Evaluating the Effectiveness of a Broader Approach to Reading Instruction: A Single-Case Study of a Reading Intervention.

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Aims: This small-scale study investigated outcomes from a reading intervention which taught a broader range of reading skills. The intervention followed recommendations made by Solity (2020), with instruction on high-frequency words (HFWs), grapheme-phoneme correspondences (GPCs), and vocabulary, taught through frequent, distributed practise of skills and real books.

Method: Five students in Year Five (all with English as an Additional Language and low levels of literacy skills) from an inner London Borough primary school took part in a reading intervention delivered daily over 3 months (45 sessions). A mixed methods single-case study design was implemented. Students were assessed pre- and post-intervention using interviews, Diagnostic Reading Assessment, questionnaires on students' reading views and confidence, and fluency reading the 100 HFWs and GPCs. Questionnaire and interview feedback were gained from education staff. Quantitative data were analysed using descriptive statistics. Themes and quotes from qualitative data provided an understanding of the students' and staffs' views.

Findings: Results indicated increases in students' knowledge of HFWs and GPCs, and students showed improvements in reading ability in at least one skill assessed. Most students felt they were better and more confident at reading, although views towards reading were mixed.

Limitations: The small sample size and lack of control group mean that results may be difficult to generalise to other school populations.

Conclusions: This research goes some way to demonstrating the efficacy of a reading intervention approach which focuses on teaching a broader range of skills compared to a sole focus on systematic synthetic phonics.

Introduction

Reading is one of the most important skills children will learn, and can influence

 a student's entire education experience and likelihood of academic success (Kilpatrick, 2015). Reading can be linked to future outcomes such as income level (McLaughlin et al., 2014) and depression (Maughan et al., 2003). The debate over how best to teach children to read goes back to the so-called "reading wars", during which teachers, academics and politicians have debated over whether reading was best taught through letter sounds (phonics-based) approaches or whole-language approaches (discovering meaning in text through experiences in a literacy-rich environment) (Adams, 1990). Support for phonics-based approaches was provided by the Government-commissioned Rose Report (2006). This reported evidence suggesting that programmes which systematically prioritise phonological skills, such as systematic synthetic phonics (SSP) programmes, are the most effective for teaching reading. Since the review, various initiatives to increase synthetic phonics instruction in schools have been introduced. These include the Department for Education and Skills' (2007) Letters & Sounds (L&S) programme (a synthetic phonics programme adopted by most schools in England), an annual Phonics Screening Check to assess students' mastery of grapheme-phoneme-correspondences (GPCs) (Department for Education (DfE), 2012), revisions to the National Curriculum (DfE, 2013) and revisions to Ofsted's Inspection Framework (Ofsted, 2022). The current Government continues to drive the phonics agenda by validating a new generation of SSP programmes and developing a list of Government-

approved phonics programmes which schools are expected to buy (DfE, 2022). As it stands therefore, synthetic phonics-based instruction remains the primary approach to reading education in the UK.

However, evidence suggests that despite over a decade of synthetic phonics being mandated in schools, literacy levels in the UK are not competitive with other developed nations (OECD, 2016). Over a quarter of children are transferring to secondary school every year having failed to achieve the reading standard expected by the Government (Mullis, 2017). Therefore, evidence suggests that some children are struggling to learn to read despite being taught using SSP programmes (Snowling, Hulme & Nation, 2020). The Government's current solution for teaching those who are experiencing difficulties learning to read is for them to receive more phonics instruction, often in the context of small group or individual tuition (O'Connor & Solity, 2020). Reluctance to explore alternative reading instruction methods may be due to fear that by accepting any other instructional approach, this will invalidate the *'phonics is important'* message (Amass, 2022). However, there is a growing body of research into alternative methods of reading instruction. Several empirical studies have found that students with reading difficulties can develop and maintain reading skills when provided with an alternative intervention to SSP programmes that offers a broader approach to reading skills development (e.g. Shapiro & Solity, 2016). This research concludes that there is a need for further research exploring the efficacy of broader instructional approaches to reading.

