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Editorial

DEVELOPING THE SKILLS OF YOUNG READERS and writers is a vitally important objective within school. Helping children to become capable and confident users of English is an essential life skill. It enables them to do well in other aspects of the curriculum and in the future. Indeed, an ability to read and write “properly” is still seen as one of the most visible signs of the success, or otherwise, of our education system.

In this issue of Better, some of the world’s leading researchers review the evidence of what works in teaching language arts. The articles cover a range of issues, including the importance of vocabulary, the best ways of teaching writing, and the importance of grammar. There are also features on the use of multimedia to support the teaching of writing and the additional help that is needed for English-language learners.

Throughout this issue you will find plenty of practical advice that you can use in the classroom. I hope that it helps you to improve outcomes for your students.

Robert Slavin
Editor-in-Chief
Director of the Center for Research and Reform in Education
Johns Hopkins University

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WINTER 2011 Better: Evidence-based Education
Evidence-based practices for teaching writing

Amy Gillespie and Steve Graham reveal the techniques that have been proven to work when teaching students to write.

WRITING IS A MULTIFACETED TASK THAT involves the use and coordination of many cognitive processes. Due to its complexities, many students find writing challenging and many teachers struggle to find methods to effectively teach the skill.

Gathering evidence for effectively teaching writing
Advice from professional writers and the experiences of successful writing teachers offer some guidance in developing sound writing practices. However, these accounts are frequently based on testimonials involving the writing development of an individual or a single classroom. This makes it difficult to understand how or why a writing strategy was effective and what elements of the strategy would be essential to make it work in new situations.

Scientific studies of writing interventions provide a more trustworthy approach for identifying effective methods for teaching writing; they supply evidence of the magnitude of the effect of a writing intervention, how confident one can be in the study’s results, and how replicable the writing strategy is in new settings with new populations of students.

What does the research show?
The list of recommendations presented below is based on scientific studies of students in grades 4–12. The strategies for teaching writing are listed according to the magnitude of their effects. Practices with the strongest effects are listed first. However, the effects of some writing interventions differ minimally from the effects of others. Therefore, one should not assume that only the first several strategies should be implemented. All of the strategies are potentially useful, and we encourage teachers to use a combination of strategies to best meet the needs of their students.

Evidence of the effectiveness of each strategy or technique was compiled from research studies that met several criteria. First, a recommendation was not made unless there was a minimum of four studies that showed the effectiveness of a writing intervention. Second, in each study reviewed, the performance of one group of students was compared to the performance of another group of students receiving a different writing intervention or no intervention at all. This permitted conclusions that each intervention listed below resulted in better writing performance than other writing strategies or typical teaching practices.

With any combination of teaching strategies a teacher chooses to use, students must be given ample time to write. Writing cannot be a subject that is short-changed or glossed over due to time constraints.

Effective writing practices

- **Writing strategies**: Explicitly teach students strategies for planning, revising, and editing their written products. This may involve teaching general processes (e.g., brainstorming or editing) or more specific elements, such as steps for writing a persuasive essay. In either case, we recommend that teachers model the strategy, provide assistance as students practice using the strategy on their own, and allow for independent practice with the strategy once they have learned it.

- **Summarizing text**: Explicitly teach students procedures for summarizing what they read. Summarization allows students to practice concise, clear writing to convey an accurate message of the main ideas in a text. Teaching summary writing can involve explicit strategies for producing effective summaries or gradual fading of models of a good summary as students become more proficient with the skill.

- **Collaborative writing**: Allow students to work together to plan, write, edit, and revise their writing. We recommend that teachers provide a structure for cooperative writing and explicit expectations for individual performance within their cooperative groups or partnerships. For example, if the class is working on using descriptive adjectives in their compositions, one student could be assigned to review another’s writing. He or she could provide positive feedback, noting several instances of using descriptive vocabulary, and provide constructive feedback, identifying several sentences that could be enhanced with additional adjectives. After this, the students could switch roles and repeat the process.

- **Goals**: Set specific goals for the writing assignments that students are to complete. The goals can be established by the teacher or created by the class themselves, with review from the teacher to ensure they are appropriate and attainable. Goals can include (but are not limited to) adding more ideas to a paper or including specific elements of a writing genre (e.g., in an opinion essay include at least three reasons supporting your belief). Setting specific product goals can foster motivation, and teachers can continue to motivate students by providing reinforcement when they reach their goals.

- **Word processing**: Allow students to use a computer for completing written tasks. With a computer, text can be added, deleted, and moved easily. Furthermore, students can access tools, such as spell check, to enhance their written compositions. As with any technology, teachers should provide guidance on proper use of the computer and any relevant software before students use the computer to compose independently.
Sentence combining: Explicitly teach students to write more complex and sophisticated sentences. Sentence combining involves teacher modeling of how to combine two or more related sentences to create a more complex one. Students should be encouraged to apply the sentence construction skills as they write or revise.

Process writing: Implement flexible, but practical classroom routines that provide students with extended opportunities for practicing the cycle of planning, writing, and reviewing their compositions. The process approach also involves: writing for authentic audiences, personal responsibility for written work, student-to-student interactions throughout the writing process, and self-evaluation of writing.

Inquiry: Set writing assignments that require use of inquiry skills. Successful inquiry activities include establishing a clear goal for writing (e.g., write a story about conflict in the playground), examination of concrete data using specific strategies (e.g., observation of students arguing in the playground and recording their reactions), and translation of what was learned into one or more compositions.

Prewriting: Engage students in activities prior to writing that help them produce and organize their ideas. Prewriting can involve tasks that encourage students to access what they already know, do research about a topic they are not familiar with, or arrange their ideas visually (e.g., graphic organizer) before writing.

Models: Provide students with good models of the type of writing they are expected to produce. Teachers should analyze the models with their class, encouraging students to imitate in their own writing the critical and effective elements shown in the models.

Additional suggestions
With any combination of teaching strategies a teacher chooses to use, students must be given ample time to write. Writing cannot be a subject that is short-changed or glossed over due to time constraints. Moreover, for weaker writers, additional time, individualized support, and explicit teaching of transcription skills (i.e., handwriting, spelling, typing) may be necessary. For all students, teachers should promote the development of self-regulation skills. Having students set goals for their writing and learning, monitoring and evaluating their success in meeting these goals, and self-reinforcing their learning and writing efforts puts them in charge, increasing independence and efficacy.

What we know
Evidence-based practices for teaching writing include:
- Teaching strategies for planning, revising, and editing
- Having students write summaries of texts
- Permitting students to write collaboratively with peers
- Setting goals for student writing
- Allowing students to use a word processor
- Teaching sentence combining skills
- Using the process writing approach
- Having students participate in inquiry activities for writing
- Involving students in prewriting activities
- Providing models of good writing

Teachers should analyze the models with their class, encouraging students to imitate in their own writing the critical and effective elements shown in the models.

A combination of effective writing practices
No single strategy for teaching writing will prove effective for all students. Furthermore, the above strategies do not constitute a writing curriculum. Teachers should aim to supplement their current writing practices and curricula with a mix of the aforementioned evidence-based writing practices. The optimal mixture of practices should be tailored to best meet the writing needs of the class, as well as the needs of individual students. It is especially important to monitor the success of each technique implemented to be sure that it is working as intended, and to make adjustments as needed.

About the authors
Steve Graham is the Curry Ingram Professor of Literacy at Vanderbilt University. His research focuses on writing and writing instruction. Steve is the author of Writing Next and Writing to Read, meta-analyses conducted for the Carnegie Corporation of New York.

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Further reading


www.all4ed.org/files/WritingNext.pdf
The importance of vocabulary

Having a substantial vocabulary is crucial to learning to read and write, to success in school more generally, and to success in the world beyond school. Findings from more than 100 years of vocabulary research include:

- Vocabulary knowledge in kindergarten and first grade is a significant predictor of reading comprehension in the upper elementary and secondary years.
- Vocabulary difficulty strongly influences the readability of text.
- Teaching vocabulary can improve reading comprehension for both native English speakers and ELLs.
- Growing up in poverty can seriously restrict the vocabulary children learn before beginning school, and make attaining an adequate vocabulary a challenging task.

Learning English vocabulary is one of the most crucial tasks for ELLs because of the relationship between vocabulary and comprehension, and ELLs' difficulty comprehending text in a second language.

The most basic component of a comprehensive program is providing students with a rich array of language experiences in listening, speaking, reading, and writing.

The number of words students need to learn

The vocabulary learning task is enormous! Estimates of vocabulary size vary greatly, but a reasonable estimate is this: The average child enters school with a listening vocabulary of perhaps 5,000-10,000 words and a very small reading vocabulary. Once in school, however, both children's listening vocabularies and their reading vocabularies grow rapidly. Soon, children are learning words at the rate of 3,000-4,000 words a year, leading to vocabularies of something like 25,000 words by the sixth grade and something like 50,000 words by the end of high school.

