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A Follow-Up Randomised Controlled Trial Evaluation of the Effects of Business in the Community's *Time to Read* Mentoring Programme

Sarah Miller, Paul Connolly and Lisa Maguire

January 2011

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Executive summary

Background

This report presents the findings of a randomised controlled trial evaluation of the *Time to Read* volunteer mentoring programme run by Business in the Community.

There already exists a strong body of evidence demonstrating that *Time to Read* is extremely well received by schools, mentors and the children themselves who regard it as an important aid in helping improve literacy skills among struggling readers. This present evaluation has sought to add to this evidence base by assessing the actual effects of *Time to Read* and, more specifically, whether it is leading to real and measurable improvements on the reading skills of children taking part in the programme.

The trial is one of the largest evaluations of its type undertaken internationally and involved 512 children from 50 primary schools across Northern Ireland. The evaluation team is indebted to the volunteer mentors and their companies, the school principals, teachers, children and parents that participated in the study and also The Atlantic Philanthropies whose generous support made the research possible.

Business in the Community

Business in the Community is a unique movement in the United Kingdom and Ireland of over 800 member companies, almost 250 of which are in Northern Ireland. Its purpose is to mobilise business as a force for good in society. As a membership organization, Business in the Community works with companies to help them address their responsibilities to society by focusing on three key themes – People, Planet and Place.

In helping companies demonstrate their commitment to making a positive impact on society, Business in the Community has developed a number of campaigns and programmes which have been introduced to support and engage businesses across Northern Ireland in addressing their responsibilities.

Business in the Community recognises that Northern Ireland has high levels of deprivation and disadvantage in certain areas with a worrying number of young people leaving school without the expected levels of literacy and numeracy and few formal qualifications. Business in the Community also recognises the advice of economic analysts that addressing essential skills levels at an early age will help contribute to Northern Ireland's economic growth and to the potential for individuals at all levels to benefit both socially and economically. Taking this

need into account, Business in the Community programmes have been instrumental in challenging companies to invest in education.

Business in the Community's Time to Read Programme

Time to Read, introduced in 1999, involves adult employee volunteers spending one hour per week in company time working with primary school children with the aim of improving children's reading skills. The mentoring support aims to complement the work of the teacher, with the emphasis being on the children discovering the enjoyment of reading and improving their reading fluency.

The programme has been extended over the years including participation from a greater number of schools with an emphasis on socially deprived areas. Consequently, *Time to Read* now operates in 96 primary schools, with over 1,000 children, supported by close to 120 companies providing over 500 business volunteers. Last year through *Time to Read*, businesses contributed over 30,000 hours of employee time (an equivalent of £600,000) helping children with their reading through *Time to Read*.

Time to Read involves the following process:

- Employers are recruited into membership of Business in the Community Northern Ireland and encouraged to support *Time to Read* as part of their corporate responsibility strategy.
- *Time to Read* volunteers are recruited, with each committing to spend one hour each week during term time working on a one-to-one basis with two children from Key Stage 2 classes (Primary 5) in a primary school. Volunteers are security checked by PSNI, trained by Business in the Community's Education Team and supported by the Literacy Coordinators in the schools and from the Education and Library Boards.
- Pupils with below average reading ability are selected to participate on the recommendations of the class teacher and parental permission is secured.
- The first meeting takes place in the school, with children, volunteers, parents, the school coordinator and a member of the Business in the Community team all present. This is to ensure that everyone involved understands the purpose of the programme and the commitment required to maximize outcomes for the children.
- Each week the volunteer works on a one-to-one basis with each of two children, reading together from a set of reading resources chosen by the group of Literacy Advisors in the Education and Library Boards. Three or more volunteers work in one school at the same time.

- Each child participating in *Time to Read* receives two half-hour mentoring sessions a week, often involving two different mentors.
- Business in the Community staff meet with the volunteers twice each year to review progress.
- Volunteers are encouraged to introduce company visits as part of the programme.

The Perspectives of Key Stakeholders

A series of evaluations have taken place since 2003 to assess the impact of *Time to Read*. This began with an evaluation of the *Time to Read* pilot programme undertaken by Deloitte in 2003 which found that there was “overwhelming agreement amongst schools, volunteers and within business that *Time to Read* did make valid and important contributions to literacy witnessed through positive behavioural changes in children.” In relation to behavioural changes, Deloitte found that “the most common changes in children that were identified by schools were increased confidence and increased enjoyment in books and reading.” These findings have been consistently confirmed through annual in-house evaluations undertaken by Business in the Community with key stakeholders.

Business in the Community subsequently recognised the need to generate more robust evidence to assess the overall effectiveness of the programme. To achieve this, they engaged the support of leading academics and global literacy experts who, together with The Atlantic Philanthropies, conducted two major randomised controlled trials.

In 2008 as part of the first randomised controlled trial, a process evaluation of the implementation of *Time to Read* by the Centre for Effective Education at Queen’s University Belfast confirmed the initial findings. This evaluation included a series of qualitative interviews and focus groups and found a very strong perception among school principals, teachers and volunteer mentors that *Time to Read* had a positive impact on the pupils in relation to their: confidence as readers; enjoyment of reading; skills in reading; and also, more broadly, their appreciation of the world of work. Moreover, these perceptions were corroborated by the interviews with the children themselves who overwhelmingly reported that they found *Time to Read* to be a very positive and enjoyable experience.

Methodology of the Present Evaluation

The present randomised controlled trial was conducted between October 2009 and June 2010 and involved 512 children from 50 schools across Northern Ireland. Children were randomly allocated to either the intervention or control group and were tested on a range of outcome measures at two time points: at the start of the school year (October 2009) before the intervention began and at the end of the school year (June 2010) when the intervention finished.

Children were tested on the following outcomes:

- Decoding
- Reading rate
- Reading accuracy
- Reading fluency
- Reading comprehension
- Enjoyment of reading
- Reading confidence
- Aspirations for the future

Findings

This trial has found clear evidence that the *Time to Read* programme is effective in improving a number of reading outcomes for children; in particular the foundational reading skills of decoding (effect size, $d=+.15$), reading rate ($d = +.22$) and reading fluency ($d = +.14$). These effect sizes can be translated into an 'improvement index' which expresses each effect size as an increase in percentile points. This means that children who took part in *Time to Read* experienced a 6 percentile point improvement in decoding skills, a 9 percentile point improvement in reading rate and a 6 percentile point improvement in reading fluency compared to those in the control group. The follow-up trial also found evidence of the continuing positive effect of *Time to Read* in improved aspirations for the future ($d = +.11$). The size of these effects also compare favourably with similar volunteer mentoring programmes internationally.

In addition, there is evidence that the amount of sessions provided impacted upon particular outcomes such that children who receive more of the programme were reporting greater enjoyment of reading and better reading fluency than children who received fewer mentoring sessions. The findings also suggest that the programme worked as effectively for boys and girls; for those from different socio-economic backgrounds; and also for those with varying initial reading abilities.

Finally, in relation to the children's higher level reading skills, particularly comprehension, and also their enjoyment of reading and reading confidence, the evaluation was unable to show any significant effects.

Conclusions

There are five key conclusions arising from this programme of research on the effectiveness of the *Time to Read* programme:

1. This trial provides strong and robust evidence that the *Time to Read* programme is effective in improving particular core foundational skills that children need in order to become effective readers. It is comparable with leading international literacy interventions based on volunteer mentoring as an effective way of improving literacy skills among children who are currently struggling as readers.

2. It is well established that a family of skills, including decoding, oral fluency and reasoning are important for the development of comprehension. Given the research was unable to show significant effects that *Time to Read* impacted on reading comprehension, Business in the Community should review the future development of the programme. This should explore whether the organisation wishes to maintain the existing focus of *Time to Read* on improving core foundational skills required in order for children to become effective readers or whether to develop the programme further in order also to make gains in relation to reading comprehension.

This is not a straightforward decision however as the teaching of comprehension is a specialist skill that would require significant amendments to the existing programme, including greater training of volunteer mentors and a much more structured programme of activities that would need to be followed during the mentoring sessions in order to improve reading comprehension.

3. There is strong evidence that the intensity of the programme matters. Those children who received more mentoring sessions showed better reading fluency and enjoyment of reading than children who received fewer sessions. It is therefore recommended that the existing number of sessions that are provided for children (namely two 30 minute sessions per week) are maintained as a minimum.
4. There is both qualitative and quantitative evidence that, alongside impacting positively on core reading outcomes, *Time to Read* also has a positive effect upon children's aspirations for the future. The feedback gathered from the qualitative interviews in previous evaluations suggest that this may in part be due to the development of positive and encouraging relationships with successful adults, including visits to their workplaces.