Developing broader approaches to reading instruction

A reading instruction approach that focuses on a broad range of skills needed for reading, underpinned by principles of instructional psychology, could offer a way forward (Solity & Vousden, 2009; Shapiro & Solity, 2016; Solity, 2020). Within Instructional Psychology, the

starting point for teaching is to analyse the skills needed to complete a task and determine which skills are going to be the most useful to the learner (Solity et al., 1999). Therefore, Solity (2020) recommends teaching children the reading skills they are most likely to need when reading real children's books. Solity and Vousden (2009) analysed the words and the grapheme-phoneme correspondences (GPCs) in real books and found that 100 words made up 54% of all words and 64 GPCs accounted for 75% of all word types in children's and adult's literature. The authors calculated that knowledge of the 64 GPCs, combined with knowledge of the monosyllabic high-frequency words (89/100 of the high frequency words are monosyllabic), enables children to read approximately 90% of all monosyllabic words in adult and children's literature. Vousden (2008) reported that the majority of all written and spoken text (approximately 70%) comprises monosyllabic words. The implication for reading instruction is that if children can learn these 100 high frequency words (HFWs) and 64 GPCs, they will be able to read over half of the text in real books.

This approach contrasts with current SSP programmes which aim to teach most of the possible GPCs, even those which occur infrequently in English text (Shapiro & Solity, 2016). To test the effectiveness of teaching a reduced number of GPCs, Solity and Vousden (2009) analysed the number of GPCs taught in different phonics programmes and the number of words that could be read afterwards. They found no significant difference in the percentage of words correctly read (75.21%) when following a reading programme (Optima Reading) which teaches 60 GPCs, compared to the L&S programme which taught double the number of GPCs (126 GPCs taught and 78.17% words read correctly). This suggests that there is no great benefit to teaching more than the 64 most frequently used GPCs.

When considering how to teach phonetically irregular words which cannot be accurately phonetically decoded, skills involved in arriving at the correct pronunciation need to be taught (Tunmer & Chapman, 2012). Researchers have found that vocabulary knowledge is

one factor that contributes to students correctly pronouncing phonetically irregular words when reading text (Tunmer & Chapman, 2012). This suggests that as well as teaching the optimal number of GPCs, a reading intervention should focus on developing pupils' oral language and vocabulary knowledge (Solity, 2020).

To practise these developing skills, Solity (2020) argues that reading instruction should involve reading real books rather than phonetically regular books. Solity & Vousden (2009) found 64 GPCs accounted for a similar proportion of word types in both the real books and the reading scheme books. They concluded that real books are therefore more phonetically regular than is generally thought. Therefore, children will have similar opportunities to practise their decoding skills within real books as within reading scheme books. Further, Solity argues that limiting students to reading scheme books means students may rarely read books of their own choosing and so may be less likely to develop a love of reading and feel motivated to read (O'Connor & Solity, 2020). Data from the Progress in International Reading Literacy Study (PIRLS; Mullis, 2017) showed that England came 34th out of 50 countries for students liking reading and were the lowest-ranking English-speaking country in the study. Therefore, reading with real books provides students with frequent opportunities to practise their phonic decoding skills whilst at the same time provides rich, interesting stories which will likely broaden students' general knowledge, language skills and vocabulary (O'Connor & Solity, 2020).

During Solity et al.'s (2000) six-year project to identify effective reading instruction practises (the Early Reading Research; ERR), the researchers investigated a programme whereby children were taught the skills used when reading. These included: synthesis skills, segmentation skills, phonic skills, and sight vocabulary, while reading high-quality stories in real books. Guided by Instructional Psychology principles of frequent and distributed practise, the children were taught these skills in their whole-class lessons three times per day

for up to 12 minutes, with each skill targeted for two minutes. After two years, they found that children following the ERR significantly outperformed the control groups (who were receiving either their usual teaching or the National Literacy Project; NLP) on many literacy measures. The intervention group's average reading age was also found to be above their chronological age and that of the control groups. This suggests that a reading intervention which focuses on the skills needed for reading can be more effective than traditional reading methods. Shapiro and Solity (2016) compared the effectiveness of the ERR with a frequently used SSP programme (L&S) for developing early reading skills across Reception, Year 1 and Year 2. They found that children entering school with poor phonological awareness performed better in reading tests after following the ERR compared to L&S, whilst children with good phonological skills benefitted from either programme. This suggests that children with poor phonological awareness benefit from the broader approach provided by the ERR.

