Learning about spelling strategy

Introduction

Spelling strategies in the primary curriculum have consistently provoked criticism and debate amongst teachers, Ofsted and the Government.[1] Standards continue to decline highlighting that the present strategy is failing.[2] A central criticism is that teachers do not have the necessary knowledge of the relationship between word structure and spelling, and rely on techniques they learnt at school, specifically the use of memorized spelling tests. (Spear-Swerling, Brucker & Alfano 2005). The major concerns are that this approach hinders the teacher's ability to identify the correct spelling instructional level of individual pupils, and produces a trend where pupils who score high in tests will subsequently misspell the same words during written exercises; this is the case at my chosen school.[3]

The Key Stage 2 curriculum is similarly criticized both at the school and in general, because it fails to 'consistently describe how word lists are selected or base selection on current linguistic spelling principles and developmental research.' (Scott 2007). This 'may or may not be developmentally appropriate for the class as a whole or for individual pupils, especially in the area of creative writing' (Stone et al. 2005 p662).

It will be the purpose of this study to analyse and evaluate current theories and case studies for teaching spelling and writing at Key Stage 2 that could be utilized by the school. There are three dominant strands to teaching that will be investigated here, Developmental Stage Theory, Incidental Inventive Spelling theory and the Multi-sensory approach.[4]

Spelling Strategies: An Investigation

Developmental Stage Theory identifies 5 stages of spelling development; Prephonetic, Phonetic, Patterns with Words, Syllable Juncture and Meaning-Derivation. (Henderson in Bear et al. 2004).[5] Studies have discovered that 'pupils who experience significant difficulty with spelling will still follow the same developmental course as other pupils, but at a slower pace. (Worthy & Invernizzi 1990). The approach therefore promotes a move away from memorization skills to supporting a pupil's natural developing awareness of language with practice in wide reading and writing, and 'be based on the pupils developmental level as opposed to unitary placement in the grade level based spelling book.' (Schlagel 2002 p. 47).

A developmental spelling analysis (DSA) such as the Qualitative Inventory of Word Knowledge (QIWK) technique is used to initially identify and analyse a pupil's current stage through scoring, inventive spellings and error patterns relating to writing and word sorting activities. Word sorts of increasingly difficult levels using words from the 5 DTS stages are used because they provide an 'interactive means of helping pupils understand spelling concepts on an increasingly abstract level' (Bear et al. 2004). Subsequent teaching, spelling and writing exercises are tailored to both stage and development strategies by focusing on fewer words in word sorts at a time, teaching spelling patterns and providing numerous practice writing sessions and self/peer review strategies.[6] Together they allow for a systematic observation of higher-level processes and improve metacognitive abilities. (Seifert-Kessell in Fresch 2000). This approach moves away from the reliance of pupil memorization of words that is said to produce effective performance

in spelling tests but poor performance in writing, and over time, as pupils forget the words they have memorized. (Seifert-Kessell in Fresch 2000)

The case study 'Beyond Memorisation, Lists and Trial Tests' by Hillal & Scharer is an excellent example of the DTS process. Using QIWK teachers were able to expand their understanding of KS1 & KS2 equivalent pupils as spellers. One teacher discovered that her class ability ranged from levels 2-8 on the QIWK scale, another commented 'I need to get better at recognizing what levels they are at. It only makes sense that if kids are at different reading levels, they will be at different levels in their spelling. I don't know why I didn't recognize this before.' (Hilal & Scharer 1993).

The strategy does not just allow for effective grouping and targeted learning at the instructional level, it also provides a detailed method for qualitative data analysis in pupil errors over time. One teacher documented a concern that score levels had not improved between May and January, however, when the error data was analysed using the QIWK method she discovered that 'over half were moving from the letter name stage to the within-word stage... this is so much more pleasant, you can see growth, what more could you ask for?' (Hillal & Scharer 1993).

A third and perhaps the most significant development was that teachers noticed changes in spelling errors in written assignments. Rather than circling errors they cross-referenced with a QIWK analysis and systematically documented them. This inferred weekly selections of word lists that were chosen from misspelled written work rather than the curriculum textbooks. This facilitated mini-spelling lessons linked to written work through observed

errors and provided an environment for coaching in self-editing and peer editing strategies using QIWK word sorts as a base. Peer marking and discussions have, themselves, provided an additional strategy here that has been documented to benefit pupils learning. By grouping pupils of similar spelling ability they learn at the same pace, feel empowered and 'by judging the work of others, students gain insight into their own performance (and language)... peer and self-assessment help pupils develop the ability to make judgments, a necessary skills for learning.'(Brown, Rust & Gibbs 1994). It will be seen throughout this chapter that peer work and assessment strategies lend themselves to the majority of spelling strategies discussed, this will be discussed in more depth in the conclusion.

