



Rick VanDeWeghe, *Editor*
University of Colorado at Denver
Rick.Vandeweghe@cudenver.edu

Research Matters

What Are the Effects of Writing-to-Learn Programs?

It is late April at this small, rural, combined middle school and high school. Larry, the building literacy coordinator, is meeting with his Professional Development Planning Team, a cross-curricular group that includes teachers and administrators. The school has selected writing across the curriculum as its professional development target for next year, and this group is planning the first professional development day in August.

Donna: So, we'll start right off with some kind of write-to-learn activities that get us going as writers? No explanations until later, just get right to it?

Larry: Yes, and I'm thinking we can break into groups, by subject area, for brainstorming on how these activities can work in different classes.

Paula: That's what I'm thinking, too.

Donna: I have some concern with which activities we choose. I mean, we could choose anything that seems to fit as a typical practice, but how do we know what really works?

Paula: *Works?* In what sense?

Donna: Well, how do we know, for example, if writing to learn for ten minutes a day is any better than writing for longer periods—or shorter? That sort of thing.

Paula: I agree. We should know what activities most impact how students learn content. Like, it's one thing to say, "Here, try this—it fits with our school's literacy goals." It's another to say, "This method will affect how your students learn. Research shows it works."

Larry: Absolutely. It has to affect achievement, and we have to know that.

Donna: OK, so . . . Larry, you're the resident expert on this, so can you talk about writing to learn and achievement?

Larry: Ah, well, I've been using writing-to-learn strategies for years in my teaching, and I've been coaching many others on using them, too. I know these methods help kids learn better. But I honestly never looked at hard research for support; based on my observations, I assumed writing to learn works. I guess I better do my homework.

Like many of us, Larry "knows" a teaching strategy works, based on

student engagement, student products, and certain improvement indicators such as fluency, syntactic density, and idea generation. He also knows through personal observation of students at work (e.g., more time on task, more sustained attention to task) and possibly through such quantitative measures as grades. But, like many of us, he has never seriously consulted "the research" for what light it may shed on the efficacy of write-to-learn teaching practices. Now that he is the "resident expert" and sole literacy coordinator for the building, he knows he must corroborate his recommended teaching approaches with the authority derived from knowing what the research says about writing to learn.

Fortunately for Larry, a recent study illuminates writing to learn for classroom teachers, literacy coordinators, and school administrators and gives rich insight into those particular strategies that impact achievement. Robert L. Bangert-Drowns, Marlene M. Hurley, and Barbara Wilkinson, in "The Effects of School-Based Writing-to-Learn Interventions on Academic Achievement: A Meta-Analysis," both support and challenge how we think about writing-to-learn aspects of writing across the curriculum.

The authors reviewed a wide range of studies on writing to

learn (nearly five hundred, with some going as far back as 1912) to determine the effectiveness of writing-to-learn programs. The researchers sought out patterns in the studies that gave insight into the relationship between writing-to-learn practices and achievement. In each study considered, a comparison treatment group was subject to “conventional” instruction,” by which the researchers meant, “no special effort was made to enhance [this group’s] instruction, particularly in terms of writing” (35). In contrast, the writing-to-learn group experienced more frequent writing than did the conventional instruction group. “Writing-to-learn” methods varied widely from study to study (e.g., grade level, subject, types of prompts, length of treatment); these variables then constituted the treatment variables that were coded in the meta-analysis, allowing the researchers to determine the impact on achievement of different treatment variables (listed below). To assess achievement, researchers considered multiple measures: “final grades, final examinations, standardized tests, tests available in textbooks or from textbook publishers, locally constructed lesson quizzes, and rubric-scored essays” (38).

How Does Writing Affect Learning?

Bangert-Drowns, Hurley, and Wilkinson found that much early research on writing to learn lacked the empirical rigor necessary “to arrive at precise conclusions about the relationship between writing and learning” (31). Overall, however, the history of writing-to-learn research and programs does reveal

connections between writing and learning in a variety of settings and under certain conditions. “Writing does appear to facilitate learning to some degree under some conditions” (32), though many variables influence the potential effect.

In short, we can be assured that writing to learn does, in fact, have an impact on achievement, perhaps more than conventional measures of achievement are able to determine.