The ERR has since been developed into an online intervention that can be implemented on a whole-class basis or with small groups, and is now known as Optima Reading (Solity, 2015). O'Connor and Solity (2020) conducted a single-case study design to explore the impact of the Optima Reading programme when delivered to a small group of three students in Key Stage 2 who had experienced difficulties learning to read. They assessed reading accuracy, comprehension, motivation, and attitudes of both students and teachers after receiving the intervention for six weeks. Intervention sessions lasted 20 minutes, with three sessions per week. After six weeks, the intervention students had mastered the 100 high-frequency words and had improved performance on reading accuracy measures compared to the control group. However, both groups performed less well on reading comprehension and motivation. This research was conducted with a small number of participants and over a short time period, so further research would be needed to allow for more robust conclusions to be drawn.

The present research was commissioned by a multi-cultural, linguistically diverse inner London primary school that had identified a group of students who had received conventional classroom phonics instruction and successive additional phonics interventions, yet still struggled to make expected progress in their reading skills. This research aimed to see if a reading intervention that taught a broad range of skills, based on the principles of Instructional Psychology, could increase the reading scores and enjoyment of reading for children who had struggled to learn to read. It therefore sought to contribute to the evidence-base by exploring the effectiveness of a broader teaching approach when delivered in a small group setting and over a longer time period (three months compared to six weeks; O'Connor & Solity, 2020).

The intervention

The intervention closely followed the recommendations made by Solity (2020) for teaching a broader range of reading skills. Solity's recommendations include teaching reading through synthetic phonics, vocabulary development and reading using real books, focusing instruction on high frequency words (HFWs) and grapheme-phoneme correspondences (GPCs) with frequent and distributed practise. Each intervention session in this research included tuition on: fluency skills (quick recall of previously learned HFWs and GPCs), phonics skills (direct instruction of new frequently occurring GPCs, including practicing segmenting and blending using those GPCs), acquisition of sight-read words (100 HFWs), vocabulary (discussion of word meanings), generalising skills (e.g. practicing using the words in sentences) and reading a real book. The GPCs and HFWs to target were selected based on children's performance in the assessments (see Appendix 1 for session plan).

Research questions

1. Does teaching students high frequency GPCS and words in the context of real books improve the reading scores of students who have struggled to learn to read using SSP?

2. Do education staff report a change in students' classroom reading ability due to the intervention?

3. Does the intervention change students' attitudes or motivation toward reading?

4. Does the intervention change students' view of themselves as readers?

5. What were the students' and education staff's views of the intervention?

Research Methodology

Research design

A mixed methods single-case study design was employed to evaluate the effectiveness of a reading intervention, where the case under investigation was the intervention group (Creswell, 2013). Qualitative data was collected to develop understanding of the personal and contextual experiences of the students participating in the intervention, along with the quantitative outcome measures (Creswell & Plano Clark, 2018). A control group was not used due to the small sample size and the intention to use a case study design to gain an in-depth understanding of the impact of the intervention.

Participants

Participants attended a multi-cultural mainstream primary school in an inner London Local Authority (LA). The school's Special Educational Needs Co-Ordinator (SENCO) identified five children in Year 5 who had been assessed as having very low reading levels on standard classroom achievement measures and had not made the progress expected by the school after receiving successive additional phonics-based interventions. Due to the multi-cultural context

of the school, all five participants had English as an Additional Language (EAL). One participant also had an Education, Health and Care Plan (EHCP) for needs relating to Attention Deficit Hyperactivity Disorder (ADHD).

Data collection methods and measures

Qualitative and quantitative data were collected before and after the intervention to obtain information relevant to the research aims. Data were collected from the participating children, the Learning Support Assistant (LSA) delivering the intervention, and the students' class teachers (see Appendix 2 for more information on data collection methods).

Quantitative measures included:

- the Diagnostic Reading Analysis Third Edition (DRA3; Crumpler & McCarty, 2019) to assess reading ability;

- questionnaires drawn from the Progress in International Reading Literacy Study (PIRLS) (Mullis et al., 2017) to assess students' positive views about reading and reading confidence;

- assessment of fluent reading of the HFWs and GPCs using paper flashcards;

- student rating scale to record participants' views and confidence around reading on a 5-point scale from "awful" to "brilliant"; and

- teacher rating scale to obtain teachers' views of progress with reading and general academic progress, scored on a 10-point scale with 1 representing 'no progress' and 10 representing 'exceptional progress'.

Qualitative measures were as follows:

- Semi-structured interviews were completed with the children before and after the intervention. Children were asked questions about what they were good at in school, what they found trickier, and what helped them. After the intervention, children were also asked for feedback on the sessions.