The headteacher summarized; 'there's been a move away from memorization activities to active tasks such as creative writing, word hunts and word study notebooks (this) extends and records development of word knowledge.' (Hillal & Scharer 1993). All the teachers involved in the study stated they would continue but required support strategies from the school to implement, this a recurring theme for all researched case studies and will be therefore be discussed in the conclusion.

A subsequent developmental case study entitled 'Using Think-Alouds During Word Sorts' (Fresch 2000) encouraged KS2 level pupils to 'put your brain in your throat and tell us what you are thinking... keep talking.' The study was determined to 'open a window into the decision-making process' because information stored in the short-term memory is vocalized and caters for 'systematic observations of higher-level processes.' (Olson, Duffy & Mack in Fresch 2000). The results showed that 'think-alouds enable pupils to

demonstrate the extent to which they rely on auditory or visual information... students develop knowledge about language through active engagement.' (Fresch 2000). [7] This in turn can be incorporated into the strategies pupils use while writing; rather than rely on writing and proof reading, the pupils can incorporate a vocal strategy linked to their experience of vocalizing words during DST word sort exercises.

While Stage Theory provides 'a basic template for describing student growth in spelling and writing' it is criticized for a repeated emphasis of placing pupils in concrete groups with the assumption 'pupils progress sequentially without moving back and forth when they encounter unfamiliar words.' (Scott 2007). Studies by Siegler (1995) and Varnhagen (1997) have identified an 'Overlapping Wave Theory' that incorporate stage development but allow for fluid movement between stages as they develop. This theory believes 'pupils possess and are able to use knowledge of phonology, orthography and morphology from an early age, but rely more strongly on strategies at different points in time.' (Kwong & Varnhagen 2005). Varnhagen's case study examined pupil spelling for a KS 1-2 equivalent and identified the same strategies throughout.[8] Their conclusion was that spelling 'progressed from errors representing the phonetic stage directly to correct spelling.' (Scott 2007). The authors themselves are unsure of how this would compliment writing strategies but identify a link to the two strategies that would allow for a better understanding of spelling stage development that would influence spelling strategies as a whole. (Kwong & Varnhagen 2005 p. 154).

In opposition to DST is the Incidental Inventive Spelling approach developed by Montessori (1964) and Chomsky (1979). They observed that children

write from an early age and in some cases before they begin to read. They inferred that an invented spelling approach to writing benefits learning because 'children learn best if they construct a system of their own rather than having it handed to them by an adult.'(Chomsky in Metasala & Ehri 1998 p. 300). Treimann (1993) echoed Chomsky and Montessori by conducting a year long study where pupils used invented spelling in their writing, then recopying it with standard spelling and finally using for reading practice. It was discovered that the pupils spelling and writing both improved. (Treimann in Metasala & Ehri 1998).

In a case study by Clarke (1988) pupils at an early KS2 level using inventive spelling out performed fellow pupils in two separate spelling tests, one involving low-frequency words. These results suggest 'encouraging children to invent spelling while engaged in creative writing helps them to appreciate language comprehension.' (Clarke in Metasala & Ehri 1998 p. 305). Ehri continues to argue that 'it does not hurt children to misspell words and they do not become locked into misspelling behaviour.' An additional discovery was that pupils often do not proof read their own writing and even when they do it takes multiple readings to learn its spelling. By using inventive spelling techniques the inventive group correctly 'spelled a larger variety of words than the control group.' (Metasala & Ehri 1998 p. 305). Further studies by Ehri, Gibbs and Underwood (1988) and Bradley and King (1992) discovered that pupils beginning Key Stage 2 who were exposed to inventive spelling techniques were more accurate than their counterparts. (Metasala & Ehri 1998).