The authors agree with many writing experts that the most critical way that writing can affect learning is through its potential to engage writers in metacognitive thinking:

The repetition of content while writing performs rehearsal functions by increasing time-on-task and content exposure. Writing can support more sophisticated elaboration and organizational strategies by linking new understandings with familiar ones, synthesizing knowledge, exploring relations and implications, and building outlines and conceptual frameworks. And writing can be a tool of self-reflective monitoring of comprehension, thus creating opportunities for students to evaluate their own understandings, confusions, and feelings about a topic. (32)

That being said, the authors caution that “it is unrealistic to think that writing will always facilitate . . . metacognitive and other learning strategies. . . . [I]t is possible to think of conditions in which writing might diminish learning achievement” (33)—for example, if time is allotted for writing at the expense of time for other activities that would have a

greater impact on learning, such as a field trip. To know what works in writing-to-learn programs, these researchers began with the most basic question: Can teachers bring about improvements in their students’ academic performance by having them write about the subject-matter content of the class?

The researchers looked for and coded seventeen variables. For those of us who wonder “what works?” the following eleven variables constitute those elements that may make a difference in the impact of writing to learn on content learning. They are also the most critical elements teachers should consider when incorporating write-to-learn strategies.

Intensity-of-Treatment Variables

- > Length of the treatment (Does writing over a longer time period matter?)
- > Number of writing assignments per week (How many times per week are students writing?)
- > Minutes per writing task (Do individual, longer writing tasks have a more beneficial effect?)

Features of Writing Tasks

- > Informational writing (Students’ writing is based on their comprehension of texts or concepts, such as summarizing texts or creating examples.)
- > Personal writing (Students’ writing relates academic content to personal experiences, or students express likes and dislikes about course content.)
- > Imaginative writing (Students write fiction or other imaginative texts such as poems and plays.)

- > Metacognitive reflection (Students reflect on what they are learning, such as “comprehension failures and successes, or affective or motivational responses to content that might facilitate or debilitate learning” [38].)
- > Writing that gets feedback (Teachers respond to the educative import of their writing through such means as grades or oral/written comments.)

Contextual Features

- > Grade level of the students
- > Academic subject
- > Location of the writing activity (in class or outside of class)

The remaining six variables did not pertain to classroom conditions but rather had to do with the research design, such as whether or not the researcher was the instructor in the interventions, or the source of the research report (e.g., journal article or dissertation).

Results

Of the original five hundred studies, forty-six were analyzed. Most were published between 1926 and 1998, and more than half were based on writing to learn mathematics. The grade levels ranged from elementary to college, and nearly all involved writing for informational purposes. Overall, the data from this meta-analysis support three main findings.

Writing to Learn Typically Produced Small, Positive Effects on School Achievement

Seventy-five percent of the cases “were positive, suggesting a fairly consistent positive achievement effect

attributable to writing-to-learn interventions. The mean effect of writing-to-learn interventions on content achievement was rather small but significantly greater than no effect” (42–43). When compared to conventional instruction, three-fourths of the outcomes “favored writing to learn over conventional instruction on the same content” (49). The authors point out that the “small” effects “are likely to be conservative estimates” for two reasons. One, the students in the control groups were also engaged in writing, though not to the extent of those in the write-to-learn groups; the control-group students also experienced some benefits from writing activities that affected their achievement. Two, the conventional measures used to determine effect—tests, quizzes, grades—may not have adequately determined the cognitive benefits of writing to learn. Some research examined by these authors, for instance, found alternative measures more useful in detecting sophisticated conceptual understandings of content (49). In short, we can be assured that writing to learn does, in fact, have an impact on achievement, perhaps more than conventional measures of achievement are able to determine.

Grade Level and Presence of Prompts for Metacognitive Reflection Affected Writing-to-Learn Achievement Effects

Middle school students appeared to benefit the least from writing-to-learn programs, though “it would be an improper overgeneralization to conclude that these grades can never benefit from writing to learn” (50). That is, a number of factors

may work against the benefits of writing to learn at this level. First, as subject matter differentiates more distinctly in middle school, so do the writing genres appropriate to those subjects, forcing students to grapple intellectually with new genres while also grappling with new content. Second, the emotional turmoil of the middle years, coupled with the challenges of transition, may negatively impact achievement. Finally, the authors suggest that “some unidentified feature of instruction typical for these grades may interfere with the impact of writing on learning” (50). No examples of such a feature are provided. Overall, this puzzling finding regarding middle schoolers seems difficult to explain, and the researchers themselves call for more research on this phenomenon.