- A semi-structured interview was conducted with the LSA after the intervention to gather their views on the intervention delivery and effectiveness.

- The students' teachers were asked to complete questionnaires about the student's progress in class.

- Observation of an intervention session with checklist of session components and field notes.

Procedure

The intervention and data collection took place within the participants' school. Before the intervention, baseline assessments using the measures described above were completed with the students, and the LSA running the intervention received training from the researcher. The training consisted of a step-by-step guide to each session component and information about the theory and research basis for the intervention. The intervention spanned 3 months, totalling 45 sessions. Intervention sessions were delivered daily during the school day, lasting 30 minutes. Griffiths and Stuart (2013) suggest that a twelve-week period is sufficient to identify those who will respond to a targeted intervention. The intervention was delivered by the LSA who typically works with these students. The LSA received ongoing support from the researcher with weekly check-ins and a session observation, enabling the researcher and LSA to monitor the students' response to the intervention. After the final session, post-intervention assessments were completed with the students, the LSA and the teachers using the measures described above.

Data analysis

Quantitative data from the DRA, reading views and confidence questionnaires, and the GPCs and HFWs flashcard assessments were analysed using descriptive statistics. Comparisons were made within-participant by comparing pre- and post-intervention data, and between-participants by comparing the average (mean) pre- and post- intervention scores for all participants.

The qualitative data from the students' and LSA's interviews and the teachers' questionnaires were then used to triangulate the outcomes from the quantitative data and provide information about views and perceptions of the intervention. Themes relating to the children's attitudes towards the intervention were ascertained by collecting responses to each question, labelling the data with codes, and then similar codes were grouped together into themes (Robson & McCartan, 2016). Quotes from the students' interviews about their views of reading and data from the teachers' questionnaires about the students' progress were used to add evidence regarding perceptions of progress and generalisation to the classroom setting.

Ethics

The study had ethical approval from the University College London Institute of education. Written consent was gained from the SENCO before the intervention commenced and parents were given the opportunity to opt-out of the research. As the research was judged to fall within the range of usual educational activities and no significant risks were identified, approval from a senior member of school staff was deemed sufficient consent (BPS, 2021). Assent was gained from the students to participate in the research activities using visual resources to explain the research. The data were anonymised by ensuring any identifying or

personal characteristic were removed, participants were assigned pseudonyms, and no quotations containing strong contextual cues were reported.

Results

Quantitative analysis

Reading skills

As a group, the average reading accuracy and fluency scores on the DRA increased (see Figure 1). Knowledge of high frequency words (HFWs) and of grapheme-phoneme correspondences (GPCs) increased as a group following the intervention, from an average of 64 to 85 HFWs read and 37 to 80 GPCs read. This increase was also observed with each participant. The average reading comprehension score slightly decreased from an average of six questions answered correctly to five (see Appendix 3 for descriptive statistics pre- and post-intervention for the group).

Insert Figure 1 here.

In addition, each student's data was explored individually to build a picture of their unique response to the intervention. It was found that the two children who scored lowest on the standardised reading assessment prior to the intervention (Asif and Mariel) both showed improvements on all measures of reading (see Table 1 for scores). For example, Asif's scores show increases in his reading accuracy (7 to 21), reading fluency (12 to 26), reading comprehension (0 to 1), ability to read the 100 HFWs (9 to 43), and the number of GPCs he knew (8 to 54) following the intervention. The three students who scored higher on the pre-intervention reading measures (Aaminah, Bahir and Abbas) showed more variable responses

to the intervention on the standardised assessment. For example, Aaminah's reading accuracy score decreased from 125 to 116 words read and her reading fluency rate decreased slightly from 58 to 57 words read per minute. However, Aaminah's reading comprehension score, her ability to read the HFWs and the number of GPCs Aaminah knew all increased following the intervention (see Table 1 for scores).

Insert Table 1 here.

Generalising reading progress to the classroom

On the post-intervention teacher questionnaire, the students' teachers all reported progress following the intervention when asked to rate progress on a scale from 1-10, with 1 representing no progress and 10 representing exceptional progress. The students were given scores between 8-10/10 for general academic progress and between 9-10/10 for reading progress.

Insert Figure 2 here.