Although pupils in these studies were beginning a Key Stage 2 level of education the strength of the study focuses on the ability of pupils to maintain ownership of their creative writing. The teacher remains a facilitator rather than a director. Read (1986) believes 'writing is part of a child's play with language and the specific activities must grow out of a child's interest... she is likely to direct herself rather than march to an adult drummer.' (Read 1986 p. 125). The inventive studies have highlighted two areas of interest, firstly is the level of play pupils maintain through writing which could lead to better performance. A study by Gerritz in Read confirms that 'there was a distinct improvement in pupils writing ability. They were clearly at ease and eager to write. They didn't show any more bad spelling habits than had been experienced throughout years of teaching.' (Gerritz in Read 1986 p. 125). An enjoyment of writing is perhaps viewed as secondary to spelling performance in the KS 2 strategy and there could be a link between poor spelling performance in writing and the rigidity of spelling strategies. Secondly, the studies have highlighted the in-ability of pupils at this level to identify spelling mistakes in writing. A possible link could be made to the peer-support strategies outlined in the DST studies where-by pupils creatively write first and then, together in QIWK determined groups, analyse the mistakes.

There is a third approach relating to a learning styles strategy. Though a combination of neurology, Gardner's multiple intelligence and subsequent learning styles theories there are numerous teaching strategies that focus on multi-sensory learning techniques that can build on the traditional spelling lessons.

Using neurological evidence Ott (2007) suggests a distinction between dominant left and right brain learning styles. Left brain learners could focus on speech and language through learning word patterns through sound and rhyme, using mnemonics in analysis, logic and language skills, counting syllables and using word derivatives.[9] Right brain learners would focus on visual and spatial skills such as clapping to count syllables, using colour when they identify words, using a computer keyboard and graphic packages, and using mnemonics with illustrations.[10]

Gardner's theory of multiple intelligences expounds the techniques to include three dominant learning styles that can be incorporated into the classroom.[11] Visual learners could benefit from learning to spell through images, diagrams, mindmaps, media and spelling through analogy and word patterns. The traditional Fernald Method of pronunciation, identification, the tracing of difficult spellings, and writing from memory would especially suite these types of learners. (Ott 2007).

Auditory learners could benefit from listening, song, poem, music, rhythm and oral testing. This directly relates to The Simultaneous Oral Spelling (SOS) method that involves pupils sounding out letters, whilst an other pupil asks them to give the letter names as he/she spells the word. Although a basic phonographic technique there is potential for auditory learners to benefit. (Westwood 2005). There is an opportunity to combine with the ARROW method (Aural-Read-Response-Aural-Written). The pupil listens to a recording of single words while simultaneously reading the same words. Oral and written responses via testing allow for a multi-sensory approach to learning words that enhance the traditional memorization technique with a better-

suited learning style. (Westwood 2005). Kinesthetic learners could utilise note-taking and physical activities such as model building and play to further enhance the learning experience. (Ott 2007). Although there is a lack of definite case studies relating these methods to the relationship of spelling and writing, they do provide a framework for multi-sensory learning that have the potential to be incorporated into the other methods discussed. Pupils (and teachers) could benefit from the awareness of their learning styles and the multi-faceted approaches to learning offered here.

The Directed Spelling Thinking Activity (DSTA) developed by Dr Zutell (1989-1991) provides a detailed lesson format utilizing multi-sensory techniques and a process-orientated cycle of instruction that especially suits language learning. (Zutell 1996). This strategy is aimed at 'systematically connecting to the writing process with a child-centered, active approach to learning.'(Zutell 1996).

An initial pretest with contrasting words is given, followed by a group discussion focusing on strategic problem-solving activities. The next day a word sort is initiated that aids pupils to discover the relationships between contrasting word patterns. Throughout the week pupils make 'connections to their own experiences and take greater control of their learning as they hunt for words, sort words with partners and individually, and use a pupil-chosen selection of practice written activities centered upon identifying patterns and relationships'. (Zutell 1996).

Word sorts are again utilized providing a link to the DTS strategy. In this case they are based on teacher and student selected single words and multiple

sorts of semantic and orthographic definitions. To enhance learning they are sorted both visually and blind, where 'decisions are made after each word is said, but before it is seen.' They are also initiated through group, partner and individual practices to facilitate pupil relationships. The benefits stated here are that 'pupils notice important features of words being studied, and it can contribute significantly to proofreading abilities.' (Zutell & Compton 1993). Zutell & Compton go to great lengths to describe the positives of word sorting activities. To summarise, they identify the manipulative strengths of movement and rearrangement, the ability to respond to emergent patterns, to facilitate peer support and learning, identify conceptual categories and word memberships and to move beyond individual pronunciation, pattern and meaning to the interconnectedness of words. Once accuracy is established they 'can sort on their own and speed sort to ensure internalized, automatic control. (Zutell & Compton 1993).

