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Beyond Communication: Writing as a Means of Learning

Laurel Currie Oates¹

It is a belief that many of us who teach legal writing share.² Writing is not only a means of communication but also a means of learning. When our students write memos and briefs, they are doing more than just telling us what they know. They are also learning how to think like lawyers.

In this article, I examine the belief that writing facilitates learning from several perspectives. Part I describes the writing-to-learn movement, beginning with James N. Britton's³ and Janet Emig's⁴ assertions that writing is a unique method of learning and ending with John M. Ackerman's⁵ claim that writing is no better and, is sometimes worse, than other modes of learning. Building on the evidence described in Part I, Part II discusses writing to learn in light of four theories: behaviorism, Linda S. Flower and John Hayes's models of the composing process,⁶ Carl Bereiter and Marlene Scardamalia's models of knowledge telling and knowledge transforming,⁷ and cognitive psychology. The final part, Part III, suggests which types of writing are likely to foster law school learning and how they can be

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² Arthur N. Applebee, *Writing and Reasoning*, 54 REV. OF EDUC. RES. 577, 581 (1984). As Applebee notes, many authors have observed that writing has had an effect on their own understanding of the topic. For example, E.M. Forester once queried, "How can I know what I think until I see what I say?" (E.M. FORESTER, ASPECTS OF THE NOVEL ch. 5 (1927).

³ JAMES N. BRITTON ET AL., THE DEVELOPMENT OF WRITING ABILITIES (1975).

⁴ Janet Emig, *Writing as a Mode of Learning*, 6 C. COMPOSITION & COMM. 340 (1977).

⁵ John M. Ackerman, *The Promise of Writing to Learn*, 10 WRITTEN COMM. 334 (1993).

⁶ LINDA FLOWER, THE CONSTRUCTION OF NEGOTIATED MEANING: A SOCIAL COGNITIVE THEORY OF WRITING (1994); Linda S. Flower & John R. Hayes, *Images, Plans, and Prose: The Representation of Meaning in Writing*, 32 WRITTEN COMM. 365 (1984); John R. Hayes & Linda S. Flower, *Identifying the Organization of Writing Processes*, in COGNITIVE PROCESSES IN WRITING (Lee W. Gregg & Erwin R. Steinberg eds., 1980)

⁷ CARL BEREITER & MARLENE SCARDAMALIA, THE PSYCHOLOGY OF WRITTEN COMPOSITION (1987).

used to facilitate the construction of new knowledge and the development of legal expertise.

PART I: THE WRITING-TO-LEARN MOVEMENT

The writing-to-learn movement can trace its roots, at least most recently, to the British model advanced by Britton and others in the 1960s. In the now famous “Bullock Report,” Britton advocated a unified approach to language, with students being allowed to move from more personal forms of writing (expressive writing) to those that are more public writing (transactional writing).⁸ In addition, in his book, *Language and Learning*,⁹ Britton argued that language is central to learning because it is through language that we organize our representation of the world.

Building on Britton’s work, in 1977 Janet Emig published her seminal essay, *Writing as a Mode of Learning*.¹⁰ In this essay, Emig tied writing to learning, arguing that writing is a unique mode of learning because some of its underlying strategies promote learning in ways that other forms of communication do not. For example, unlike talking, listening, or reading, writing is, almost simultaneously, enactive (we learn by doing), iconic (we learn by depiction in an image), and representational or symbolic (we learn by restatement in words). As Emig notes, “If the most efficacious learning occurs when learning is reinforced, then writing through its inherent re-inforcing cycle involving hand, eye, and brain marks a uniquely powerful multi-representational mode for learning.”¹¹

In addition, Emig argued that writing is a unique mode of learning because it is integrative, requiring the active participation of both the right and left hemispheres of the brain and, to use Lev S. Vygotsky’s phrase, “the deliberate restructuring of the web of meaning.”¹² The writing process is not the linear process that we sometimes present it as; it is influenced by the emotions and is fed by intuition, both of which are right hemisphere functions.¹³ Moreover, writing is self-paced; it “allows for—indeed, encourages—the shuttling among past, present, and

⁸ BRITTON, *supra* note 3.

⁹ JAMES N. BRITTON, *LANGUAGE AND LEARNING* 317 (2d ed. 1993).

¹⁰ Emig, *supra* note 4.

¹¹ *Id.* at 124-25.

¹² *Id.* at 125 (quoting LEV. S. VYGOTSKY, *THOUGHT AND LANGUAGE* 100 (1962)).

