

# What are the best predictors of spelling ability in reception and year one children?

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## Introduction

- Previous research suggests that learning to spell can be more challenging to a child than learning to read (Caravolas & Snowling 2001).
- Reading and spelling are linked in development, however reading is an essential step that must develop before spelling can progress to a conventional level.
- There are other skills that influence how well children learn to spell, such as phonological awareness and letter knowledge.
- Early spelling progress relies on the phonological aspects of the word eg, **bl** → **ball**. Therefore phonological spelling improves with the development of phonological skills.
- Orthographic spelling according to Frith (1985) occurs after a logographic (symbols and visual features) and alphabetic (phonological) phase.
- The knowledge of orthography develops through reading, where irregular rules, punctuation etc are learnt.
- Phonological awareness, reading and spelling have multidirectional links. Reading changes the way spoken words are represented to the child (Bradly & Bryan 1983).
- There may be other equally important factors that influence the development of spelling that have been neglected in previous studies.

## Method

This was part of a larger study conducted by Dr Julia Carroll and Joanne Myers, so this section will just concentrate on the tasks that relate to spelling.

36 children were recruited through local primary schools

- 17 children in reception
- 19 children in year one

Children were tested in their school environment but some exceptions were tested at home.

Consent was obtained from teachers and parents of the children

As a short-term longitudinal design was used all the children completed a selection of tests at time 1 (T1) and were then re-tested 6 months later at time 2 (T2).

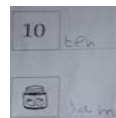
## The tasks:

*Non word repetition* is a phonological task. Children have to repeat nonsense words to demonstrate their ability to **perceive, remember** and **reproduce** unknown words. This task was used originally for screening the children. The words progress in numbers of syllables and therefore become more challenging for the children.  
Eg. **Loddernapish**

In *phonological awareness* the children are shown a series of cards, each with three pictures on. They are told the names of each of the pictures and are asked to identify which one starts with the same sound as the first picture. This requires the child to be able to hear all the sounds correctly and accurately match them to the target sound.  
Eg. **Sock** (target) **Fat** **Sun**

The *literacy* tasks were composed of letter naming task, where the children give the *name* and *sound* of all the letters of the alphabet. There were also two reading measures. One consisted of words that all children in reception should be familiar with, the other is a standardised measure and many of the words will be unfamiliar to the children (British Ability Scales II).

In the spelling task the children had to correctly identify a picture and then spell it to the best of their ability.



In this example the child has scored full marks for spelling both words correctly orthographically. The child has obtained 12 marks per word for correctly identifying each phoneme. (4 per phoneme)

Here child still scored highly even though the words are incorrect orthographically. The letter 'd' is only one phonetic feature away from the letter 't' so credit is given. The total number of marks rewarded for correct or close phonemes is the *spelling score*.



## Results

It is clear from the results that previous research has been correct in its assumptions.

The means give us a clear indicator that the spelling *scores* improved most, especially for children still in reception. The orthographic scores also improved over the time for both year groups, but less dramatically.

A series of multiple regressions helps to assess the predictors of both the orthographic spelling and phonological spelling.

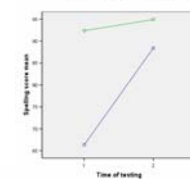
It is obvious from the results that phonological awareness and letter-sound knowledge had a significant influence on phonological spelling as expected, with the two related tasks accounting for 48.7% of the variance when controlling for age ( $p < 0.05$ ).

A surprising result was that non word repetition and orthographic spelling had a significant relationship, accounting for 38.8% of the variance.

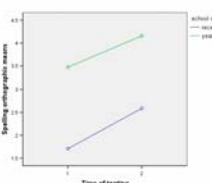
As expected for orthographic spelling the BAS reading measure and spelling score explain 58.7% of the variance ( $p < 0.05$ ), these relationships are related.

BAS reading and letter-sound knowledge were responsible for 53.8% of the variance, but the surprise again here was the non word repetition

Spelling score improved for both classes



Spelling orthographic improvement for both classes

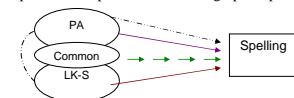


## Findings

- Processes involved in non word repetition contribute to the development of spelling.
- If a child obtained a high score on the non word repetition task it is more likely they scored well in the spelling task as well.
- This could be due to the perception of the phonemes being correct in the first place.
- It may also be the importance of remembering phonemes and using them for unseen words.
- Most children made improvements in both aspects of spelling from T1 to T2. Those who did not are likely to suffer from speech and language problems.
- Consistent with previous research spelling ability was predicted by phonological awareness and letter-sound knowledge
- In addition to previous research, non word repetition was found as a predictor of spelling ability, particularly towards phonological spelling.

## Conclusions

- Children reproduce the phonemes as mental representations before writing the words down, in some cases if the words are spelt incorrectly, there is something wrong with this process.
- Phonological spelling relies on the child understanding phonemes in the words, and this progress and development has a later effect on reading and orthographic spelling.
- Children rely less on phonetics as their reading improves, which explains the improvement in orthographic spelling



The diagram above demonstrates how the tasks may be linked or multi-directional. For example letter knowledge-sound may help to improve phonological awareness, which in turn helps spelling progress. Non word repetition may also work in this way, improving phonological awareness or even reading.

- This research gives insight into the factors that influence spelling development. With this in mind better strategies can be enforced to help and encourage children who struggle, by working on aspects such as phonological awareness that will help improve their spelling and reading.

## Literature cited

Bradley, L., & Bryant, P.E. (1983). Categorizing sounds and learning to read: A causal connection. *Nature*, 301, 419.

Caravolas, M., Hulme, C. & Snowling, M. (2001). The foundations of spelling ability: Evidence from a three-year longitudinal study. *Journal of Memory and Language*, 45, 751-774.

Frith, U. (1985). Beneath the surface of developmental dyslexia. In K. Patterson, J. Marshall, & M. Coltheart (Eds.), *Surface Dyslexia: Neuropsychological and Cognitive Studies of Phonological Reading*. (pp 301-330). London: Erlbaum.

## My experience

I am extremely grateful to have had this important research experience. My undergraduate course requires that I do three research projects over the three years, so I will be able to enter my third year much more prepared for my final project. I have gained a valuable and rare insight into the world of psychological research, noting the problems that may be encountered, but also reaping the rewards of successful research. The project management skills I have learnt will be applied to further academic research but also anything else I may chose to do after obtaining my degree. I thank everyone that made this experience possible.

## Acknowledgments



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