

# LEX.I.CAN

## Introduction

Learning to spell correctly is an integral part of teaching and learning, with research showing that spellings skills correlate positively with a range of other literacy skills including, writing, reading and comprehension skills (e.g. Berninger et al, 2002; Ehri, 1987; Graham et al, 2002; Graham & Santangelo, 2014; Juel, 1988; Perfetti, 1992; Perry & Ziegler, 2002; MacAuthur et al, 1996; Okyere et al, 1997).

Pupils can become increasingly aware of their difficulties (especially in relation to their peers), with this often proving detrimental for their self-esteem. Understanding the possible reasons as to why a pupil may struggle with their spellings can be a cornerstone to helping them change their preconceptions of themselves as someone that cannot spell and thinks that they are no good at spellings to 'I am great at spelling.'

Lex.I.Can is a spelling intervention devised by Dr Sima McGuigan, an Educational Psychologist at Milton Keynes Educational Psychology Service. This intervention has continuously proven to be a successful tool as either a whole class initiative, group intervention or individual intervention. More so, Lex.I.Can has helped to challenge a pupil's perceptions of themselves as poor spellers and conversely, enhance their self-esteem.



## Prior to starting the intervention

Prior to starting the intervention, the Psychology Assistants (PA's) delivered training to each of the teachers involved in the research regarding how to implement the intervention (including how to teach the weekly spellings) and the psychological principles underpinning this programme.

Following this, the PA's ran an initial class session on a range of different spelling strategies that pupils can use to remember the spelling of words (e.g. seeing words within words, looking at suffixes and prefixes etc.). The rationale behind this was that pupils have different ways of learning and it is important to identify their own spelling strategy. Pupils were then asked to identify spelling strategies that they felt would be most effective for them when practicing their spellings.

## Psychological Underpinning

Research has shown that interventions underpinned by the theoretical principles of distributed overlearning, distributed retrieval practice and interleaved learning from Instructional Psychology are fundamental to learning (Skinner, 1953; Lindsley, 1991; Dolosky et al 2013; Ward et al 2017). Pupils with literacy difficulties are often able to establish words in their short-term memory but have difficulty transferring this information into their long-term memory which suggests the need for overlearning and retrieval practice. Haring and Eaton (1978) describe this process through the Learning Hierarchy:

### STAGE 1: ACQUISITION

The pupil learns the skill to accuracy

### STAGE 2: FLUENCY (PROFICIENCY)

The pupil has reached accuracy with the skill

### STAGE 3: MAINTENANCE

The pupil retains the skill and it is available for the pupil to use when needed.

### STAGE 4: GENERALISATION

The pupil can apply the skill under different conditions with specific instruction

### STAGE 5: ADAPTION/ DISCRIMINATION

The pupil can apply the skill to different conditions naturally

When there is repetition of learning and distributed retrieval practice, pupils become fluent in the skill that they have learned, enabling an automatic response to the tasks without hesitation. This in turn helps learning to become ingrained (i.e. skills get transferred from short-term memory into long-term memory and are strengthened through retrieval practice).

## The Procedure

The programme was carried out Monday-Friday. Pupils were given 5 new spellings at the beginning of each week. Each week, pupils would build on the list of words that they had learnt previously (e.g. on week 2, pupils would learn their current 5 words as well as practice the 5 words from the previous week; on week 3, they would learn their current 5 words and continue practicing week 1 and week 2 words etc.). This would continue until they reached a maximum of 20 spellings which would take them to 4 weeks. After week 4, the first 5 words would get dropped each week. Table 1 shows an illustration of what this would look like.

Table 1:

Week	Number of spellings practised	
Week 1	5	
Week 2	10 (5 new, 5 from the previous week)	
Week 3	15 (5 new, 10 from the previous weeks)	
Week 4	20 (5 new, 15 from previous weeks)	
Week 5	20 (5 new, 15 from previous weeks)	Week 1 words are dropped
Week 6	20 (5 new, 15 from previous weeks)	Week 2 words are dropped
Week 7	20 (5 new, 15 from previous weeks)	Week 3 words are dropped

On Monday and Tuesday, the sessions were slightly longer as they incorporated a teaching component of the new weekly 5 words (e.g. recapping on the different spelling strategies, discussing suffixes, prefixes etc.) as well as time to practice their previous and current spellings independently for 5-10 minutes (i.e. using a spelling strategy that they had identified as being effective for them).

## The Word List

Dr. Sima McGuigan has designed a pack with word lists that are divided into levels (year groups), stages (difficulty level, where 1 is easiest and 4 is hardest) and A (both patterned words and non-patterned words; where one week is patterned words, the next non-patterned and so on), B (patterned words only) or C (non-patterned words only for secondary school pupils and above).

