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The Art and Science of Teaching Reading: Embracing Evidence-Based Practice and Teacher Expertise

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About the Authors

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Teaching might even be the greatest of the arts since the medium is the human mind and spirit.

— John Steinbeck

Introduction

We know that children need to learn how to decode words and that there is scientific evidence that when children learn to become better decoders, they become stronger readers and writers. While we may know the skills that children need to learn to be proficient and efficient readers, the way to teach these skills is lacking (Shanahan, 2020). As schools nationwide adopt pre-made curricular programs that are science of reading (SOR) informed, the “how to teach” in a way that reaches and engages all learners and builds knowledge can be narrow-minded and limiting. We argue that it’s essential for there to be an existence and acknowledgement of both a science of reading melded with artful ways of teaching reading and writing.

Educating the mind without educating the heart is no education at all.

— Aristotle

How is art defined? Rasinski (2009) and Young et al. (2022) have explained that art in teaching reading involves the creative, authentic, and aesthetic application of SOR. Art is taking what is known, combining it with new knowledge and understandings, and creating a new product. In classrooms, both the teacher and students can take on the role of artist.

Effective teaching requires intentional decision making, where instruction is continuously adjusted to meet students’ needs and foster engagement and deeper understandings.

In a previous article we wrote on this topic, we described the teacher as the only artist in the room and the student the audience (Paige et al., 2012). However, we have evolved this understanding to say that the student is also an artist as well, not just a passive recipient of learning. The student—through collaboration with the teacher, peers, and the content itself—makes meaning and creates new understandings as an artist would. Sometimes, this can be seen in an actual product whether writing, digital production, or a speech (among others). Other

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times, this can be a new thought or idea that lies quietly within the child who walks away from the lesson with new understandings.

Benjamin Riley (2020) explained that SOR concepts inform instruction, but there should be enough room for the instruction adjustment and adaptation to meet the needs of and be responsive to students. Often missing from explanations of SOR are considerations of motivation, authenticity, how the brain works when learning, and teacher agency and creativity. Paugh and MacPhee (2023) summarized The National Research Council (2000) report, *How People Learn*, and reported that teacher-directed instruction can lead to surface-level understandings of content and skills. Instead, “studies across cognitive neuroscience and developmental psychology indicate that past and present experience and social collaboration are necessary factors for long-term concept development” (Paugh & MacPhee, 2023, p. 7). When considering how to teach literacy then, there must be much emphasis on not just the “what works,” but also on how to center the learner so that they are seen as active agents of constructing their knowledge. This is where the art of teaching comes in.

In this piece, we highlight ways to teach SOR concepts in artful ways. In each of these explanations, the teacher and student take on role of artist but may move within and beyond as they negotiate meaning.

The Challenge With a Science-Only Approach

It is established that orthographic-mapping and word structure knowledge can support reading. Curriculum programs have responded to such needs by including an overabundant amount of time on scripted instruction on decoding real and nonsense words in isolation. When in real-life do children and adults decode nonsense words or words in isolation (Young et al., 2022)?

As states nationwide adopt an SOR instructional approach, universal screeners and diagnostic assessments are included to understand students' needs further. One way to measure such needs is with standardized fluency assessments, often measured by counting the number of words read correctly within 1 minute. While this assessment gives information on decoding skills and reading speed, it misses the full definition of what reading fluency is. It also sends the wrong message that reading as fast as possible is the reading focus.

So, as we consider scientific-informed instruction, we must also consider authentic connections to the real world and the ways reading is constructed and employed.

It is the supreme art of the teacher to awaken joy in creative expression and knowledge.

— Albert Einstein

Why An Artful Approach

There are skills children need to know to read. We know this. Phonemic awareness, word decoding, fluency, vocabulary, and comprehension are non-negotiable scientifically informed skills. We also agree with Albert Einstein, that to truly “awaken joy” and inspire “creative expression and knowledge” is through artful teaching. We argue that an artful approach to reading instruction is essential for making connections to real life and creating lifelong, motivated readers. There is a difference between knowing SOR and how to teach SOR.

