	4 children	64.1%	17.9%	82.1%	2.6%	0.0%	10.3%	5.1%
	5+ children	89.5%	5.3%	94.7%	0.0%	0.0%	5.3%	0.0%

Table 31: Correlation matrix (frequency, enjoyment, skill)

	Parent reading touch screen	*Child reading print*	*Child reading screen*	*Parent enjoyment*	*Parent skill*	*Child enjoyment*
Parent reading print	.04	**.36**	-.02	**.40**	**.26**	**.21**
Parent reading touch screen frequency	**-**	**.17**	-.06	**.18**	**.15**	**.07**
Chid reading print	-	-	.02	**.30**	**.30**	**.30**
Child reading screen	-	-	-	-.05	-.03	-.004
Parent enjoyment	-	-	-	-	**.47**	**.34**
Parent skill	-	-	-	-	-	**.30**

A higher value indicates a stronger relationship, 1.0 indicates a strong positive correlation and 0.0 indicates no significant correlation. Items in bold indicate statistically significant correlations.

Table 32: How much parents agree with the statement that: To help them get on at school, it is important children learn how to use computers and other technology from an early age

		Strongly agree %	*Agree* %	*Overall agree* %	*Disagree* %	*Strongly disagree* %	*Neutral* %	*Don't know* %
All parents		21.5%	52.2%	73.7%	5.6%	2.0%	17.0%	1.6%
Parent gender	**Fathers**	26.6%	51.0%	77.6%	5.2%	2.1%	12.5%	2.7%
	Mothers	16.2%	53.6%	69.8%	6.1%	2.0%	21.7%	0.4%
Parent age	**18-30 years**	20.8%	40.9%	61.7%	4.5%	3.2%	28.6%	1.9%
	31-35 years	19.2%	53.8%	72.9%	7.5%	1.7%	16.1%	1.7%
	36-40 years	21.6%	54.2%	75.8%	6.5%	1.3%	15.4%	1.0%
	Over 41 years	24.3%	54.7%	79.0%	3.3%	2.5%	13.4%	1.8%
Socio-economic status	**Group AB**	22.0%	54.4%	76.4%	6.9%	2.3%	13.4%	0.9%
	Group C1	24.3%	49.8%	74.1%	5.1%	1.6%	17.6%	1.6%
	Group C2	20.5%	56.5%	77.0%	1.9%	1.9%	16.1%	3.1%
	Group DE	17.5%	45.8%	63.3%	6.8%	2.3%	26.0%	1.7%
Parent qualifications	**None**	29.6%	44.4%	74.1%	3.7%	3.7%	18.5%	0.0%
	Non-university	24.1%	47.7%	71.7%	4.2%	1.5%	20.6%	2.0%
	University	19.4%	55.6%	75.0%	6.7%	2.4%	14.5%	1.3%
Child gender	**Boys**	20.7%	52.6%	73.3%	5.3%	1.4%	17.9%	2.1%
	Girls	22.4%	51.8%	74.1%	6.0%	2.7%	16.1%	1.0%
Child age	**3-year-old**	23.1%	50.7%	73.8%	5.9%	1.4%	16.8%	2.1%
	4-year-old	18.5%	54.9%	73.4%	5.4%	1.9%	17.9%	1.4%
	5-year-old	23.3%	50.7%	74.0%	5.6%	2.7%	16.4%	1.3%
Child age and gender	**Boy 3-year-old**	23.2%	51.4%	74.6%	4.9%	0.0%	17.6%	2.8%
	Girl 3-year-old	22.9%	50.0%	72.9%	6.9%	2.8%	16.0%	1.4%
	Boy 4-year-old	17.6%	55.3%	72.9%	4.0%	0.5%	20.1%	2.5%
	Girl 4-year-old	19.5%	54.4%	74.0%	7.1%	3.6%	15.4%	0.0%
	Boy 5-year-old	22.1%	50.6%	72.7%	7.0%	3.5%	15.7%	1.2%
	Girl 5-year-old	24.4%	50.7%	75.1%	4.5%	2.0%	16.9%	1.5%
Family size	**1 child**	22.3%	49.6%	71.8%	4.2%	2.9%	20.2%	0.8%
	2 children	20.6%	53.9%	74.5%	5.9%	1.4%	16.2%	2.0%
	3 children	22.3%	53.7%	76.0%	4.6%	2.3%	16.6%	0.6%
	4 children	25.6%	33.3%	59.0%	12.8%	2.6%	20.5%	5.1%
	5+ children	21.1%	63.2%	84.2%	10.5%	5.3%	0.0%	0.0%

Table 33: How much parents agree with the statement that: Traditional objects such as books, toys and alphabet blocks are more educational than computer-based games with sounds and letters

