Structured Word Inquiry: Building understanding of how the written word works

Peter Bowers at LCS, Accra November 14 - 21

"I always thought it [spelling] was random."

Grade 3 student at LCS

The statement above was one of the many powerful expressions of learning I heard from students, teachers and parents during my 6-day visit to LCS. I came to help LCS move forward with a Structured Word Inquiry approach to word study with the support of the Real Spelling materials as reference. The insight of this particular student occurred during one of the lessons I led in K-5 classrooms. All of those sessions were guided by two central concepts about English spelling that probably sound quite surprising:

- English spelling is a well-ordered reliable system.
- The spelling of words can be investigated and understood through the principles of scientific inquiry.

The first time I was presented with such statements I was quite skeptical. You should be too! These assertions seem to counter all the messages we have heard about English spelling. What about all those exception words like *know*, *sign*, *rough*, *business*, *one*, *love* or *does*?

Testing our assumptions about English spelling

It turns out that these are just a small sample of the words typically treated as "irregular" that I was able to explain through scientific inquiry during my time at LCS. In direct contrast to what we have been taught to believe all our lives, it can be clearly shown that these words are not at all "irregular" or "exceptions" to English spelling conventions. In fact, because we have been taught to think of them as irregular, they are rich jumping off points for clarifying how spelling *really* works and how that differs from what we have learned from typical instruction. (To illustrate what I mean, watch this video in a class as I teach about the spelling *does*.)

Clearly something about what I presented in that Grade 3 class allowed this student to start the process of reframing her basic assumptions about English spelling. Her statement marks her first glimmer of a central learning goal I was targeting -- ***understanding English spelling as a reliable system***.

(If you are curious to learn more about the specific lesson I led in this Grade 3 class, email Pete to be added to the WordWorks Newsletter and Updates list. An upcoming post will go into more detail about that lesson and other aspects of my visit to LCS.)

This Grade 3 student's expression of "delighted shock" when faced with clear evidence of order in English spelling where she had assumed was randomness was repeated again and again from students and parents. This is the natural reaction when one is offered a clear understanding for a spelling previously assumed to be irregular. Students regularly came up to me between classes to tell me they had made some spelling discovery after my session. When I returned to classes for a second visit, I was always greeted with a list of questions the students were dying to explore since my first session. I suspect that many of the parents of elementary students at LCS have already heard something at home from their child about spelling with an enthusiasm not usually associated with this school subject. How could *spelling* generate such interest?

Interest in spelling is sparked by understanding -- Understanding is the result of scientific inquiry

I would suggest that our Grade 3 student has pointed to the answer. A random, unreliable system presents no interesting questions to explore. It offers no understanding to achieve. As long as schools accept the assumption that English spelling is highly irregular they have no choice but to rely heavily on memory and drill strategies for spelling instruction. When a child asks "Why is there an <e> at the end of *please*?" all our typical instruction has to offer is "That's the way it is." With responses like that, it is hard for anyone to see much excitement about learning in spelling.

However, as soon as a teacher is able to introduce order to spelling - so that children recognize that there are answers to look for - the excitement of investigation can begin.

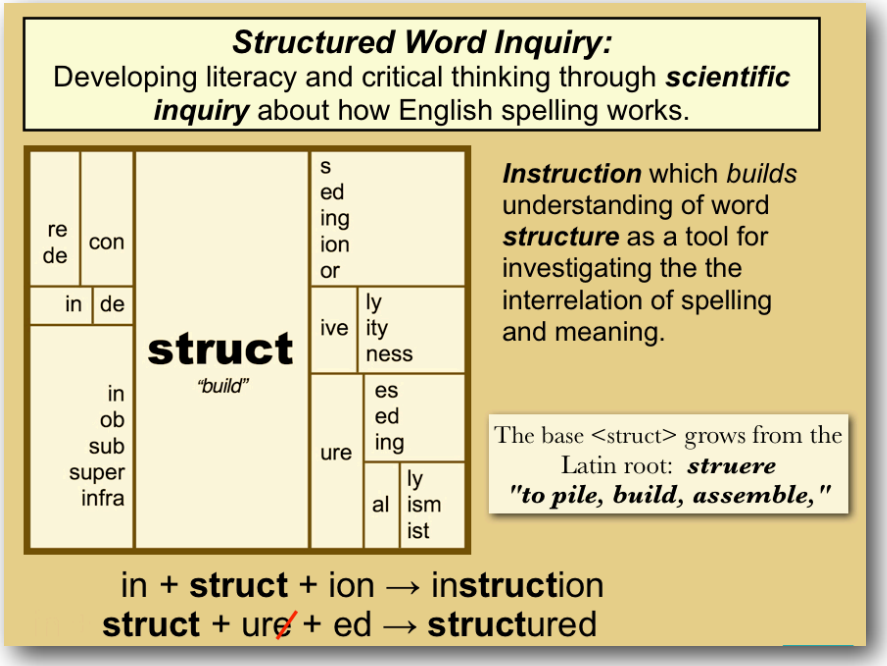
(By the way, there are now a host of students and teachers at LCS who can not only explain the final <e> in *please,* but that this function of the single, silent <e> is also applied in words such as, *house, ease, cause, vase, false, goose, noise* and countless other words. Ask around!)

Real Spelling - How English spelling really works

Because Real Spelling offers evidence of the ordered structure of English spelling, it also offers the possibility of scientific inquiry into spelling. It is a reference that describes long-established linguistic facts about how English spelling works that is simply absent from typical teacher resources and training. With that foundation, teachers and students can learn how to investigate the spelling-meaning connections of words through scientific inquiry. I describe this application of scientific inquiry to spelling as a "Structured Word Inquiry" (Bowers & Kirby, 2010) approach.