Table 2: A table showing the levels of Dr Sima McGuigan's Intervention

Level	What Year the Level is similar to	Worksheets 'A' (patterned & non-patterned words) Appendix A	Worksheets 'B' (patterned words) Appendix B	Worksheets 'C' (NPW's) Appendix C
Level 1	Similar to Year R & phase 2 phonics	Level 1a (2 stages)	Level 1b (1 stage)	None
Level 2	Similar to Year R & phase 3 phonics	Level 2a (4 stages)	Level 2b (2 stages)	None
Level 3	Similar to Year 1	Level 3a (4 stages)	Level 3b (2 stages)	None
Level 4	Similar to Year 2	Level 4a (2 stages)	Level 4b (1 stage)	None
Level 5	Similar to Year 3	Level 5a (4 stages)	Level 5b (2 stages)	None
Level 6	Similar to Year 4	Level 6a (3 stages)	Level 6b (1 stage)	None
Level 7	Similar to Year 5 & 6	Level 7a (3 stages)	Level 7b (2 stages)	None
Level 8	Secondary school and above (including adults)	None	None	Level 8c (2 stages)

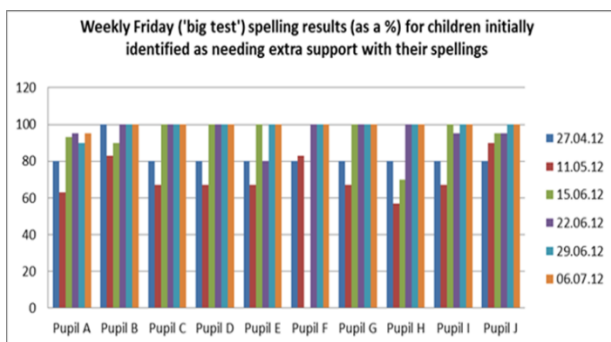
## The Pilot Study

When designing this intervention, Dr Sima McGuigan ran a pilot test using a whole class approach. 26 pupils were involved, 10 of these pupils had been identified as having spelling difficulties and were receiving a different intervention prior to Lex.I.Can. The intervention was delivered with ad-hoc spot tests and high expectations to give the children a message that they were responsible for their own learning.

### Results:

The results from this initial pilot study showed that pupils who were initially identified as having difficulties with their spelling were yielding comparable results with those pupils who were identified as having no notable difficulties. As well as yielding successful results, children also expressed their positive experiences of the Lex.I.Can intervention. The following graph (Fig. 1) presents the scores of the pupils who were initially identified as having difficulties with their spelling. Results showed that most pupils who were initially struggling with their spellings were achieving 100% on a regular basic. Spot tests (where pupils were tested after 6 weeks) suggested that there was retention of previously learnt spellings.

Figure 1: The weekly Friday spelling results from the pilot project



## The Current Intervention

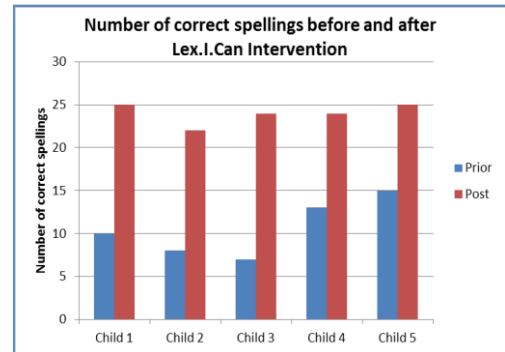
The Psychology Assistants from Milton Keynes Educational Psychology Service delivered the intervention with a group of primary school children over 5 weeks.

Five pupils were selected to participate in the intervention by the primary school from Year 4. The group consisted of 2 female and 3 male pupils who were selected as they had previously received Wave 3 spelling interventions but had not made significant progress (i.e. these pupils had still not consolidated basic high frequency words and were functioning at approximately Year1 for their spellings).

### Results:

The results of the five week intervention suggest that pupils who were identified as having difficulties with spellings made significant progress. These findings reiterate the findings from the original pilot study by Dr Sima McGuigan. The following graph (Fig. 2) shows the pre and post scores on the same spelling test for each child.

Figure 2: The scores of each participant pre and post intervention on the same spelling test.



### Taking it further:

The Psychology Assistants are currently undertaking a research project on the efficacy of Lex.I.Can intervention under the supervision of Dr Sima McGuigan, involving 4-6 schools.

### Quotes from pupils identified as having spelling difficulties in the initial pilot study following the intervention:

"I used to think spellings were very hard but now it is much easier." - Pupil A

"In spellings they are much more challenging but I always get 19 or 20/20 and now I am more confident." - Pupil B (low attainer, underprivileged background/no support at home)

"I used to hate spellings but now I love it so much that I practice all the time but before I didn't practice spellings ever." - Pupil E