Cued Spelling: Is it Worth the Wait?

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Learning to spell is a complex yet essential skill for children to master (Graham and Santangelo, 2014). Spelling proficiency has a close relationship with reading and writing performance and given their importance for academic achievement, it is crucial that teachers employ effective strategies for supporting pupils' spelling development (Viel-Ruma, Houchins & Fredrick, 2007). One such intervention is that of Cued Spelling.

Developed by Keith Topping in 1986, Cued Spelling is "a user friendly and durable procedure designed to facilitate individualised self-managed learning of spelling skills" (Topping, 1995, p.4). In contrast to many interventions, Cued Spelling is a technique, rather than a prescribed programme, which utilises evidence-based methods of instruction to facilitate spelling skill development. Cued Spelling follows a peer tutoring format, comprising 10 steps and two reviews (see Appendix A). Tutees choose five to six high interest target words and pairs work together to check their spelling before writing a master version into their spelling diary. Taking each word individually, pairs read the word aloud and then tutees read the word alone. Tutees choose cues (prompts or reminders) to help them remember the written structure of the word and once chosen, pairs verbalise the cues together. Tutees then say the cues aloud whilst tutors write down the word to this 'dictation' and vice versa. Thereafter, tutees verbalise the cues, write the word as quickly as possible and then read the word aloud (Topping, 1995). Sessions end with a 'speed review' which involves tutors randomly dictating the target words for tutees to write as quickly and as accurately as possible. Tutees then self-check their spellings with the master version. Each week, a 'mastery review' is conducted whereby the same process is repeated but for all target words learned that week. It is recommended that pairs spend 15 minutes together three times per week engaging in Cued Spelling for a six-week period (Topping, 1995).

Currently, there is a paucity of empirical research which directly evidences Cued Spelling as an effective intervention for supporting pupils' spelling development. As such, this academic critique will firstly explore the instructional approaches and psychological theory underpinning Cued Spelling.

Peer Tutoring

Peer tutoring is a distinctive form of peer-assisted learning (PAL) which involves pupils working together on specified and individualised curriculum content within clearly defined roles and protocols for interaction (Miller, Topping & Thurston, 2010). Predominantly informed by Vygotsky's (1978) theory of cognitive development, the role of peer tutors is to scaffold the learning process through the management of activities within the tutees zone of proximal development, whilst also modelling competency in the task (Bowman-Perrott et al., 2013; Topping, 2015). The use of peers as mediators in the learning process capitalises on natural ways peers enhance pupil-centred learning including: contributing to task engagement, persistence and academic motivation; reducing feelings of failure; and providing regular and immediate feedback (Rohrbeck, Ginsburg-Block, Fantuzzo & Miller, 2003; Bowman-Perrott et al., 2013).

Research has demonstrated the efficacy of peer tutoring, particularly for lower ability pupils, in reading attainment (Tymms et al., 2011), maths (Topping et al., 2011) and science (Bowman-Perrott, Greenwood & Tapia, 2007). Peer tutoring has also been found to improve pupils' self-esteem (Miller et al., 2010). Meta-analyses (e.g. Jun, Ramirez & Cumming, 2010; Bowman-Perrott et al., 2013; Leung, 2014), cited by the Education Endowment Foundation (2016) as "extensive evidence" for the efficacy of peer tutoring, appear to concur that it is an effective intervention, with pooled effect sizes ranging from +0.35 to +1.05. However, whilst such findings provide an inconsistent estimate of effect, of greater concern is that the analyses focused on PAL strategies and not specifically peer tutoring. Findings and recommendations should therefore be interpreted with caution.

Cued Spelling follows a definitive peer tutoring format with pairs receiving specific training in the procedure and protocols for interaction prior to taking on the role of either tutor or tutee (Oxley and Topping, 1990). Tutors model competent performance at several stages, including using the generated cues to aid spelling. Tutors are also responsible for praising tutees at specific points, providing immediate and regular feedback, and for supporting the process of generating cues if required.

Precision Teaching

The emphasis in the later stages of Cued Spelling is on speeded performance; a principle drawn from the concept of fluency found in Precision Teaching (PT: Oxley and Topping, 1990). When mastering new academic skills, learners typically progress through a series of predictable stages: acquisition; fluency; generalisation; and adaptation (Haring, Lovitt, Eaton & Hansen, 1978).   PT is a systematic approach to teaching which focuses on the measurement and evaluation of learning, with the pursuit of fluency in pupil performance as a precursor to the mastery, maintenance and generalisation of skills (Binder, 1988).