¹³ *Id.*

future,"¹⁴ a process which, through analysis and synthesis, results in the production of meaning.¹⁵

As Britton's and Emig's theories, and the writing across the curriculum movement that they spawned, spread through the schools, a number of books were published that described individual teachers' successes fostering learning through writing. For example, in *The Journal Book*,¹⁶ teacher after teacher describes his or her successes using journals. According to these teachers, the expressive writing that journals encourage helped them assess what their students knew and were learning. In addition, it helped their students by encouraging them (1) to make connections between their own experience and the ideas and concepts being introduced in class, (2) to create content through observations, lists, and responses, and (3) to take ownership of their own learning.¹⁷

Similarly, in *Roots in the Sawdust*, more than a dozen teachers describe their successes not only with journals but with a variety of other writing activities such as admit slips (brief written responses that are collected as admission tickets to class), focused writing assignments that require students to write about a specified topic for a specific amount of time, metaphorical questions, and unsent letters.¹⁸ Like the teachers in *The Journal Book*, these teachers concluded that writing exercises aid learning by generating more student involvement and by helping students create content, make connections, and identify and reconcile conflicting points view.¹⁹

As John M. Ackerman notes, however, these authors do not provide empirical support for the assertions that they make.²⁰ None of the teachers divided their classes into control and experimental groups, and none of them administered pre-tests or post-tests. In addition, none of the teachers tried to separate the effects of writing from the effects of other teaching methods or to determine what types of writing activities produce what type of learning.²¹

¹⁴ *Id.* at 127.

¹⁵ *Id.*

¹⁶ *THE JOURNAL BOOK* (Toby Fulwiler ed., 1987).

¹⁷ *Id.* at 19.

¹⁸ *ROOTS IN THE SAWDUST: WRITING TO LEARN ACROSS THE DISCIPLINES* (Anne Ruggles Gere ed., 1985).

¹⁹ *Id.* at 6.

²⁰ Ackerman, *supra* note 5, at 343-45.

²¹ *Id.* at 345.

This is not to say, though, that the missing evidence was not being collected. At about the same time that teachers began touting writing to learn, a handful of researchers began to systematically explore the effects of writing on learning.²² In one of the most frequently cited studies, George E. Newell examined how three types of writing—the mechanical use of writing (answering study questions), writing that requires limited composing (notetaking), and writing that requires the production of coherent text (analytical essay)—affected learning about a particular topic.²³ In the study, eight high school students, four boys and four girls who were judged by their teachers to be good readers and writers, were pre-tested to determine their knowledge level on six topics.²⁴ Then, over the next three months, the students completed six writing assignments, for each assignment reading a prose passage and completing an assigned writing task. Newell then administered tests that measured the students' immediate recall, the strength and organization of their knowledge as it related to key concepts and vocabulary, and their ability to apply concepts from the passage to a new situation.²⁵

What Newell found is that writing promoted only certain types of learning. Although none of the writing assignments had a significant effect on the students' immediate recall of the text or their ability to apply the concepts presented in the text, some of the tasks had an effect on the strength and organization of their knowledge. After writing an essay, students in both the high knowledge and low knowledge groups were able to produce consistently more abstract sets of associations for key concepts than they were after merely answering the study questions or taking notes.²⁶ A follow-up study produced similar results. Those students who wrote an essay were able to recall the gist of a passage significantly better than those students who only answered study questions.²⁷

Three years later, James D. Marshall conducted a similar but larger study measuring the effects of restricted writing, per-

²² For a summary of the pre-1981 studies, see Applebee, *supra* note 2, 584-88.

²³ George E. Newell, *Learning from Writing in Two Content Areas: A Case Study/Protocol Analysis*, 18 RES. IN THE TEACHING OF ENG. 265 (1987).

²⁴ *Id.* at 267.

²⁵ *Id.* at 269-71.

²⁶ *Id.*

²⁷ George E. Newell & Peter N. Winograd, *The Effects of Writing on Learning from Expository Text*, 6 WRITTEN COMM. 196 (1989).

sonal analytical writing, and formal analytical writing on students' written products, their writing processes, and their later understanding of short stories.²⁸ Like Newell, Marshall found that different writing assignments produced different effects. On post-tests administered three days after each writing task, students scored higher after completing an assignment that involved personal analytical or formal analytic writing than they did after completing an assignment that involved only restricted writing. Somewhat surprisingly, however, was Marshall's finding that when the students did no writing at all they scored as well as when they completed short answer questions. According to Marshall, this result may have resulted from the fact that such questions, by asking the students to shift their attention from one part of a story to another and from one level to another, actually interfered with their developing impression of the stories' plots, characters, and central meanings.²⁹