The vocabulary deficit of some children

The figures we have just given are for average or what might be called "linguistically advantaged" children and certainly do not reflect the size of all children's vocabularies. Some children from underprivileged backgrounds have serious vocabulary deficits and may arrive at school with vocabularies half the size of their more linguistically advantaged peers, and then fall further and further behind over their years in school. Similarly, some ELLs may arrive in first grade with very small English vocabularies and face the prospect of falling further and further behind because they lack the vocabulary base they need to learn new words. Both these groups of children need special help in building their oral and reading vocabularies if they are to succeed in school.

These three facts argue for creating powerful and comprehensive vocabulary programs. There is broad agreement that such a program must be multifaceted and devote attention to providing rich and varied language experiences, teaching individual words, teaching word-learning strategies, and fostering word consciousness.

1. Providing rich and varied language experiences

The most basic component of a comprehensive program is providing students with a rich array of language experiences in listening, speaking, reading, and writing. In kindergarten and the primary grades, listening and speaking are particularly important for promoting vocabulary growth. Most children enter kindergarten with substantial oral vocabularies and very small reading vocabularies.
The importance of vocabulary

Appropriately, most of the words in materials they read are words that are in their oral vocabularies. For this reason, young children will not learn many new words from reading. Where they will learn them is from discussion, from being read to, and from having their attention directly focused on words. In the intermediate grades, the middle grades, and secondary school, listening and speaking continue to be important. Students of all ages, and ELLs as well as native English speakers, need to engage frequently in authentic discussions – give and take conversations in which they are given the opportunity to thoughtfully discuss meaningful topics. From upper elementary school onwards, reading becomes the principle language experience for increasing students’ vocabularies. If we can substantially increase the reading they do, we can substantially increase the words they learn.

2. Teaching individual words

Another component of a comprehensive program is teaching individual words. To be sure, the size of the vocabulary that young people will eventually attain means that we cannot teach all of the words they need to learn. However, this does not mean that we cannot and should not teach some of them. Fortunately, research has revealed a good deal about effective – and ineffective – approaches to teaching individual words. Teaching vocabulary is most effective when learners are given both definitional and contextual information, when learners actively process the new word meanings, and when they experience multiple encounters with words. At the same time, because there are so many words to teach, not all words can or should receive rich, deep, and extended instruction. There is a need for both rich and deep teaching on some words and less time-consuming introductory teaching on others. Recent research, for example, shows that for ELLs high frequency conceptually complex words need more powerful teaching than high frequency concrete words. Additionally, it is important to review words already taught, regardless of how they were initially taught.

3. Teaching word-learning strategies

The third component of a comprehensive program is teaching word-learning strategies. The most widely recommended strategies are those that use context and word parts to infer the meanings of unknown words met in reading. Using the dictionary is a third recommended approach students can use to learn word meanings themselves. 4. Fostering word consciousness

The last component of a comprehensive program is fostering word consciousness. The term word consciousness refers to an awareness of and interest in words and their meanings. Students who are word conscious are aware of the words around them – those they read and hear and those they write and speak. This awareness involves an appreciation of the power of words and an understanding of why certain words are used instead of others. It also involves recognition of the communicative power of words, of the differences between spoken and written language, and of the particular importance of word choice in written language.

Special considerations for ELLs

ELLs will certainly profit from the four-pronged approach described thus far. However, their learning will be enhanced if it is adjusted to meet their particular needs. One adjustment is the strategic use of the first language to make teaching in a second language comprehensible. By providing necessary information and explanations in the language that children understand best, a teacher can increase their success. Another adjustment is to teach ELLs to draw on their first language knowledge to infer the meaning of unknown cognates in a second language. A third adjustment is to provide scaffolding in the form of visual representations of language, as well as enhanced or more explicit modeling or explanation than ELLs might normally get in mainstream classrooms. Finally, a fourth adjustment is to provide additional time to help ELLs master unfamiliar concepts and skills they may not have acquired due to poor or interrupted prior schooling. For example, pre-teaching vocabulary central to the concepts being taught in core content area classes will help ELLs better understand lessons delivered in English.

Summary

Given the size of the word-learning task children face, a multifaceted program that provides them with rich and varied language experiences, teaches individual words, teaches word-learning strategies, and fosters word consciousness is necessary to help all children build strong vocabularies. Additionally, some adjustments are necessary to provide ELLs with the best possible vocabulary teaching.

About the authors

Michael Graves is Professor Emeritus of Literacy Education at the University of Minnesota, a member of the Reading Hall of Fame, and the author of several books on vocabulary instruction. Diane August is a Senior Research Scientist at the Center for Applied Linguistics. She directs several federally-funded studies that focus on the development of literacy in second-language learners. Maria Carlo is an Associate Professor in the Department of Teaching and Learning at the University of Miami. Her research focuses on the development of literacy skills in bilingual children and adults. Mike, Diane, and Maria are currently writing a book on vocabulary instruction for ELLs.

Further reading

August D & Shanahan T (2010), Effective English Literacy Instruction for English Learners, in Improving Education for English Learners: Research-based Approaches. Sacramento: California Department of Education.


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Teaching writing to ELLs in high schools

For English-language learners, writing poses the greatest challenge. Margarita Calderón explains how best to support them

As we visited 2nd grade classrooms with large numbers of English-language learners (ELLs), we looked at students’ writing posted around the walls and read examples such as: I like my pet.
I like the ears. I like the nose. As we visited 9th grade classrooms, we read examples such as:
I like photosynthesis.
I like analyses. I like procedures.

Writing is the most difficult area for ELLs and their high school teachers, and can be particularly overwhelming in certain subjects. For example, the writing demands in math, history, and science lessons vary from those of English lessons, as does the nature of the teaching. High school teachers and administrators report that their greatest concern is students’ low writing skills. Nevertheless, it is the least researched area in education.

An integrated approach
In our five-year studies on teaching ELLs in high schools, we found that learning to write in a second language can best be accomplished through an integrated sequence of explicit instruction in the core content areas:

- vocabulary ➡ reading ➡ vocabulary ➡ writing

Writing should not be taught only as “a writing unit” or a “writing workshop,” but must be built on what students read and the words and grammatical structures learned across all subject areas. If ELLs are going to succeed in high school, all teachers need to integrate language and literacy into their subject teaching.

Words in a second language are mastered when students are given the time to apply them during peer discourse, reading, and writing all day long. After having been presented with a set of practical words and phrases, students need to read small sections of good models of an author’s craft – whether science or geography texts, a memoir, or a math problem. Effective writing teaching gives ELLs frequent opportunities to write, accompanied with feedback and opportunities to revise and edit, along with guidance in how to do so, instead of worksheets, dictations, short answer activities, and other similar tasks that limit writing practice.

Techniques that work
The Graham and Gillespie method SRSD (Self-Regulated Strategy Development), mentioned in this issue, is an approach that can be expanded for ELLs by integrating cooperative writing, the study of models, and goals, in addition to scaffolding strategies, as follows:

1. Pre-teach key vocabulary. Select key words that students will need to understand and use for writing assignments.
2. Develop background knowledge. Students from different cultures approach writing differently and they also have different schooling experiences. Develop background knowledge or explanations of unfamiliar concepts and mechanics for writing.

3. Describe it. Discuss and present the strategy, its purpose, benefits, and goals, and the grading rules of finished products. Consider differentiated grading scales for ELLs, depending on their level of English proficiency.

4. Model it. Show the writing you want them to emulate. Model each phase of the strategy.

5. Memorize it. Ensure that students memorize the language and steps of the strategy.

6. Support it. Support or scaffold the student’s use of the strategy until he/she can apply it with few or no supports. Model self-regulated learning and the use of mnemonic devices.

7. Ample use of student interaction. Model and implement collaborative/cooperative writing strategies to plan, draft, revise, and edit compositions.

For ELLs, vocabulary knowledge, reading, and writing are connected and must be practiced across the disciplines

8. Differentiated assessment. Assess the point of entry for writing (not just oral production) and continue measuring the learning progression of writing, as the oral, reading, and writing proficiencies of ELLs vary dramatically. Some newcomers to the country may have good writing skills in their primary language. A student who has been in U.S. schools since kindergarten may have oral fluency but no literacy skills in either the first or second language.

Scaffolding
Teachers scaffold instruction by making sure that ELLs understand all the elements and processes from building background to providing instructions and discussions on models for the writing tasks. This is done by making the task comprehensible:
- Teaching vocabulary before, during, and after writing;
- Highlighting grammatical features to use;
- Providing language tools for each objective; and,
- Allocating ample time for peer interaction.

Teaching vocabulary before, during, and after writing
Teachers begin by preteaching key vocabulary, focusing on subject specific words and words that nest those target words. Interactive whiteboards can bring words and explanations to life by adding pictures, video clips, and quick graphic organizers.

Highlighting grammatical structures to use
ELLs need explicit instruction and examples from the core content texts such as: compound sentences, connectors, prepositional phrases, figurative language, idioms, passive voice structures, variation in tense, and less familiar text structures. Less advanced students will benefit from reading easier books with shorter sentences. Initially, their writing can consist of three or four sentences. More proficient students can read books with compound sentences, passive voice, and clauses. ELLs can begin by using connectors such as and, but, and because, then proceed to in addition, however, and due to. For example, when writing a summary, sentence starters such as these can help:
- The author is writing about
- The author is comparing ... with ...
- Three facts I learned are (1) ..., (2) ..., (3) ...
- First of all,
- One important thing is
- We read about ... and discovered

Student interaction
Peer interaction, through collaborative writing or cooperative writing, is a great tool for ELLs! Planning, drafting, writing, and editing in pairs or teams of four helps enrich language and ideas. Computers also facilitate cooperative writing. The use of computer word-processing software will help ELLs see their writing. It is easy to add, delete, use spell-check, look up words in dictionaries, and/or add pictures where they lack words. PowerPoint slides tend to be popular because they can be used to write quick quips.

