Preservice teachers learning to teach reading using one-to-one tutoring: does learning 'stick' for tutees and tutors?

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Abstract
Teaching reading is a key element of initial teacher education programmes in England. This study contributes to the research about the most effective way to ensure preservice teachers have the necessary skills and knowledge to teach reading. One-to-one reading tutoring of children has been demonstrated to have some positive effects on preservice teacher learning, but often the impact on the child of these teacher education initiatives is not considered. This study used a mixed methods, quasi-experimental design to investigate the impact on children's (n=205) reading of a one-to-one tutoring programme and the impact on the preservice teachers (n=75) who implemented the tutoring as part of their teacher education programme. The study investigated if gains made by children were greater than if they had maintained 'business as usual' adaptive classroom teaching and if there was impact on learning beyond the end of the tutoring programme for children and preservice teachers. Results show that the intervention children made statistically significant gains compared to the comparator group (n=44) however, the maintenance of gains for children was not consistent across the treatment group. However, most preservice teachers maintained their skills and knowledge six months following the end of the tutoring.

Keywords
Teaching; reading; teacher education; literacy; reading interventions.

Introduction

There is little disagreement amongst researchers about the pivotal role that learning to read and being a reader plays in social, academic and economic life (Castles at al., 2018; Organisation for Economic Co-operation and Development, 2016). Increasingly in England and across many other countries of the world, there has been a necessary focus on the need for children to learn to master the basic reading processes of decoding and comprehension (Department for Education, 2021; Lindorff et al., 2023) in a way that also develops children's engagement and pleasure in reading (DfE, 2021). This recognises the link between reading for pleasure and reading attainment (Sullivan and Brown, 2015; Breadmore et al., 2019). Learning to read is a highly complex process in relation to the wide and interrelating range of skills and knowledge required to become a reader alongside the situational and contextual factors that each child brings to the reading process (Roulstone et al., 2011; Levy and Hall, 2021). If learning to read is a complex activity, learning to be a teacher of reading is equally multifaceted, requiring the orchestration of the required content and subject knowledge, alongside pedagogic skills and knowledge (Hudson et al., 2021; Flynn et al., 2021). In addition, preservice teachers need to consider and understand a child's cultural and situational contexts that may impact on their learning (Ellis and Smith, 2017). The preservice teacher also needs to develop the agency to make decisions strategically and deliberately about next steps in teaching and learning for individuals, groups and whole classes of children (Gelfuso, 2017). It is clear, the preservice teacher has a daunting task. This study focuses on one approach to supporting preservice teachers to become effective teachers of reading through one-to-one tutoring. It has a particular focus on how this impacts preservice teachers' learning about reading and the learning of the children they tutor. The first part of this study was reported in Carter (2021) where data was analysed from three cohorts of preservice teachers (n = 362) who were trained in and then implemented the 'Boosting Reading @ Primary' intervention over ten, half hour sessions

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over five weeks. This one-to-one tutoring and the wrap around university-based sessions formed a key element of the teaching reading programme in the second year of the undergraduate teacher education programme. The study demonstrated the statistically significantly reading progress made by children in the project and the increased knowledge, skills, pedagogic practices and self-efficacy of the preservice teachers. This article reports a further study following the questions raised in the first study about whether gains in preservice knowledge and skill and children's progress in reading, are maintained and sustained beyond the end of the intervention and training programme. In addition, this study considered if the gains made by children might have been made without the intervention and with business as usual, quality first teaching. Using data gathered from a quasi-experimental, mixed methods study, preservice teachers' skills and knowledge of teaching reading six months after the end of the one-to-one tutoring programme were analysed along with children's reading progress, three months after the end of their tutoring and an analysis of comparator group of children who did not receive the intervention.