Word hunting activities are also identified as effective in creating a sense of ownership in decision-making and to recognize 'the relevance of what is being studied to their own reading and writing.' It is documented to aid the individualization of word lists from the pupil's own writing and to the instructional level of the pupil that once more forms a link to the DTS method. (Zutell 2005). Other strategies advised are Flip Folders for independent spelling strategies, specifically the 'Look-Say-Cover-See' strategy discussed earlier in relation to multi-sensory learning. Word Study Notebooks are identified as a writing alternative to the traditional Word Journal because they are 'conceptually challenging... pupils enter words by

patterns, such as 'ch' words or vowel-consonant-silent 'e' words. New words and pages are added as new patterns are studies.' (Zutell 2005).

Games, and specifically board games (i. e. Scrabble), are determined to keep interest high and allow for pupils of all spelling ranges to compete against each other on an equal footing. This provides an anti-thesis to the DTS theory and creates a space for settings and grades to be negotiated in favour of a whole class approach that could build confidence and motivate peer-support. An additional benefit is that pupils must check the accuracy of each others spelling which creates an opportunity for higher learning through an active and fun setting. (Zutell 2005).

A final weekly test provides information for both the teacher and for self-evaluation, serves as a guide for journal building, and leads to choices of words for future studies. (Zutell 1996). The benefit of the entire strategy is that it is a child-centered, active, multi-sensored and personalized yet peer-supported strategy that benefits spelling, reading and writing. (Zutell 2005). [12] In addition Zutell claims that this strategy greatly enhances Vygotsky's understandings of social engagement by facilitating learning through 'creative collaboration and learning, mutual appropriation and the enhancement of learning through the zone of proximinal development.'(Zutell 2005). This could be said to be true for any of the group-orientated strategies here pointing to a belief that rote memorization should be exchanged for a creative group approach that facilitates both ownership and peer supporting strategies, especially in creative writing exercises.

Conclusion: Considerations for curriculum implementation

Any change to teaching practices will have an impact on a myriad of sources. Teachers and subject coordinators will face the challenge of additional training and the procurement of new resources, pupils will require greater initial scaffolding and parents will require educating themselves of the new approach and there may be resistance. This combined effort is traditionally perceived by many teachers as too expensive and time consuming. There are, however, documented strategies that can work.

INSET opportunities provide staff with the opportunity to develop new skills and focused teamwork. The subject coordinator can simultaneously create new teaching strategies. Together they can navigate the criticisms that have been documented in the introduction by focusing on learning language structure, perhaps even through the same active techniques as their pupils as they construct the scheme-of-work.

During research for this study there were numerous websites identified that provided free lesson-plans and schemes-of-work relating to all methods discussed here, especially the DTS and DSTA. The classroom resources required for creative writing exercises, word sorts, games, folders and word charts, could also be created by the pupils themselves, facilitating coordinated teamwork between Art and English departments. This would allow for an active approach to learning for the pupils and increase a sense of ownership. It also provides a space for simultaneous scaffolding and creative learning across the curriculum, providing a more whole-school approach to spelling in general and the language arts as a whole. The use of

free resources and pupil created teaching aids can, therefore, successfully navigate any budgetary requirements.

Included in Appendix D is an example of a marking rubric that was designed by a spelling teacher during the move away from memorized spelling tests. She admits the creation of a new rubric was time-consuming but her response to the effort is positive, inspiring and particularly effective in creative writing exercises. (Loeffler 2009). This highlights that committed teachers cannot only achieve success but that there is support available via the Internet. Also included in Appendix E are teacher/parent responses to new marking rubrics and the shift to the DTS method during the case study 'Beyond Memorisation.' The case study exemplifies and clarifies how concerns by both parties were successfully navigated with positive results. There is a particular focus on the impact of a move from traditional weekly grading scores given to parents to a more detailed progressive report that is produced through a combination of DTS and writing strategies.

What all of these strategies have discovered is that there are numerous alternatives to the traditionally memorization technique. The DTS, DSTA and Incidental Writing strategies have especially identified working practices that aid the pupil in correct spelling during creative writing exercises. Throughout this research it has become apparent that my chosen school is not an isolated case in the difficulty of producing correct spelling in both tests and creative writing. It is a nationwide problem that clearly identifies that current spelling strategies are not sufficient and that there is a need for more active, creative, multi-sensory teaching techniques and practices within the KS2 curriculum. There is no technique that has been identified as superior,

however, throughout this study there were numerous instances where strategies overlap and compensate for each other. It is clear that used together strategically they can enhance both a pupils spelling in all areas and enhance the creative writing experience. The additional use of peer-support structures provide a chance for a move away from grading and sets to a whole-class teamwork based learning experience.