Below, we have included some suggestions of artful approaches to teaching the essential science-based components of reading. Often, teachers have expressed issues with time to create and think of ways to create artful approaches. As we provide suggestions below, we also include the real-life connections that we were inspired by. Sometimes, the planning for artful approaches isn't happening during the 50-minute instructional planning, but rather the museum we visit or the beach vacation we just took. Art is all around us, and our job is to think of how to connect it back to literacy instruction.

Examples of Artful Approaches to Reading

Developing phonological/phonemic awareness artfully

Phonological and phonemic awareness—the ability to hear and manipulate discrete language sounds—has been found to be an essential foundational competency for proficient reading. Children who

lack adequate phonemic awareness are likely to struggle with phonics; and, of course, if word decoding is not mastered early, children are more likely to face obstacles in all aspects of reading.

How might we develop phonemic awareness in young children at home and in the preK, kindergarten, and first-grade classrooms? One does not need to search online deeply to find many highly structured curricular programs designed to nurture phonemic awareness.

Rather than investing in such programs that, in many cases, do not pass scientific muster and are costly, why not consider an old-fashioned and artful approach to phonemic awareness development — nursery rhymes! Nursery rhymes, as well as many songs for young children, play with the sounds of language with rhyme and alliteration. When a child reads “Dickery dickery dare” or “Diddle diddle dumpling” they are developing an awareness of the /d/ phoneme; “Betty Botter bought some butter” leads to greater awareness of the /b/ sound. We can’t help but think that these joyous rhymes and songs were purposely developed decades ago to help young children conquer the sounds of language. And, the science does point to the fact that nursery rhyme knowledge is associated with the development of phonemic awareness and literacy development (Bryant et al., 1989; Harper, 2011).

Yet, despite the evidence in support to developing phonemic awareness through artful nursery rhymes, we find that parents and schools are less likely to expose children to rhymes (Parenta, 2019). Perhaps curriculum developers of more

costly programs have been able to sway schools and parents away from the tried, true, effective, and cost-efficient approach. Let’s bring nursery rhymes back to parents and early childhood teachers!

Promoting word decoding (and encoding) artfully through games

There is no question that learning to decode words (phonics) and its corollary, word encoding (spelling), are non-negotiable parts of a scientific reading (and writing) curriculum. Curriculum developers have provided a plethora of systematic and scientific approaches to phonics and spelling. The rigidity and limited meaningfulness of such approaches often leaves students with confusion about the nature of reading itself — is it sounding words or is it communicating meaning?

In the course of our own family lives, we have discovered that games, and specially word games such as Boggle, Scrabble, Wordle, Words with Friends, and more have become an integral part of our family time — they’re fun. In both our families we play such games regularly. If we, as adults love to play word games, why wouldn’t children? One other observation: If you play a game regularly you get better at it. We have a special name for getting better at something — it’s called learning!

The point to all this is that gaming offers some creative opportunities for providing students with word learning experiences. Word ladders (or word chains) are one particular game-like activity that is based on science and that students have found engaging and fun. In a word ladder, students begin with one word

(written or as letter tiles) and then are guided by the teacher to make a series of new words by adding, subtracting, changing, or rearranging the letters in the previous word. The teacher can provide clues such as which letters/sounds to change the meaning of the new word or simply pronounce the new word itself. Here’s an example:

1. Science Teaching reading is a science.
2. Since Take away one letter to make another word for “because.”
3. Sink Replace two letters with one to make a basin for washing.
4. Sin Take away one letter to make a religious term for a bad deed.
5. Tin Change one letter to make a silvery-white metal often used to make cans.
6. Tan Change the vowel to make brown by exposure to the sun.
7. Tar Change one letter to make a dark, heavy, sticky substance used to cover roads.
8. Tart Add one letter to make a small baked pastry shell with a fruit or other filling.
9. Art Take away one letter to finish this sentence: “Effective reading instruction is both science and an ____.”

As students are guided through the word ladder, they are working on phonics, spelling, and developing

their vocabularies. Making the first and last word in the ladder connect in some way adds to the game-like feel of the activity.

In implementing an activity of this sort on a regular basis with struggling primary-grade readers, McCandliss et al. (2003) found that students made greater gains in phonological awareness, word decoding, and comprehension than a control group of students in a more traditional approach to phonics instruction. Creative teachers can find ways to make word games an integral and engaging part of their phonics and spelling instruction.