Children's progress and development as readers

As Applegate et al. (2014:189) outline, whilst the debate about how we learn to read and so how best to teach reading continues, there is much agreement about "the vision of the ideal reader." This ideal reader is one who is "avid, engaged and enthusiastic, immersed in the joy of reading" and one who reads because they have some intrinsic pleasure or purpose to their reading. This frequent, engaged practice of the 'ideal reader' supports their continual improvement as identified in Stanovich's (1986) 'Matthew Effect' – the rich becoming richer. However, how to enable children to develop as this 'ideal reader' continues to be a source of debate and discussion amongst researchers. In England, the Independent Review of the Teaching of Reading (2006) sought to identify the most effective practices and concluded that a systematic approach to the teaching of phonics was the appropriate starting point for most children. This provided a mirror of the findings of the National Reading Panel (2000) in the United States and confirmed the privileging of the 'science of reading' (Moss and Huxford, 2007). The simple view of reading model, proposed by Gough and Tunmer (1986) was adopted by English policy makers as the central plank of this scientific approach. What was proposed was that reading comprised of two distinct but essential components, word reading and language comprehension. The English National Curriculum (2013) and now the most recent research review by the Office for Standards in Education (2022), the regulatory body for schools in England, continue to promote this perspective and make clear that all children should be taught systematic synthetic phonics in their first year in school (aged four and five in England) as the key pillar of word reading. Alongside this they identify the foundational skills and knowledge of spoken language as being essential. These two areas of learning address the simple view's proposition. Duke and Cartwright (2021) recognise the "undeniable importance" of the two elements of the simple view but propose a new and updated model, the 'active view of reading' that recognises additional components to reading and so the interrelationship between the two elements of the simple view. They identify the significance of the bridging process, including reading fluency and vocabulary knowledge. In addition, they highlight the wider factor of active self-regulation which includes motivation and engagement as well as strategy use and executive function skills. They situate their model in the 'text, task and socio-cultural' context in which the teaching and learning takes place. The Castle et al., (2018) review of reading, identifies similar additional components of reading suggesting the complexity of reading beyond the simple view. This complexity, alongside the regular advances in the research literature and the debates that it inspires, makes the role of the teacher educator and the learning of the preservice teacher, equally complex.

Developing preservice teacher knowledge of the teaching of reading

As well as having to navigate the range of theoretical positions, teacher educators in England also manage the range of regulatory policies and their accompanying accountability regimes that govern approaches to the teaching of reading (Hendry, 2019). Alongside this, teacher educators are aware that the preservice teachers they are training are the product of their own reading educational

experiences. A study conducted in Belgium and the Netherlands by Vansteelandt et al., (2022) highlighted the negative attitudes to reading of many preservice teachers. Applegate et al., (2014) found a similar picture in the United States with only about half of students in higher education reading regularly, with many of those students training to become teachers. Applegate and Applegate (2004) had used the term, the 'Peter Effect' to describe elementary school preservice teachers who could not give to the children they taught, what they did not have themselves. Teacher educators therefore need to develop programmes that address the learning of multiple skills, a wide array of content and pedagogical knowledge as well as developing positive attitudes to reading and teaching reading. It is recognised that the quality of a teacher has a significant impact on the children they teach (Oliveira et al., 2017) and specifically for those children that find learning to read more difficult (Marzano, 2003). Undoubtedly, teacher education has a significant role in creating these excellent teachers of reading (Carter, 2015; Beauchamp et al, 2015). Whilst it is essential for preservice teachers to be equipped with content and pedagogic knowledge, this learning will not have impact unless this knowledge can be transferred into effective practice (Perkins, 2013; Meeks and Kemp, 2017). Gelfuso (2017:34) further notes that teachers need 'agentive capacity' and so the ability to problem solve in the teaching moment to meet the needs of individual children. To build agentive capacity preservice teachers need the confidence to use what they have learnt to weave together specific knowledge from the scientific approach to the teaching of reading, for example decoding and comprehension strategy instruction, with the other factors that impact on each instructional moment (Wolfe, 2013; Ellis and Smith, 2017). Taking a holistic view of the child and knowing the child's cultural and social funds of knowledge, enables a deeper understanding of how to teach in the moment (Carter, 2021). Haverback and Parault (2008) and Meeks and Kemp (2017) suggest the value of practical 'mastery experiences', including one-to-one tutoring, to nurture and develop preservice teachers in becoming prepared and knowledgeable teachers of reading. This study therefore locates itself within a socio-cognitive theoretical frame, understanding reading as a highly complex activity involving cognitive-linguistic skills and knowledge "all of which are embedded within a social matrix" (Prestorius and Lephalala, 2011:3).

