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Title: A brief description of the Spelling Profile Assessment: A new UK spelling test for primary age children (pilot phase)

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Key Digested Message

The brief paper summarises why the Spelling Profile Assessment (SPA) is a necessary tool for primary school teachers, SENCos, and specialist assessors in identifying children’s spelling strengths and weaknesses. As we highlight below, spelling is essential for writing, which is an important everyday skill, especially in societies where the use of social media and devices continues to increase the need for written communication. Even if reading difficulties are mitigated, spelling difficulties often persist into adulthood. Thus, being able to intervene early is important towards addressing learners’ helplessness, aversion towards writing or general literacy-related activities, anxiety and depression. We summarise the extremely positive results from our pilot study, conducted between 2017 and 2019, and the next steps we took in creating a powerful assessment tool that currently does not exist in the UK or other English-speaking countries.

Key words

Spelling Profile Assessment (SPA); regular words; irregular words; pseudoword spelling; morphology; orthography; phonology; primary spellings; spelling profiles; test development; psychometrics

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Introduction

We report on the development and standardisation[1] of the newly developed Spelling Profile Assessment (SPA) for primary school children (standardised in the UK). The SPA test is unique in assessing spelling performance across three different letter string types: regular words, irregular words, and pseudowords. This structured and theoretically driven approach to measuring spelling ability enables the test to discriminate between spellers who use different strategies to spell (letter-sound knowledge and/or whole-word production but also drawing upon orthographic processes and morphological rules), providing valuable information for educators to target interventions according to individual needs. Pan et al. (2021) highlight the value of spelling pre-tests in helping educators target instruction into areas students have not yet mastered.

To our knowledge, no spelling test in the UK, Australia, or other English-speaking countries assesses performance across different word types in a single battery. The SPA addresses this gap by measuring core components in spelling, as outlined by the dual-route model (Barry, 1994), triple word theory (Garcia et al., 2010), and orthographic knowledge (Apel et al., 2019). The SPA test provides a benchmark for evaluating the spelling performance of primary school children (Reception to Year 6) against a standard population. It not only fulfils current assessment needs but also helps identify specific spelling difficulties.

Method

Pilot study of the SPA tool.

Participants

641 children (boys=310) from 7 different primary schools in the UK participated in the pilot study. See Table 1 with classroom breakdown.

Table 1:

Number of participants per year group and age in years (standard deviations are in parentheses)

	YR R	YR 1	YR 2	YR 3	YR 4	YR 5	YR 6

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	62	104	143	76	89	64	103
Age_years	4.9 (.32)	6.1 (.36)	7.1 (.67)	8.2 (.44)	9.1 (1.02)	10.1 (.33)	11.1 (.33)

Note: YR= year_group (UK); R=Reception

Materials

The SPA comprises three sections, one each for assessing spelling of irregular words, regular words, and pseudowords. For the pilot, we tested performance on 36 irregular and regular words and 34 pseudowords. Items from each of the three sections were matched on a number of psycholinguistic variables (e.g., frequency, number of letters, phonemes and syllables, and contextual diversity).

We also used existing literacy measures to validate our test. Participants were assessed for spelling ability using the WIAT-2 (Weschler, 2005) spelling subtask and the DTWRP (FRiLL, 2012) reading test[2]. Note that the WIAT2 spelling test does not discriminate word types (e.g. regular and irregular words) and contains items that are single letters.

Results

Item Response Theory, a rigorous statistical procedure considered by Lord (1980), was used to select 29 words in each category. We also replaced four items in the irregular word category with higher frequency words to make the test more balanced for the Reception children, who struggled with irregular words due to overreliance on a phonological strategy (feedback received at the FRiLL conference, 2019).