Some cautionary notes
Graphic organizers may not be the best way to start writing. ELLs need substantial guidance for understanding graphing ideas.

When brainstorming requires rapid responses, ELLs are at a disadvantage because they need additional time to pull thoughts together into sentences. By then, the class or the group has moved on to another topic.

Getting off to a good start
During a student’s initial writing phases in English, it is important to:
- Focus on ideas the student has, rather than the ones he/she lacks.
- Teach the vocabulary or key words you want the student to use.
- Provide opportunities to interact with peers; allow joint authorships.
- Set high but flexible standards.
- Develop separate rubrics and criteria for each individual student and increase in complexity every three weeks or so.

Moving forward and assessing progress
Allow ELLs to work on one or two skills per week, focusing on proofreading and editing skills. A rule of thumb might be to let the student write only one paragraph and use three or four new vocabulary words. The student and teacher will increasingly target other skills to assess. Samples of work can be included in personal portfolios to track growth.

About the author
Margarita Calderón is a Professor Emerita and Senior Research Scientist at Johns Hopkins University. She is also a member of the U.S. National Literacy Panel for Language Minority Children and Youth.

Further reading

Vocabulary: What words should we teach?

Vocabulary is crucial for successful reading, but how should teachers support students who are behind their peers, and what words should they teach? Andrew Biemiller explains

**SUCCESSFUL READING REQUIRES BOTH** success at reading words and knowledge of the words read— a prerequisite to comprehending text. We now know that vocabulary is the best predictor of reading and language comprehension by the time children are halfway through elementary school. For example, kindergarten general vocabulary is the best predictor of grade 3 or 4 reading comprehension. Moreover, it has also been shown that grade 1 general vocabulary is a strong predictor of reading comprehension in grade 11. Researchers have shown that when specific vocabulary needed in particular texts is taught, comprehension of those texts is improved.

During the primary grades (kindergarten to grade 2), average children acquire 1,000 root word meanings per year. A word such as rock is a root word. Each root word meaning has many related meanings created with prefixes and suffixes (e.g., rocks, rocky). These are “derived” words. If we include all word meanings, children probably know three to five times more meanings than just the root meanings.

I estimate that the 25% of children with the lowest vocabularies acquire roughly 400 fewer root word meanings each year than their average peers, both before and during the primary grades. Thus, if adequate vocabulary is needed for grade-level reading comprehension, low vocabulary students need to add at least this many additional meanings each year if they are not to fall steadily further behind during elementary school. Can this actually be done? If children make average gains in vocabulary in the first few years, will they actually achieve grade-level reading comprehension by the end of grade 3 or 4? These questions remain to be answered.

**Teaching vocabulary to primary-grade children**

Lower-vocabulary primary-grade students need to acquire an additional 400 word meanings each year to avoid falling further behind in vocabulary. Available studies suggest that approximately 1,000 word meanings need to be taught each year for individual primary-grade children to gain as much as 400 meanings, as some children will already know some of the meanings and some meanings will simply not be learned.

Teaching vocabulary to primary-grade children should not be tied closely to classroom reading, especially in kindergarten and first grade. Instead, early reading by children should be restricted mainly to vocabulary known by readers. Stories and other readings containing many potentially unfamiliar words should be read to children, combined with discussion of word meanings. Most successful vocabulary teaching for primary-grade children has included several re-readings of the same book, combined with teaching some word meanings in conjunction with (or just after) reading a text. In my experience, such instruction is likely to take about half an hour daily.

**Words Worth Teaching**

Word meaning knowledge is a better guide than print frequency in terms of deciding which words should be taught. In my research, *Words Worth Teaching*, I established high priority root word meanings for teaching in the primary grades by ranking words known by children at the end of grade 2 as follows:

- **Easy**: Meanings known by 80% or more of the children. Not requiring special attention.
- **High priority**: Meanings known by 40–79% of the children.
- **Difficult**: Meanings known by fewer than 40% of the children. Appropriate for attention in later years.

Using these criteria, I found some 1,600 high priority root meanings that should be addressed directly between kindergarten and grade 2. These should be addressed as they occur in meaningful texts. For primary-grade children, “addressing” usually means teaching meanings directly, as they are encountered in context. For upper-elementary children, in many cases it may be sufficient to make students responsible for learning meanings of priority words as they are encountered. Throughout elementary school, teachers should monitor learners’ acquisition of meanings as they are addressed. *Two-questions Vocabulary Assessment: Developing a New Method for Group Testing in Kindergarten Through Second Grade* provides a method for group testing children's vocabulary in the first years of elementary school.

I also identified some 2,900 high priority meanings for attention between grade 3 and grade 6. These included the “Difficult” meanings that were tested or rated below 40% at the end of grade 2, or that were tested or rated between 40% and 79% at the end of grade 6.

**Grade 1 general vocabulary is a strong predictor of reading comprehension in grade 11**

There is good evidence that word meanings are acquired in a predictable sequence. Three children from the 2nd, 4th, and 6th grades, each with vocabularies of about 8,000 root word meanings, are likely to know mainly the same meanings. This robust sequence means that it should be possible to determine the meanings that are needed by primary-grade children. However, if teachers are going to do more to help students build their needed vocabulary, they need some basis for deciding what words to address. There are far too many possible words to teach all of them.

The frequency of words appearing in text is often used to decide which words to teach, but this can be a misleading guide. Print frequency refers to print form, not word meaning. More common words frequently have more than one meaning.

**What words should we teach?**

- **Easy**: Meanings known by 80% or more of the children. Not requiring special attention.
- **High priority**: Meanings known by 40–79% of the children.
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Dale and O’Rourke’s *Living Word Vocabulary* also provides a useful guide on knowledge of word meanings at various ages, based on word meaning knowledge rather than print frequency, and was a cross-reference for *Words Worth Teaching*.

Beck, McKeown, & Kucan’s Tiers

Beck and her associates’ “Tier” categories (*Bringing Words to Life: Robust Vocabulary Instruction*) are similar to the easy, high priority, and difficult categories just described. However, they suggest that Tier One “basic
words” include most of the 8,000 root words (or word families) reported to be known by average children in grade 3. Unfortunately, by the end of grade 2 a lot of these word meanings are not known by many children. For these children, many of those 8,000 Tier One meanings will prove to be what I have called high priority meanings.

Beck and associates’ Tier Two words are “of high frequency for mature language users and are used across a variety of domains. Examples include coincidence, absurd, industrious, and fortunate.” Most of these and similar meanings will be useful for upper-elementary and middle school children. However, for primary-grade children, many words that lower-vocabulary children need would be omitted, while many of their Tier Two word meanings would rarely be needed.

Finally, their Tier Three words have low print frequencies, and are often limited to specific subjects. Examples are isotope, lathe, peninsula, and refinery. Such meanings are best taught when encountered in specific lessons. I agree with Beck and her co-authors about these more advanced meanings.

**Conclusion**
Vocabulary teaching is equally important for the comprehension of text as word recognition skills, and teachers should support primary-grade children who have fallen behind their peers in their knowledge of high priority root words. A number of researchers have even demonstrated that some vocabulary teaching programs have shown positive effects on general vocabulary – not just those words that are taught.

**What we know**
- Word meanings are acquired in a predictable sequence.
- Children with the lowest vocabularies know 2,000 fewer root words than their average peers by the end of grade 2.
- Vocabulary teaching programs can stimulate general vocabulary – not just those words that are taught.

**Further reading**
Harnessing grammar: Weaving words and shaping texts

New research shows the value of teaching grammar in the secondary writing classroom, explains Debra Myhill

The problem with grammar
Our understanding of the process of writing has developed enormously over the past 40 years. We now know much more about the cognitive processes involved in writing, the significance of social influences in shaping writers’ understanding of writing, and the importance of teaching writers about texts. Becoming a confident, capable writer draws on an understanding of yourself as a writer and of the community in which you write, knowledge of texts, and an awareness of your own writing processes and strategies.

To an extent, some of this research is reflected in the teaching of writing in many countries: the explicit study of genres is embedded in the writing curriculum of England, Australia, and New Zealand; and process approaches to writing with their emphasis upon planning, drafting, revising, and editing are common in the U.S., England, Australia, and New Zealand.

Yet, there has been continued uncertainty about the role of grammar in the teaching of writing. In England, a wholesale rejection of grammar in the writing curriculum in the early 1970s was followed by its subsequent return in the National Curriculum. Although there has been extensive debate about the value of grammar, much of it characterized by polemic or ideology, there has been very little robust empirical research into the question of whether grammar has a role in the writing classroom.