Confidence and views about reading

As a group, the student's positive views about reading questionnaire scores decreased from an average of 34/40 to 30/40. Scores on the confidence with reading questionnaire increased from 11/24 to 14/24 (see Figure 2). 4/5 of the students showed a decrease in scores for positive views about reading and 4/5 showed either an increase in confidence scores or scored the same (see Table 2). On the rating scales completed during the pre-intervention interviews, the students reported feeling "awful", "not very good" and "good" about their confidence reading in class, their enjoyment of reading at home and general reading ability. After the

intervention, the students rated feeling "good", "very good" and "brilliant" about their reading ability, reading in class, and reading at home. The students' teachers scored the students' attitude to reading as between 8-10/10 and their perception of themselves as a reader as between 6-8/10 on the post-intervention questionnaire.

Insert Table 2 here.

Qualitative analysis

Progress with reading

The students' teachers reported individual areas of progress following the intervention on the teacher questionnaire. Asif's teacher noted an impact on his English skills: "*Asif's English improved massively this academic year… Developing English supported Asif in being able to access his learning more".* Bahir's teacher felt that his phonics knowledge had improved "*and as a result his reading and writing have both improved."* Aaminah's teacher felt that she was now moving away from decoding and "*is becoming a much more fluent reader, able to identify and recognise the words straight away".* Both Abbas' and Mariel's teachers felt they were challenging themselves more with their reading and choice of books and that they had made noticeable improvements with their reading. Abbas' teacher also felt that he "*often uses the new words he has learned during his sessions at the intervention in our whole class discussions"* whilst Mariel's teacher noted that *"since starting this intervention her reading prosody has improved".*

The students also gave some feedback on their reading progress during the interviews. For example, when asked what they think they are now better at, both Bahir and Abbas said *"reading*" and Mariel said "*I can now read some of the big words. I'm proud of myself."* Asif

also noticed his progress reading books: "*I like it when I can read the words* (the high frequency words) *in a book that I've been practicing*".

Children's feedback on the intervention

The students reported that they enjoyed their extra reading sessions, with students either rating the sessions as "brilliant" (40%), "very good" (40%) or "good" (20%) on the scaling questions. When asked what they enjoyed about the sessions, two main themes emerged; *practicing and learning how to read words,* and *specific instructional methods*. For example, Mariel reported that she enjoyed "*everything! Look, cover, spell, check, flashcards…*". When asked what they found helpful about the sessions, three themes emerged: *reading books*, *practicing writing*, and *practicing new words*. For example, both Asif and Abbas felt that "*reading in a book*" and reading their own books was helpful. When asked what they didn't enjoy about the sessions, three students said 'nothing'. Abbas said that he didn't enjoy "*always starting with the words* (flashcards)". When asked what would make their sessions better, Aaminah said "*playing more games and new games*", whilst Abbas and Asif both wanted more, trickier flashcard words.

Learning Support Assistant's feedback on the intervention

The LSA reported that the children enjoyed the intervention, particularly "*learning the new words*". They reported that the students would get excited if they progressed to more than one word in a session and if they got a word correct that they had been struggling with. The LSA reported enjoying delivering the intervention "*because I could see the improvement every day*" and "*it gave me a lot of satisfaction to know that I was helpful*". The LSA felt that the flashcards, daily repetition of all the words, and studying an unfamiliar word per session, were helpful. The LSA felt that the children "*maybe didn't enjoy the reading at the end*

because they don't like reading anyway" and that giving the children "*free reign to choose books sometimes that were too challenging*" and this led to frustration. Instead, they felt it would be more beneficial for this part of the session to be reading as a group where they chose the book.

Discussion

Research question 1: Does teaching students high frequency GPCS and words in the context of real books improve the reading scores of students who have struggled to learn to read using SSP?

After the intervention, all students showed improvements in their ability to read the 100 high frequency words (HFWs) and identify grapheme-phoneme correspondence (GPCs). As a group, the students' reading accuracy and fluency improved and each student showed improvements in at least one area of reading skill. The two students who scored lowest on the standardised reading assessment prior to the intervention both showed improvements on all aspects of reading assessed. The intervention may therefore be most appropriate for students who score very low (i.e. at or below the 5th percentile) across all areas of reading prior to intervention. The other three students, who scored relatively higher on the reading assessments prior the intervention, showed more variable responses to the intervention. It may be that these students have already developed their own strategies for decoding words or that their existing knowledge of the HFWs and GPCs was already enough to assist them in reading accurately. Shapiro and Solity (2016) also found that a broader reading intervention was more effective than another SSP programme for students who had entered school with low phonological awareness skills, whereas children with good phonological awareness

performed equally well under either programme. This suggests that there is utility in this instructional method for the lowest performing children.

