Abstract Title Page
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Title: A follow up randomized controlled trial of *Time to Read*: a volunteer mentoring program.

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Abstract Body

Limit 5 pages single spaced.

Background / Context:

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 consistently demonstrates the effectiveness of such interventions in improving a variety of reading and academic outcomes similar to the outcomes (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.

Time to Read is a volunteer mentoring program that recruits volunteers from the local business community to spend one hour of company time each week working on a one-to-one basis with primary school children aged 8 to 9 years with the aim of improving reading skills. The authors first evaluated the program in 2006-8 using a randomized controlled trial design. The evaluation tested the logic model that was hypothesized to underpin the program and evaluated the program's impact on the following outcomes: reading comprehension, enjoyment of learning, self esteem, locus of control and aspirations for the future.

The evidence from this first RCT 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 evidence that the program had any effect in relation to the three remaining outcomes identified through the logic model (the children's general levels of self-esteem, enjoyment of education and reading skills). The report concluded that the logic model did not adequately capture the effects that the program may be having. It highlighted recent literature which suggested that more specific outcomes may have been more appropriate than the global outcomes that were originally identified i.e. enjoyment of reading instead of enjoyment of learning and self esteem related specifically to reading rather than global self esteem.

The main recommendations to emerge from this evaluation was that *Time to Read* should increase the dosage of the intervention (on average intervention children received only 12.5 hours of mentoring over a two year period) and that another evaluation should be conducted, this time looking at more specific outcomes. In taking these recommendations on board the service providers increased the dose of the program from one 30 minute mentoring session per child per week to two mentoring sessions per week and commissioned the Centre for Effective Education to undertake a second RCT trial of the more intensely delivered program, this time identifying more specific outcomes to be measured.

This evaluation makes a significant contribution to the literature as it is one of the largest trials conducted in the area of volunteer mentoring. As Slavin & Smith (2009) argue, large studies that 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 evidence supporting the effectiveness of volunteer tutoring.

Purpose / Objective / Research Question / Focus of Study:
The aim of this study was to rigorously evaluate the impact of the *Time to Read* mentoring program on the following literacy outcomes: decoding, reading rate, reading accuracy, fluency and reading comprehension; and non literacy outcomes: enjoyment of reading, reading confidence and aspirations for the future.

Setting:
The research was conducted in 50 primary schools from across Northern Ireland.

Population / Participants / Subjects:
Time to Read is aimed at children aged 8 to 9 years and in Year 5 of primary school. Year 5 teachers in participating schools were asked to identify pupils in their class who were below average in reading, lacked confidence in reading and who the teacher felt would benefit from the program. Children were not eligible to participate if they also had a statement of special educational need. In total 512 Year 5 pupils aged between 8 and 9 years and from 50 schools took part in the evaluation. 59 per cent were male and 41 per cent were female. Overall, 263 children were randomly assigned to the intervention groups and 249 to the control group.

(Please insert Figure 1 here)

As can be seen from Figure 1, 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.

Intervention / Program / Practice:
Children allocated to the intervention group received the *Time to Read* program 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. Schools taking part in the program were provided 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 if they so wished. The control group continued with usual classroom activity while children in the intervention group took part in *Time to Read*.

Research Design:
The evaluation was a randomized controlled trial and outcomes were measured at pre and post test. To assess literacy skills several aspects of the reading process were measured: decoding, reading rate, reading accuracy, reading fluency and reading comprehension. The non literacy outcomes were: enjoyment of reading, reading confidence (or efficacy) and aspirations for the future.

In addition to the outcomes, data relating to children's socio economic status, gender, age and school test scores were also collected. Mentors were 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.

Data Collection and Analysis:

Description of the methods for collecting and analyzing data.

Parents of eligible children were sent a letter by the research team inviting them to consent 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. Children's direct informed consent was also sought prior to them completing the outcome measures.

Consenting pupils were randomly allocated 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.

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 pre and post tests were blind to the allocation of the children they were testing.

The main analysis was conducted using multilevel linear regressions for each outcome which controlled for differences between groups at pre test and also took into account the clustered nature of the data.

Findings / Results:

Description of the main findings with specific details.

Table 1 below presents the results of multi level models reporting the 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.