New research
A study conducted by the University of Exeter in the UK set out to examine whether contextualized teaching of grammar benefits writers’ development during secondary school. We were fundamentally interested in how grammar might help young writers understand how to shape texts and make rhetorical choices, developing their confidence in thinking not only about what to write but equally about how to write it for best effect. We also wanted to determine whether it is possible to articulate a clear pedagogic rationale for the place of grammar in the teaching of writing.

Although there has been extensive debate about the value of grammar, much of it characterized by polemic or ideology, there has been very little robust empirical research for students to play with and then use in their own writing.

Three key principles underpin the idea of contextualized grammar teaching:
- Introducing grammatical constructions and terminology at a point in the teaching sequence that is relevant to the focus of learning;
- Focusing on effects and constructing meanings, not on the feature or terminology itself; and
- Opening up possibilities, not teaching about ‘correct’ ways of writing.

Our research was conducted over a full school year with 855 students aged 13–14 in 32 schools in two regions of the UK. All the schools provided a representative sample in terms of social and cultural diversity. The study involved a randomized controlled trial, testing the impact of contextualized grammar teaching by comparing the writing attainment results of an intervention and comparison group before and after the intervention. Alongside this statistical dataset was a fully integrated, complementary set of qualitative data drawn from classroom observations of writing lessons, interviews with teachers, and interviews with students.

During the year, all the classes in the study were taught three Schemes of Work focusing on writing: one on fictional narrative, one on argument, and one on poetry writing. The teachers in the intervention classes received detailed teaching materials written by the project team, with lesson-by-lesson plans, in which grammar was embedded, where appropriate. The comparison group only received the overall medium-term plan and the general stimulus resources for each scheme. A pre and post-test writing sample was collected; this was administered and scored by Cambridge Assessment (an international exams group), who administered and scored the UK’s national writing tests, thus providing high levels of comparability with national data.

The Schemes were informed by the following teaching strategies:
- Using grammatical metalanguage, always explained through examples and patterns;
- Making links between the feature introduced and how it might enhance the writing being tackled;
- Using “imitation,” offering model patterns for students to play with and then use in their own writing;
- Including activities which encourage talking about language and effects;
- Using authentic examples from authentic texts;
- Using activities which support students in making choices and being designers of writing; and
- Encouraging language play, experimentation, and games.

Examples of how the grammar was introduced and how it might enhance the teaching strategies included:
- Teaching about modal verbs in argument can position the writer differently in relation to the reader; and teaching about how
expanded noun phrases can create strongly descriptive images in a picture poem. At all times, the grammar was introduced to show and explain the possibilities of language, not to establish formulaic, rule-bound ways of writing, so the discussion and experimentation that accompanied the grammar was very important in supporting individual decision-making and choice.

What we found
Our results provide strong evidence for the beneficial impact of teaching writing using grammar in this way. The intervention group improved their writing attainment over the year substantially more than the comparison group: they improved their writing scores by 20% over the year, compared with 11% in the comparison group. In statistical terms, this represents an effect size of 1.53, which is a very strong effect size for an education intervention, suggesting this is a very important result.

However, more detailed analysis of the data provides further illumination about the way the intervention worked, including some caveats. Although the effect size for the whole sample was strong, it was even stronger for able writers (1.65), while for some less able writers and metalinguistic understanding.

Implications for teaching writing
- Embed grammar in writing lessons in ways that link the grammar feature to the writing task;
- Encourage discussion, experimentation, choice, and decision-making rather than suggesting "correct" ways to write;
- Be explicit about how texts work, drawing on grammar, where appropriate, to explain effects;
- Consider whether the metalanguage is needed: sometimes the grammar feature can be taught through examples and patterns; and
- Focus on grammar as a creative tool that opens up a repertoire of possibilities, not grammar as a monitor that regulates accuracy and conformity.

This research is important and exciting because for the first time it provides good evidence of the benefits of teaching grammar. But we think it is much more than this. It is evidence of the creative potential of grammar in helping young writers develop a feel for language as putty in their hands, ready to be shaped and sculpted. Or as Joan Didion put it, “What I know about grammar is its infinite power. To shift the structure of a sentence alters the meaning of that sentence, as definitely and inflexibly as the position of a camera alters the meaning of the object photographed.”

Further reading


What we know
Teaching contextualized grammar can improve children's writing when

- Grammar is linked to aspects of the writing task.
- There is explicit teaching of grammatical features of texts that focus on how texts work.
- There is a classroom climate that fosters discussion, experimentation, choice, and decision-making.
- The teaching goal is to create a repertoire of possibilities not adherence to norms.

About the author
Debra Myhill is Professor of Education at the University of Exeter and Director of the Centre for Inter-Disciplinary Research in Writing (http://education.exeter.ac.uk/projects.php?id=410). Her particular interests are writing and talk, especially the composing process, the role of grammar, and metalinguistic understanding.
Learning to write and writing to learn

Writing is a vital skill for school, life, and personal development. Gert Rijlaarsdam, Martine Braaksma, Tanja Janssen, Talita Groenendijk, and Anne Toorenaar have used the evidence from writing process studies to design and test writing interventions

NO STUDENT CAN BE SUCCESSFUL IN school without writing. As they learn to write, they learn to express their feelings and thoughts, and share them with others. They also learn how to persuade readers of their viewpoint, and how to move others through a story. In addition, students discover how to use writing as a learning tool, a way to grasp complex subject matter. Across various subjects, students write essays, summaries, and syntheses of sources. In short, writing is omnipresent. Although there is no specific examination, it is a skill that much depends on, in school and indeed in later life.

Writing is not just a way of communicating or displaying what has been learned. It can also be a tool for acquiring content knowledge, developing understanding, and improving thinking skills.

Since the 1970s, there has been a wealth of research into writing processes and effective interventions or curricula to stimulate writing. Handbooks, reviews, and meta-analyses provide accessible summaries of research findings. This is not to say that we now know all there is to know about writing. Rather, we know better what we do not yet know. We also know more about writing in two languages. Many non-Anglophone speakers must now communicate in at least two languages: the language of schooling and a version of global English.

What we now know about writing processes
Most research on how people write, on differences between writers, and how these differences are related to the quality of the final text, uses a think-aloud method. That is, researchers gain an insight into the writing process by having students think aloud while writing a text. This method has provided rich data.

Recently, computer key logging has also been used. This is specialist software that records all keystrokes, mouse movements, pauses, and revisions during writing. Equipment to follow the eye movements of writers during writing is also now used by some researchers.

This is what we have learned from studies of writing processes thus far:
1. Weak writers as well as strong writers make use of the same cognitive activities; reading sources, generating ideas, organizing ideas, transforming ideas into a text, re-reading and evaluating parts of the text already written, and making revisions. However, stronger writers tend to vary activities

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respond while reading a manual, and what kind of information they need. All kinds of hesitations and errors from the reader serve as input for learning. Having seen these videos, writers are very keen to revise their original manuals, and their revisions are generally very effective. Moreover, writers gain an awareness of the text genre, and are able to transfer this experience to other writing tasks.

Teaching arrangements for learning to write from readers can take many forms. For example, students may first get a task such as writing a letter to someone (e.g., a firm, the principal). They then observe a discussion between some of their peers who have to select one or two of the letters while role-playing the board of the firm or the principal. The students then list the arguments used in the discussion, and then re-write their letters. Here again, teachers experience that students are very eager to re-write because they feel that they have learned much that can be applied.

**What we know**

- Young writers vary in the way they use writing strategies.
- Young writers vary in the way they adapt their strategies to new tasks.
- Students can learn to write texts and apply strategies when observing and evaluating other students’ writing processes (videos).
- Students can learn to write from observing (on video) readers who try to understand or who evaluate texts.

**What we know about writing-to-learn**

Writing is not just a way of communicating or displaying what has been learned. It can also be a tool for acquiring content knowledge, developing understanding, and improving thinking skills. This “learning through writing” can be applied in different subject areas – ranging from science to literature, and from biology to history – and at various educational levels (elementary, secondary, and tertiary education).

From writing-to-learn studies we know that:

1. Longer writing assignments are less effective than shorter ones. This might be due to motivational problems, especially in poor writers.
2. During writing, students should be encouraged to reflect on their understanding of the topic of writing, their affective or motivational responses to the topic, and on what they are learning.
3. Students must be stimulated to use everyday language (instead of scientific language), to re-represent key concepts in different wording, and to write for a real audience.

**About the authors**

Gert Rijlaarsdam, Martine Braaksma, Tanja Janssen, Talita Groenendijk and Anne Toorenaar work at the Research Institute of Child Development and Education, University of Amsterdam, in the Research Team in Language, Literature & Arts Education. www.rtle.nl.

**Further reading/resources**


Teaching argument writing to 7–14 year olds

Richard Andrews, Carole Torgerson, Graham Low, and Nick McGuinn explain what research has revealed about teaching argument writing, and what the results might mean for practitioners in the classroom.

In 2006 we published an international systematic review of research literature focusing on the teaching of non-fiction writing; specifically on the writing of argument for 7–14 year-olds. Since then, more recent research has reinforced our key findings.

Non-fiction writing has been the least favored aspect of writing in the English curriculum for many years. The reason for such neglect for much of the 20th century was, and is, that literature (especially fictional writing such as the novel) formed the “central civilizing presence” in the English curriculum. Most English teachers, at the elementary or secondary level, still see a literary core to their practice, values, and professional training.