It is therefore recommended that this particular element of the programme be considered further as a secondary outcome of *Time to Read* and with an enhanced focus as part of the programme. There is evidence from the wider literature that aspirations for the future can positively and significantly contribute towards later adult attainment, both in terms of educational achievement and type of occupation chosen. It is therefore possible that increasing children's aspirations at this age may be able to contribute to increased aspirations in the future and thus, through this, to a number of other educational outcomes.

5. Finally, in relation to the non reading outcomes which were considered – namely children's enjoyment of reading and their confidence as readers – the results suggests that it may be necessary to revise the current way of thinking about how *Time to Read* works. In particular, rather than children's reading skills being dependent upon them first increasing their enjoyment of and confidence in reading, the evidence presented here suggests that the two are unrelated. Indeed, if a relationship exists it may be in the other direction such that improving

children's reading skills will lead onto improvements in their enjoyment of and confidence in reading. This, however, is an hypothesis that would require testing through further research.

Acknowledgements

The evaluation team is indebted to the volunteer mentors and their companies, the school principals, teachers, children and parents that participated in the study and also The Atlantic Philanthropies whose generous support made the evaluation possible. We would also like to thank Business in the Community for their full cooperation and support during the evaluation period.

Introduction

This report presents the findings from a second, follow-up randomised controlled trial (RCT) evaluation of the *Time to Read* mentoring programme run by Business in the Community. The Centre for Effective Education also conducted the first RCT and the report of this trial can be accessed in full at <http://www.qub.ac.uk/cee/publications>.

Business in the Community

Business in the Community is a unique movement in the United Kingdom and Ireland of over 700 member companies, more than 230 of which are in Northern Ireland. Its stated purpose is to inspire, challenge, engage and support business in continually improving its positive impact on society. As a membership organization, Business in the Community works with companies to help them address their responsibilities to society in the environment, workplace and community and also by assisting small firms to boost the local economy.

In helping companies to demonstrate their commitment to making a positive impact on society, Business in the Community has developed a number of campaigns and programmes. These campaigns and programmes have been introduced to support and engage companies across Northern Ireland in addressing their responsibilities.

Business in the Community recognise that Northern Ireland has high levels of deprivation and disadvantage in certain areas with a considerable number of young people leaving school without the expected levels of literacy and numeracy and few formal qualifications. Business in the Community believe that addressing essential skill levels at an early age will help to contribute to Northern Ireland's economic growth and to the potential for individuals at all levels to benefit from that growth. Taking this need into account, a number of Business in the Community programmes have been introduced to involve companies investing in education. It is believed that involving business in providing reading volunteers in primary schools represents one way in which business can meet its social responsibilities through addressing a key social issue.

Time to Read

Business in the Community launched its first educational programme, *Time to Read*, in 1999. *Time to Read* began in five primary schools in Belfast with employee volunteers from Northern Ireland Electricity. Each volunteer spent one hour of company time each week working on a one-to-one basis with primary school children with the aim of improving the children's reading skills. The aim of

the mentoring was to complement the work of the teacher; with the emphasis being on the children discovering the enjoyment of reading and improving their reading fluency.

Time to Read was then offered to a greater number of primary schools as a result of more member companies offering employee volunteers. Consequently, *Time to Read* now operates in more than 130 primary schools, with over 1,000 children, supported by close to 120 companies providing up to 500 business volunteers. The programme is described in greater detail in the Methodology section.

Time to Read involves the following process:

- Employers are recruited into membership of Business in the Community Northern Ireland and encouraged to support *Time to Read* as part of their corporate responsibility strategy.
- *Time to Read* volunteers are recruited, with each committing to spend one hour each week during term time working on a one-to-one basis with two children from Key Stage 2 classes (Primary 5) in a primary school. Volunteers are security checked by PSNI, trained by Business in the Community's Education Team and supported by the Literacy Coordinators in the schools and from the Education and Library Boards.
- Pupils with below average reading ability are selected to participate on the recommendations of the class teacher and parental permission is secured.
- The first meeting takes place in the school, with children, volunteers, parents, the school coordinator and a member of the Business in the Community team all present. This is to ensure that everyone involved understands the purpose of the programme and the commitment required to maximize outcomes for the children.
- Each week the volunteer works on a one-to-one basis with each of two children, reading together from a set of reading resources chosen by the group of Literacy Advisors in the Education and Library Boards. Three or more volunteers work in one school at the same time.
- Each child participating in *Time to Read* receives two half-hour mentoring sessions a week, often involving two different mentors.¹
- Business in the Community staff meet with the volunteers twice each year to review progress.
- Volunteers are encouraged to introduce company visits as part of the programme.

¹ This amount of time was provided for this follow-up randomized trial. Previously, and for the first trial (described below), the children received one 30 minute mentoring session from one mentor.

Previous Evaluations of Time to Read

To date there have been three evaluations of *Time to Read*: two qualitative studies and a randomised controlled trial.

Qualitative evaluations

In 2003 Deloitte conducted an initial qualitative evaluation of the *Time to Read* pilot programme to explore the nature of the outcomes of the programme and provide guidance in terms of future programme delivery. They found that there was ‘overwhelming agreement amongst schools, volunteers and within Business in the Community that *Time to Read* did make valid and important contributions to literacy witnessed through positive behavioural changes in children.’ In relation to behavioural changes, Deloitte found that ‘the most common changes in children that were identified by schools were increased confidence and increased enjoyment in books and reading’ (p. 29).

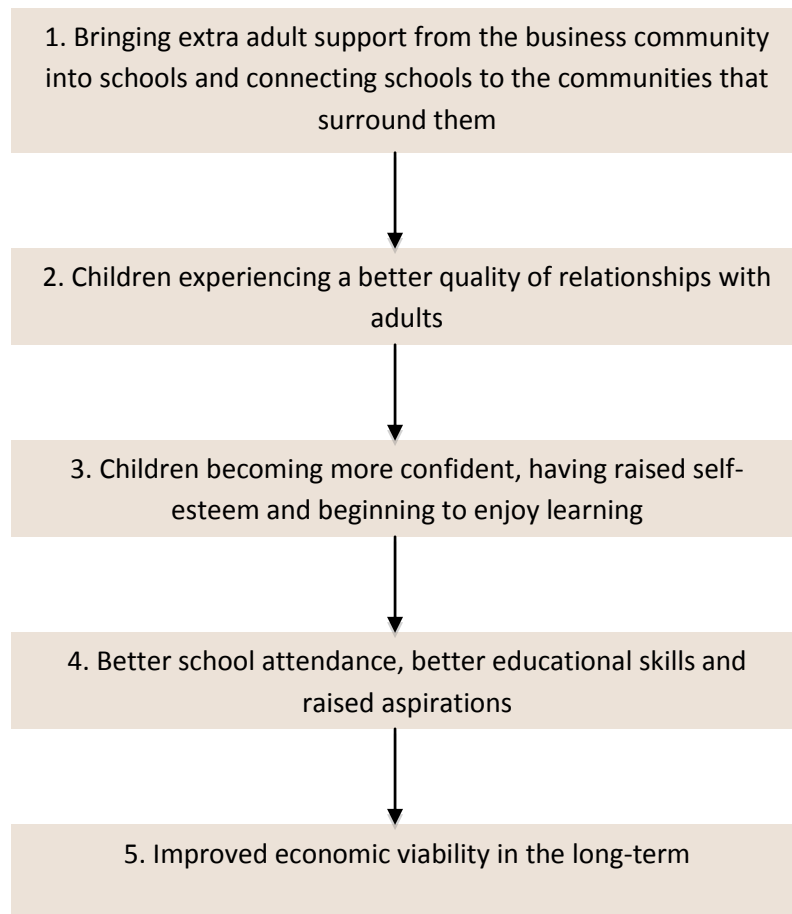
These findings were confirmed by an in-house evaluation conducted by Business in the Community in 2006 that was based largely on focus groups but was also supplemented by individual interviews, school visits and written feedback (Business in the Community, 2006). Similar to the Deloitte study, this evaluation also found that *Time to Read* was very highly regarded among all those involved and that children very much enjoyed their involvement in the programme. The report also found that there was a strong perception among all involved that *Time to Read* was leading to additional positive outcomes among children; especially in relation to their self-esteem and confidence as readers as well as their enjoyment of reading as well as their aspirations for the future.

However, beyond reporting these extremely positive perceptions of *Time to Read* held by schools, parents and volunteer mentors, both of these reports recognised that they were unable to evaluate the actual impact of the programme in improving outcomes for pupils. It was for this reason that in 2006 Business in the Community, with the support from The Atlantic Philanthropies, commissioned the Centre for Effective Education to conduct a rigorous evaluation of the impact of *Time to Read* using a randomised controlled trial methodology.