Interestingly, the results did not show a connection between personal writing prompts and achievement, a finding that challenges many who believe in the power of expressive writing in writing-to-learn approaches.

The most important—and salient—result relates to the role of metacognitive prompts, for “[w]riting-to-learn interventions that included prompts for students to reflect on their current knowledge, confusions, and learning processes proved particularly effective” (50). Interestingly, the results did not show a connection between personal writing prompts and achievement, a finding that challenges many who believe in the power of expressive writing in writing-to-learn approaches. What is most significant here may not be the use of expressive writing per se but rather the use of metacognitive

prompts themselves, regardless of linguistic register. *Writing* is what matters most: “the educational importance of writing might not lie in its affinity with personally expressive speech . . . but in the scaffolding that it can provide for metacognitive and self-regulatory processes” (50).

Longer Writing Assignments Matter Less Than More-Frequent Writing Opportunities

There appears to be little connection between longer writing tasks (i.e., words per activity) and greater achievement. It is suggested that longer writing assignments may seem onerous for some students and work against motivation to achieve more through writing; this is especially true for those who struggle as writers. The implication here is that shorter writing tasks, such as quickwrites, may be more beneficial. However, learning of content *is* positively affected when students write more frequently over time: “longer studies were shown to be associated with higher effect sizes” (51). Thus, we may conclude that simply increasing the amount students write on any given occasion will not affect achievement, but increasing the number of times they write to learn over time *will*. This finding would support the use of reading-response logs, science and math notebooks, and writer’s notebooks when used regularly for quick-burst writing-to-learn activities.

Need for Further Research

In addition to these three findings, teachers will be interested to learn that these researchers found no significant relationship between provid-

ing feedback on students’ writing and achievement. This may surprise many of us, for “[c]ommon sense suggests that students will pay more attention to their written work if they expect that known readers will respond to and even grade their texts” (51). Although this meta-analysis casts doubt on the efficacy of feedback generally, Bangert-Drowns, Hurley, and Wilkinson point out that, frequently, crude methodological procedures in many of the studies made it hard to determine the frequency and type of feedback. Such procedural flaws led them to speculate that feedback that supports metacognition may nonetheless be useful (for reasons given below) even though the studies in their research “did not provide sufficient information to explore such a possibility” (52).

Implications for Teaching Practice

If the Professional Development Planning Team profiled at the opening of this column were to plan the August workshop based on this research, a number of implications for practice would inform the recommendations it would make to the faculty:

- > We can, indeed, expect students to learn content better if we incorporate writing to learn in our instructional practices.
- > We should use more metacognitive prompts. We might, for example, ask students, “What are you sure you understand about X, and what are you still puzzled about?”
- > We need to be patient for writing-to-learn results to appear because students

become more skilled at metacognitive writing over time.

- > We need to have them write often, because frequent write-to-learn activities will help them become more effective learners.
- > The actual writing tasks need not be long. Shorter, more frequent opportunities to write about learning are better.
- > If we do provide feedback, it should be the kind that supports and extends students’ metacognition—for example, “That’s an interesting thought about Ophelia. What made you think about her in that way?”
- > Although the role of writing to learn in middle school has been questioned, it needs closer examination because there are so many variables. As a start, we might begin to look at students’ writing-to-learn artifacts to see if, in fact, their learning is affected.

The good news to take from this meta-analysis is that writing to learn does work. But we ought to take that broad claim thoughtfully and proceed with our write-to-learn practices and programs based on a solid understanding of the qualifications and conditions presented in this important research study.

Work Cited

Bangert-Drowns, Robert L., Marlene M. Hurley, and Barbara Wilkinson. “The Effects of School-Based Writing-to-Learn Interventions on Academic Achievement: A Meta-Analysis.” *Review of Educational Research* 74.1 (2004): 29–58.