Intervention programmes

For many reasons including initial instructional failure, development issues, contextual factors either in the home or school setting or cognitive factors, some children will fail to make an effective start to learning to read. It is widely believed that addressing difficulties with reading early is the most appropriate approach (Stanovich, 1866; Hurry et al., 2022). D'Agostino et al. (2021) points to evidence that suggests that children with reading difficulties can, with the right kind of intervention, make good progress. Wansek et al., (2018) and Gersten et al., (2020) reviewed evidence from a range of intervention programmes to identify what this 'right kind' of intervention might comprise of in terms of its content and mode of delivery. Gersten et al., (2020) identified one-to-one intervention as having the most impact for early readers whilst Hurry et al., (2022) make the point that the focus of intervention needs to change as the child develops as a reader, with the foundational skill of linking letters to sounds underpinning the early stages of reading. D'Agostino et al. (2021) stresses the importance of children being taught to read whilst in the act of reading so the teacher can be enabled to scaffold and target instruction if gaps are found. Wood and Wood (1996) suggest the teacher needs to be domain contingent in teaching, able to target and prompt for domains the child neglects when reading. This kind of responsive teaching, or sensitive instruction, is consistent with studies that identify the characteristics of effective literacy teachers (Hudson et al., 2021; Duke et al., 2017). However, Hurry et al., (2021) and Gersten et al., (2020) point out that whilst studies may identify the effectiveness of early intervention, these tend to be measured at the end of the intervention period and so there is little reliable data on longer term impact. In the same way, there seems to be little evidence of the impact of teacher education training beyond the end of the reading programme or module. This study aims to address these gaps.

Materials and methods

The intervention

This study aimed to understand the impact on children and preservice teachers of incorporating one-to-one tutoring using the 'Boosting Reading @ Primary' (BR@P) intervention programme for children aged six to eight years who were reading at below expected levels for their age as assessed by their teachers against national standards and using the standardised British Ability Scale (BAS) word reading test. Brooks (2016) identified the 'BR@P' programme as having "useful and substantial" reading gains. The intervention follows a three-text structure, focusing first on fluency using a familiar text, then formative assessment during a reading of a second text that the child has been previously introduced and a third reading of a text which has a focused introduction, including direct instruction based on the child's identified needs. The preservice teachers were trained in the programme and then worked with two children for ten, twenty minute sessions over five weeks. Following the study by Carter (2021) this study sought to identify if preservice teachers' and children's learning was maintained beyond the end of the intervention programme (six months later and three months later respectively). The study also focused on whether the intervention itself was benefiting children or if children would have made similar progress if they had engaged with 'business as usual' quality first, whole class teaching. The research questions therefore for this study were:

1. Are children's BR@P intervention word reading gains greater than for children who did not receive the preservice teacher BR@P intervention?
2. Do children who have a short, one-to-one tutoring programme with preservice teachers, maintain their reading gains three months after the end of the programme?
3. Do preservice teachers maintain their skills and knowledge about the teaching of reading beyond the end of their teaching of reading training?

This study used a quasi-experimental design, BAS testing children (n=205) receiving the one-to-one BR@P intervention pre and post treatment. A smaller group (n= 44) was used as a comparator. When this data was adjusted to exclude children who did not have chronological age data available, there were 201 children in the intervention group and 44 in the comparator group. The data showed no significant difference between the comparator and the intervention group (two sided $p = 0.766$ and Chi-squared tests of group comparator or intervention) against attainment, gender, children in receipt of pupil premium (PP), children with English as an Additional Language (EAL) and those with a Black Minority Ethnic heritage (BME), also show no significant associations. This indicates that that the comparator group is representative of the 'demographics' within the intervention group. The treatment group was BAS tested following the intervention and again three months after the end of the intervention. The comparator group was tested at the end of the intervention period during which they received business as usual teaching. This group were not re-tested three months later as this group then went on to receive the BR@P intervention or another intervention during this time. Withholding the intervention would have been problematic in terms of the conditions of its ethical approval. Children were selected to be part of the treatment group by their class teachers with a focus on children aged between six and eight years with a word reading age as assessed by the BAS test, below the expected level i.e. below chronological age. The preservice teachers (n= 112) were allocated two children for their one-to-one tuition using the BR@P intervention in order for them to have to adapt their pedagogical approaches and develop their knowledge of a range of reading skills to two different individual needs. Tutoring two children also ensured that preservice teachers had to recognise the different attitudes, values and home learning environments of their children and so integrating the proximal and distal factors of becoming a reader. Statistical analysis of the quantitative data was conducted using the SPSS programme. Of the 112 preservice teachers who completed the intervention, 75 completed an online questionnaire and reading assessment task six months after the end of the intervention to identify whether their learning had been maintained. The qualitative questions were analysed using thematic analysis (Braun and Clarke, 2006) and common themes were identified across the data.