The first RCT evaluation of Time to Read

This trial was conducted over two years (2006 – 2008) and involved 734 children from 50 schools across Northern Ireland. A qualitative implementation evaluation was conducted alongside the RCT. The RCT evaluated the impact of *Time to Read* on the following outcomes: reading comprehension; self esteem; locus of control; enjoyment of learning; and aspirations for the future. These outcomes were selected on the basis of the logic model (see Figure 1 overleaf) developed by Business in the Community that was hypothesised to underpin the programme.

Figure 1. Logic model underpinning the *Time to Read* Programme



The evidence from the randomised controlled trial indicated that *Time to Read* had a positive effect in terms of increasing the children's future aspirations (effect size = +0.17) but was unable to find quantitative evidence that the programme had any effect in relation to the three remaining outcomes identified through the logic model (the children's general levels of self-esteem, their enjoyment of education or their reading skills).

The report concluded that the logic model did not adequately capture the effects that the programme may be having. It highlighted recent literature that suggested that more specific outcomes may have been more appropriate than the global outcomes that were originally identified. In particular, it was suggested that it may have been more appropriate to expect a positive change in children's enjoyment of *reading* rather than their enjoyment of learning in general and, similarly, a positive change in their confidence *as readers* (i.e. academic self-esteem) rather than their global self esteem.

In addition, the report recommended that Business in the Community consider making some refinements to the mentoring programme itself; reflecting lessons available from the strong body of

research evidence that now existed regarding the key characteristics of successful mentoring programmes. Alongside reviewing the logic model and associated aims of the programme, the report therefore recommended that the *Time to Read* programme should consider making the mentoring sessions more structured and also increasing the amount of time each child receives mentoring.

In response to these recommendations, Business in the Community reviewed the existing logic model and identified a number of more specific outcomes for the programme. It also increased the intensity of the programme from one 30 minute mentoring session per child per week to two mentoring sessions per week. With these changes in place, Business in the Community commissioned the Centre for Effective Education to undertake this second follow-up trial to evaluate the effectiveness of the refined *Time to Read* programme.

Methodology

Participants

A total of 50 primary schools participated in this follow-up randomised controlled trial (RCT). 23 of these schools participated in the first RCT and all of them had experience of Business in the Community delivering *Time to Read* in their school.

Time to Read is aimed at children aged 8 to 9 years and in Year 5 of primary school. The research team therefore asked the Year 5 teachers in participating schools to identify pupils in their class who were below average in reading and lacked confidence in reading and who the teacher felt would benefit from the programme. Children were not eligible to participate if they also had a statement of special educational need.

The number of available mentoring places in the school determined the numbers of children teachers were asked to identify. For example if there were four mentoring places available, teachers were asked to identify eight eligible children so that four could be randomly allocated to receive the mentoring and four allocated to the control group.

Outcomes and Measures

The outcomes measured in this trial remain broadly based on the logic model described in Figure 1 above but taking on board the recommendations to emerge from the first trial regarding the need to focus on and measure more specific outcomes.

To assess literacy skills several aspects of the reading process were measured: decoding, reading rate, reading accuracy, reading fluency and reading comprehension. Decoding (or phonological recoding) is one of the first steps on the road to learning to read. It refers to a child's ability to read a word they have never seen before by pronouncing the word through a process of sounding out the letters. As children become more skilled at decoding they are able to read more quickly (rate) and with fewer mistakes (accuracy), which result in improved reading fluency (which is a measure that combines their rate and accuracy). In turn, greater fluency leads to better comprehension, which is the child's ability to understand what they are reading and construct a logical mental representation of the text.

The non-literacy outcomes that this trial measured included the more specific outcomes of enjoyment of *reading* and *reading* confidence (or efficacy) as well as the children's aspirations for

the future using the same measure as for the first trial. Table 1 below summarises the outcomes and measures that were used together with details of their reliability,

Table 1. Outcomes and measures

Outcomes		Measures	Reliability
<i>Reading skills</i>	Decoding	The Graded Non Word Reading Test (Snowling, McLean & Stothard 1996)	0.96
	Reading rate	The Gray Oral Reading Test (Wiederholt & Bryant 2001)	0.88 – 0.96
	Reading accuracy		
	Fluency		
Comprehension			
Enjoyment of reading		The Garfield Elementary Reading Attitudes Scale (McKenna & Kear 1990)	0.74 – 0.89
Reading confidence (efficacy)		The Reader Self Perception Scale (Henk & Melnick 1995)	0.81 – 0.84
Aspirations		Aspirations for the Future Scale (Loeber et al 1991)	0.83

In addition to the outcome measures above, data relating to children’s socio economic status (via postcode), gender and age were also collected.

Finally, mentors were also required to keep a log of each mentoring session. This information included the number of sessions, the duration of each session and a checklist of the reading strategies used by the mentor during the session.

Procedure

Written parental consent was obtained for each child to: i) participate in the evaluation; ii) be randomly allocated to the intervention or control group; and iii) be tested on the outcome measures at two time points (pre- and post-test). Children’s direct informed consent was also sought prior to them completing the outcome measures.

The parents of eligible children were sent a letter by the research team seeking their consent for their child’s participation in the evaluation. None of the children invited to take part in the evaluation had been exposed to *Time to Read* previously.

Consenting pupils were randomly allocated within each school to the intervention and control group by the research team using the random selection function in SPSS. In addition, mentors were randomly allocated to the children they would mentor over the year. The exact number of children allocated to the intervention group depended on the number of mentoring places available to each school. The allocation resulted in 263 children in the intervention group and 249 in the control group.

All participating children completed the outcome measures at two time points. The pre-tests were conducted in September/October 2009 before the intervention started and the post-tests were conducted in June 2010 at the end of the intervention year. The fieldworkers who conducted the tests were blind to the allocation of the children they were testing.

The intervention

Children allocated to the intervention group received the *Time to Read* programme for one academic year between October 2009 and June 2010. Each pupil in the intervention group was paired with two mentors and spent two half hour sessions every week (60 minutes in total) reading on a one-to-one basis with their mentor(s). The mentoring sessions took place outside the classroom setting in a separate room. Business in the Community provided each school taking part in the programme with a supply of books that the mentor and pupil could choose from for their session. However, pupils were also free to choose books other than those supplied by Business in the Community if they so wished. The control group continued with usual classroom activity while children in the intervention group took part in *Time to Read*.

Findings

In total 512 Year 5 pupils aged between eight and nine years took part in the evaluation. 59 per cent were male and 41 per cent were female. Overall, 263 children were randomly allocated to the intervention groups and 249 to the control group. Table 2 shows the breakdown the sample by gender and group allocation.

Table 2. Pupil sample characteristics by gender and group allocation

	Control	Intervention	Total
<i>Boys</i>	144 (58%)	156 (59%)	300 (59%)
<i>Girls</i>	105 (42%)	107 (41%)	212 (41%)
<i>Total</i>	249 (100%)	263 (100%)	512 (100%)