The average increase in reading skills seen across the students suggest that this intervention may be suitable for children with English as an Additional Language. Statistics show that EAL students consistently underperform in state-wide examinations compared to their monolingual English-speaking peers (Demie, 2018; Hutchinson, 2018) and have a persistent English language delay (Mahon & Crutchley, 2006), demonstrating the need for effective literacy and language interventions for EAL students. However, following a systematic review of 26 studies of language and literacy interventions with children with EAL, Oxley and de Cat (2021) concluded that there was a lack of evidence-based literacy interventions for EAL children in the UK. However, they found significant language gains when interventions focused on explicit teaching of vocabulary. The present intervention may go some way to filling the gap in interventions suitable for EAL students. The intervention has a focus on vocabulary development and the teacher feedback noted improvements in wider language skills for some participants, and evidence shows this type of approach is beneficial for children with EAL (Oxley & de Cat, 2021).

Three students showed variable responses to the intervention on the standardised assessment, including lower word reading accuracy scores. It is worth considering some of the criticisms and limitations of using standardised assessments when interpreting the students' results (e.g. Kwate, 2001; Zaniolo, 2019). For example, the passages presented during each administration of the DRA, whilst supposedly of equivalent difficulty level, may have contained words or concepts that were more challenging to understand for EAL readers. Further, the DRA did not explicitly test the skills that had been taught in this intervention, though student' scores improved on measures of the targeted skills (HFWs and GPCs). This raises the issue of whether researchers should test for the skills taught or for the children's

ability to generalise these skills to wider areas of reading. Standardised tests are also generally not sensitive enough to notice small steps of progress. There is evidence that it takes at least 75 sessions for a reading intervention to produce a small positive effect on outcomes such as reading accuracy, fluency and comprehension (Wanzek et al., 2013). However, this intervention was delivered over 45 sessions, meaning that the intervention may not have been long enough to see a positive effect. Further, standardised assessments reflect a snapshot of the child's performance on that day, where the child may be affected by numerous internal and external factors, such as tiredness, hunger, temperature, or attention difficulties (Hill, 2005). Therefore, whilst not all children showed progress on the standardised assessment, this data should be considered in light of the limitations of standardised testing and viewed as one source of evidence amongst the other data collected.

Research Question 2: Do education staff report a change in students' classroom reading ability due to the intervention?

The teachers reported all students had made both general academic progress and reading progress. The students were given scores by the teachers of between eight and 10/10 for general academic progress and between nine and 10/10 for reading progress (where one represented no progress and 10 represented exceptional progress). The generalisation of learning from intervention to the classroom is deemed a measure of successful learning (Haring et al., 1978) and of a successful intervention (Carruthers et al., 2020). The Instructional Hierarchy (Haring et al., 1978) suggests that learning progresses through four stages, from 'acquisition', to 'fluency', then 'generalisation', and lastly 'adaptation'. During this intervention, the acquisition, fluency and maintenance stages were targeted, and it would seem from the teachers' feedback that the students also generalised the skills learnt to the classroom.

Research Question 3: Does the intervention change students' attitudes or motivation toward reading?

Research Question 4: Does the intervention change students' view of themselves as readers?

The interview data suggest that the students felt more positively about reading in class and at home and thought themselves better readers after the intervention. Results from one questionnaire indicate that students were more confident reading. However, the questionnaire data also implied that the students held more negative views about reading. These results could be interpreted within the conscious-competence model (Howell 1982). Learning is proposed to progress in four stages, from unconscious-incompetence, to conscious-incompetence, to conscious-competence, and finally unconscious-competence. During the intervention, the children may have moved from unconscious-incompetence to conscious-incompetence, resulting in more negative views about reading. O'Connor and Solity (2020) also found a decrease in children's motivation towards reading and mixed results regarding reading confidence. They suggested that the intervention made the students more aware of the challenges they face reading, even though the intervention helped them improve. These findings are not in line with Solity's (Solity & Vousden, 2009) view that children's enjoyment of reading will increase when reading real books as opposed to reading scheme books. Overall, whilst there are some data to suggested that students' views about reading became more negative, when considering the teachers' data and the students' interview information too, it seems that the students developed more confidence and thought of themselves as better readers.