The emphasis on written argument is not confined to the English classroom. Argument has an important part to play in the history lesson, for example, or the science laboratory. Interest in meta-cognition has been renewed through the development of thinking skills in the classroom and through attempts to help students take responsibility for reflecting upon their own learning and achievement.

Policy and practice background

In our focus on writing argumentative non-fiction, we take it as given that reading and writing are reciprocal activities, particularly with regard to writing development. We also think that speaking and listening bear upon the writing of this kind of non-fiction, in that, for example, spoken forms of argument may well be better employed than they are now to help improvement in writing non-fiction.

It is important to note that the functions of writing in middle and high school include persuading, arguing and advising, influencing the reader, analyzing and reviewing, evaluating and presenting a case, as well as the more descriptive informing, explaining and describing. The distinction between “argument” on the one hand, and “description” on the other is an important one for our study, reflecting a high level but often simplistic categorization between imaginative, descriptive, and argument writing that derives from 19th century rhetorical theory and which has influenced the writing curriculum ever since. Argumentation includes skills of abstraction, conceptualization, and applied logic; description implies none of these.

Review question and methods

The core research question for our 2006 review was: What is the evidence for successful practice in teaching and learning with regard to non-fiction writing (specifically argumentative writing) for 7–14 year olds?

The review question looked for evidence of successful practice in teaching and learning with regard to non-fiction argument writing for 7–14 year olds. Therefore the relevant literature included studies that could be used to draw causal inferences, i.e., inferences that various practices (strategies and methods) in the teaching and learning of non-fiction argument writing can improve students’ non-fiction writing. Case studies, explorations of relationships, and other non-experimental designs were included only where there was an evaluation.
**What we know**

- Certain conditions have to be in place for the successful teaching of argument writing in the classroom.
- Oral argument can help to inform written argument.
- Successful modeling includes not just demonstrating, but also peer modeling of dialogue.

**Conclusion**

In light of the continued problems with writing performance in England and the USA, particularly for ages 7–11, and specifically with argument writing because of its conceptual and structural demands, we feel that the results of our 2006 review continue to be significant. The key finding is that there is a need to distinguish between the conditions that have to be in place for successful writing of argument on the one hand, and the writing heuristics that are successful in these conditions on the other. We therefore feel we have gone some way to identifying the context for successful argument writing, though admit there is more work to do on defining the range or nature of these contexts. We have also managed to distill what are the key heuristics in the generation of successful argument writing in schools.


**About the authors**

Richard Andrews is Professor in English in the Faculty of Children and Learning at the Institute of Education, University of London. Carole Torgerson is Professor of Experimental Design in Medical Education in the School of Education at the University of Birmingham, and Dr. Graham Low and Dr. Nick McGuinn are based at the Department of Education, University of York.

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**Further reading**


Learning writing strategies

Mark Torrance and Raquel Fidalgo explain how to provide middle school students with strategies to guide their writing

CHILDREN’S FIRST AND DEFAULT MODE OF communication is speaking – their audience is present and can provide an immediate indication as to whether they are making sense, as well as prompts that help them decide what to say next. In written communication, this external feedback is absent. Becoming a skilled writer therefore requires more than just proficiency in spelling and handwriting. Beginning writers also need strategies for generating ideas, and for transforming these ideas into effective written communication. They need to cease to rely on the external regulation provided by an immediate audience, and instead develop their own ways of regulating what they say and how they say it.

Cognitive Self Regulation Instruction (CSRI)

Over the past seven years, we have conducted a series of studies exploring the effectiveness of Cognitive Self Regulation Instruction (CSRI) as a means of developing writing skills in children in the middle school years. CSRI was developed for use with Spanish school children aged 11–12, and is loosely based on Harris and Graham’s Self-Regulation Strategy Development approach. It aims to give learners a range of metacognitive strategies that allow them to take control of how they write. Teaching focuses on written products (features that should be present in the final text), and writing processes (the actions that students might engage in to achieve this goal), specifically in terms of developing planning and revision strategies. A typical CSRI program is described in the table.

Research

In an initial study, we implemented CSRI with Spanish children aged 11–13, focusing on the writing of compare-and-contrast essays. The program was delivered to three existing classes with a broad range of academic abilities, but excluding students with substantial learning disabilities. We then compared these groups with another existing class. This control group was taught using a traditional approach to writing, which involved setting students writing tasks and then providing feedback on finished texts. CSRI resulted in a substantial improvement in students’ writing ability. They produced much better quality texts after CSRI, compared to a baseline taken before CSRI started. There was also a marked increase in their use of linguistic constructions that indicate attention to the reader (e.g., signposting structures such as “In this essay I will first…, then…, finally…”). We did not find similar changes in students studying under the traditional curriculum. We also explored the activities that children engaged in while writing. We found a substantial increase in time spent planning, but no clear effect on their tendency to revise what they had written. These improvements were evident when students produced the kinds of texts that they were taught about in the program, and were also present when they were asked to produce a different kind of text.

There is, of course, the possibility that benefits from this kind of intervention are temporary – a response to novel teaching methods. However, our findings suggest that the effects of CSRI are, in fact, remarkably enduring. Writing tests given to the same students ten weeks after they had finished the CSRI program and again two years later found them still outperforming their peers. So, consistent with evidence from other researchers, CSRI – a typical strategy-focused approach to teaching writing – appears to result in strong and sustained benefits.

However, also in common with other strategy-focused teaching, CSRI is made up of a number of components. In subsequent studies we have explored which of these components are necessary for the program to be successful. Our findings suggest that providing information about the required features of the completed text can also result in substantial improvements in writing performance. Direct teaching about planning and revision does not appear to be necessary. It is essential, however, that product knowledge is taught so that students’ knowledge is strategic and explicit and therefore can serve a regulatory function during writing. Feedback on completed texts alone does not achieve this end. We have also found that having children just observe the teacher modeling effective strategies (Session 3 in the table) with no direct teaching resulted in substantial improvements in students’ texts, even after just two sessions.

Conclusion

We do not want to make any strong claims about the novelty of CSRI and other similar strategy-focused forms of teaching writing. Our findings simply confirm the value of providing students in the middle school years with explicit metacognitive strategies for regulating how they write. There appears, however, to be scope for a fair amount of flexibility in exactly how this teaching is delivered.

About the authors

Mark Torrance is a Senior Lecturer in Psychology in the School of Social Sciences, Nottingham Trent University. His research explores the cognitive and educational psychology of written text production. Raquel Fidalgo is Profesora Titular de Universidad in the Psychology, Sociology and Philosophy Department at León University, Spain. Her research explores the effects of self-regulated strategy instruction in written composition and reading comprehension in students with and without learning disabilities.

Further reading


Fidalgo R, Torrance M, & García JN (2008), The Long-Term Effects of Strategy-Focussed Writing Instruction for Grade Six Students, Contemporary Educational Psychology, 33(4), 672–693.