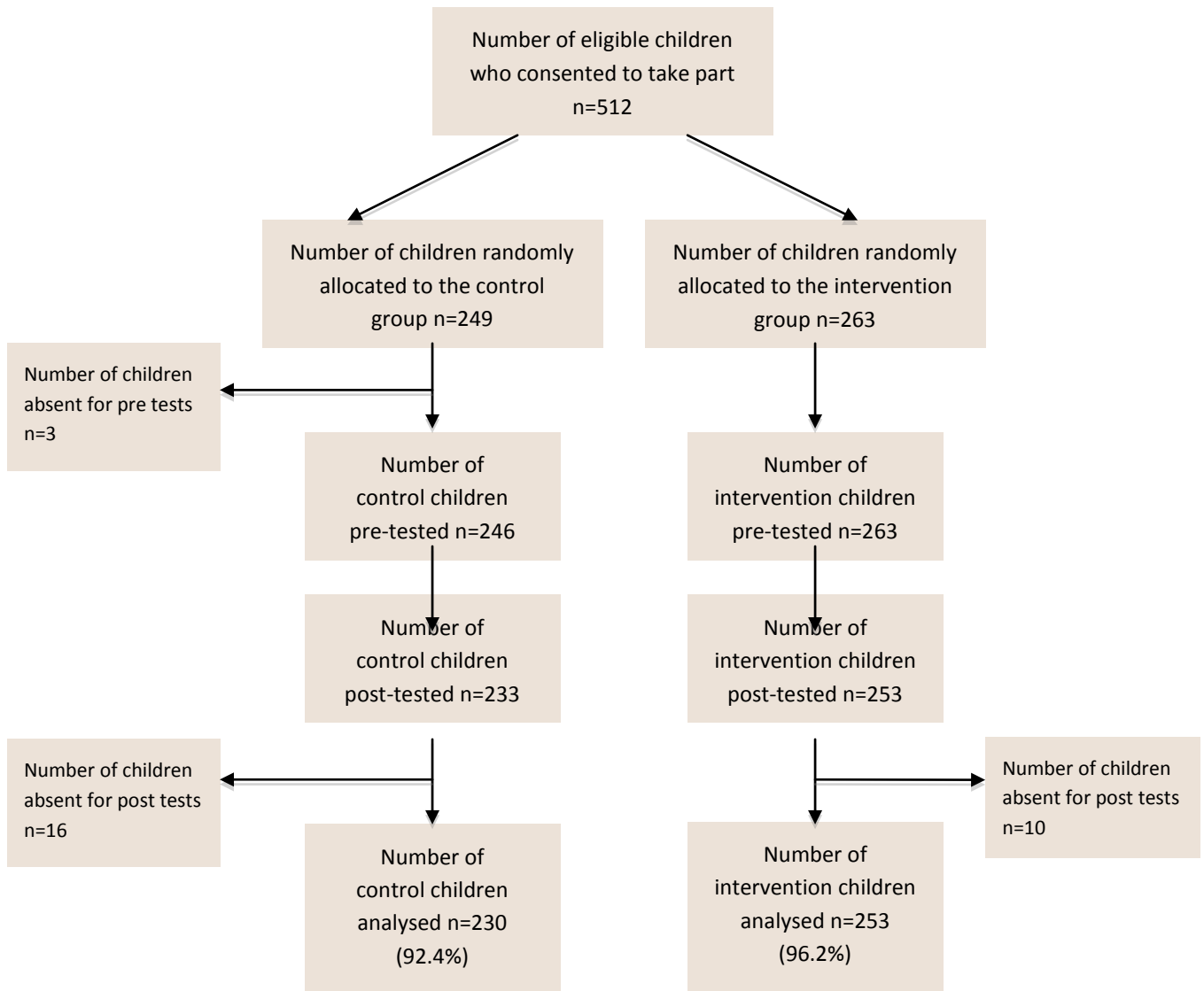
Table 3 shows the breakdown of the sample of schools by percentage of pupils in schools eligible for free school meals (%FSM), school type and Education and Library Board area and compares the sample to the population of primary schools in Northern Ireland.

Table 3. School sample characteristics compared to the Northern Ireland population

		Population		Sample	
		No.	%	No.	%
<i>Percentage eligible for Free School Meals</i>	<i>Low</i>	287	33	9	18
	<i>Medium</i>	288	33	16	32
	<i>High</i>	291	33	25	50
<i>Type of school</i>	<i>Controlled</i>	386	45	28	56
	<i>Maintained</i>	422	50	18	36
	<i>Integrated</i>	41	5	4	8
<i>Education and Library board area</i>	<i>Belfast</i>	93	11	23	46
	<i>North Eastern</i>	211	24	9	18
	<i>South Eastern</i>	156	18	7	14
	<i>Southern</i>	223	26	4	8
	<i>Western</i>	183	21	7	14
<i>Total schools*</i>		866	100	50	100

Figure 2 below shows the number of consenting children who participated in the evaluation and their route through the trial. Teachers were asked by the research team to select a certain number of children based on the availability of mentoring places. This resulted in a sample of 512 children. Unfortunately it is not possible to know how many of the total number of children that teachers approached did not consent to take part. One school withdrew after the pre-tests were completed (n= 10 children: four in the control and six in the intervention group).

Figure 2. Flow of participants through the trial



As can be seen from Figure 2 above, 92.4 per cent of the control group and 96.2 per cent of the intervention group completed both the pre- and post-tests and were included in the analysis.

Differences between groups at pre-test

Table 4 compares the intervention and control groups in relation to their scores at pre-test on the outcome measures used. For four out of five outcomes there are no statistically significant differences between intervention and control groups demonstrating that the randomisation process worked in producing two equal groups.

Table 4. Differences between groups on the outcomes at pre test

Outcome	Control Mean (SD)	Intervention Mean (SD)	Significance ²
<i>Decoding (GNRT)</i>	10.70 (5.79)	10.26 (5.64)	p=0.32
<i>Reading comprehension (GORT)</i>	8.82 (2.43)	8.87 (2.86)	p=0.74
<i>Enjoyment of reading (Garfield)</i>	3.02 (0.55)	2.93 (0.59)	p=0.07
<i>Aspirations for the future</i>	3.23 (0.33)	3.21 (0.36)	p=0.46
<i>Reading confidence (RSPS)</i>	4.01 (0.59)	3.88 (0.62)	p=0.02

Main analysis

The main analysis was conducted using multilevel linear regression models for each outcome, with the children (level one) clustered within schools (level two). Full details of each of the statistical models generated are provided in the Appendix. As can be seen, by including the children's pre-test scores in the model, the analyses controlled for any pre-test differences between the two groups of children. Table 5 presents the results of these models reporting: the adjusted post test means (controlling for any differences in pre tests); the effect size of the difference between the intervention and control groups on each outcome; and whether this difference is statistically significant (i.e. $p \leq 0.05$). Significant differences are highlighted in bold.

² These significance levels are based upon independent samples t-tests that take into account the clustered nature of the sample.

Table 5. Summary of the effects of the *Time to Read* programme on child outcomes

Outcome	Adjusted post test means		Effect size	95% CI for effect size	Significance
	Control Group (SD)	Intervention Group (SD)			
<i>Decoding</i>	12.84 (5.42)	13.66 (5.34)	0.15	0.04, 0.27	p=0.01
<i>Reading rate</i>	9.36 (2.70)	9.93 (2.61)	0.22	0.07, 0.37	p=0.01
<i>Reading accuracy</i>	9.47 (2.70)	9.67 (2.59)	0.07	-0.06, 0.21	p=0.28
<i>Fluency</i>	9.15 (2.81)	9.53 (2.74)	0.14	-0.00, 0.28	p=0.05
<i>Reading comprehension</i>	9.82 (2.29)	9.70 (2.19)	-0.05	-0.21, 0.11	p=0.55
<i>Enjoyment of reading</i>	2.86 (0.63)	2.88 (0.65)	0.03	-0.11, 0.17	p=0.64
<i>Reading confidence</i>	3.94 (0.62)	3.95 (0.28)	0.03	-0.13, 0.22	p=0.73
<i>Aspirations for the future</i>	3.23 (0.33)	3.26 (0.60)	0.11	-0.05, 0.28	p=0.18

Reading outcomes

As can be seen from Table 5, in relation to reading outcomes, those children who participated in the *Time to Read* programme were found to be scoring significantly better than the control group in decoding (effect size, $d=+.15$), reading rate ($d = +.22$) and reading fluency ($d = +.14$). These effect sizes can be translated into an 'improvement index' which expresses each effect size as an increase in percentile points. This means that children who took part in *Time to Read* experienced a 6 percentile point improvement in decoding skills, a 9 percentile point improvement in reading rate and a 6 percentile point improvement in reading fluency compared to those in the control group.

No evidence of any differences between the groups was found in relation to reading accuracy or reading comprehension.

Non-reading outcomes

No evidence was found of any differences between the intervention group and control group in relation to the three non-reading outcomes: enjoyment of reading; aspirations for the future; and reading efficacy (confidence). However, in relation to aspirations for the future it should be noted that while the effect was not statistically significant, a positive effect was found of a similar size to that found in the original study.

Additional analyses

Pre-specified subgroup analyses were undertaken to explore whether the programme worked better for:

- boys or girls;
- for children from more deprived areas compared to children from more affluent areas; and
- for children who are initially poor readers

In addition to this, analyses were conducted to determine whether the number of mentoring sessions (i.e. a higher dose of the programme) was related to better outcomes for intervention children. Full details of all of the associated statistical models for these additional analyses are also provided in the appendix.

No evidence was found from the subgroup analyses of any differential effects of the programme in relation to the gender or socio-economic background of the child or for those children who began the programme as particularly poor readers.

Mentors were asked to record the number of sessions they completed with each pupil they were mentoring. Pupils in the intervention group received an average of 32 sessions (mean=32, sd=8.6) that equated to an average of 16 hours contact time per child. The minimum number of mentoring sessions received was one and the maximum was 60. Compared to the previous trial this represents a large increase in dosage from a mean of 25 mentoring sessions over a period of two academic years to a mean of 32 sessions over one academic year.