Ethical approval to conduct the research was obtained in line with university policy and in compliance with the British Educational Research Association (2018) and institutional guidance. Informed consent was obtained from the schools, teachers and parents of the children and children involved with the study as well as the preservice teachers. All preservice teacher names used are pseudonyms.

Results

The study included 212 children but children who did not have complete pre and post test data were excluded therefore the pre and post test data for 205 children was analysed. The mean average, for this group, in word reading age progress, was 5.0 months (over the five weeks, and ten sessions of the intervention). This compares to a mean average of 2.8 months progress in the comparator group (n=44). The details are set out in the summary statistics in Figure 1.

Group			Age start (months)	BAS Gain (months)
Comparator	N	Valid	44	44
		Missing	0	0
	Mean		87.2	2.8
	Median		85.5	3
	Mode		86.0	3
	Std. Deviation		9.7	3.0
	Minimum		66.0	-6.0
	Maximum		111.0	9.0
Intervention	N	Valid	203	205
		Missing	9	7
	Mean		86.7	5.0
	Median		86.0	3
	Mode		87.0	3
	Std. Deviation		9.9	4.8
	Minimum		66.0	-3.0
	Maximum		112.0	30.0

Figure 1. Differences between BAS increase and age increase (in months).

Using a paired t-test, the improvement of the intervention group is shown as significant ($p<0.001$) in BAS age relative to actual age increase (in months). The paired samples t-test showed the improvement of the comparator group (mean = 1.136 months), was not as high as the improvement in the intervention group (mean = 3.392 months) as shown in Figure 2.

Group	**Mean**	**Std. Dev.**	**t**	**df**	**p-value**
Control	1.136	3.039	2.480	43	0.017
Intervention	3.392	4.799	10.046	201	<0.001

Figure 2. Paired t-test.

The data demonstrates a significant improvement in BAS score relative to age increase difference for both the comparator and intervention group (two sided $p <0.001$). To assess if there is a significant difference between the two groups, Welch's independent samples t-test is performed (Derrick, Toher and White, 2016). This shows a statistically significant difference between the two groups ($t= 3.816$,

df=95.489, p<0.001). As the summary statistics showed both the comparator and intervention group improved, but the intervention group has improved more than the comparator group.

The BAS test was re-administered to the intervention children three months after the intervention had been completed. Only data for 78 children of the 205 children with post intervention data was able to be collected and this group was assessed to have no significant differences to the larger initial group. There was a 2.59 months mean improvement in reading age measured from the end of the intervention to a date three months after the intervention had been completed. At this point, children had returned to normal class teaching. It could be expected that in these three months, the average child would make approximately three months of reading age progress with the expectation that chronological and reading age would be similar. The children receiving the intervention were however, children identified as not having this average reading progress profile, hence their selection by their teachers for the intervention. In order to explore this in more detail, the children's data was further examined in relation to the difference between chronological age and reading age. Figure 3. shows that the children who had the greatest difference between their chronological age and reading age, made the greatest gain when measured immediately after the five week intervention and whilst not 'catching-up' they made significant progress i.e. making nearly four months reading age progress during this time. However, when BAS tested again three months after the intervention had finished, children in this group had made just two months progress and so were not 'keeping-up' with their expected progress, suggesting that if this was maintained, the gains made in the intervention could be lost within twelve months if no further support was provided. The children who started the intervention at a point when they were six to eleven months below the expected reading age for their chronological age, made just over three months progress during the intervention and continued to make expected progress in the following three months. This group, it would appear, made accelerated progress during the intervention and then maintained expected progress following it. This perhaps has implications for teachers selecting children for the intervention depending on the outcomes desired for children working below expected levels and the amount of support available when the intervention has finished.