References

Bear, D. Invernizzi, M. Templeton, S. & Johnston, F. (2004) 'Words Their Way: Word Study for Phonics, Vocabulary and Spelling Instruction': New Jersey: Pearson Education

Brown, S., Rust, C. and Gibbs, G. (1994) 'Involving students in the assessment process, in Strategies for Diversifying Assessments in Higher Education': Oxford: Oxford Centre for Staff Development

Claire, J. (2004) '200, 000 pupils cannot read at seven.' @ http://www. telegraph. co. uk/news/uknews/3304750/200000-pupils-cannot-read-at-seven. html

Clark, L. (2009) 'Why Children's Spelling is Going Downhill' @ http://www. dailymail. co. uk/news/article-98156/Why-childrens-spelling-going-downhill. html

Fresch, M. ((2000/2001) 'Using think-alouds to analyze decision making during spelling word sorts': Reading Online, 4(6) @ http://www. readingonline. org/articles/art_index. asp? HREF=/articles/fresch/index. html

Hillal, G. & Scharer, P. (1993) 'Beyond Memorisation, Lists and Trial Tests: Exploring the Influence of Teacher Knowledge of Developmental Spelling on Pedagogical Decisions.' @ http://www. eric. ed. gov/ERICWebPortal/custom/portlets/recordDetails/detailmini. jsp? _nfpb= true&_&ERICExtSearch_SearchValue_0= ED364870&ERICExtSearch_SearchType_0= no&accno= ED364870

Hinds, D. (2004) 'SATS thrown back over Hadrian's wall' @ http://www. tes. co. uk/article. aspx? storycode= 2054617

Kwong, T. & Varnhagen, C. (2005) 'Strategy Development and Learning to Spell New Words': Developmental Psychology No. 41 pp. 148-159 @ literacyencyclopedia. ca/index. php? fa= items. show... 228

Loeffler, K. (2009) 'No More Friday Spelling Tests': Council for Exceptional Children @ www. teachingld. org/pdf/teaching_how-tos/spelling_tests. pdf

Metsala, J. & Ehri, L. (1998) 'Word Recognition in Literacy': Philadelphia: Lawrence Eribaum

Ott, P. (2007) 'How to Manage Spelling Successfully': London: Routledge

Read, C. (1986) 'Children's Creative Spelling': London: Routledge

Schlagel, R. C. (2002) 'Classroom Spelling Instruction: History, research and Practice': Reading, Research and Instruction Vol. 1 Issue 42 pp. 44-57

Scott, C. (2000) 'Principles and Methods of Spelling Instruction': Topics in Language Disorders Vol. 3 Issue 20 pp. 66-82

Scott, R. (2007) 'Spelling research: Classroom Implications': Encyclopedia of Language and Literacy Development @ http://literacyencyclopedia. ca/index. php? fa= items. show&topicId= 230

Smith, M. (2008) 'Howard Gardner and Multiple Intelligences' @ http://www. infed. org/thinkers/gardner. htm

Spear-Swelling, L. & Brucker, P. & Alfano, M. (2005) 'Teachers literacy-related knowledge about English word structure': Annals of Dyslexia Vol. 53 pp72-103 @ http://www. southernct. edu/publications/facbib/S/spear-swerling. htm

Stone, C. Silliman, E. Ehren, B. & Apel, K. (2005) 'The Handbook of Language and Literacy: Development and Disorders': Guilford: Guilford Press

Templeton, S. & Morris, D. (1999) 'Questions Teachers Ask About Spelling': Reading Research Quarterly Vol. 34, No. 1 pp. 102-112

Westwood, P. (2005) 'Spelling: Approaches to Teaching and Assessment': Camberwell : ACER

Worthy, M. & Invernizzi, J. (1990) 'Spelling Errors of Normal and Disabled Students on the Achievement Levels One Through Four: Instructional Implications': Annals of Dyslexia Issue 40 pp. 138-151: Springer Science & Business Media

Zutell, J. (1996) 'The Directed Spelling Thinking Activity: Providing an Effective Balance in Word Study Instruction': The Reading Teacher Vol. 2