(Please insert Table 1 here)

From Table 1 it can be seen that the intervention group scored significantly better than the control group in decoding, reading rate and fluency. There was no difference between groups in reading accuracy or reading comprehension. There was no evidence of any differences between the intervention and control groups on any of the non-reading outcomes: enjoyment of reading, aspirations for the future and reading efficacy (confidence).

Pre specified interaction analyses were undertaken to explore whether there were differential effects of the program due to gender, socio-economic status and reading ability, however none were evident. There was however, an impact of dosage on some outcomes and an increase in the number of mentoring sessions was associated with greater gains in reading fluency, in particular reading rate, and enjoyment of reading.

Conclusions:
This follow-up trial has found clear evidence that the refined *Time to Read* program is effective in improving reading outcomes for children, particularly in relation to the foundational reading skills of decoding, reading rate and 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 found in this trial.

In addition, there is evidence that the number of mentoring sessions provided impacted upon particular outcomes such that children who receive more of the program 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 program improved the children's higher level reading skills, particularly comprehension, and nor that it improved their enjoyment of reading or reading confidence.

It is clear that many mentoring programs, including *Time to Read*, work in terms of improving decoding skills and reading fluency. 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 a number of ways to read unfamiliar words. Familiar words that children 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 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. It is a family of skills that develop simultaneously and have their own developmental trajectory (Kendeou, Van Den Broek, White & Lynch 2009).

Decoding however, 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 (Storch & 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 & Whitehurst 2002).

It is with this in mind that the *Time to Read* program 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. There are four key conclusions to draw from the evidence presented in this trial.

- The trial found strong and robust evidence that the refined *Time to Read* program is effective in improving some of the core foundational skills (namely decoding and reading fluency) that children need in order to become effective readers.
- The trial has also found strong evidence that the intensity of the program 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.
- Thirdly, while the trial found evidence that *Time to Read* positively impacts on decoding and reading fluency, it found no evidence of any impact on reading comprehension. It is well established that a family of skills, including decoding, oral fluency and reasoning are important for the development of comprehension. With this in mind, it is recommended that the content of the *Time to Read* mentoring sessions is further developed to incorporate a number of simple strategies that are specifically aimed not only at improving decoding skills but also at improving oral fluency.
- Finally, the combined evidence from this trial and the original trial suggests that the original logic model developed as a way of understanding the role of the *Time to Read* program requires rationalization. In particular, while there is now strong evidence that the refined program impacts positively on children's reading skills, there is no evidence that it impacts upon their confidence as readers or their enjoyment of reading.

The paper will reflect on the implications of these findings for service providers, educators and researchers alike and discuss the issues and challenges that field trials often encounter.

Appendices

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Appendix A. References

References are to be in APA version 6 format.

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Slavin, R.E., Lake, C., Davis, S. & Madden, N.A. (2009). *Effective Programs for Struggling Readers: A Best Evidence Review.* Baltimore: The Best Evidence Encyclopedia, Center for Data-Driven Reform in Education.

Slavin, R.E. and Smith, D. (2009). The relationship between sample sizes and effect sizes in systematic reviews in education. *Educational Evaluation and Policy Analysis, 31*(4), 500-506.

Storch, S.A. & Whitehurst, G.J. (2002). Oral language and code-related precursors to reading: evidence form a longitudinal structural model. *Developmental Psychology, 38*(6), 934-947.

Appendix B. Tables and Figures

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Figure 1. Flow of participants through the trial