	Averages			
Starting reading age	BAS raw score gain during intervention	Reading age (months) gain during intervention	BAS raw score gain after intervention	Reading age (months) gain after intervention
At least 12 months below chronological age (N=18)	7.625	3.9375	2.9375	2
6-11 months below chronological age (N=19)	5.153846154	3.333333333	3.666666667	3
1-5 months below chronological age (N=37)	5.566666667	3.40625	4.25	2.689655172

Figure 3. Improvements in the intervention group by starting reading age [to be placed near here].

Preservice teacher results

81% (n=61) of preservice teachers, six months after the training had finished, who completed the online Qualtrics anonymised survey, said they thought that the one-to-one tutoring placement had been beneficial in terms of developing their skills and knowledge as teachers of reading. 19% (n=14) had no opinion as to its benefit. They were asked to comment about what they found most useful about the one-to-one BR@P placement and the seminars and lectures that supported this tutoring. The online survey gave the option to leave comments. 55 of the comments were positive and the comments were grouped into broad themes: integration of theory and practice; reflection and discussion; confidence and instructionally specific. Some of the comments addressed more than one of the themes and some illustrative examples are provided in Figure 4.

Theme	**Illustrative example of student comments**	**Number of comments recorded**
Integration of theory and practice	I enjoyed how we had lecture and seminar sessions based around BR@P while on placement as this allowed me to put what I learned immediately into practice. I feel this is how I personally gain the most knowledge and retention of this knowledge.	6
Instructionally specific	Learning about how to specifically target parts of a child's reading, like fluency or comprehension. Knowledge of teaching SSP, comprehension, fluency and reading for pleasure.	55
Reflection and discussion	The seminars have really useful as a place to discuss what we're learning with our tutoring children.	2
Confidence	I feel as though BR@P was a real turning point in my teaching. It was the point where I found I was able to put all of those things I had learnt in the English module to practice.	5

Figure 4. Illustrative qualitative data.

There were also one negative comment:

> Our time in school is wasted - the focus should be on whole class teaching not on individuals.

Preservice teachers were asked in an online questionnaire which elements of the reading process they had developed during the tutoring. They were able to indicate as many areas as they wished. 73% (n=55) of preservice teachers identified they had learnt how to identify issues with fluency and how to address these with 65% (n=49) identifying the element of automatic and speedy decoding knowledge of letters and sounds, as the element of fluency they had learnt most about identifying and teaching. Over 50% of preservice teachers identified development of their skills and knowledge in each of the following areas: systematic synthetic phonics; language comprehension and comprehension strategies (including monitoring reading 'on the run'). In addition, over 60% of preservice teachers identified the role of some of the distal factors: motivation and engagement; book choice and children's personal interests. All 75 preservice teachers were able to articulate the role and use of the running record as an approach to formative assessment.

Preservice teachers were asked to use a running record to assess a child reading (on video). 71 preservice teachers responded to the question about how easy they found recalling how to take a running record and to use it to assess the child. 5.6 % of preservice teachers (n=4) found this 'extremely difficult' with a further 42.3 % (n=30) finding the task 'somewhat difficult', 52.1% (n=37) found it easy or somewhat easy to recall and implement the formative assessment process. 26.6% of preservice teachers (n=20) made inaccurate judgments about the accuracy of the child's reading, calculated by counting word reading errors as a percentage of the words read. These preservice teachers were inaccurate by between 5 and 10% and so this could be considered to be within a normal range of accuracy. 70.5% (n=50) of preservice teachers made an accurate assessment of the accuracy level of the child's reading. 62% of preservice teachers (n=44) correctly identified that the child needed additional support with decoding words, specifically the split digraph and reading multi-syllabic words. This same number identified that where the child read the word incorrectly that the child had decoded the first few letters of the word and then guessed the rest of the word without decoding through the whole word. This same number of preservice teachers also made comments about the child's comprehension at word and sentence level and how this had contributed, if at all, to any of the partial decoding errors. Preservice teachers made the link between decoding and comprehension, identifying where the child had read a word inaccurately and where it had not made sense in the text, suggesting the child was not always monitoring his comprehension when reading. Some preservice teachers identified that the teacher had 'jumped in' at points to provide a word where the child had hesitated and they considered this problematic and suggested the child may begin to rely on the teacher rather than applying strategies independently.

