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Uncovering strategy profiles in young children's reading & spelling



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ABSTRACT

Young children are taught to read and spell using a range of different approaches to encourage them to form connections between spoken sound and written text, but past studies have often looked at reading and spelling strategies in isolation. In this study, the performance of 48 young children in Years 1 and 2 was assessed on experimental measures of reading and spelling to encourage the use of different strategies. Strategies were identified by video analysis and verbal self-reports. The findings revealed a strong reliance on multiple strategies as well as similar patterns of development in children's strategy choice for reading and spelling. Two separate cluster analyses revealed separate profiles, based on similar patterns of strategy use for both reading and spelling strategies, respectively and while reading and spelling profiles were strongly related, suggesting a close connection between these two sets of skills, only the spelling profiles were influenced by age.

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1. Introduction

Young children are taught to read and spell using a range of different approaches allowing them to choose from a repertoire of strategies. There is growing evidence for the identification of multiple strategy choice among younger and older children (Coyne, Farrington-Flint, Underwood, & Stiller, 2012) as well as children and adults (Greenberg, Ehri, & Perin, 2002), and skilled and poor readers (Farrington-Flint, Coyne, Heath, & Stiller, 2008; McNeil & Johnston, 2008). Although there is a strong indication that children's reading and spelling skills are strongly related (Frith, 1980; Vaessen & Blomert, 2013) and evidence for the identification of similar strategy choices in reading and spelling based on error analyses (e.g., Caravolas, Hulme & Snowling, 2001; McGeown, Medford, & Moxon, 2013), it is argued that the relationship among reading strategies, spelling strategies and year group is not well understood partly because the majority of past studies using verbal self-reports on regular word-reading have mainly focussed on reading or spelling strategies in isolation.

1.1. Theories of reading and spelling

Flexibility in children's strategy choice was emphasised in Ehri's (2005) mediated phase model of reading development. Frith's (1980) stage model made specific predictions about how children's reading and spelling interact during development; this model is restrictive given that these skills are thought to occur in fixed invariant step-wise progression. In contrast, the phase model (Ehri, 2005, 2014) defines

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different phases of alphabetical processing (pre-, partial-, full- and consolidated alphabetic) and clearly specifies how these phases do not have to follow any strict or predefined order of progression but states that phases can occur, change and often interact at any stage during literacy development. This may include forming partial connections between some of the letters and sounds by identifying the initial or final cues (Stuart & Coltheart, 1988) or using the full range of grapheme–phoneme correspondences contained within words to make more reasoned phonological attempts at decoding (Farrington-Flint et al., 2008) or consolidating grapheme–phoneme connections contained into larger units that include spellings of rimes, syllables, morphemes allowing children to retrieve word-subunits from memory by making analogies to known words (Goswami, 1993) or applying the "-ed" or "-ing" rule to spelling (Kemper, Verhoeven, & Bosman, 2012).

Flexibility and adaptive choice is also explicitly reinforced in the overlapping waves model (Siegler, 1996), which proposes that children adopt multiple approaches and that strategy use is variable and adaptive and changes with age and experience, something that has been shown in past studies on reading, spelling and arithmetic (Farrington-Flint, Canobi, Wood, & Faulkner, 2010, Farrington-Flint, Vanuxem-Cotterill, & Stiller, 2009). Similar to phase models, children can choose from a repertoire of co-existing strategies at any given time and the attributes of these strategies can occur, change and diminish at any time during development allowing them to shift from one strategy to another depending on which is deemed most appropriate at the time (see, for a detailed description, Fazio & Siegler, 2013).

1.2. Young children's spelling and reading strategies

In support of both the phase model and overlapping waves model, past studies have often documented the flexibility with which children

rely on these co-existing reading and spelling strategies. For example, Rittle-Johnson and Siegler (1999) explored the strategies that 5-to-7 year-olds' adopt for spelling using observations and retrospective self-reports. They compared the direct retrieval of spellings against reported backup procedures and found that retrieval was faster and more accurate than backup strategies and overall spelling proficiency improved with age. Both McGeown et al. (2013) and Farrington-Flint, Stash, and Stiller (2008) found similar developmental patterns in 6-to-8 year-old children's spelling strategies with a move from early phonological attempts to consolidated orthographic strategies and retrieval. Finally, Kwong and Varnhagen (2005) while exploring children attempts in spelling nonwords in a longitudinal study using typing latencies and verbal self-reports, confirmed that while many children showed a gradual shift from spelling words with effortful backup strategies to retrieval; others continued to rely solely on backup strategies that were effective for them (see also Coyne et al., 2012).