Issue 50 pp. 98-108 @ http://www. reading.

org/General/Publications/Journals/rt. aspx? mode= redirect

Zutell, J. (2005) 'A Student-Active Learning Approach to Spelling Instruction'

@ http://www. zaner-bloser. com/educator/products/spelling/index. aspx? id=

4820&view= article

Zutell, J. & C. Compton. (1993) 'Learning to spell in the elementary grades:

The knowledge base for effective teaching' Paper presented at the annual

meeting of the International Reading Association, San Antonio, TX. @

journals. cambridge. org/production/action/cjoGetFulltext? fulltextid

[1] David Bell, chief inspector of Ofsted was interviewed by 'The Telegraph'
in 2004 and stated 'the government's programme for literacy teaching at
primary level is confused.... many teachers are given virtually no training in
teaching children how to spell.' (Claire 2004).

[2] A 2002 review of Key Stage 2 statistics stated 'accuracy in spelling has
declined.' (Driscoll in Hinds 2004). A 2009 review of national tests stated 'the
ability of children to spell has declined. Pupils aged between 11-14 made
more spelling errors than they did in 2000, four years into a scheme to
ensure primary pupils have daily literacy hour lessons among 7 year olds
spelling tests improved slightly even though heads complained the spelling
tests were too hard.' (Daily Mail 2009)

[3] The school is still reliant on spelling lessons characterized by the use of
Basel published weekly lists of words, written exercises focusing on
menorisation and two weekly tests at the beginning and end of each week.

[4] Developmental stage theory recommends spelling be taught systematically in relation to individual development. Instruction is based on identified student needs as they progress through the developmental stages.

The incidental inventive writing approach, which advocates teaching spelling as the need arises in student writing throughout the school day.

The multi-sensory approach focuses on the theory of learning styles and multiple intelligences to identify the best strategy to teach individual pupils. (Schlagel 2002)

[5] Phonetic is the true beginning of alphabetic writing and reflects some understanding of phoneme-grapheme correspondences),

Patterns Within Words (deeper understanding of orthography (the visual written form).

Syllable Juncture (the abstract conceptualization of the spelling system, focuses on the place within words where syllables meet, and an understanding of spelling changes when inflectional endings are added to root/base words (plurals, past tense marker, present progressive verb endings, other spelling concepts that are grasped at this stage include possessive forms and contractions).

Meaning-Derivation (concentrates on the morphological connections (coding words by the parts of words that signal meaning and grammar) in English orthography. Students learn that in written English, words that are related in meaning (sharing a common root) are usually spelled similarly, even if they

are pronounced differently. (Scott 2007). Please see Appendix B for a complete explanation of the 5 stages.

[6] QIWK itself consists of eight progressively complex stages of word lists and spelling patterns relating to DST. Word lists and word sorts match the developmental stage with later stages (Syllable Juncture & Meaning Derivative stages) involving morphological principles such as base and derived forms and word origins.

[7] This aspect of think-aloud strategies form an interesting link to the multi-sensory approach that will be explored later in the chapter. (See Appendix C for detailed examples of word sorts and pupil responses.)

[8] The study analyzed children's spelling of silent -e long vowels and different types of -ed past tense words for signs of a strong developmental progression of qualitatively distinct stages from semi phonetic to phonetic to transitional to correct spelling over time. (Scott 2007).

[9] Ott offers the following examples; sounding word patterns such as the 'ight' sequence in light, bright, fright and might. Mnemonics such as 'our dear mother uses great rigour and vigour for every Endeavour'. Syllable counting such as /mag/ni/fi/cent and /won/der/ful. Word derivations such as 'signature' derived from sign or 'automatic' derived from auto. (Ott 2007 p. 106)

[10] Ott explains the use of a computer keyboard will aid learning because they can utilise motor memory to remember finger placement and visual

memory to memorise patterns. Graphics packages will help remember pictures and associate letter patterns with pictures. (Ott 2007 p. 106).

[11] Gardner's multiple intelligence theory identifies 7 intelligence types; linguistic, logical-mathematical, musical, bodily-kinesthetic, spatial, interpersonal and intrapersonal. (Smith 2008)

[12] Case Study results were difficult to obtain but Zutell's work has been endorsed by 'The International Reading Association', 'The National Council of Teachers of English' and 'The Language Arts and Reading Company'. This highlights the perceived effectiveness of his approach and justifies inclusion here.