The reliability of the test is excellent (Table 2) and the criterion and convergent validity is also appropriate in association with the WIAT-2 (Weschler, 2005) spelling subtask (r=.92) and the total score of the DTWRP (FRiLL, 2012) reading test (r=.91). The partial correlation controlling for age is also appropriate in association to the WIAT-2 spelling subtask (r=.78) and the DTWRP reading test (r=.78)

Table 2:

Total reliability per item category

ALL YEARS	IRREGULAR	REGULAR	NONWORDS
TOTAL	0.97	0.96	0.94

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A preliminary visual analysis comparing the performance per year between the SPA and the WIAT2 spelling test was conducted, as well as between the DTWRP reading test and the SPA, by type of item. See Figures 1 and 2.

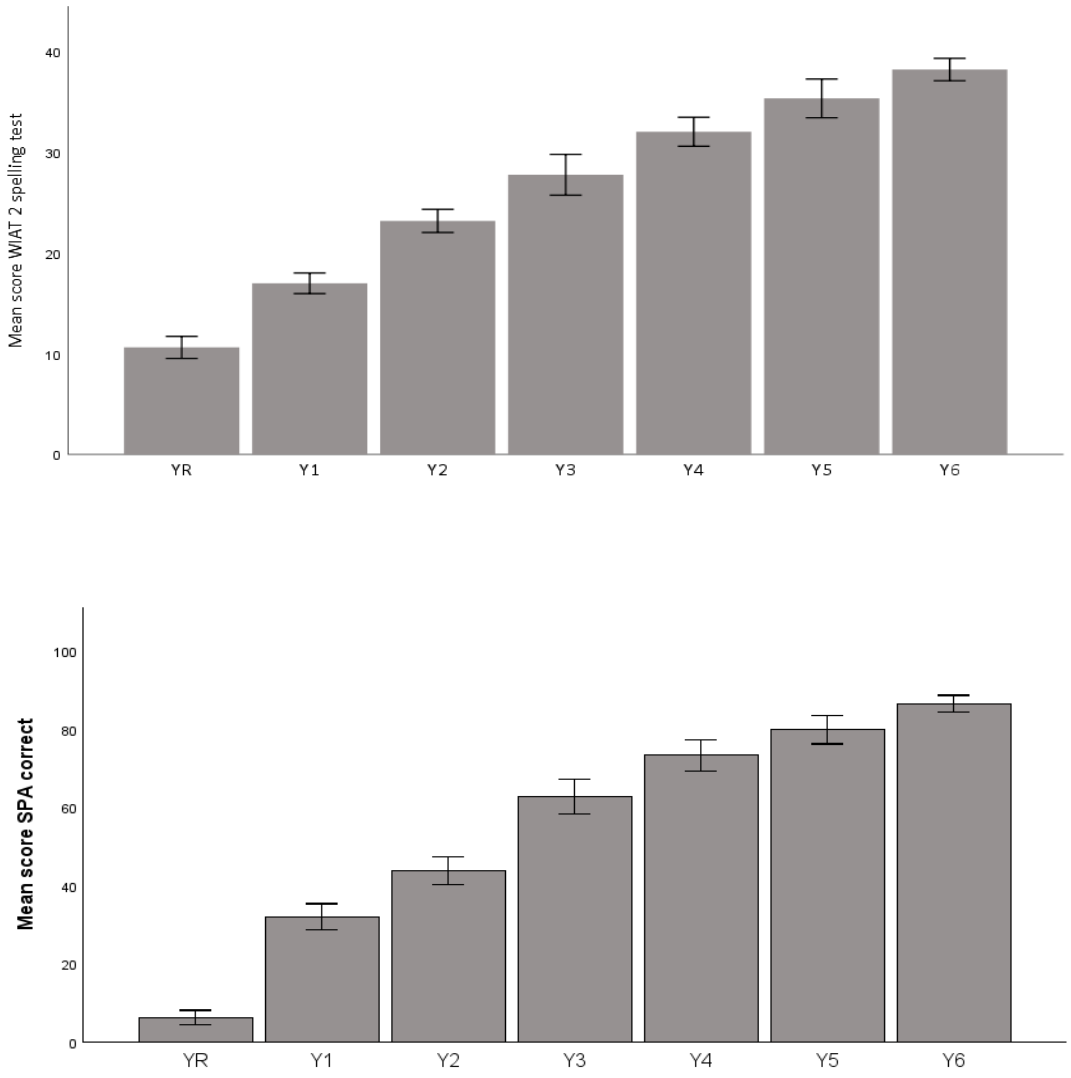

Figure 1.