To support learners in achieving fluency, determined by speed and accuracy of learned skills, pupils should have access to daily timed practice and test sessions with a pre-determined target rate and performance should be recorded on a daily standard celeration chart

(Lindsley, 1991; Lambe, Murphy & Kelly, 2015).   Whilst there are a dearth of studies examining the impact of PT on spelling, empirical evidence demonstrates the effectiveness of PT in improving pupils' reading skills (e.g. Downer, 2007; Hughes, Beverley & Whitehead, 2007; Roberts and Norwich, 2010; Griffin and Murtagh, 2015). However, limitations of these studies, including small sample sizes and a lack of control groups which prevent generalisation of the findings to larger populations, should not be overlooked.

In the pursuit of fluency, Cued Spelling provides pupils with 'speed reviews' to support them in developing both accuracy and speed in their spelling. However, pupils are not set targets and there is no formal monitoring of their progress. Each week pupils complete a 'mastery review' and an overall accuracy score is generated, contrasting with PT principles whereby the focus is on measuring both accuracy and speed. Binder (1988) notes that one cannot determine whether skills are at the acquisition or mastery level without considering the rate of skill performance. Thus, the extent to which Cued Spelling develops fluency is unclear.

Mnemonic Strategies

Cued Spelling encourages the use of mnemonic strategies to help pupils remember the structure of words.   Mnemonic strategies are systematic procedures for encoding information in such a way that will support effective retrieval (Putnam, 2015).   Empirical research has shown that mnemonic strategies can be highly effective in enhancing memory (see Worthen and Hunt, 2011).   However, research relating to their application in the classroom is limited and findings are equivocal. Some research (e.g. Stalder, 2005) has found that providing pupils with specific mnemonics, particularly in language learning, leads to some improvements on test-related questions. Conversely, some research (e.g. Fritz, Morris, Acton, Voelkel & Etkind, 2007) has found that retrieval practice, or practice testing, benefits retention as much as mnemonic strategies. Such findings suggest that learning mnemonic strategies may not be the most efficient use of time for pupils, particularly as considerable time and effort is required to learn and use them effectively and initial improvements in performance may not be maintained (Dunlosky, Rawson, Marsh, Nathan & Willingham, 2013).   This leads one to question the relevance of mnemonic strategies to education whereby the goal is to promote long-term learning.

However, it is noteworthy that the aforementioned research did not consider the impact of self-generated mnemonic strategies. Bloom and Lamkin (2006) found that students who used self-generated strategies achieved higher levels of accuracy than a comparison group who were provided with strategies. The comparison groups' performance also deteriorated during the 10-week follow up period. Thus, mnemonic strategies may be more effective when pupils take an active role in their generation.

Cued Spelling encourages pupils to "develop the mnemonic strategies which work best for them" (Oxley and Topping, 1990, p.32). These may include phonic sounds, letter names, syllables, chunks of words, or wholly idiosyncratic strategies such as drawings (Oxley and Topping, 1990). Whilst peer tutors can suggest ideas, a strong emphasis is placed on tutees

considering and choosing cues which make sense and are meaningful to them, thus increasing the likelihood of accurate retrieval in the future.

In addition to enhancing memory, it is the author's view that the training in and use of mnemonic strategies may also serve to improve pupils' metacognition. This refers to an individuals' awareness of and ability to be self-reflexive of their own cognitive processes and strategies (Fisher, 1998). Strategy training incorporates the modelling and verbalisation of questions, statements or mnemonics by a more competent other, guided practice and feedback, and independent practice as pupils internalise the procedures (Fisher, Cozens and Greive, 2007). This may be particularly helpful for poor spellers who, in comparison to skilled spellers, have been found to be less efficient in their choice and use of strategies (Ralston and Robinson, 1997). Indeed, Cordewener, Verhoeven & Bosman (2016) found that pupils who received specific strategy instruction in spelling performed better post-intervention than those who received self-correction training or no intervention. However, it is important to note that the positive effect of strategy training was not maintained long-term. This may relate to the fact that teachers provided strategies and thus they were not necessarily meaningful for pupils.

Through choosing and verbally articulating cues, pupils engaging in Cued Spelling may develop a greater awareness of the mnemonic strategies they are using. Moreover, through the process of self-monitoring and evaluating their spelling attempts, one could posit that pupils may develop a greater awareness of the extent to which their chosen strategies are helpful in remembering their spellings and thus support the transfer of learning.