Research Question 5: What were the children's and education staff's views of the intervention?

The students and the LSA all reported enjoying the intervention and were able to describe what they liked about the intervention and what they found helpful. The LSA did feel that more guidance choosing books, as well as reading books as a group, would help avoid frustration when the book the child chose was too difficult. Research suggests that children are more motivated to read books they choose themselves (Erickson, 2019). A solution in future interventions may be for the teacher to select some real books that they judge appropriate for that students' reading level, rather than a free choice.

Treatment fidelity

One observation of the LSA running a session was completed. During the session, the LSA covered all component parts of the intervention, albeit in a different order than in the session plan. This demonstrates that an LSA with limited training (one training session) can deliver this intervention with accuracy.

Implications for practice

As the government continues to promote the systematic synthetic phonics agenda (DfE, 2022), this research offers an approach to reading instruction that targets a broader range of reading skills. The findings suggest that this intervention could be useful for students who have very low prior levels of reading, students for whom traditional phonics interventions have so far been ineffective, and for EAL students. Further, this research provides encouraging evidence towards the efficacy of numerous teaching strategies that were used to construct the intervention. These include teaching the optimal number of skills (the 100 HFWs and common GPCs) (Solity & Vousden, 2009), using real books (Solity, 2020), developing vocabulary and language skills (Tumner & Chapman, 2012), frequent (daily) practice (Solity et al., 2000), retrieval practice and teaching to fluency (Haring et al., 1978).

These strategies could be incorporated into a reading intervention programme being planned by schools and EPs.

Limitations

The intervention group was small (five students) and were homogenous in some demographic details (e.g. all in Year 5, from the same school in a London Borough, and with EAL). This makes it challenging to generalise these findings to the general school population. Further, there was no control group due to the single-case study design and so it can't be definitively concluded that the gains made were due to the intervention or other factors such as classroom teaching. The interviews with the students did not always elicit rich, detailed information, perhaps due to the language-based method of data collection with students identified as having EAL and language and literacy difficulties. It may be worth considering alternative methods of collecting the students' views which rely less on language, such as drawing, or using an interpreter, in future research.

Future research

To conclusively demonstrate the evidence-base for this reading instruction approach, future empirical studies should include control groups exposed to their usual teaching and larger sample sizes. Research should be conducted over a longer period (at least six months) and should also include a more heterogenous pool of students. It would also be beneficial to investigate the impact across a range of ages and abilities to develop an understanding of whether there is a more efficacious time to teach using this method and whether there is a group of students who would benefit most (e.g. EAL students).

Summary

This single-case study research has gone some way to demonstrating the efficacy of a reading intervention based on Solity's recommendations for reading instruction and a broader approach to teaching reading skills. The research found that the students' knowledge of high frequency words and grapheme-phoneme correspondences increased, and two students showed improvements in their reading ability on all areas of reading ability measured by the standardised assessment, whilst the progress of others was patchier. Progress was also evident with their reading and general academic ability in class and most of the children felt that they were now better and more confident at reading. This study also suggests that this approach may support wider language learning of EAL pupils. EPs could consider using this approach in their evidence-based practice in school-based interventions. Further research should be conducted to add to the evidence-base of broader reading approaches compared to the traditional SSP programmes, particularly for children who have struggled to learn to read following these programmes.

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Appendices

Appendix 1

Reading Intervention

Spring / summer 2022- 30 minutes per day

Session:		Date:
Focus words: 5 words a week, focus on the activities below for 1 word per day		
Part	Time	Activity
Skills recap	3 mins	**Resource: flashcards of previously learned words/target words for the week** Show children words previously learned on flashcards- make sure each child has a chance to answer independently, especially the target words. Give children the opportunity to say the word first and if necessary, model saying the word. Briefly recap any noticeable features of the word if the word is not easily recalled.
Vocabulary	2 mins	**Resource: new word flashcard** **New word:** *insert word* Introduce new word and define it Give an example sentence using the word Ask children to use the word in a sentence
Logographic	4 mins	**Resource: new word flash card** Word shape 'analysis' - look at the word in detail. Ask children to use a 'magnifying glass' to look closely at the word and analyse the features –