Comparison between the WIAT2 and the SPA spelling tests

The top panel of Figure 1 shows the expected increase in performance for our sample of children on a standardised spelling test (WIAT2). The bottom panel of Figure 1 shows the performance of our sample of children on SPA. Consistent with the validity metrics presented above, we observe a similar year-on-year increase in performance.

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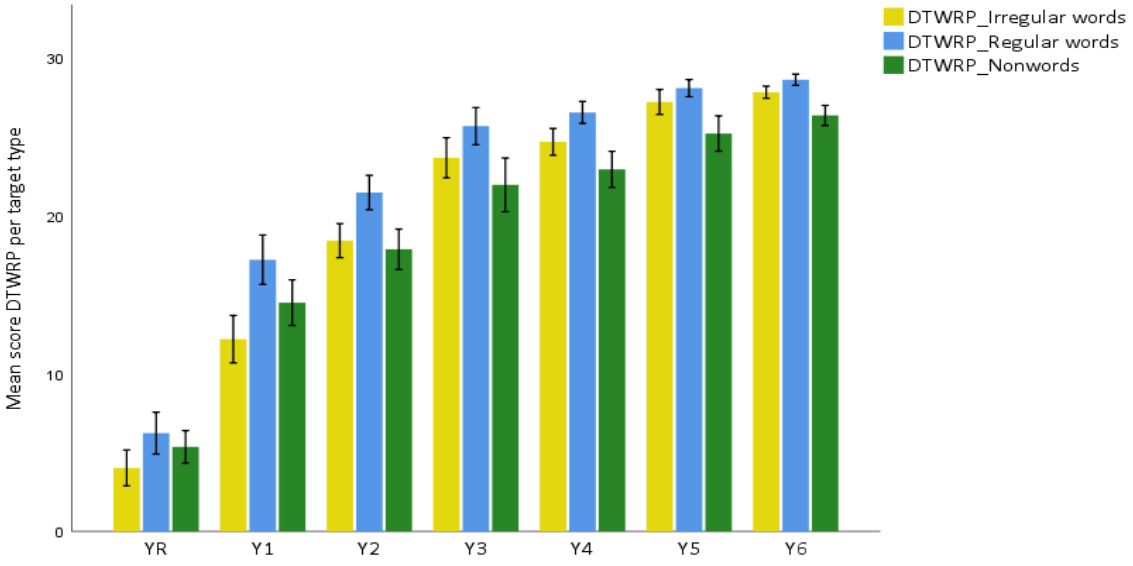
The main difference between scores in the WIAT2 and SPA, as shown in Figure 1, is located in the youngest sample of children, with the SPA appearing to be more difficult than the WIAT2. This may be due to the WIAT2 containing spellings of single letters, which the SPA does not. We expected that, following advice from literacy experts at a recent conference (Frill, 2019), the inclusion of four short, high-frequency irregular words would improve performance in this group of children, thereby increasing the test's sensitivity for the youngest children (which is the case, SPA final, forthcoming)[1].