Cognitive Self Regulation Instruction

10 whole-class sessions of 60 to 90 minutes with one teacher

<table>
<thead>
<tr>
<th>Session</th>
<th>Content</th>
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<tbody>
<tr>
<td>1</td>
<td>Initial whole-class discussion and direct teaching relating to&lt;br&gt;The importance of being able to write well;&lt;br&gt;The importance of reader-focused text; and&lt;br&gt;The importance and function of planning before drafting.</td>
</tr>
<tr>
<td>2</td>
<td>Direct teaching providing understanding of effective planning strategies supported by three different mnemonics, with a central focus on OAIUE (“The Vowels”)&lt;br&gt;&lt;b&gt;Objetivo&lt;/b&gt; (objective) – what is the purpose of the text?&lt;br&gt;&lt;b&gt;Audiencia&lt;/b&gt; (audience) – for whom is it intended?&lt;br&gt;&lt;b&gt;Ideas&lt;/b&gt; (ideas) – what ideas might be included?&lt;br&gt;&lt;b&gt;Unir&lt;/b&gt; (unite) – how might my ideas be unified into a coherent whole?&lt;br&gt;&lt;b&gt;Esquema&lt;/b&gt; (schema) – how should I structure the text?</td>
</tr>
<tr>
<td>3</td>
<td>Teacher modeling of planning strategies&lt;br&gt;The teacher “thinks aloud” while planning a text in front of the class. Think-aloud is partially scripted to include statements illustrating metacognitive control over the writing processes: Self-regulation (e.g., &lt;i&gt;What is the first thing that I must do?&lt;/i&gt;), monitoring (e.g., &lt;i&gt;Have I forgotten any steps?&lt;/i&gt;), and evaluation (e.g., &lt;i&gt;Those are lots of good ideas&lt;/i&gt;).</td>
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<tr>
<td>4</td>
<td>Emulation of planning strategies, with peer support&lt;br&gt;Students take turns planning while thinking aloud, with a partner commenting on whether they are successfully reproducing the planning processes taught and modeled in previous sessions. Further scaffolding is provided by a printed planning template.</td>
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<td>5</td>
<td>Emulation of planning strategies, working alone&lt;br&gt;Students think aloud while planning another text. The teacher moves around the class giving feedback and encouragement to individual children.</td>
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<td>6</td>
<td>Whole-class discussion and direct teaching recapping the importance of being able to write well, the importance of reader-focused text, and The Vowels mnemonic, and introducing... the importance and function of revision after drafting.</td>
</tr>
<tr>
<td>7</td>
<td>Direct teaching concerning effective revision strategies, and structured around three different mnemonics, with a central focus on the mnemonic &lt;b&gt;LEA x 2&lt;/b&gt;&lt;br&gt;&lt;b&gt;LEA&lt;/b&gt; for substance: &lt;i&gt;Lee&lt;/i&gt; (read) – read the text carefully.&lt;br&gt;&lt;i&gt;Evalúa&lt;/i&gt; (evaluate) – while reading, evaluate the text with reference to The Vowels. &lt;i&gt;Actúa&lt;/i&gt; (act) – make appropriate changes.&lt;br&gt;&lt;b&gt;LEA&lt;/b&gt; for mechanics: &lt;i&gt;Lee&lt;/i&gt; (read) – read the text quickly.&lt;br&gt;&lt;i&gt;Evalúa&lt;/i&gt; (evaluate) – while reading, evaluate for spelling, verb–noun agreement, and punctuation; &lt;i&gt;Actúa&lt;/i&gt; (act).</td>
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<tr>
<td>8</td>
<td>Teacher modeling of revision strategies&lt;br&gt;As before, the teacher thinks aloud: Self-regulation (e.g., &lt;i&gt;So I must read slowly first&lt;/i&gt;), monitoring (e.g., &lt;i&gt;Have I checked that the structure is ok?&lt;/i&gt;), and evaluation (e.g., &lt;i&gt;I’m not sure my readers will understand that sentence&lt;/i&gt;).</td>
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<tr>
<td>9</td>
<td>Emulation of revision strategies, with peer support&lt;br&gt;Students take turns revising a text provided by the teacher, thinking aloud while they do so, with a partner commenting on the extent to which they are successfully reproducing the revision processes taught and modeled in previous sessions.</td>
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<tr>
<td>10</td>
<td>Emulation of revision strategies, working alone&lt;br&gt;Students think aloud while revising a new text provided by the teacher. The teacher moves around the class giving feedback and encouragement to individual children.</td>
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Cooperative writing with embedded multimedia

Schools can improve writing outcomes for elementary school children by using a writing process approach that combines cooperative learning with video demonstrations, say Robert Slavin and Nancy Madden.

**Effective Communication in Writing** is one of the most important of all objectives in elementary school. The ability to express ideas and tell stories in writing, to write for various audiences and in many genres, is essential in itself and is a basis for success in middle school, high school, and beyond. Yet many children do not learn to write well. This is especially true of disadvantaged and minority students, whose writing performance on the National Assessment of Educational Progress, though improving, remains far below that of white and middle class students.

Many writing researchers and reformers have long advocated the use of a writing process model that emphasizes teaching children to work in peer response groups to help one another plan, draft, revise, edit, and “publish” compositions in various genres. The idea is to give children insights into the writer’s craft and writing strategies by engaging them with peers, giving them an opportunity to learn from each other. Research on the use of writing process models has generally supported their effectiveness in comparison to traditional approaches, especially when they include explicit strategy instruction.

The problem with writing process programs is that they are difficult to implement for many teachers. In order to help teachers succeed with the writing process, we created a writing process program that provides students with compelling video models of effective writing practices in small writing teams. In this method, called Writing Wings with Media (WWM), students work in four-member, heterogeneous writing groups to help one another plan, draft, revise, edit, and publish compositions. Teachers show them a series of humorous puppet skits in which a four-member writing team learns to use writing process elements in a variety of genres. The idea is to communicate directly to the students themselves (as well as to teachers) a vision of how to work in writing teams, in hopes that this will help teachers implement the program with greater fidelity and build enthusiasm and strategic insights among students.

**Program elements**

**Teams** Students are assigned to four-member learning teams, including high, average, and low achievers, boys and girls, and students from any ethnic groups represented in the class.

**Writing process elements** Team members are taught to write compositions using a series of steps:

- **Plan:** Students work with teammates to plan what they are going to write.
- **Draft:** Children write a draft, or “sloppy copy,” of their composition.
- **Revise:** After a partner critiques the draft (based solely on content, organization, and style, not mechanics), the writer writes a revision.
- **Edit:** A partner reads the revised draft and suggests edits based on grammar, punctuation, usage, and spelling. Initially, partners focus on a small set of issues (e.g., capital letters at the beginning of each sentence), but as lessons on mechanics skills are presented, these skills are added to an editing checklist.
- **Publish:** After a final review by the teacher and final revisions, students have opportunities to present their final compositions to the class, to create a team book or newspaper, or otherwise celebrate their writing products in a public forum.

**Multimedia** Students view a series of video vignettes illustrating the elements of the writing process in various genres. A team of puppets, the Write-On Dudes, models the process. The video team includes Mona, who tends to think she has little to say, Flash, who has trouble with organization, Ricardo, who tends to overwrite, and Tasha, who tends to lack detail. In the puppets’ interactions, effective cooperative behaviors as well as writing behaviors are modeled, and metacognitive strategies are demonstrated. In addition, students view a series of live-action skits and animations, featuring the Language Mechanics, who work in a “writing garage” and present humorous demonstrations of key elements of grammar, punctuation, and usage.

An example of how media and cooperative learning are used in Writing Wings is provided below in a series of lessons on describing events in a sequence.

**Day 1:** A lesson about sequences of events helps students understand how organizing a description of an event using a sequence helps the readers’ understanding. In addition, children learn to use a graphic organizer for a sequence.

**Day 2:** Students work in their teams to brainstorm about events that would be interesting to write about and to read about. In an earlier lesson, a video demonstrated peer support for brainstorming. Teams share ideas with the class after team discussion.

**Day 3:** Students view a video of the Write-On Dudes using the organizer presented on Day 1 to write a plan for their description. Then children write an individual plan, review it with their teammates, and revise it based on teammate comments.

**Day 4:** Students draft their descriptions.

**Day 5:** Students view a video of the Write-On Dudes sharing their drafts, and use a “Revision Guide” to evaluate a model composition and make suggestions for revisions. Students then share their own drafts with their teams, and receive suggestions for revision.

**Day 6:** The teacher presents a lesson on using vivid verbs with support from a video featuring the Language Mechanics. Teams 

The idea is to give children insights into the writer’s craft and writing strategies by engaging them with peers, giving them an opportunity to learn from each other.

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**EFFECTIVE COMMUNICATION IN WRITING**

One of the most important of all objectives in elementary school. The ability to express ideas and tell stories in writing, to write for various audiences and in many genres, is essential in itself and is a basis for success in middle school, high school, and beyond. Yet many children do not learn to write well. This is especially true of disadvantaged and minority students, whose writing performance on the National Assessment of Educational Progress, though improving, remains far below that of white and middle class students.

Many writing researchers and reformers have long advocated the use of a writing process model that emphasizes teaching children to work in peer response groups to help one another plan, draft, revise, edit, and “publish” compositions in various genres. The idea is to give children insights into the writer’s craft and writing strategies by engaging them with peers, giving them an opportunity to learn from each other. Research on the use of writing process models has generally supported their effectiveness in comparison to traditional approaches, especially when they include explicit strategy instruction.

The problem with writing process programs is that they are difficult to implement for many teachers. In order to help teachers succeed with the writing process, we created a writing process program that provides students with compelling video models of effective writing practices in small writing teams. In this method, called Writing Wings with Media (WWM), students work in four-member, heterogeneous writing groups to help one another plan, draft, revise, edit, and publish compositions. Teachers show them a series of humorous puppet skits in which a four-member writing team learns to use writing process elements in a variety of genres. The idea is to communicate directly to the students themselves (as well as to teachers) a vision of how to work in writing teams, in hopes that this will help teachers implement the program with greater fidelity and build enthusiasm and strategic insights among students.

**Program elements**

**Teams** Students are assigned to four-member learning teams, including high, average, and low achievers, boys and girls, and students from any ethnic groups represented in the class.

**Writing process elements** Team members are taught to write compositions using a series of steps:

- **Plan:** Students work with teammates to plan what they are going to write.
- **Draft:** Children write a draft, or “sloppy copy,” of their composition.
- **Revise:** After a partner critiques the draft (based solely on content, organization, and style, not mechanics), the writer writes a revision.
- **Edit:** A partner reads the revised draft and suggests edits based on grammar, punctuation, usage, and spelling. Initially, partners focus on a small set of issues (e.g., capital letters at the beginning of each sentence), but as lessons on mechanics skills are presented, these skills are added to an editing checklist.
- **Publish:** After a final review by the teacher and final revisions, students have opportunities to present their final compositions to the class, to create a team book or newspaper, or otherwise celebrate their writing products in a public forum.

**Multimedia** Students view a series of video vignettes illustrating the elements of the writing process in various genres. A team of puppets, the Write-On Dudes, models the process. The video team includes Mona, who tends to think she has little to say, Flash, who has trouble with organization, Ricardo, who tends to overwrite, and Tasha, who tends to lack detail. In the puppets’ interactions, effective cooperative behaviors as well as writing behaviors are modeled, and metacognitive strategies are demonstrated. In addition, students view a series of live-action skits and animations, featuring the Language Mechanics, who work in a “writing garage” and present humorous demonstrations of key elements of grammar, punctuation, and usage.