The analysis found evidence that increased contact time resulted in greater gains in relation to reading fluency ($p=.03$) (in particular reading rate) and enjoyment of reading ($p=.02$). No evidence was found that increased contact time impacted upon the remaining four outcomes (reading accuracy, comprehension, reading confidence or aspirations). The graphs below demonstrate how reading rate, fluency and enjoyment of reading improve with increased number of mentoring sessions³.

³ The y-axis of the each graph incorporates two standard deviations above and below the overall sample mean at post-test.

Figure 3. Improvement in reading rate with increased number of mentoring sessions

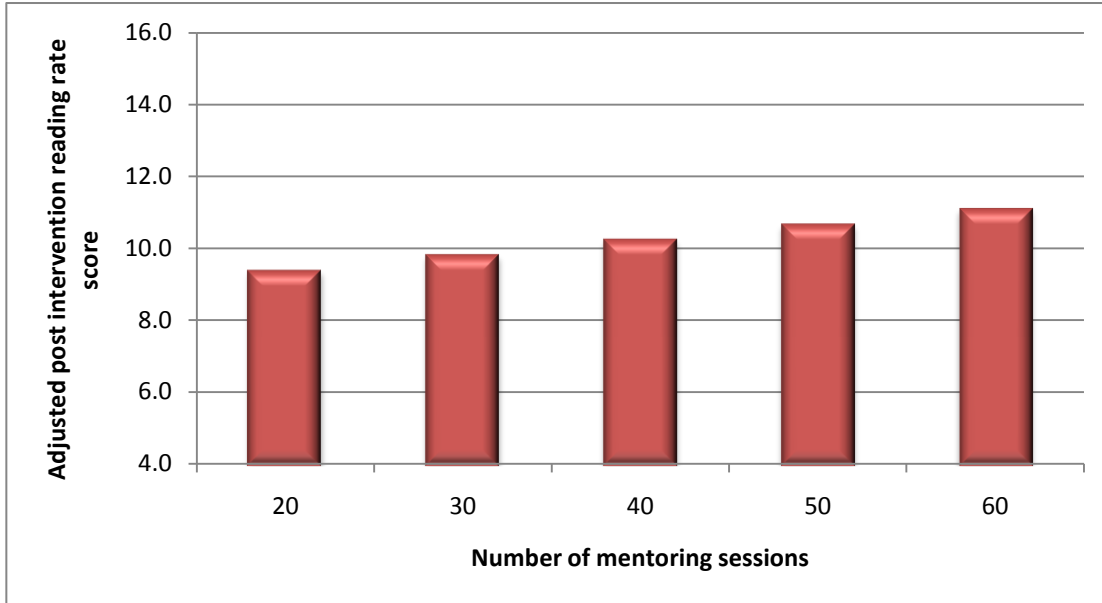


Figure 4. Improvement in fluency with increased number of mentoring sessions

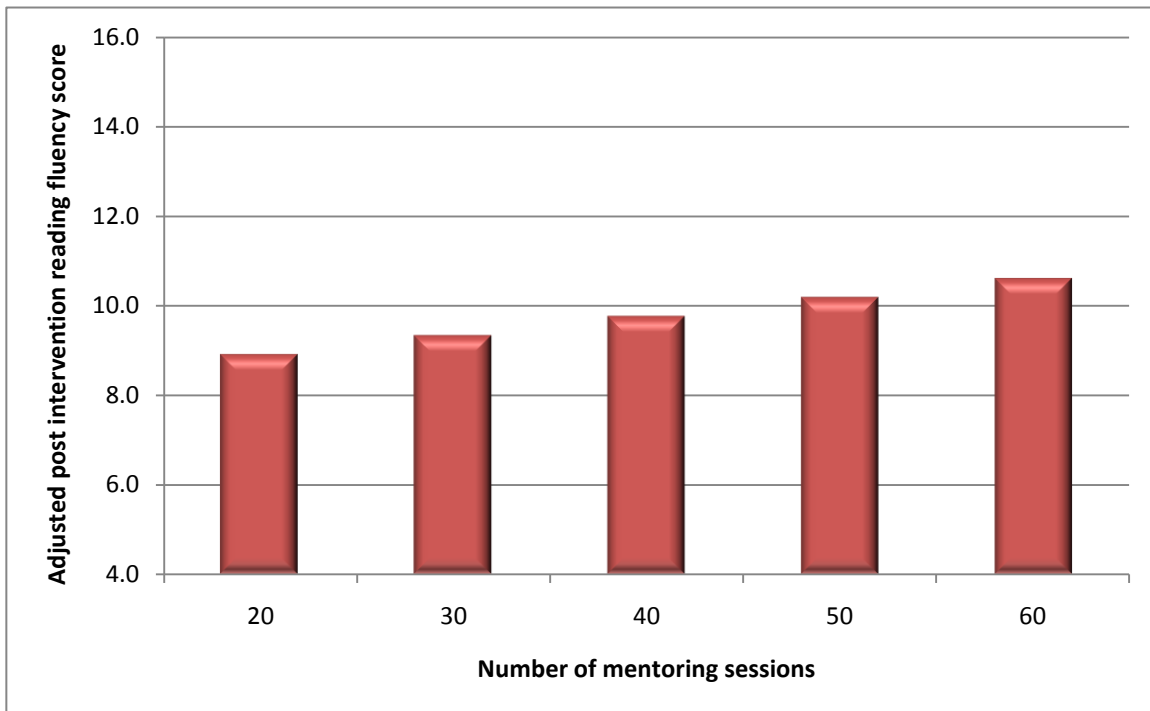
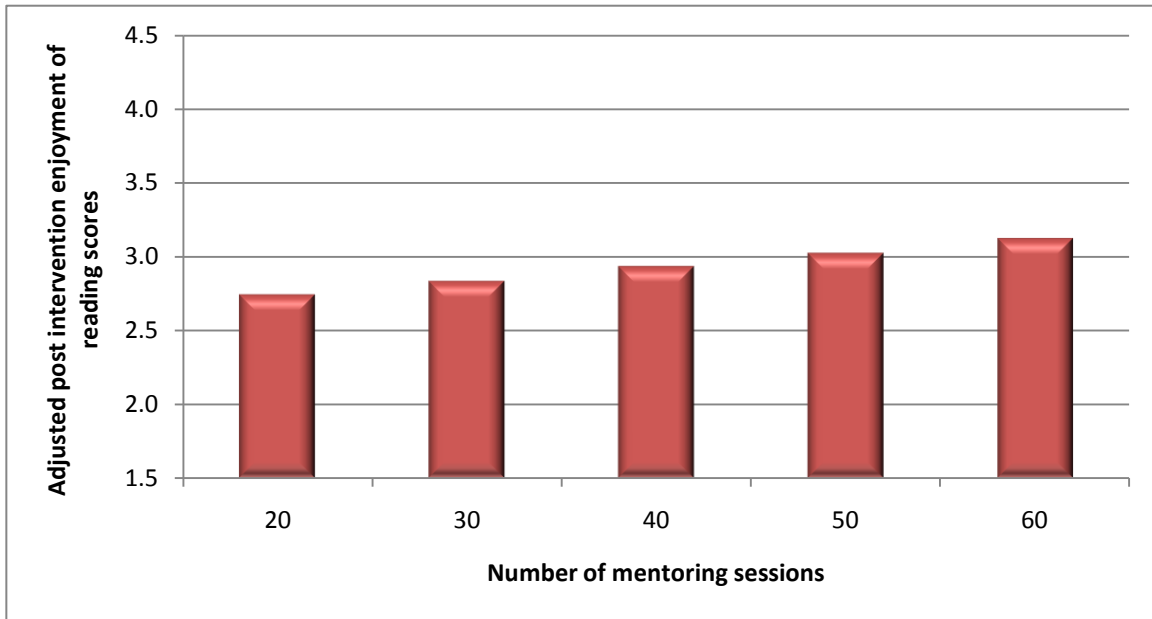


Figure 5. Improvement in enjoyment of reading with increased number of mentoring sessions



Discussion and Conclusions

Summary of findings

This follow-up trial has found clear evidence that the refined *Time to Read* programme is effective in improving a number of reading outcomes for children; particularly in relation to the foundational reading skills of decoding ($d=+.15$), reading rate ($d=+.22$) and reading fluency ($d=+.14$). These effect sizes can be translated into an 'improvement index' (Cohen's U3 index) which expresses each effect size as an increase in percentile points. This means that children who took part in *Time to Read* experienced a 6 percentile point improvement in decoding skills, a 9 percentile point improvement in reading rate and a 6 percentile point improvement in reading fluency.