Motivation

Cued Spelling also aims to "raise confidence and motivation without needing any special materials" (Oxley and Topping, 1990, p.32). Motivation plays an important role in facilitating academic achievement by directing pupil behaviour towards attaining particular goals, increasing engagement and persistence in tasks, and by focusing pupils' attention (Nunez and Leon, 2015).

Self-determination theory (SDT) proposes that humans have three innate psychological needs which form the basis of self-motivation: competence; autonomy; and relatedness (Ryan and Deci, 2000). For pupils who find spelling more challenging they may have experienced failure on frequent occasions, affecting their perceived level of competence (Bandura, 1993). Cued Spelling is an individualised intervention with sessions tailored to pupils own pace of learning. Coupled with being supported by a more competent peer, this has the potential to provide pupils with frequent opportunities to achieve success and hopefully increase their self-confidence in spelling.

Cued Spelling also meets pupils' need for relatedness; defined as the desire to feel connected with significant others (Baumeister and Leary, 1995). Through its peer tutoring format, Cued Spelling facilitates collaborative learning opportunities and social interactions

with peers who also provide specific praise and feedback, supporting tutees in learning to self-regulate and thus potentially persist for longer at the task.

Finally, according to Ryan and Deci (2000) having a sense of autonomy is one of the most important aspects of SDT. Within Cued Spelling a significant emphasis is placed on pupils pursuing their own interests and on choosing high value, individualised spellings to learn (Oxley and Topping, 1990). Moreover, tutees are encouraged to independently think of cues which are meaningful to them (Topping, 1995). As such, by allowing pupils to take ownership of their learning, they should be more motivated to engage with spelling, thus increasing the likelihood of enhanced reading and writing performance.

Upon consideration of the underpinning psychology, Cued Spelling would appear to have a strong theoretical evidence base and as such, should be an effective intervention. Indeed, Cued Spelling features in 'what works for children with literacy difficulties' (Brooks, 2013); a report designed for schools based on a review of literacy intervention schemes. However, it is noteworthy that none of the empirical studies on Cued Spelling sufficiently met the inclusion criteria, raising an interesting and potentially political question around its place in the report. As such, this critique will now consider the empirical evidence for Cued Spelling.

Effectiveness of Cued Spelling

A small body of research into Cued Spelling has been conducted with primary school aged pupils (Brierley, Hutchinson, Topping & Walker, 1989; Oxley and Topping, 1990; Watt and Topping, 1993; France, Topping & Revell, 1993). In one such study, Brierley et al. (1989) reported that following a six-week intervention, pupils retained on average 80% of their target words and made an average gain in spelling age of 0.65 years. Similarly, Oxley and Topping (1990) found that Cued Spelling had a positive impact on pupils' spelling attainment, reporting ratio gains of 2.26 for tutees, 2.78 for tutors and 3.30 for a comparison group, as determined by the SPAR norm-referenced test of spelling ability (Young, 1976). However, it is notable that whilst tutees made accelerated progress over time, comparison group pupils made the greatest progress. It is unknown what other spelling instruction, if any, pupils were receiving during the intervention period which may have contributed to this progress. Moreover, pupils' baseline spelling abilities had not been controlled for. As such, it is not possible to draw any meaningful conclusions about the effectiveness of Cued Spelling from these findings.

Watt and Topping (1993) compared the spelling attainment of a parent and a peer- tutored group with a comparison group who continued with a look-cover-write-check approach. The authors reported ratio gains of 2.1 for parent tutees, 3.4 for peer tutees and 0.6 for the comparison group, as measured by the Graded Word Spelling Test (Vernon, 1977). In terms of the mastery reviews, parent tutees scored an average of 95% and peer tutees scored an average of 86%, indicating high levels of retention over the four month period. No comparable data was provided for the comparison group.

Taken together, these findings would suggest that Cued Spelling may be effective in raising spelling attainment. However, due to several methodological limitations, findings should be interpreted with caution. These include small sample sizes which may have inflated or depressed scores, limited follow-up studies to establish if gains were maintained over time and inappropriately matched comparison groups. Moreover, the standardised assessments used were published almost 20 years prior to the studies, leading one to question the appropriateness of the measures and thus the reliability of the reported ratio gains.