An example of how media and cooperative learning are used in Writing Wings is provided below in a series of lessons on describing events in a sequence.

**Day 1:** A lesson about sequences of events helps students understand how organizing a description of an event using a sequence helps the readers’ understanding. In addition, children learn to use a graphic organizer for a sequence.

**Day 2:** Students work in their teams to brainstorm about events that would be interesting to write about and to read about. In an earlier lesson, a video demonstrated peer support for brainstorming. Teams share ideas with the class after team discussion.

**Day 3:** Students view a video of the Write-On Dudes using the organizer presented on Day 1 to write a plan for their description. Then children write an individual plan, review it with their teammates, and revise it based on teammate comments.

**Day 4:** Students draft their descriptions.

**Day 5:** Students view a video of the Write-On Dudes sharing their drafts, and use a “Revision Guide” to evaluate a model composition and make suggestions for revisions. Students then share their own drafts with their teams, and receive suggestions for revision.

**Day 6:** The teacher presents a lesson on using vivid verbs with support from a video featuring the Language Mechanics. Teams
Day 7: Students revise their drafts using feedback from their teammates and strategies modeled by the Language Mechanics to use vivid verbs.

Day 8: The teacher presents a lesson on adding adverbs to enrich description with support from a video featuring the Language Mechanics. Students once again revise with an eye toward enriching their descriptions with adverbs.

Day 9: Students work with teammates to edit their writing using an editing checklist presented in an earlier lesson. Final copies are published and shared.

Professional development
Teachers in Writing Wings with Media receive a day of training at the beginning of the program and are then visited by coaches four times over the course of the year. Coaches provide feedback and suggestions to help teachers use the program elements.

Evaluation
An evaluation of WWM took place in 22 schools in deprived areas in 11 states. There were a total of 46 teachers randomly assigned to WWM and 44 teachers assigned to control. Overall, approximately 30% of students were African American, 27% White, 26% Hispanic, and 17% Other. Students were given writing prompts as pretests in October 2007 and post-tests in May 2008.

Outcomes
The findings of the randomized evaluation of Writing Wings with Media indicated positive effects on ratings of students’ compositions at post-test, controlling for pretest measures. Significantly greater gains were made by WWM students than controls on style. There were non-significant positive effects for ideas and organization, and significant effects for mechanics.

From a practical perspective, the findings of the study of Writing Wings with Media suggest that schools can improve writing outcomes for children in the upper-elementary grades using a writing process approach that emphasizes cooperative learning and adds regular video demonstrations of the writing process as played out in various genres. Creative writing can be difficult to teach and difficult to measure, but embedded multimedia paired with cooperative learning may provide a way to help teachers to help children develop as writers.

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Further reading


Using an evidence-based practice or program

Jonathan Haslam describes types of barriers educators may face in adopting and implementing evidence-based practices, and tips for overcoming them

PREVIOUS ARTICLES IN BETTER HAVE examined some of the challenges in using evidence-based programs and practices. Deciding to go “evidence-based” is not necessarily a straightforward solution for your school or district. The state of evidence-based practice within education is still a work in progress. Using evidence-based approaches presents a variety of challenges, particularly given the limited number of programs and practices with strong evidence of effectiveness that can be easily implemented by educators.

One of the key elements of a successful program, and certainly key to the introduction of a successful program, is extensive professional development.

A number of websites, particularly Johns Hopkins University’s Best Evidence Encyclopedia (www.bestevidence.org), aim to help with this, by using rigorous criteria to identify for educators those programs and practices that have evidence of effectiveness. However, just because a program has been proven to be effective, does not mean that it comes complete in a neatly wrapped package that can be easily used by schools and districts. Unfortunately, many good programs do not make it to an implementable product.

There can be many reasons for this. For example, the program developers may not have the resources to develop the supporting materials that educators require for implementation. The U.S. Department of Education’s Investing in Innovation fund is a promising first step in addressing this issue. It offers a range of grants at different levels that should enable developers to take their ideas all the way from a promising initiative through to a scalable product that can be implemented nationwide.

An important first step, then, when selecting an evidence-based program, is to be reassured that it has all the support materials that you need for a successful implementation. It is important, too, that you are sure that it is the right solution for you. Has it been evaluated in a school with a similar profile to yours? For example, programs that have been proven in high-poverty schools may not necessarily deliver the same results in schools with middle-class students. Does it address the issues that are important in your school?

Once you have chosen a program or practice, what steps are necessary to implement it effectively? As much as anything, this is a case of managing change within the organization, so the steps you will need to take are similar to those for any large change project. Additionally, of course, we know that the program will change practice in the classroom.

Leadership and “buy in”

When introducing evidence-based practices to your school, it is essential to secure support from senior leadership, and to have “buy-in” from the staff. Achieving this is in large part a matter of communication. Presenting a plan as a done deal will likely lead to resentment and resistance, so it is crucial to take as many stakeholders as possible with you.

Involve senior staff in the development of your ideas. The selection of a new program should be linked to the outcomes that are desired – such as improved behavior of children, or improved literacy scores. Have staff signed up to this agenda, or do they think that there are other, more important issues? Unless people can see the benefit that will result from these changes, then they may not support them. And that change must be meaningful, not something that is trivial. In all likelihood, then, your focus will be on how this new program can improve achievement for the kids. And here evidence-based practice comes into its own, because it comes with robust evidence that it does make a difference.

Fidelity

An important aspect of success in many evidence-based programs and practices is implementing them with fidelity. Not doing so can often be the cause of initial enthusiasm leading to disappointment. A poorly implemented program can do more harm than good, because it will put people off from trying new ideas in the future.

It is important that you are clear on what needs to be implemented for a program to be effective, and for this to be reflected in the way the program is implemented. In the article on page 18, for example, Torrance and Fidalgo report how they examined which elements of a program teaching grammar were vital for its success. When implementing programs, it is useful to do this, and understand the elements that must be implemented and implemented faithfully. There can be a temptation for staff to say that they are already doing something similar. This may or not be true, but the reasons for the success of a program may depend on getting the detail right, rather than producing a superficial copy.

Professional development

One of the key elements of a successful program, and certainly key to the introduction of a successful program, is extensive professional development. Most programs are about changing what happens in the classroom, and to do this requires teachers to change their behavior. This is unlikely to occur without proper professional development, probably involving external coaches who have used the program before.

To a motivated staff, this may be one of the most appealing aspects of a new program, since professional development, improving and developing one’s practice, can enhance their professional skills. If there is resistance to it, then it is worth reviewing again the reasons for the change, why the change is necessary, and what outcomes are hoped for.

Sustainability

Making sure that the introduction of a new program persists and is sustainable is clearly an important point. A one-off burst
of improvement is rewarding, but the hard work of achieving that is wasted if this improvement is not sustained.

In a recent Better article, Peter Ji and Roger Weissberg looked at how to successfully implement a social-emotional learning program. They listed the following as important steps in sustaining the implementation of a program, and these similarly apply to any kind of evidence-based program:

- **Provide ongoing professional development** – initial professional development is important, but it is also important to continue this even once the program has become embedded. In particular, external support for staff once their initial enthusiasm has waned can be invaluable.

- **Evaluate practices and outcomes for improvement** – There are a couple of points here. First, it is important that there is a check in place to make sure that the practice has changed, and that the changes to practice that are identified as key to implementation of the program have been made. Second, there should be a check on the outcomes of children.

- **Develop infrastructure to support the program** – As with any school-wide initiative, it is important that knowledge and commitment to the program is distributed throughout the school.

- **Nurture partnerships with families and communities and communicate with stakeholders** – Wider support of the practices and programs used by the school is clearly important. Making parents, the wider school community, and other stakeholders aware of what is going on, and the successes that are resulting, is vital in building ongoing support and encouragement for the school’s program.

When implementing an evidence-based program, you can have reasonable confidence that it will do what it claims, but there are no guarantees. You should have a system in place that checks, as fairly as possible, the improvements that have resulted. If they are not what you were hoping for, then this may prompt you to consider whether the practices and programs are being implemented faithfully, or whether they were the right ones for you.

As with any change management, introducing an evidence-based program may raise other concerns that need to be addressed. For example, dealing with staff that are unwilling or unable to change, or managing the different expectations of diverse parents.

Appreciating that the introduction of an evidence-based program is not a quick fix, but requires planning and perseverance, will set you along the right road. And with an evidence-based intervention, compared with one that is untested, you can have confidence that the effort will result in real improvement for students.

**About the author**

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**Further reading**

Best Evidence Encyclopedia, www.bestevidence.org

Ji P and Weissberg R (2010), Implementing School-wide Social and Emotional Learning, Better 2(2) 12–13
K-8 schools vs. middle schools: which is better for adolescent achievement?