In reading, this flexibility in strategy choice has been found across different age groups (e.g., Farrington-Flint & Wood, 2007; Farrington-Flint et al., 2009; McGeown et al., 2013) as well as different reading abilities (Coyne et al., 2012; McNeil & Johnston, 2008). In their early work, Farrington-Flint, Coyne, et al. (2008) studied verbal reports among 5-to-7 year olds and found that despite flexibility in strategy choice, with age, children moved towards retrieving more words from memory and reducing their reliance on procedural strategies such as phonological recoding. Coyne et al. (2012) found the same development pattern in moving from phonological to orthographic strategies across different age groups and Lindberg et al. (2011) found, in their assessment of 8-to-10 year-olds, that while the majority of children relied on direct retrieval on common words, they were forced to choose from a repertoire of co-existing backup strategies on less common word items (see also McNeil & Johnston, 2008).

1.3. Connections between reading and spelling strategies

Although children show flexibility in their adoption of reading and spelling strategies, there is some suggestion that these strategies might be associated. For example, there are theoretical claims that reading and spelling skills are often highly related (Frith, 1980; Vaessen & Blomert, 2013) and findings that both sets of skills share similar cognitive resources (Clemens, Oslund, Simmons, & Simmons, 2014). However, the relationship between early reading and spelling strategies is not well understood partly because research has focussed on reading or spelling strategies in isolation (but see Farrington-Flint et al., 2009; McGeown et al., 2013). McGeown et al. (2013) compared reading and spelling strategies together using error analyses based on irregular word items and found that while phonological and orthographic reading strategies were best predicted by decoding skills, strategies in spelling were best predicted by decoding skills, orthographic processing and age. However, as the authors acknowledge, any findings based on error analyses of irregular words may not be related to the kinds of strategies used for regular words. Another limitation was a focus on the identification of phonological and orthographic errors, with less importance attached to the other strategies, namely analogies, morphological rules and retrieval of facts, which could have been identified using verbal reports on more regular word items. In contrast, Farrington-Flint et al. (2009) analysed verbal reports based on regular words to identify reading and spelling strategies, however, their comparisons concerned combined measures of spelling and reading in order to compare literacy and arithmetic profiles rather than comparing reading against spelling profiles specifically. The present study set out to explore the relations among reading strategies, spelling strategies and year group to uncover the kinds of connections made between the development of strategy choice in reading and spelling.

1.4. Research questions

To examine the relationship between reading and spelling strategies, three research questions are addressed. First, do young children show similar flexibility in their strategy choice when attempting to read and spell? It is anticipated, on the basis of past studies (Farrington-Flint, Coyne, et al., 2008; Farrington-Flint, Stash, et al., 2008; Farrington-Flint et al., 2009; Lindberg et al., 2011) and theoretical claims (Ehri, 2014) that all children will show some flexibility in choosing from a range of different reading and spelling strategies. Second, does cluster analysis identify separate groups with distinct profiles based on the children's use of different reading and spelling strategies? It is expected that distinct profiles will emerge and highlight different routes to reading and spelling (Farrington-Flint et al., 2009, 2010). Third, what are the relations among children's reading profiles, their spelling profiles and year group? It is anticipated, based on theoretical claims (Frith, 1980; Vaessen & Blomert, 2013) and past findings (McGeown et al., 2013) that strong connections between reading and spelling profiles will emerge and be influenced by year group.

2. Method

2.1. Participants

Forty-six children attending a primary school in the suburbs of a British town in the UK participated in the study. 18 children were from Year 1 comprising 9 males and 9 females (mean age = 71 months, SD = 3 months) and 28 children from Year 2 comprising 16 males and 12 females (mean age = 83 months, SD = 3 months). All children had English as a first language and had no statement of special educational needs or difficulties with reading or writing. Standardised scores from the British Ability Scales II (Elliott, Smith, & McCulloch, 1997) confirmed that both Year 1 and 2 children were slightly above normal limits on their single-word reading (Mean = 114.9, SD = 14.9 and Mean = 119.6, SD = 10.9) but not single-word spelling (Mean = 107.0, SD = 12.2 and Mean = 110.1, SD = 11.3).

2.2. Method of instruction

Given the importance of instruction on literacy performance (McGeown, Johnston, & Medford, 2012) each child was selected from three mainstream classrooms within the same school to ensure they were receiving the same method of instruction. In their regular classroom instruction, all children had been taught using the structured phonics-based approach to literacy that incorporated several strategies to read and spell new words as confirmed by the classroom teachers. Children not only learnt to recognise words by sight (through flashcards and visual mnemonics) but also received a structured approach to phonics training adopting both small unit and large unit teaching for both reading and spelling (letter sounds, analogies, morphological rules).

2.3. British Ability Scales II standardised assessments

All children completed two standardised assessments: the reading and spelling tasks taken from the British Ability Scales II (Elliott et al., 1997). Within both standardised tests, the children's abilities are assessed on both regular and irregular words of increasing difficulty and are required to read or spell 8 or more words correctly in any one trial to continue. In the reading test, children are asked to pronounce each word correctly while within the spelling test, words are read out loud by an examiner, before being embedded within a contextually-appropriate sentence and then finally read out loud again. The raw scores are then converted to a standardised score for the purpose of analysis.

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