The original study found that *Time to Read* significantly improved aspirations for the future and some corroborating evidence for this, while not statistically significant, was also found in this trial.

In addition, there is evidence that the amount of sessions provided impacted upon particular outcomes such that children who receive more of the programme were reporting greater enjoyment of reading and better reading fluency than children who received fewer mentoring sessions.

There was no evidence to suggest that the programme improved the children's higher level reading skills, particularly comprehension, and nor that it improved their enjoyment of reading or reading confidence.

Time to Read and the existing evidence base for mentoring programmes

These positive findings are consistent with the impact of other similar mentoring programmes that have been evaluated internationally. One-to-one mentoring is a popular form of instruction employed by schools to prevent early reading failure and improve academic outcomes. A number of systematic reviews have been conducted in the area of mentoring and the evidence has consistently demonstrated the effectiveness of such interventions in improving a variety of reading and academic outcomes similar to the outcomes that *Time to Read* impacts upon (Elbaum, Vaughn, Hughes & Watson Moody 2000; Ritter, Barnett, Denny & Albin 2009; Slavin, Lake, Davis & Madden 2009). The main findings to emerge from these reviews are that one-to-one reading interventions aimed at children at risk of reading failure significantly increase children's: reading skills; specifically listening comprehension, decoding, oral reading and fluency and reading comprehension.

This current *Time to Read* evaluation makes a significant contribution to this evidence base as one of the largest trials conducted in the area of volunteer mentoring that has used such a robust methodology. Slavin and Smith (2009) argue that larger studies such as this one (that also employ a robust methodology) are likely to provide a more accurate representation of the true effects of volunteer tutoring programs than smaller, underpowered trials that up until now have been the basis of the body of evidence supporting the effectiveness of volunteer tutoring. In fact, the only other trial conducted to date larger than the current one was an evaluation of a similar volunteer tutoring program, Experience Corps (Morrow-Howell, Jonson-Reid, McCrary, Lee and Spitznagel 2009), which found an average effect size of +0.11. As such, the size of the effects found in relation to this current trial for *Time to Read* compare very favourably to this.

Time to Read and literacy development

It is clear that many mentoring programmes, including *Time to Read*, work in terms of improving decoding skills and reading fluency. It is important however, to understand how these particular skills fit into the bigger picture of literacy development and learning to read.

Decoding (or phonological recoding) refers to the ability of a child to read a word he or she has never seen before by pronouncing the word through a process of sounding out the letters. It is one of three ways to read unfamiliar words. Children can also use analogizing whereby they use words they already know to read new words, for example using the known word *brick* to read the unknown word *trick*. Finally, children can read unfamiliar words by prediction, which means using context and letter cues to guess the word. Familiar words that they have read before are read by memory or sight and it is sight word reading that allows them to read and understand what they are reading quickly and easily (Ehri 2005).

In the early years of beginning to read, therefore, decoding skills can play a critical role in relation to reading achievement. In particular, as decoding skills become more efficient, children are able to read at a faster **rate** and with greater **accuracy** and these, in turn, lead to improvements in the children's reading **fluency**. The impact of this increase in decoding efficiency (fluency) is that the decoding process gradually stops interfering with the understanding of the text and thus the children's **comprehension**.

Comprehension refers to a child's ability to understand what they are reading and construct a logical mental representation of the text. This requires higher-order processes such as reasoning, but successful reading comprehension is also dependent on decoding skills (which include letter and word identification) and oral language skills such as vocabulary and discourse comprehension (Kendeou, Van Den Broek, White & Lynch 2009). It is a family of skills that develop simultaneously and have their own developmental trajectory.

However, decoding is not the only determinant of reading comprehension; it is also influenced by oral language skills such as vocabulary and syntax, particularly later on in the 'learning to read' process (Shanahan, Callison, Carriere, Duke, Pearson, Schatschneider and Torgesen 2010; Storch and Whitehurst 2002). Given this, it has been recommended in the recent literature that it would be

beneficial for teachers to separate out and target independently the development of decoding and oral language skills to appropriately facilitate the development of reading ability (Kendeou *et al.* 2009; Storch and Whitehurst 2002).

It is with this in mind that the *Time to Read* programme can be seen as playing an important role for reluctant readers in effectively targeting and improving some of the core basic skills required by children to become effective readers.

Time to Read and Aspirations for the Future

The previous trial of *Time to Read* (Miller *et al.* 2009) found a positive effect of the programme on children's aspirations for the future ($d=+.17$) and the current trial found corroborating evidence for this ($d=+.11$). The data from qualitative interviews in previous evaluations suggest that this may in part be due to the development of positive and encouraging relationships with successful adults, including visits to their workplaces.

It is therefore recommended that this particular element of the programme be considered further as a secondary outcome of *Time to Read* and with an enhanced focus as part of the programme. There is evidence from the wider literature that aspirations for the future can positively and significantly contribute towards later adult attainment, both in terms of educational achievement and type of occupation chosen. It is therefore possible that increasing children's aspirations at this age may be able to contribute to increased aspirations in the future and thus, through this, to a number of other educational outcomes.

Conclusions

There are five key conclusions to draw from the evidence presented in this trial.

1. This trial provides strong and robust evidence that the *Time to Read* programme is effective in improving particular core foundational skills that children need in order to become effective readers. It is comparable with leading international literacy interventions based on volunteer mentoring as an effective way of improving literacy skills among children who are currently struggling as readers.
2. It is well established that a family of skills, including decoding, oral fluency and reasoning are important for the development of comprehension. Given the research was unable to show significant effects that *Time to Read* impacted on reading comprehension, Business in the Community should review the future development of the programme. This should explore whether the organisation wishes to maintain the existing focus of *Time to Read* on improving core foundational skills required in order for children to become effective readers or whether to develop the programme further in order also to make gains in relation to reading comprehension.

This is not a straightforward decision however as the teaching of comprehension is a

specialist skill that would require significant amendments to the existing programme, including greater training of volunteer mentors and a much more structured programme of activities that would need to be followed during the mentoring sessions in order to improve reading comprehension.

3. There is strong evidence that the intensity of the programme matters. Those children who received more mentoring sessions showed better reading fluency and enjoyment of reading than children who received fewer sessions. It is therefore recommended that the existing number of sessions that are provided for children (namely two 30 minute sessions per week) are maintained as a minimum.
4. There is both qualitative and quantitative evidence that, alongside impacting positively on core reading outcomes, *Time to Read* also has a positive effect upon children's aspirations for the future. The feedback gathered from the qualitative interviews in previous evaluations suggest that this may in part be due to the development of positive and encouraging relationships with successful adults, including visits to their workplaces.

It is therefore recommended that this particular element of the programme be considered further as a secondary outcome of *Time to Read* and with an enhanced focus as part of the programme. There is evidence from the wider literature that aspirations for the future can positively and significantly contribute towards later adult attainment, both in terms of educational achievement and type of occupation chosen. It is therefore possible that increasing children's aspirations at this age may be able to contribute to increased aspirations in the future and thus, through this, to a number of other educational outcomes.

5. Finally, in relation to the non reading outcomes which were considered – namely children's enjoyment of reading and their confidence as readers – the results suggests that it may be necessary to revise the current way of thinking about how *Time to Read* works. In particular, rather than children's reading skills being dependent upon them first increasing their enjoyment of and confidence in reading, the evidence presented here suggests that the two are unrelated. Indeed, if a relationship exists it may be in the other direction such that improving children's reading skills will lead onto improvements in their enjoyment of and confidence in reading. This, however, is an hypothesis that would require testing through further research.

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Appendix

Overview

The analysis involved fitting a number of multilevel linear regression models with children (level one) nested within schools (level two). The codes and descriptions for each of the variables included in the models are outlined in Table 6.

Table 6. Variable code and description for each pupil level variable used in the analyses

Variable name	Outcome
<i>SOAScore</i>	A pupil level measure of deprivation (derived from each child's postcode)
<i>Boy</i>	Dummy variable coded '1' for boys and '0' for girls
<i>Intervention</i>	Dummy variable coded '1' for children in the intervention group and '0' for children in the control group
<i>Number of Sessions</i>	Number of mentoring sessions recorded for each pupil in the intervention group
<i>GNRT1</i>	Decoding (pre test score)
<i>GORTComp1</i>	Reading comprehension (pre test score)
<i>GarfieldTotal1</i>	Enjoyment of reading (pre test score)
<i>Aspirations1</i>	Aspirations for the future (pre test score)
<i>RSPStotal1</i>	Reading confidence (pre test score)
<i>GNRT2</i>	Decoding (post test score)
<i>GORTrate2</i>	Reading rate (post test score)
<i>GORTAcc2</i>	Reading accuracy (post test score)
<i>GORTFlu2</i>	Fluency (post test score)
<i>GORTComp2</i>	Reading comprehension (post test score)
<i>GarfieldTotal2</i>	Enjoyment of reading (post test score)
<i>Aspirations2</i>	Aspirations for the future (post test score)
<i>RSPStotal2</i>	Reading confidence (post test score)

For each outcome, the post-test score for that outcome formed the dependent variable and a series of models were fitted as follows:

- To test the effects of the intervention as a whole (the main model), the dummy variable 'Intervention' was added as an independent variable together with a number of other pre-test variables that were included as covariates to control for any pre-test differences. Evidence of the effects of the programme were then indicated by the significance of the coefficient for the Intervention variable.