Study evaluates effectiveness of teacher performance pay

PERFORMANCE PAY FOR TEACHERS is a hotly debated topic. While some think that performance pay gives teachers an incentive to improve student outcomes, others argue that it’s nearly impossible to measure a teacher’s value and that teachers are not the only influence on a child’s education. While the debate rages on, a Vanderbilt University study looks at the effectiveness of teacher performance pay in raising student achievement.

The three-year study – named The Project on Incentives in Teaching (POINT) – was conducted in the Metropolitan Nashville School System from 2006-07 through 2008-09. Middle-school mathematics teachers voluntarily participated in the study and were randomly assigned to either a treatment group or control group. In the treatment group, teachers were eligible for bonuses of up to $15,000 per year on the basis of student test-score gains on a standardized state test. In the control group, teachers were not eligible for these bonuses. Participating teachers had to decide for themselves if and how they would take extra measures to raise student performance (i.e., participate in more professional development, seek coaching, etc.).

According to the study’s findings, rewarding teachers with bonus pay, in the absence of any other support programs, does not raise student achievement.

What’s to blame for the decline? The researchers note that POINT tested only one particular model of incentive pay and that the findings do not imply that another approach would not be successful (i.e., rewarding teachers in teams or combining incentives with coaching or professional development). Further research is needed to fully understand the effectiveness of compensation reform as a way to improve educational outcomes.
Professional development trends in the United States

A REPORT RELEASED BY THE NATIONAL Staff Development Council offers mixed results about the status of teacher learning opportunities in the United States. According to the report, the U.S. is making progress in providing support and mentoring for new teachers, but has moved backward in providing the vast majority of teachers with the ongoing, intensive professional development that has been found to improve student learning.

The report is part of a multi-year research study on professional development for teachers. For this part of the study, researchers from the Stanford Center for Opportunity Policy in Education analyzed data from the Schools and Staffing Survey, a national survey conducted by the federal government. The researchers reviewed responses from the 2000, 2004, and 2008 surveys so they could evaluate the progress of professional development efforts over the past decade.

Positive findings emerged from the research regarding professional development for beginning teachers. According to the study, 74 percent of beginning teachers participated in induction programs in 2008, up nearly 6 percent from 2004 and 14 percent from 2000. The percentage of beginning teachers who reported having a mentor also increased, from 62 percent in 2000 to 71 percent in 2004 and 76 percent in 2008. However, overall, the intensity of professional development – defined by the length of time teachers participate in the professional development – seems to have declined over the years. The study found that in 2008, teachers nationwide had fewer opportunities than they had four years earlier to engage in sustained professional learning opportunities (i.e., more than eight hours in duration) on topics such as reading instruction, classroom management, and uses of technology for instruction.

Overall, the intensity of professional development seems to have declined over the years 50

The number of professional development hours that teachers experience on a single topic in a given year is insufficient to make a difference in student achievement, the study says. The researchers suggest that states and districts reshape their professional development policies to support teachers’ engagement in the kinds of sustained professional development that research has shown to be effective.

National Staff Development Council
July 2010
www.learningforward.org/stateproflearning.cfm

U.S. Department of Education reports on early elementary math curricula

IN AN EFFORT TO IDENTIFY EFFECTIVE approaches to improving math achievement in disadvantaged elementary schools, the U.S. Department of Education’s Institute of Education Sciences (IES) is sponsoring a study – conducted by Mathematica Policy Research and SRI International – on the achievement effects of four elementary math curricula.

Their most recent report on the study presents findings for first and second grade students, an update to a 2009 IES report that included first graders only.

The four curricula being examined in the study are: (1) Investigations in Number, Data, and Space (Investigations), (2) Math Expressions, (3) Saxon Math, and (4) Scott Foresman-Addison Wesley Mathematics (SFAW). Two cohorts of schools – 39 in cohort one and 71 in cohort two – have participated in the study and were randomly assigned to implement one of the four curricula in their classrooms. In cohort one, curriculum implementation occurred only in the first grade, while in cohort two, curriculum implementation occurred in both the first and second grades (except for one school in which implementation occurred only in the second grade).

To measure the achievement effects of the four curricula, researchers tested students at the beginning and end of the school year using a nationally normed test. Their findings suggest that, out of the four programs studied, two may have an edge in raising early elementary math achievement: Math Expressions (which blends student-centered and teacher-directed approaches to mathematics) and Saxon Math (a scripted curriculum that blends teacher instruction of new material with daily practices of previously learned concepts and procedures).

According to the study, the average math achievement of first graders in schools using Math Expressions was higher than in schools using Investigations and SFAW, but not in schools using Saxon. For second graders, the researchers found that the average math test score in schools using Math Expressions and in schools using Saxon was higher than that in schools using SFAW, but not in schools using Investigations.

A third and final report on the study’s findings – which will include third grade students – is expected to be released in the summer of 2011.

Institute of Education Sciences
October 2010
ies.ed.gov/ncee/pubs/20114001/index.asp
To be successful, the recommendations should be implemented together and viewed as five pieces of a whole.
The Latest Research

**Report: Longitudinal Study of Classroom Connectivity in Promoting Mathematics and Science Achievement: Years 1-3.** Columbus, OH: The Ohio State University. (May 2010)

**What?** Classroom connectivity technology (CCT) allows teachers to wirelessly communicate with students’ handheld calculators. In this study, researchers examined the effects of a CCT intervention on Algebra I teaching and learning. The CCT utilized in the study was the Texas Instruments Navigator™ (TI-Navigator), a system that connects students’ TI graphing calculators to their teacher’s computer with the intent to enable shared learning experiences. For example, one function of the TI-Navigator system is that it allows teachers to capture a screenshot of individual student calculators. The teacher could then use the screenshot to review a student’s understanding of a concept, or the screenshot could be displayed for the class to see and discuss.

Algebra I teachers from 28 U.S. states and 2 Canadian provinces and their students participated in the four-year study and were randomly assigned to either a treatment group or control group. In the treatment group, teachers received training on how to use the TI-Navigator system and then implemented the technology in their classrooms. The treatment teachers also participated in ongoing technology-related professional development. In the control group, teachers did not use the TI-Navigator system or participate in the professional development.

Researchers reviewed data on the students’ algebra achievement to evaluate the impact of the technology. Their initial findings show that the students whose teachers used the TI-Navigator system scored higher on a researcher-designed Algebra I test than students whose teachers did not use the technology. The study suggests that the use of the CCT intervention—which includes both the CCT and the professional development—produced the increase in achievement.

**Authors:** Irving et al.

**Where?** The report can be found at www.ccms.osu.edu/publications.php

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**What?** The Measures of Effective Teaching (MET) project was launched in the fall of 2009 in an effort to improve the quality of information that is available about teacher effectiveness. As part of the project, researchers are testing new ways to identify effective teachers and effective teaching practices. In this report, the researchers analyze two approaches to estimating teacher effectiveness: measuring student achievement gains and measuring student perceptions of the classroom instructional environment.

Three thousand teachers from across the U.S. are voluntarily participating in the project. For this report, the researchers focused on mathematics and English language arts teachers in grades 4 through 8. The following data were collected from their classrooms and studied by the researchers: students’ scores on standardized state tests and students’ responses to a survey in which they rated their level of agreement with statements such as, “Our class stays busy and doesn’t waste time,” and “I like the way we learn in this class.”

Several key findings have emerged from the research. First, the researchers found that in every grade and subject they studied, a teacher’s past success in raising student achievement on state tests is one of the strongest predictors of his or her ability to do it again. In addition, the study suggests that student feedback (in this case the student survey responses) is also an indicator of teacher effectiveness. According to preliminary findings, when students report positive classroom experiences, those classrooms tend to achieve greater learning gains.

This report is the first of four to be released from the MET project. Future reports will be completed as findings on other measures of teacher effectiveness—such as classroom observations—become available.

**Authors:** Prepared by the Bill and Melinda Gates Foundation

**Where?** The report can be found at www.metproject.org/reading

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**What?** This study tested the impact of a kindergarten vocabulary instruction program on students’ expressive vocabulary — defined as the words students understand well enough to use in speaking. The program used in the study was Kindergarten PAVEd for Success (K-PAVE), a program that was implemented as a supplement to students’ regular classroom literacy instruction.

K-PAVE is designed to build children’s vocabulary and comprehension skills, oral language skills, and enhance teacher-child relationships.

The study’s sample included 128 kindergarten teachers and 1,296 kindergarten students who were randomly assigned to either a treatment group or control group. Teachers in the treatment group received training on the K-PAVE program and then started it in their classrooms as a 24-week supplement to their schools’ core language arts program, while teachers in the control group continued their regular literacy instruction without the supplement.

Researchers tested the vocabulary development of the students in the treatment group and control group using a standardized expressive vocabulary test. They found that kindergarteners who received the K-PAVE intervention were one month further ahead in vocabulary development and academic knowledge at the end of kindergarten compared with their peers who did not receive the intervention. However, the researchers found no statistically significant differences between the two groups on listening comprehension, which was evaluated using a standardized listening comprehension assessment.

**Authors:** Goodson et al.

**Where?** The report can be found at ies.ed.gov/ncee/pubs/20104014/index.asp
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Better: Evidence-based Education magazine is published by the Johns Hopkins School of Education's Center for Research and Reform in Education and the University of York's Institute for Effective Education.