Discussion

The first two research questions related to progress made by the intervention group compared to the comparator group and the maintenance of progress made. The data shows that children's BR@P intervention word reading gains were greater than for children who did not receive the preservice teacher BR@P intervention. Whilst the gains made by the intervention group were significant it is interesting to note that the comparator group made progress beyond what might be expected i.e. in five weeks, the comparator group might have been expected to make one month of progress but the group made 2.9 months progress and whilst this was not a statistically significant improvement it is worthy of consideration. There are possible reasons for the comparator group's improvement. The children in this group had been identified as being in need of support as they were children reading at levels below what is expected and so class teachers are likely to have adapted their practice for these children. This may have included increased in-class support, adapted learning activities and the use of volunteer reading support personnel. It was not possible to require the comparator group to have none of this additional, adapted support as the research was conducted 'in the field' and so there is an ethical obligation to all children to provide them with the support they need. The comparator group had the BR@P intervention, delivered by school teaching assistants, later in the academic year to ensure equity of provision. A further explanation for the progress made by the intervention group, is the nature of the one-to-one support given. Wanzek et al. (2018), Gersten et al. (2020) and D'Agostino et al. (2021) note the larger effect sizes for interventions with younger children that are delivered as one-to-one interventions as compared to interventions delivered to small groups. D'Agostino et al. (2021 p.443) also identify the difficulties of isolating the reasons for the effectiveness of programmes. Commenting on the HEROES programme they evaluated, they state there is more that contributes to effectiveness of an intervention than 'its theoretical framework, instructional format, and instructional approach'. The HEROES programme uses a running record as a regular formative assessment approach in the same way as the BR@P intervention and D'Agostino et al. (2021) suggests that this may be one of the elements that secures children's progress as it enables the teacher to direct instruction more effectively. They also point to teacher motivation and teacher desire for professional development as being possible factors in the effectiveness of the HEROES intervention and this could be mirrored in the preservice teacher delivery of the BR@P programme. Preservice teachers are likely to be highly motivated for their intervention children to succeed: preservice teachers complete an assignment

based on their BR@P teaching experience following the intervention. The other consideration is perhaps the motivation and engagement of the children in the intervention. Working with a young, preservice teacher who shows interest, is a potential role model and is 'different' to the classroom they are familiar with, may contribute to the child's efforts and focus during the five weeks of the intervention. It is certainly reported anecdotally by schools that the children enjoy working with the preservice teachers and look forward to their visits each week. However, despite these positive intervention outcomes, Hurry et al. (2022) note, the sustainability of progress made following an intervention is an under-researched area and little data exists to demonstrate the longer-term impacts. In this study, the 3 months post-intervention data was mixed, in relation to the maintenance of progress made. Children whose reading age was further behind their chronological age were found to be gradually slipping back in their levels of progress – and within a year, it is possible children would be as far behind as they had been at the start of the intervention. This demonstrates that these children need more sustained support than a five week, ten session programme can offer. The intervention, when not being delivered by this cohort of preservice teachers, would normally continue for ten weeks with three sessions a week. Research is needed beyond what was reported in Brooks (2016) to identify if the intervention delivered for the recommended length, produces sustained impact on children's reading progress beyond the end of the intervention. As an initial teacher education provider, clear guidance needs to be given to schools about maximising the impact of this sort of intervention, with a suggestion that support is continued for a further five weeks beyond the end of the student intervention.

The children who do appear to have maintained their progress are those whose reading age is less than 11 months behind their chronological age at the start of the intervention. Whilst these children have not all 'caught up' with the expected level for their age, they made accelerated progress during the intervention and have continued to make 'age expected' progress three months following the intervention. It would be useful to give this group the complete BR@P intervention sessions to identify if the longer intervention resulted in greater gains during the intervention period perhaps to enable the children to match their word reading age and chronological age and then go on to maintain this beyond the end of the intervention. The data would also suggest that when teachers select children for the intervention, who start the intervention significantly below their age related expectation, that they need to have a support plan for these children beyond the intervention. Where preservice teachers are delivering the intervention teachers need to be guided to target the children that they know will be able to use the intervention to 'catch-up' and can then be returned to normal classroom, quality first teaching.