Vocabulary development through art

What good is it to be able to decode words accurately if the readers does not know what the words mean? Essentially, these are nonsense words. Instruction in vocabulary, or word meaning, must be an essential part of a scientific and artful reading curriculum.

In the National Art Museum and Portrait Gallery located in Washington, DC, you'll find the work of artist Mel Bochner. This piece shown here, entitled "Money," is a collection of words and phrases that refer to money.

The colorful arrangement of words is eye grabbing and a conversation starter about how each word relates to money, yet has its own meaning. This had us thinking of similar artworks that could be created by students to build word meaning.

Understanding word meaning and vocabulary is a well-established, research-proven component of comprehending text (Anderson

& Freebody, 1981; Biemiller, 2010; Hock et al., 2009; Paige et al., 2012; Seifert & Espin, 2012; Stahl, 1990). Schmitt et al. (2011) examined hundreds of students in eight different countries and found that in order for students to comprehend at least 60 percent of the text, they need to understand 98 percent of the words.

Teaching vocabulary by using context clues has been proven in some research studies to be helpful for students. However, other research studies have proven that context clues are not always present in the text to understand the word meaning (Beck et al., 2002; Schatz & Baldwin, 1986; Stahl, 1990), especially in studies where highly controlled vocabulary sentences are used (Young et al., 2022). It is therefore essential to understand that vocabulary learning does require explicit and direct instruction.

Teachers often ask how to really engage students with vocabulary instruction so that it is truly meaningful. After all, directly explaining what a word means,

while in the moment helpful, does not necessarily mean it will "stick" with the learner. An artful teacher understands the importance of schema and building background knowledge through word meaning to understand the text (Young et al., 2022).

Returning to Bochner's display piece, we see this as an instructional process and product that students and the teacher could create together to make a word "stick." Consider an overarching concept such as "cold" or "friend." The teacher could display Bochner's art piece and discuss how the artist brought to life multiple meanings of the word. Using this as a model, students can work together to brainstorm other words and phrases that have similar meanings through conversations and diving into a thesaurus. They could then draw, paint, or post their collection of words similar to Brochner. Students' own works of art could be displayed within the classroom and around the school to expand vocabulary. We encourage conversations to discuss how the words shared are similar yet convey very specific meaning. Consider the different meanings of colleague, acquaintance, peer, and confidant — yet all are umbrellaed under the term "friend."

Building reading fluency through singing

Student reading fluency proficiency is often measured through reading rate, as measured by assessments like STAR Reading and DIBELS. But these 1-minute timed reading assessments limit reading fluency to rate and accuracy, leaving out the significant role automaticity and



"Money" by artist Mel Bochner is a collection of words and phrases that refer to money.

prosody play into essential reading that lead to reading comprehension.

Strong readers read often. Allington and McGill-Franzen (2021) reported that the more children read, the more words they recognize and the stronger their comprehension grows. But what artful ways can we incorporate to encourage more reading, especially for the unmotivated or reluctant readers? Here's one answer: Singing!

Why sing? Well, first, it's fun. Psychologist Kate F. Hays (2014) reported that singing physically supports diaphragmatic breathing, which produces good sound and also gives the mind an oxygen boost and clears out carbon dioxide. These lead to a sense of relaxation and mental clarity. The act of choral and partner singing in the classroom also builds a sense of belonging and shared purpose. In this process, children are also developing prosody (expression) and automaticity of new vocabulary words!

Consider the lyrics to this traditional song, *You Are My Sunshine*:

You are my sunshine
My only sunshine
You make me happy
When skies are grey
You'll never know, dear
How much I love you
Please don't take my sunshine away

I'll always love you
And be there for you
I'll protect you from harm's way
'Cause I adore you
You're my dream come true
You're my beautiful sunshine

You are my sunshine
My only sunshine

You make me happy
When skies are grey
You'll never know dear
How much I love you
Please don't take my sunshine away

In a classroom, the teacher would model singing the song first to the children while following along to the words. Then, using repeated reading, the children would join in singing the song. The teacher might even consider playing a different version of the text and talking with children about how the different singing performances change the meaning or the way the reader feels.