Pupils also completed self-report questionnaires to elicit their views on Cued Spelling. Across the studies, pupils reported that they felt happier about spelling, believed that they did better at spelling tests and that they had become better at self-correcting (Brierley et al., 1989; France et al., 1993; Watt and Topping, 1993). Moreover, Oxley and Topping (1990) reported that tutees showed a substantial and statistically positive shift in their spelling self-concept. This pattern of results was also observed for the tutors, although notably smaller, whilst the comparison group showed no significant change. It is acknowledged that only pupils who engaged in Cued Spelling completed the questionnaires, however, these findings imply that pupils' perceived beliefs about their ability to spell may have improved.

Self-efficacy refers to an individual's belief in their ability to succeed in a particular situation or to achieve certain goals (Bandura, 1997). Self-efficacy beliefs are formed by interpreting information from four sources: personal mastery experience; vicarious experience (social comparisons and peer modelling); social encouragement and feedback; and physiological states such as anxiety (Pajares, 2003). Considering the technique holistically, Cued Spelling would seem to create opportunities for pupils to receive positive information from all four sources. As such, it may be that Cued Spelling serves to improve pupils' spelling skills indirectly through increasing their spelling self-efficacy. Whilst this may not lead to immediate improvements in spelling attainment, it should lead to learners with a stronger belief in their capabilities as a speller, ultimately fostering improved academic achievement in the long-term.

Summary and Implications for Educational Psychologists

In summary, Cued Spelling is relatively unique as an intervention in that it is a technique which targets both the cognitive and affective factors involved in learning to spell. Whilst we cannot yet conclude with any certainty that Cued Spelling is effective in raising spelling attainment, the technique is low cost and utilises well-evidenced methods of instruction. Schools may therefore wish to consider drawing on the principles of Cued Spelling for the benefit of all learners. In consultations with teachers, Educational Psychologists (EPs) should promote the use of Cued Spelling as part of their whole-class spelling instruction. Peers are an invaluable and abundant resource within the classroom and research has shown that tutors also benefit academically and personally (e.g. Galbraith and Winterbottom, 2011). Understandably, teachers may be concerned about giving pupils control over their learning, especially given the pressure they are under to effectively deliver the curriculum. As such, schools should be advised that Cued Spelling can be used to compliment rather than replace

their current methods of instruction and intervention. EPs should disseminate research to schools and wider professional audiences to highlight that the benefits of using self-generated mnemonic strategies may extend beyond enhancing memory to improving pupils' metacognition.

As a technique, Cued Spelling also has potential as a home-based intervention with parents taking on the tutoring role. This may alleviate some of the pressure for schools and provide an opportunity for pupils to practice their skills in a different context. EPs are well placed to support staff and parents in working collaboratively to ensure the best outcomes for pupils. EPs are also well placed to provide training to schools, parents and other professionals on the efficacy of Cued Spelling, and in particular, advising them to give consideration to both the cognitive and affective factors involved in learning. However, in doing so EPs will need to consider their own beliefs with regards to the role of each in promoting learning.

Upon consideration of all the evidence, Cued Spelling would appear to have real potential as an intervention within schools. Looking forward, given the importance of fluency in promoting the mastery, maintenance and generalisation of skills, EPs should support schools in adapting the technique to include a measure and record of pupils' rate of skill performance. Current and methodologically sound empirical research is also welcomed to help determine the extent to which Cued Spelling does facilitate the individualised, self-managed learning of spelling skills.

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Appendix A

Cued Spelling: The 10 Step Process

1. Speller chooses words, 5+ each day.

2. Check spelling, write in diary.

3. Pair read word – together and alone.

4. Speller chooses cues.

5. Pair say cues together.

6. Speller says cues. Helper writes word.

7. Helper says cues. Speller writes word.

8. Speller says cues and writes word.

9. Speller writes word fast.

10. Speller reads word.

FOUR POINTS TO REMEMBER

1. **Cover** – helper covers up the words.
2. **Check** – spellers check their own spellings.
3. **Mistakes** – go back to the step before and repeat.
4. **Praise** – specific.

SPEED REVIEW – each day

- Speller writes all words for the day as **quickly** as possible.
- **Check**s spellings with the master version.
- Wrong words – repeat 10 steps.

MASTERY REVIEW – each week

- Speller writes all words for the week as **quickly** as possible.
- **Check**s spellings with the master version.
- Pair decide what to do about the wrong words.