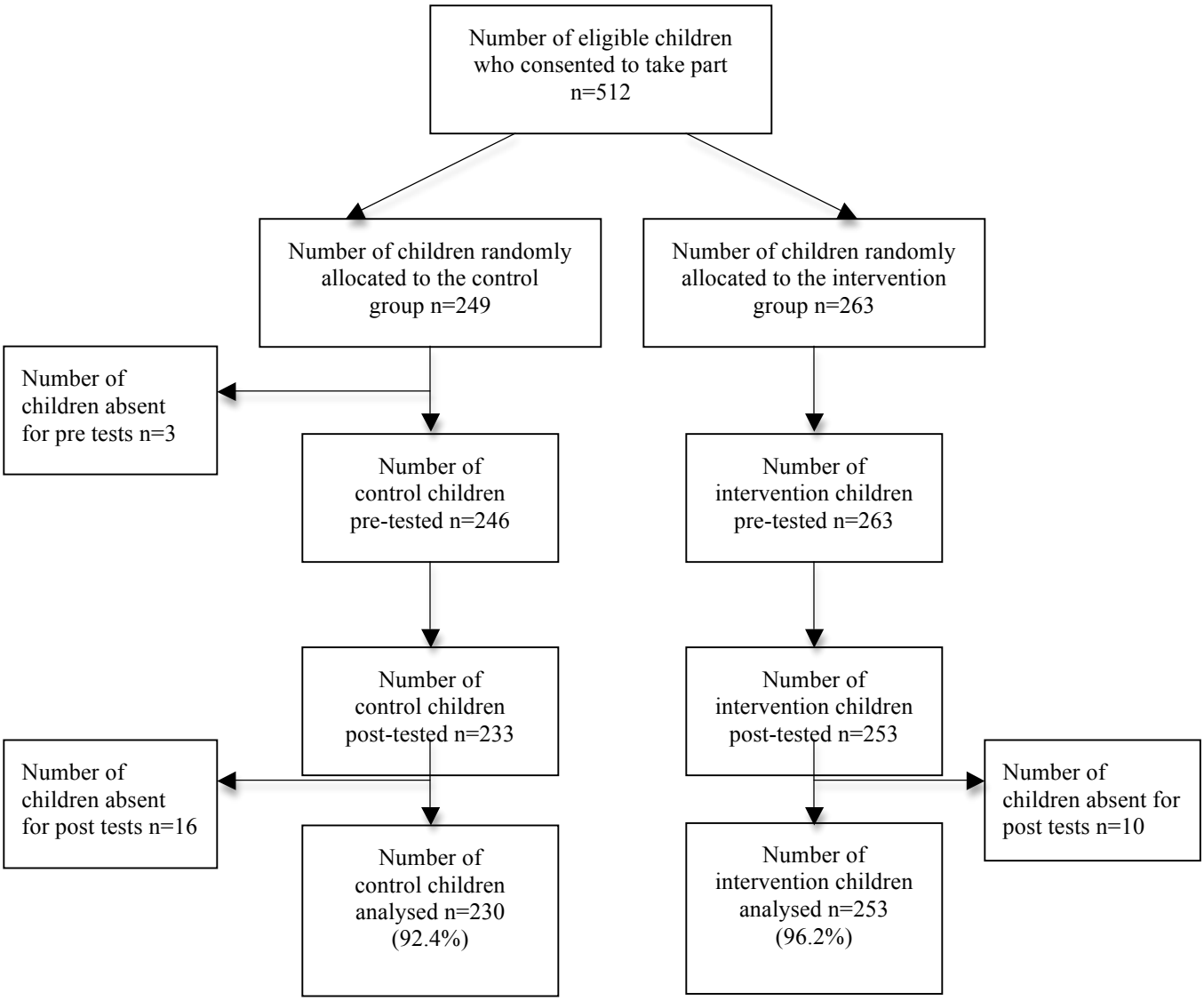

Table 1. Results of the multi level analyses for each outcome

Outcome	*Adjusted post test means*		*Effect size*	*95% CI for effect size*	*Significance*
	Control Group (SD)	*Intervention Group (SD)*			
Decoding	**12.84 (5.42)**	**13.66 (5.34)**	**0.15**	**0.04, 0.27**	**p=0.01**
Reading rate	**9.36 (2.70)**	**9.93 (2.61)**	**0.22**	**0.07, 0.37**	**p=0.01**
Reading accuracy	9.47 (2.70)	9.67 (2.59)	0.07	-0.06, 0.21	p=0.28
Fluency	**9.15 (2.81)**	**9.53 (2.74)**	**0.14**	**-0.004, 0.28**	**p=0.05**
Reading comprehension	9.82 (2.29)	9.70 (2.19)	-0.05	-0.21, 0.11	p=0.55
Enjoyment of reading	2.86 (0.63)	2.88 (0.65)	0.03	-0.11, 0.17	p=0.64
Reading confidence	3.94 (0.62)	3.95 (0.28)	0.03	-0.13, 0.22	p=0.73
Aspirations for the future	3.23 (0.33)	3.26 (0.60)	0.11	-0.05, 0.28	p=0.18