		what do you notice about how it looks? What are the special features of the word? What does it remind you of?
Look, cover, spell. check	5 mins	**Resource: look, say, cover, spell, check chart** Children independently practise the new word using look / say / cover / spell / check chart. Children will need to fold over a portion of the page to cover the word before writing. Children will need a new sheet for each session – this can be filled in prior to the lesson or children can fill them in themselves using the displayed word (depending on how confident they feel).
GPCs recap	1 mins	**Resource: flashcards of previously learned GPCs** Briefly display GPCs that have been learnt previously
New GPC	2 mins	**Resource: GPC flashcard** **GPC:** *insert GPC* Show children the GPC – model how to say it. Use 'my turn / your turn' to model how to say the sound correctly and as an opportunity to check children are
GPC application	3mins	**Resource: words containing the GPC** Have 3-4 words displayed in large print on the board. Practise segmenting and blending those words. Do this as a group. If possible, use some of the target/mastered high frequency words in this exercise.
Reading with children	10 mins	**Resource: real book** Paired reading with a peer. Adult helicopters around children reading listening to them briefly – check any words that they are struggling with, sounding it out, pointing out key features of the word, definitions, etc. Children should choose a book they are interested in– remind children of the target word and any of the previous words learnt and remind them to look out for those words in the text.

Appendix 2

Data collection methods					
Measure	**Type of measure**	**Participant**	**Data produced**	**frequency**	**Rationale**
Diagnostic Reading Analysis Third Edition (DRA3; Crumpler & McCarty, 2019).	Quantitative	Students	Number of words read correctly (accuracy score), number of words read per minute (fluency/rate score), and number of questions about the text answered correctly (comprehension score).	Pre- and post-intervention	A standardised assessment tool (for use with readers from 7-16 years of age) to measure reading accuracy, fluency and comprehension.

Questionnaires drawn from the Progress in International Reading Literacy Study (PIRLS) (Mullis et al., 2017).	Quantitative	Students	*Positive views about reading-* scored out of 40, where the higher the score, the more positive the views. *Confidence with reading-* scored out of 24, where the higher the score, the more confident the child.	Pre- and post-intervention	Two questionnaires to measure pupil enjoyment and confidence in reading. The questionnaires together comprise of 16 items rated on a Likert scale, such as "I think reading is boring" and "I learn a lot from reading".
Flashcards of GPCs and high frequency words.	Quantitative	Students	High frequency words- scored out of 100. GPCs- scored out of 106.	Pre-intervention and post-intervention.	To assess knowledge of GPCs and high frequency words before and after.
Semi-structured interviews lasting no longer than 20 minutes.	Qualitative	Students and the LSA delivering the intervention	Individual quotations and group themes.	*Students-* pre- and post-intervention. *LSA-* post-intervention only.	*Students-* to explore attitudes around their reading and the intervention. *LSA-* to gather views on the intervention delivery and effectiveness.
Student rating scales	Quantitative	Students	A rating of either "awful", "not very good", "good", "really good" or "brilliant".	Pre- and post-intervention	To compare children's attitudes and confidence with reading before and after the intervention.
Teacher questionnaire	Quantitative and qualitative	Teachers	A score from 1-10, with 1 representing 'no progress' and 10 representing 'exceptional progress'. Quotes related to each child.	Post-intervention.	A questionnaire with scaling questions and a comments box to rate children's progress in relation to their attitude and progress with reading and general academic progress.
Observation of an intervention session, with	Quantitative and qualitative	-	-	One observation during the intervention.	To assess treatment fidelity and reflection on the

checklist and field notes.					delivery of the intervention.

Appendix 3

Descriptive statistics for each measure before and after the intervention for the group.				
	Minimum Score	Maximum Score	Group Mean	Standard Deviation
Pre-accuracy	7	125	71	47.74
Post-accuracy	21	116	77	34.89
Pre-fluency	12	62	34	23.92
Post-fluency	18	60	39	18.60
Pre-comprehension	4	9	6	2.51
Post-comprehension	1	8	5	2.70
Pre- HFW	9	94	64	34.62
Post- HFW	43	99	85	24.15
Pre- GPCs	8	51	37	17.80
Post- GPCs	54	91	80	15.83
Pre-reading views	24	39	34	5.98
Post- reading views	21	33	30	5.10
Pre- reading confidence	6	17	11	4.27
Post- reading confidence	9	20	14	4.32