- To test for interaction effects in relation to gender, deprivation and initial reading scores, the above model was then extended by including an additional variable representing the subgroups of interest and then an interaction term between that variable and the dummy variable 'Intervention'. Evidence of the existence of an interaction effect was determined by the significance of the coefficient for the interaction term.
- Finally, to test whether the number of sessions had an influence on the effectiveness of the programme, a final model was fitted for children in the intervention group only. For this model, the Intervention dummy variable was replaced by a variable representing the number of mentoring sessions each child received over the course of the school year. Evidence of whether the number of sessions impacted upon the effectiveness of the programme was determined by the significance of the coefficient for the variable associated with the number of sessions received.

Details of models fitted

Full details of all of the models fitted in relation to each of the outcome variables are provided in Tables 7 – 14.

Table 7. Multilevel models fitted for the decoding outcome variable

Dependent Variable: GNRT2	Parameter estimates (with standard errors)				
	Main Model	Gender	Deprivation	Initial Reading Ability	Number of Sessions*
<i>Observations</i>	470	470	433	470	233
<i>GNRT1</i>	.649 (.031)	.650 (.031)	.651 (.032)	.674 (.043)	.620 (.045)
<i>GORTComp1</i>	-.018 (.074)	-.025 (.074)	-.040 (.077)	-.020 (.074)	-.029 (.112)
<i>GarfieldTotal1</i>	.072 (.344)	-.072 (.366)	.159 (.360)	.103 (.346)	.001 (.483)
<i>Aspirations1</i>	-.053 (.491)	-.042 (.492)	-.234 (.521)	-.048 (.491)	-.199 (.703)
<i>RSPStotal1</i>	.629 (.319)	.650 (.319)	.571 (.340)	.616 (.319)	.913 (.454)
<i>Intervention</i>	.826¹ (.319)	1.104 (.514)	1.189 (.641)	1.308 (.669)	
<i>Boy</i>		-.177 (.505)			
<i>Boy*Intervention</i>		-.452 (.671)			
<i>SOAScore</i>			.009 (.014)		
<i>SOAScore*Intervention</i>			-.006 (.020)		
<i>GNRT1*Intervention</i>				-.046 (.057)	
<i>Number of Sessions</i>					.041 (.033)
<i>constant</i>	3.673 (1.868)	4.139 (1.970)	3.979 (1.978)	3.378 (1.901)	3.09 (2.802)
Ω_u	3.718 (1.021)	3.657 (1.009)	3.916 (1.103)	3.751 (1.028)	3.477 (1.350)
Ω_e	11.513 (.794)	11.483 (.791)	11.524 (.833)	11.487 (.792)	12.095 (1.267)
<i>log likelihood</i>	-1274.807	-1273.952	-1176.625	-1274.472	-641.315

*For those in the intervention group only; ¹p=0.01.

Table 8. Multilevel models fitted for the reading rate outcome variable

Dependent Variable: GORTrate2	Parameter estimates (with standard errors)				
	Main Model	Gender	Deprivation	Initial Reading Ability	Number of Sessions*
<i>Observations</i>	434	434	397	434	214
<i>GNRT1</i>	.182 (.019)	.183 (.019)	.179 (.020)	.212 (.027)	.157 (.027)
<i>GORTComp1</i>	.151 (.046)	.143 (.046)	.162 (.047)	.147 (.046)	.155 (.067)
<i>GarfieldTotal1</i>	.076 (.221)	-.113 (.234)	.162 (.227)	.124 (.223)	.297 (.303)
<i>Aspirations1</i>	-.417 (.305)	-.425 (.304)	-.568 (.314)	-.403 (.304)	-.390 (.418)
<i>RSPStotal1</i>	.900 (.202)	.922 (.201)	.866 (.211)	.881 (.202)	1.010 (.277)
<i>Intervention</i>	.574¹ (.205)	.797 (.325)	.920 (.392)	1.183 (.427)	
<i>Boy</i>		-.351 (.319)			
<i>Boy*Intervention</i>		-.376 (.422)			
<i>SOAScore</i>			.012 (.008)		
<i>SOAScore*Intervention</i>			-.012 (.012)		
<i>GNRT1*Intervention</i>				-.058 (.036)	
<i>Number of Sessions</i>					.043 (.020)²
<i>constant</i>	3.687 (1.163)	4.448 (1.225)	3.603 (1.196)	3.280 (1.185)	1.966 (1.652)
Ω_u	.745 (.276)	.711 (.268)	.912 (.315)	.776 (.283)	.608 (.358)
Ω_e	4.374 (.317)	4.320 (.313)	4.094 (.312)	4.334 (.315)	4.298 (.473)
<i>log likelihood</i>	-957.962	-954.767	-867.574	-956.662	-471.099

*For those in the intervention group only; ¹p=0.01; ²p=0.03.

Table 9. Multilevel models fitted for the reading accuracy outcome variable

Dependent Variable: GORTAcc2	Parameter estimates (with standard errors)				
	Main Model	Gender	Deprivation	Initial Reading Ability	Number of Sessions*
<i>Observations</i>	434	434	397	434	214
<i>GNRT1</i>	.223 (.017)	.224 (.017)	.220 (.019)	.234 (.024)	.209 (.025)
<i>GORTComp1</i>	.127 (.042)	.120 (.042)	.129 (.044)	.126 (.042)	.215 (.063)
<i>GarfieldTotal1</i>	.269 (.202)	.095 (.213)	.268 (.215)	.287 (.203)	.074 (.285)
<i>Aspirations1</i>	-.372 (.274)	-.376 (.273)	-.475 (.296)	-.367 (.274)	-.460 (.392)
<i>RSPStotal1</i>	.528 (.184)	.549 (.182)	.541 (.120)	.521 (.184)	.488 (.259)
<i>Intervention</i>	.196 (.183)	.446 (.292)	.516 (.371)	.421 (.384)	
<i>Boy</i>		-.280 (.287)			
<i>Boy*Intervention</i>		-.417 (.379)			
<i>SOAScore</i>			.008 (.008)		
<i>SOAScore*Intervention</i>			-.010 (.011)		
<i>GNRT1*Intervention</i>				-.021 (.032)	
<i>Number of Sessions</i>					.034 (.019)
<i>constant</i>	4.323 (1.059)	4.989 (1.115)	4.374 (1.134)	4.175 (1.081)	3.723 (1.559)
Ω_u	1.265 (.349)	1.237 (.341)	1.193 (.347)	1.272 (.350)	.810 (.357)
Ω_e	3.477 (.251)	3.425 (.247)	3.586 (.272)	3.472 (.251)	3.670 (.401)
<i>log likelihood</i>	-920.551	-917.114	-847.801	-920.329	-458.709

*For those in the intervention group only.

Table 10. Multilevel models fitted for the reading fluency outcome variable

Dependent Variable: GORTFlu2	Parameter estimates (with standard errors)				
	Main Model	Gender	Deprivation	Initial Reading Ability	Number of Sessions*
<i>Observations</i>	434	434	397	434	214
<i>GNRT1</i>	.227 (.019)	.228 (.019)	.222 (.020)	.249 (.027)	.209 (.027)
<i>GORTComp1</i>	.177 (.045)	.166 (.045)	.172 (.047)	.174 (.045)	.199 (.067)
<i>GarfieldTotal1</i>	.147 (.218)	-.058 (.229)	.189 (.229)	.181 (.219)	.150 (.307)
<i>Aspirations1</i>	-.340 (.299)	-.333 (.296)	-.460 (.316)	-.331 (.298)	-.574 (.423)
<i>RSPStotal1</i>	.675 (.199)	.698 (.197)	.655 (.213)	.661 (.199)	.712 (.280)
<i>Intervention</i>	.381¹ (.200)	.790 (.317)	.668 (.395)	.817 (.418)	
<i>Boy</i>		-.240 (.311)			
<i>Boy*Intervention</i>		-.682 (.411)			
<i>SOAScore</i>			.010 (.008)		
<i>SOAScore*Intervention</i>			-.009 (.012)		
<i>GNRT1*Intervention</i>				-.041 (.035)	
<i>Number of Sessions</i>					.042 (.020)²
<i>constant</i>	3.205 (1.143)	3.933 (1.200)	3.340 (1.206)	2.919 (1.167)	2.794 (1.673)
Ω_u	.917 (.299)	.898 (.293)	.900 (.308)	.931 (.302)	.655 (.365)
Ω_e	4.170 (.301)	4.078 (.295)	4.166 (.317)	4.151 (.300)	4.387 (.481)
<i>log likelihood</i>	-951.429	-946.588	-870.552	-950.733	-473.799

*For those in the intervention group only; ¹p=0.05; ²p=0.03.