Structured Word Inquiry - spelling, vocabulary and reading instruction

The word matrix and the word sum are essential linguistic tools for the investigation of the interrelation of spelling structure and meaning that Real Spelling has introduced to classroom instruction. Consider how I use these tools as a means to deconstruct the specific meaning of the phrase "structured word inquiry" in the first slide of my presentation to teachers and parents. (Top of next page.)



If you consider this matrix and the two word sums I constructed from it, you may notice that the most exciting aspect about studying words with these tools is not that they help develop spelling accuracy (although that is a useful purpose too!). No, the most striking value of these tools is how they provide children a way to *understand* spelling as a vehicle to deepen understanding of familiar words and/or make sense of *new vocabulary*. I used this matrix to show the spelling-meaning link between the words *instruction* and *structure*. How many other related words can you find by exploring this matrix? How many affixes encountered in this matrix would help children make analyze other advanced vocabulary words? With the matrix and word sums, we don't teach children new vocabulary one word at a time. Each investigation builds word knowledge that provides leverage for further word learning.

More on the matrix and the word sum: Learn more about the matrix at this Real Spelling link to tutorial films on the matrix, the word sum and other topics to do with morphology. See a video of an internet tool you can use to make a matrix of your own from word sums at this link. Also see this link for a short article (Bowers & Cooke, 2012, fall) discussing these tools in the context of literacy research.

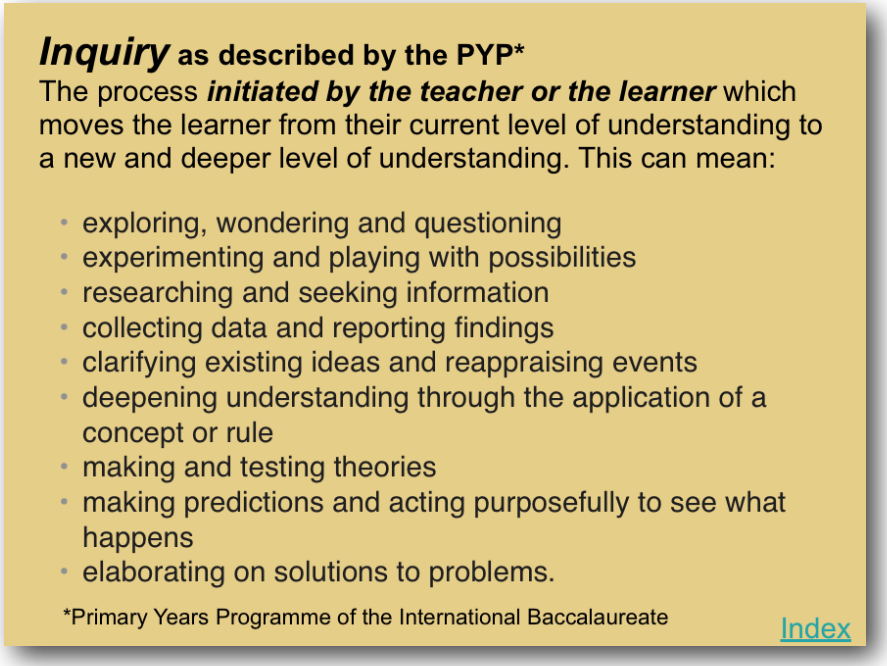
Research

It turns out that while more and more schools have been taking on teaching about morphology (how bases prefixes and suffixes work to build words) with the help of Real Spelling, the research world is just starting to catch up to the importance of morphological instruction. Recent studies (e.g. Bowers, Kirby, Deacon, 2010) of morphological intervention studies have shown that this instruction brings significant benefits to students in general, but especially to less able and younger students. However, with one exception, those studies did not make use of the matrix and the word sum to teach morphology. Matrices and word sums were central to my Grade 4/5 intervention (Bowers & Kirby, 2010). We found that students in the intervention group gained not only in vocabulary of words that were presented to them but also for untaught words related to words they were taught. The lessons of that intervention study provided the basis of the lessons in my teacher resource book that LCS is now using.

Structured Word Inquiry and the PYP

In a PYP school like LCS, questioning our understanding, developing and testing hypotheses, clarifying ideas and reappraising them are supposed to be central drivers to

instruction in any domain. (See slide from my presentation on inquiry as described by the PYP.)



Until teachers are equipped with accurate information about English spelling, they can only encounter countless words that appear to be exceptions. Such a disordered system simply can not be understood through scientific analysis. Once teachers work with Real Spelling, they can come to understand that it was their previous training, not the spelling system itself that made them think that words like *know, does, sign, rough, business, one,* and countless others are irregular.

Just as the PYP recommends, scientific inquiry should be used to test the theories we have and reappraise that understanding in light of the evidence we uncover.

Links and Resources for Parents and Teachers

Wordworks: www.wordworkskingston.com
Free resources, images, video clips and descriptions of this instruction in action.

Video Links:

- YouTube videos of structured word inquiry in practice.
- For those who missed my teacher presentation, you can see an hour public lecture I gave at the University of Alberta here.

An introduction structured word inquiry, matrices and word sums in the context of current literacy research

Click here for a short article on this instruction in the context of current literacy instruction. Click here for more on Pete Bowers' research or email Pete.

Computer based tools

- **Mini Matrix Maker**

A basic tool for typing word sums and turning them into matrices. See a "how to video" at this link.

- **The Word Microscope:**

This software allows the user to construct matrices from word sums, search for likely members of morphological families and much more. It guides learners in their quest to make sense of English spelling.

Teacher Blogs with Videos, Investigations etc:

Explore these amazing teacher blogs to see classrooms that have been working with this content in depth for some time.

- Dan Allen's Grade 5 Blog
- Ann Whiting's Grade 7 Blog