		Strongly agree %	*Agree* %	*Overall agree* %	*Disagree* %	*Strongly disagree* %	*Neutral* %	*Don't know* %
All parents		13.3%	25.2%	38.5%	14.2%	2.7%	42.1%	2.4%
Parent gender	**Fathers**	10.5%	22.6%	33.1%	14.9%	4.0%	45.2%	2.7%
	Mothers	16.2%	27.9%	44.1%	13.4%	1.4%	38.9%	2.2%
Parent age	**18-30 years**	16.9%	29.9%	46.8%	13.0%	1.3%	35.7%	3.2%
	31-35 years	15.4%	24.0%	39.4%	17.1%	2.4%	39.0%	2.1%
	36-40 years	12.1%	23.2%	35.3%	13.4%	3.6%	45.4%	2.3%
	Over 41 years	10.5%	26.1%	36.6%	12.7%	2.9%	45.3%	2.5%
Socio-economic status	**Group AB**	12.5%	22.2%	34.7%	15.3%	3.9%	44.0%	2.1%
	Group C1	12.5%	24.3%	36.9%	15.3%	2.0%	43.9%	2.0%
	Group C2	14.9%	31.7%	46.6%	8.1%	1.9%	41.0%	2.5%
	Group DE	14.7%	27.7%	42.4%	15.3%	1.7%	36.7%	4.0%
Parent qualifications	**None**	29.6%	37.0%	66.7%	0.0%	0.0%	33.3%	0.0%
	Non-university	15.0%	26.3%	41.3%	12.5%	1.2%	43.0%	2.0%
	University	11.3%	23.9%	35.2%	16.0%	3.9%	42.0%	2.9%
Child gender	**Boys**	13.3%	25.7%	39.0%	14.8%	3.1%	40.4%	2.7%
	Girls	13.4%	24.5%	37.9%	13.6%	2.3%	44.0%	2.1%
Child age	**3-year-old**	15.7%	23.1%	38.8%	12.2%	1.7%	44.1%	3.1%
	4-year-old	12.8%	25.8%	38.6%	16.6%	3.5%	39.1%	2.2%
	5-year-old	12.1%	26.0%	38.1%	13.4%	2.7%	43.7%	2.1%
Child age and gender	**Boy 3-year-old**	16.2%	23.2%	39.4%	8.5%	1.4%	46.5%	4.2%
	Girl 3-year-old	15.3%	22.9%	38.2%	16.0%	2.1%	41.7%	2.1%
	Boy 4-year-old	12.1%	24.6%	36.7%	20.1%	4.0%	36.7%	2.5%
	Girl 4-year-old	13.6%	27.2%	40.8%	12.4%	3.0%	42.0%	1.8%
	Boy 5-year-old	12.2%	29.1%	41.3%	14.0%	3.5%	39.5%	1.7%
	Girl 5-year-old	11.9%	23.4%	35.3%	12.9%	2.0%	47.3%	2.5%
Family size	**1 child**	11.8%	27.3%	39.1%	15.5%	2.9%	40.3%	2.1%
	2 children	14.2%	25.5%	39.7%	13.6%	2.9%	41.3%	2.5%
	3 children	12.6%	20.6%	33.1%	13.7%	2.9%	48.6%	1.7%
	4 children	12.8%	28.2%	41.0%	17.9%	0.0%	35.9%	5.1%
	5+ children	15.8%	26.3%	42.1%	10.5%	0.0%	42.1%	5.3%

Table 34: How often parents read print and how often parents who have a touch screen use the device to read