Table 11. Multilevel models fitted for the reading comprehension outcome variable

Dependent Variable: GORTComp2	Parameter estimates (with standard errors)				
	Main Model	Gender	Deprivation	Initial Reading Ability	Number of Sessions*
<i>Observations</i>	465	465	428	465	228
<i>GNRT1</i>	.045 (.017)	.048 (.018)	.043 (.018)	.085 (.025)	.023 (.025)
<i>GORTComp1</i>	.290 (.043)	.287 (.042)	.297 (.044)	.287 (.042)	.245 (.063)
<i>GarfieldTotal1</i>	.266 (.200)	.150 (.210)	.289 (.209)	.317 (.200)	.433 (.278)
<i>Aspirations1</i>	-.111 (.288)	-.132 (.288)	-.058 (.301)	-.098 (.286)	.083 (.394)
<i>RSPStotal1</i>	-.045 (.184)	-.034 (.184)	-.114 (.196)	-.072 (.184)	-.065 (.260)
<i>Intervention</i>	-.114 (.191)	-.181 (.305)	.609 (.361)	.688 (.396)	
<i>Boy</i>		-.415 (.295)			
<i>Boy*Intervention</i>		.116 (.395)			
<i>SOAScore</i>			.019 (.008)		
<i>SOAScore*Intervention</i>			-.022 (.011)¹		
<i>GNRT1*Intervention</i>				-.077 (.033)²	
<i>Number of Sessions</i>					.004 (.017)
<i>constant</i>	6.521 (1.075)	7.134 (1.134)	5.873 (1.123)	6.036 (1.089)	5.916 (1.543)
Ω_u	.205 (.119)	.182 (.116)	.088 (.105)	.222 (.122)	.085 (.200)
Ω_e	4.135 (.283)	4.125 (.282)	4.217 (.302)	4.076 (.279)	4.324 (.445)
<i>log likelihood</i>	-999.119	-997.692	-919.324	-996.489	-492.563

*For those in the intervention group only; ¹p=0.05; ²p=0.02.

Table 12. Multilevel models fitted for the enjoyment of reading outcome variable

Dependent Variable: GarfieldTotal2	Parameter estimates (with standard errors)				
	Main Model	Gender	Deprivation	Initial Reading Ability	Number of Sessions*
<i>Observations</i>	473	473	436	473	235
<i>GNRT1</i>	-.003 (.004)	-.002 (.004)	-.003 (.005)	-.002 (.006)	-.003 (.006)
<i>GORTComp1</i>	.018 (.010)	.016 (.010)	.021 (.011)	.018 (.010)	.009 (.014)
<i>GarfieldTotal1</i>	.474 (.048)	.417 (.501)	.462 (.051)	.476 (.049)	.522 (.061)
<i>Aspirations1</i>	.098 (.069)	.089 (.068)	.079 (.074)	.099 (.069)	.153 (.089)
<i>RSPStotal1</i>	.095 (.045)	.101 (.045)	.100 (.049)	.095 (.045)	.154 (.058)
<i>Intervention</i>	.021 (.045)	-.025 (.071)	.041 (.091)	.046 (.094)	
<i>Boy</i>		-.211 (.070)			
<i>Boy*Intervention</i>		.081 (.093)			
<i>SOAScore</i>			.001 (.002)		
<i>SOAScore*Intervention</i>			-.001 (.003)		
<i>GNRT1*Intervention</i>				-.002 (.008)	
<i>Number of Sessions</i>					.009 (.004)¹
<i>constant</i>	.636 (.262)	.937 (.273)	.655 (.280)	.620 (.267)	-.119 (.353)
Ω_u	.068 (.020)	.067 (.019)	.064 (.019)	.068 (.020)	.047 (.019)
Ω_e	.229 (.016)	.223 (.015)	.238 (.017)	.229 (.016)	.199 (.020)
<i>log likelihood</i>	-354.787	-348.932	-334.760	-354.741	-161.702

*For those in the intervention group only; ¹p=0.02.

Table 13. Multilevel models fitted for the aspirations for the future outcome variable

Dependent Variable: Aspirations2	Parameter estimates (with standard errors)				
	Main Model	Gender	Deprivation	Initial Reading Ability	Number of Sessions*
<i>Observations</i>	473	473	436	473	235
<i>GNRT1</i>	.268 (.039)	-.001 (.002)	.001 (.002)	-.003 (.003)	.002 (.003)
<i>GORTComp1</i>	-.001 (.002)	-.001 (.006)	-.003 (.006)	-.001 (.006)	-.005 (.008)
<i>GarfieldTotal1</i>	-.001 (.006)	-.003 (.029)	-.015 (.027)	.003 (.027)	.009 (.033)
<i>Aspirations1</i>	.006 (.027)	.264 (.039)	.273 (.040)	.267 (.039)	.245 (.047)
<i>RSPStotal1</i>	-.009 (.025)	-.009 (.025)	-.004 (.026)	-.007 (.025)	.030 (.031)
<i>Intervention</i>	.035 (.026)	.011 (.041)	.001 (.048)	-.014 (.054)	
<i>Boy</i>		-.053 (.040)			
<i>Boy*Intervention</i>		.040 (.054)			
<i>SOAScore</i>			-.000 (.001)		
<i>SOAScore*Intervention</i>			.002 (.001)		
<i>GNRT1*Intervention</i>				.005 (.005)	
<i>Number of Sessions</i>					.001 (.002)
<i>constant</i>	2.403 (.147)	2.472 (.155)	2.425 (.148)	2.434 (.150)	2.323 (.0185)
Ω_u	.005 (.003)	.005 (.003)	.006 (.003)	.005 (.003)	.000 (.000)
Ω_e	.076 (.005)	.078 (.005)	.071 (.005)	.077 (.005)	.065 (.006)
<i>log likelihood</i>	-78.587	-77.705	-54.699	-78.046	-12.955

*For those in the intervention group only;

Table 14. Multilevel models fitted for the reading confidence outcome variable

Dependent Variable: RSPStotal2	Parameter estimates (with standard errors)				
	Main Model	Gender	Deprivation	Initial Reading Ability	Number of Sessions*
<i>Observations</i>	472	472	435	472	234
<i>GNRT1</i>	-.000 (.004)	-.000 (.005)	-.001 (.005)	-.009 (.006)	.009 (.006)
<i>GORTComp1</i>	.015 (.011)	.015 (.011)	.019 (.011)	.016 (.011)	.012 (.015)
<i>GarfieldTotal1</i>	.126 (.051)	.119 (.054)	.123 (.053)	.115 (.051)	.134 (.067)
<i>Aspirations1</i>	.058 (.074)	.057 (.075)	.068 (.077)	.056 (.074)	.074 (.097)
<i>RSPStotal1</i>	.357 (.048)	.357 (.048)	.335 (.050)	.362 (.048)	.390 (.063)
<i>Intervention</i>	.017 (.049)	.011 (.079)	.010 (.093)	-.157 (.102)	
<i>Boy</i>		-.028 (.076)			
<i>Boy*Intervention</i>		.011 (.102)			
<i>SOAScore</i>			.000 (.002)		
<i>SOAScore*Intervention</i>			-.000 (.003)		
<i>GNRT1*Intervention</i>				.017 (.009)¹	
<i>Number of Sessions</i>					.006 (.004)
<i>constant</i>	1.832 (.278)	1.871 (.294)	1.877 (.288)	1.937 (.283)	1.388 (.380)
Ω_u	.018 (.010)	.018 (.010)	.014 (.010)	.018 (.010)	.019 (.015)
Ω_e	.278 (.019)	.278 (.019)	.272 (.020)	.276 (.019)	.253 (.026)
<i>log likelihood</i>	-379.805	-379.717	-343.209	-377.916	-178.410

*For those in the intervention group only; ¹p=0.05

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