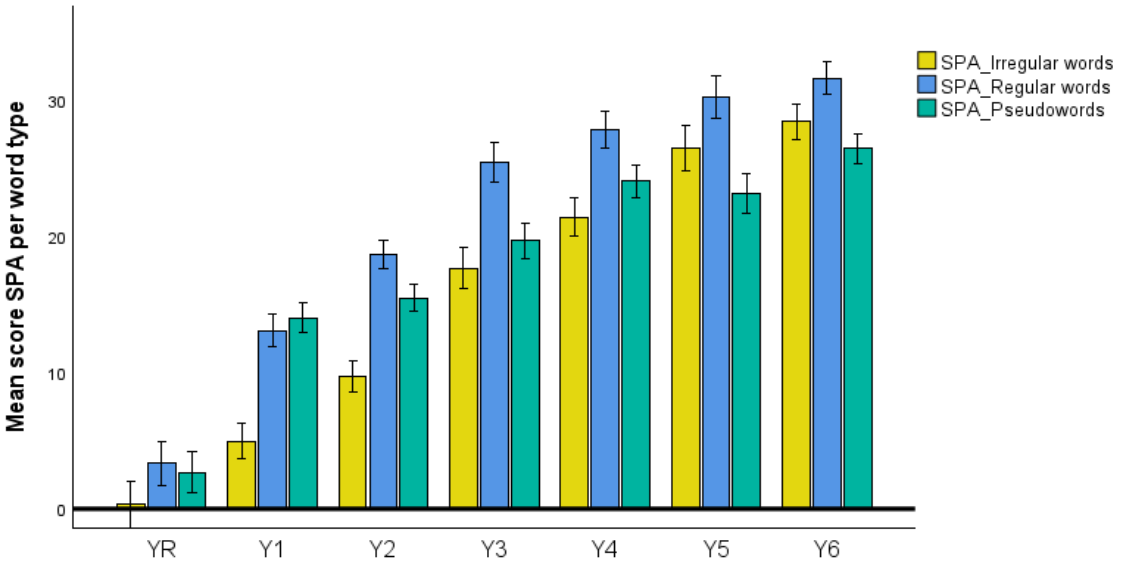


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Figure 2.

Comparison between the DTWRP reading test and the SPA per item category (irregular words, regular words and pseudowords).

Figure 2 compares performance on a standardised reading test (DTWRP) for each word type in the test (regular, irregular and pseudowords) with the SPA test for our sample of children. The top panel shows that children are quicker to learn to read regular words and pseudowords than they are to read irregular words. The bottom panel shows that for the SPA test, children are comparatively slower to master the spelling of irregular words than they are to master the reading of irregular words – for reading, the ability to read irregular words better than pseudowords occurs around Year 2, but for spelling, children do not spell irregular words better than pseudowords until Year 5. Thus, they find spelling irregular words much harder than reading irregular words. This is understandable as children’s productive skills often lag behind their receptive skills – in other words, they often recognise more than they can produce. This also highlights that spelling draws upon many different cognitive and word-specific skills that are not always needed for reading (Frith, 1980). However, in the literacy domain, this information is particularly useful for educators, as it highlights that the effect is particularly pronounced for the youngest children.

In summary, we have found that the pilot items in our SPA test are suitable for measuring spelling ability in UK primary-age children.

Penultimate Considerations

The SPA test demonstrates a similar progression to reading development and other standardised tests of spelling (WIAT2) across the primary school years, with some important differences related to the acquisition of spelling for irregular words. Additionally, the SPA test has since been standardised, (Niolaki et al., forthcoming); including the incorporation of a stopping rule- administration ends after four consecutive errors- to provide a standardised measure of spelling performance for UK primary-aged children. The test also demonstrates a good ability to capture specific difficulties in sound-letter knowledge and/or word-specific orthographic knowledge for familiar words[1] by comparing the performance of individual children across the different word types. The final version of the test will also include the morph_SPA, which targets specific morphological spelling skills in both real words with affixes and pseudowords with affixes. A key strength of the tool- beyond its strong theoretical foundation- is its ability to assess phonology, orthography, morphology, and semantics within a single battery (Kohnen et al., 2009). This comprehensive scope reduces the need for multiple assessments, offering a holistic understanding of spelling

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development. Crucially, the final standardised test is also open access, increasing its accessibility and utility for educators and researchers alike.

Note: [1]The *Spelling Profile Assessment (SPA), a New Spelling Test for English Primary School Children, Standardisation* is now submitted for consideration. The test materials can be accessed here.

[2]The DTWRP uses the term non-words rather than pseudowords, but for consistency, we use pseudowords.

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