The third research question related to the maintenance of the skills and knowledge of the preservice teachers. The self-reported data by preservice teachers, six months after the end of the tutoring programme, suggests that most preservice teachers retain the knowledge of the teaching of reading and felt that the one-to-one tutoring had been beneficial to their development as teachers of reading. This is consistent with the findings reported in Carter (2021). However, Meeks et al. (2016) state that preservice teachers' confidence levels do not always match their actual knowledge of reading processes and practices and clearly, self-reported data can be problematic. It is important in this study therefore, to reflect on the self-reported data alongside the tutored children's reading progress data. Children who had the preservice teacher intervention tutoring made statistically significant progress in reading and so suggests that preservice teacher claims about their knowledge and understanding of the teaching of reading can be justified alongside the comparator group data. The breadth of aspects of teaching reading that the preservice teachers identified as having been developed, demonstrated an acknowledgment that teaching reading is complex and individual and that the integration of the processes in practice, was necessary. Hikida et al., (2019) make this point explicitly as key to a preservice teachers' understanding of teaching reading. Most of the preservice teachers made accurate assessments of the reading of the videoed child, suggesting that the skills learnt had been maintained by most and could still be applied. Not only were they able to identify the accuracy of the

reading but also suggest precise areas for reading development. It could be argued that this is the 'tacit knowledge' discussed by Mathewson Mitchell and Ried (2016:45). The results mirrored Davis et al.'s (2017) findings, that one-to-one tutoring enabled preservice teachers to provide more specific, personalised instruction for children. Linek et al., (1999) discussed the need for the preservice teacher to shift the focus from what they know to what the individual child needs to learn and the preservice teachers in this study showed they could recognise specific areas for instructional development. However, with only one videoed child to assess, there are clearly limitations to claims that can be made. Future research would benefit from some in-depth case studies to explore this further.

It is also worth discussing the comment made by the preservice teacher who thought the one-to-one tutoring was a 'waste of time' because it did not mirror what they will be expected to do as teachers of whole classes. It is tempting to dismiss the comment as one that fundamentally misunderstands the development of subject knowledge in practice and that whole class teaching is required to address individual needs.

Conclusion

This study demonstrates that both the children who receive one-to-one tutoring and the preservice teachers who provide the tutoring, benefit from the process. Children make greater than expected progress in reading as an outcome of the intervention. Further studies need to be designed to look more closely at the nature of the one-to-one experience – for example, is it the nature of the relationship built or the increase in reading practice or other factors, rather than the intervention itself, that results in increased progress in reading age of participants. Whilst the gains made by children measured immediately after the intervention seem clear, the picture is less clear when looking at progress and attainment three months after the intervention, when children return to 'business as usual'. Whilst most children return to making expected progress i.e. a month of reading age progress for each chronological month, a group of children who began the intervention with reading ages significantly below their chronological age can be seen to be gradually losing the gains made during the intervention. This group of children need further exploration. The use of the standardised BAS word reading age measure, could be viewed as a limitation of the study, as word reading is clearly only one element of reading. A measure of comprehension would also be beneficial to include in future research.

This study presents children's outcomes alongside the preservice teachers' tutoring and it could be argued that this can be used as contributing evidence to demonstrate that preservice teachers had acquired relevant skills and knowledge and that these skills and knowledge were robust enough to impact significantly on children's progress. Whilst this study does not provide conclusive evidence of maintenance of the knowledge and skills required to teach reading, it indicates that for most preservice teachers the model of one-to-one tutoring integrated into a teaching programme about the theory and practice of reading, provides a good basis for their learning.

Recommendations for future practice based on the methods and outcomes of this study:

- The success of this intervention for schools, children and pre-service teachers, as part of an Initial Teacher Programme suggests that it is an appropriate approach to teaching pre-service teachers the skills, knowledge and attitudes of the teaching of early reading and one that should be considered by providers.
- Strong relationships need to be in place with schools who are part of the intervention: this needs to include at least one person at the school trained in the intervention and able to support pre-service teachers.
- Schools need clear guidance on the selection of children for the intervention to maximise children's sustained progress.

- As providers move towards the new requirements for Intensive Training and Practice (ITAPs), programmes such as this could form the basis of an ITAP – where sufficient preliminary teaching about the teaching of reading had taken place.

Making learning 'stick' is a key challenge for teacher educators, and this approach seems promising.

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