		Read print						Read on touch screen					
		Not at all %	Once or twice a week %	A few times a week %	Daily %	Total who do activity %	Don't know %	Not at all %	Once or twice a week %	A few times a week %	Daily %	Total who do activity %	Don't know %
All parents		7.1%	15.7%	26.8%	46.8%	89.4%	3.5%	19.6%	12.8%	18.8%	45.2%	76.9%	3.6%
Parent gender	**Fathers**	8.3%	14.2%	28.7%	44.6%	87.5%	4.2%	19.5%	11.1%	20.1%	45.4%	76.6%	4.0%
	Mothers	5.9%	17.2%	25.0%	49.1%	91.3%	2.8%	19.7%	14.6%	17.5%	45.0%	77.2%	3.1%
Parent age	**18-30 years**	7.8%	17.5%	32.5%	35.7%	85.7%	6.5%	21.1%	13.4%	22.5%	37.3%	73.2%	5.6%
	31-35 years	5.5%	19.0%	28.3%	43.4%	90.7%	3.8%	18.2%	13.6%	18.2%	45.8%	77.7%	4.2%
	36-40 years	7.2%	13.7%	27.1%	50.0%	90.8%	2.0%	20.8%	11.7%	16.3%	49.5%	77.4%	1.8%
	Over 41 years	8.4%	13.5%	21.8%	53.1%	88.4%	3.3%	18.8%	12.9%	20.4%	44.2%	77.5%	3.8%
Socio-economic status	**Group AB**	5.1%	14.6%	24.4%	55.0%	94.0%	0.9%	20.4%	9.8%	19.9%	48.9%	78.6%	1.0%
	Group C1	8.2%	16.1%	29.4%	43.1%	88.6%	3.1%	17.2%	16.3%	19.2%	43.9%	79.5%	3.3%
	Group C2	7.5%	15.6%	30.6%	41.3%	87.5%	5.0%	20.9%	12.2%	15.1%	46.0%	73.4%	5.8%
	Group DE	10.2%	18.2%	25.0%	37.5%	80.7%	9.1%	20.5%	15.2%	19.2%	36.4%	70.9%	8.6%
Parent qualifications	**None**	7.4%	11.1%	40.7%	25.9%	77.8%	14.8%	16.7%	8.3%	25.0%	41.7%	75.0%	8.3%
	Non-university	8.9%	21.7%	29.6%	34.3%	85.7%	5.4%	20.3%	13.7%	22.8%	37.6%	74.2%	5.5%
	University	5.9%	11.8%	24.3%	56.3%	92.4%	1.7%	19.3%	12.2%	15.9%	50.6%	78.7%	2.0%
Child gender	**Boys**	6.5%	16.0%	27.4%	46.2%	89.6%	3.9%	19.7%	11.0%	20.8%	45.0%	76.8%	3.5%
	Girls	7.8%	15.4%	26.1%	47.6%	89.1%	3.1%	19.3%	14.6%	17.0%	45.5%	77.0%	3.6%
Child age	**3-year-old**	7.8%	16.6%	26.9%	46.3%	89.8%	2.5%	16.3%	11.8%	19.0%	49.4%	80.2%	3.4%
	4-year-old	7.3%	13.6%	25.8%	49.2%	88.6%	4.1%	19.0%	14.8%	17.2%	45.3%	77.3%	3.6%
	5-year-old	6.4%	17.2%	27.6%	45.0%	89.8%	3.8%	22.5%	11.7%	20.4%	41.9%	74.0%	3.6%
Child age and gender	**Boy 3-year-old**	7.9%	17.9%	29.3%	42.1%	89.3%	2.9%	14.3%	11.9%	20.6%	50.0%	82.5%	3.2%
	Girl 3-year-old	7.7%	15.4%	24.5%	50.3%	90.2%	2.1%	18.2%	11.7%	17.5%	48.9%	78.1%	3.6%
	Boy 4-year-old	5.0%	14.6%	27.1%	48.2%	89.9%	5.0%	20.4%	12.2%	17.7%	46.4%	76.2%	3.3%
	Girl 4-year-old	10.1%	12.4%	24.3%	50.3%	87.0%	3.0%	17.3%	18.0%	16.7%	44.0%	78.7%	4.0%
	Boy 5-year-old	7.0%	16.3%	26.2%	47.1%	89.5%	3.5%	23.2%	9.0%	24.5%	39.4%	72.9%	3.9%
	Girl 5-year-old	6.0%	17.9%	28.9%	43.3%	90.0%	4.0%	21.8%	14.0%	16.8%	44.1%	74.9%	3.4%
Family size	**1 child**	6.8%	14.8%	26.6%	49.4%	90.7%	2.5%	19.0%	14.2%	19.9%	44.5%	78.7%	2.4%
	2 children	6.3%	14.9%	26.6%	48.4%	89.9%	3.8%	19.7%	12.4%	17.4%	46.4%	76.1%	4.1%
	3 children	9.8%	16.7%	28.7%	41.4%	86.8%	3.4%	21.3%	11.3%	20.6%	43.8%	75.6%	3.1%
	4 children	10.3%	15.4%	28.2%	38.5%	82.1%	7.7%	14.3%	11.4%	28.6%	40.0%	80.0%	5.7%
	5+ children	5.3%	42.1%	15.8%	36.8%	94.7%	0.0%	18.8%	25.0%	12.5%	43.8%	81.3%	0.0%

Table 35: Relationship between socioeconomic status and children's communication and language attainment

		Emerging %	*Expected %*	*Exceeding %*
Reading	**Lower income**	58.3%	41.7%	-
	Middle income	16.1%	61.3%	22.6%
	Higher income	16.7%	66.7%	16.7%
Writing	**Lower income**	75.0%	25.0%	-
	Middle income	29.0%	61.3%	9.7%
	Higher income	41.7%	33.3%	25.0%
Listening and attention	**Lower income**	33.3%	61.7%	-
	Middle income	16.1%	71.0%	12.9%
	Higher income	16.7%	58.3%	25.0%
Understanding	**Lower income**	33.3%	66.7%	-
	Middle income	16.1%	67.7%	16.1%
	Higher income	8.3%	50.0%	41.7%
Speaking	**Lower income**	58.3%	41.7%	-
	Middle income	12.9%	80.6%	6.5%
	Higher income	16.7%	58.3%	25.0%

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