Allington (1977) reported an alarming number of struggling readers in his study were only found to read on average 43 words in context per day. If a teacher and children read and sang the words in *You Are My Sunshine* twice, they would easily read 176 words — all while having fun!

Research has shown that singing improves both reading fluency and comprehension (Biggs et al., 2008; Iwaski et al., 2013). Biggs et al. (2008) reported that students in Grades 7 and 8 when singing for 20 minutes or more a day, demonstrated increased reading gains of 7 months.

Comprehension development through project-based learning

As many school districts across the country implement SOR-informed curricular programs, we have found that comprehension is often measured and determined by whether a child can answer questions correctly about the text read. From an artful and authentic

approach to literacy instruction, this is not considered very engaging nor telling of a child's true text understanding.

Comprehension is the goal of all reading experiences (Young et al., 2022). Purposes for reading include insight, knowledge, inspiration, and enjoyment (Pearson, 2021; Young et al., 2022). No one has ever excitedly expressed that they read a text to answer multiple choice questions correctly.

As we consider artful approaches to reading, we think of ways to move beyond reducing comprehension to just skills and strategies and instead to think of project-based learning (PBL) tasks. PBL was established by John Dewey as a way to explore curiosity of the world around us. A child would consider a topic they are interested in understanding more deeply and, with guidance from the teacher, set out to explore this topic in literacy-rich ways from reading, writing, talking, and creating. In a recent study by Duke et al. (2021), second-grade achievement using PBL was compared to traditional social studies instruction. The results reported that the second graders who engaged in PBL learning showed more growth than the traditional instruction group in social studies and information text.

What would a PBL look like in action? We suggest starting with Tableau — an artful approach to building comprehension while text reading. The teacher would have the students read the text, and then working in small groups, each group would be assigned a scene to “paint” using just their bodies, demonstrating a “still life” or “living scene.” Picture this in

action. Students meet with their small group to plan out their “living scene.” They have to discuss their understanding of the scene. Ideas are negotiating, misconceptions are shared, and deeper understandings are built through this conversation process. When they finally decide on the scene, they present this to their other classmates. The other classmates then engage in dialogue about their interpretation of it while the members in the tableau remain frozen. Once a class consensus is reached, the members unfreeze and explain their own thinking and decision making.

Using Tableau as an artful approach to comprehension, we then consider comprehension as a process and not just the final product (Young et al., 2022). Students are asked to create meaning by orchestrating a scene. The other classmates are invited in on the meaning-making process by sharing their ideas and thoughts on the created scene. This kind of socializing and thought sharing is exactly the kind of artful approach that will motivate and engage students in comprehending texts.

Other PBL tasks might include creating a brochure, engaging in a poetry slam in readers theatre, or creating and delivering a speech to advocate for a specific need based on the text. In all instances, we encourage teachers not to limit comprehension to answering questions, but to find opportunities where students put ideas to authentic use that build on and contribute to their text understanding.

Closing Thoughts

We are educating people out of their creative capacities... I believe this passionately that if we do not grow into creativity, we grow out of it. Or rather, we get educated out of it.

— Sir Ken Robinson, educationalist

There are research-proven components to reading instruction that support the reading process. Some components are classified under SOR. But we fear that an SOR-only approach to reading will cause a decrease in creativity and critical thinking. Children in the United States, especially those in kindergarten through third grade, are becoming less creative (Kim, 2011).

We know that children need support in literacy development. We caution that SOR-informed instruction must not evolve into overly rigid schedules, scripted curricula, and test taking and test prep only. Rather, we want to consider educating the whole child to be a lifelong reader and critical thinker. To do this, we root instruction in the aesthetic, authentic, and creative approaches (Young et al., 2022). Following the science is important, but equally important are teachers with the autonomy to blend artful approaches to literacy instruction.

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About the Cover

Seven-year-old Aria's favorite book is *Quack's Red Boots* because Quack really likes his boots. For fun, Aria likes to go to the park and play with her friends. Aria plans to be a daycare teacher when she grows up. We can't wait to see what you do next, Aria!