In a more recent study, Ann M. Penrose compared the effect of studying and writing on learning.³⁰ Forty college freshmen who had been screened for prior knowledge of two source topics completed two experimental assignments. In the writing task, students read a 1200-word essay and were instructed to "write a report" on the text material; in the study task, students read the second source text and were instructed to "study for a test" using whatever study strategies they thought appropriate. Students were given up to one hour for each task and were asked to think aloud as they worked. After each task, students answered questions designed to measure simple recall, complex recall, understanding of the source's text structure, and application.³¹ What Penrose found was that students who studied for a test recalled more facts than students who wrote a report, regardless of which source text they read and regardless of the study or writing strategy they chose.³² As Penrose noted, "Writing did not lead to higher scores on any of the comprehension measures, despite the fact that students spent much more time writing than studying. . . . When the goal is to gather basic information from reading, writing an essay seems a particularly

²⁸ James D. Marshall, *The Effects of Writing on Students' Understanding of Literary Texts*, 21 RES. IN THE TEACHING OF ENG. 30 (1984).

²⁹ *Id.* at 57.

³⁰ Ann M. Penrose, *To Write or Not to Write: Effect of Task and Task Interpretation on Learning Through Writing*, 9 WRITTEN COMM. 465 (1992).

³¹ *Id.* at 470.

³² *Id.* at 476.

inefficient way to go about it.”³³

The data are not, however, as conclusive as they might appear. Although Penrose constructed two assignments—studying and writing—the students’ interpretations of the assignment varied significantly. For example, some of the students in the study condition took extensive notes, and some of the students in the writing group wrote simple paraphrases. Thus, to study the effect of task interpretation on student learning, Penrose divided the students into subgroups on the basis of the products that they produced. Students in the study group who were not selective, either taking no notes or copying down almost everything, were placed in the “nongenerative notes” subgroup while those who were selective, writing idea-based notes that extracted key points and unifying ideas, were placed in the “generative notes” subgroup. Similarly, within the writing group, those who wrote paraphrases of the text were placed in the “paraphrase” subgroup while those who rearranged, reframed, or added to the source text were placed in the “constructive summary” subgroup.³⁴

When the data were analyzed by subgroup, Penrose found significant within-task differences. Within the study group, those students in the generative notes subgroup performed better than those students in the nongenerative subgroup. Similarly, within the writing group, on one of the tasks, students who constructed summaries performed better than those who wrote only paraphrases. On the other writing task, however, the students who wrote paraphrases did better than those who constructed summaries. Penrose also found some significant differences in the cognitive operations that were used. The students in the generative notes subgroups monitored their own comprehension more carefully than did the students in the other subgroups, and the students in the constructive summary group paid significantly more attention to the structure of the source text than did the students in the other subgroups.³⁵

The results of these studies have been mirrored in other studies. In a 1987 study, David A. Hayes divided high school students into four groups: one group wrote paraphrases, one group wrote questions, one group wrote compare and contrast

³³ *Id.* at 488-89.

³⁴ *Id.* at 475.

³⁵ *Id.* at 483.

statements, and one group completed a matching exercise.³⁶ Although he found no differences among groups on recall measures, there were differences on other tasks. For example, the writing questions group performed significantly better than the other groups on a task that asked them to write about the topic, and the question writing and compare and contrast groups did significantly better than the other groups on a measure that tested their ability to make inferences.³⁷

Similarly, in a series of studies, Judith A. Langer and Arthur N. Applebee found that while some writing assignment appeared to promote learning others did not.³⁸ In their first study, which compared essay writing with taking notes and studying, essay writing appeared to promote more integrative thinking than did the other assignment. However, in a second study, which took into consideration the topic knowledge of the writers, there were no significant differences for analytic writing as compared with studying, note taking, and answering questions. In fact, the essay writing appeared to interfere with long-term recall. In a third study, Langer and Applebee looked at writing and passage recall as measured by idea units, level of interaction, manipulated ideas, and gist. Although writing appeared to improve recall, there were no significant differences between writing assignments.

Taken together, the data paint a confusing picture. On the one hand, we have theorists and teachers who assert that writing facilitates learning. On the other hand, we have studies that are far from conclusive. Ackerman has responded to this data by arguing that writing as a mode of learning "is at best an argument yet to be made."³⁹ Questioning not only the theorists and teachers but also the researchers, Ackerman challenges the assumptions, methods, and conclusions of writing-to-learn research.⁴⁰

³⁶ David A. Hayes, *The Potential for Directing Study in Combined Reading and Writing Activity*, 19 *J. OF READING BEHAV.* 333, 339 (1987).

³⁷ *Id.* at 341-48.

³⁸ JUDITH A. LANGER & ARTHUR N. APPLEBEE, *HOW WRITING SHAPES THINKING: A STUDY OF TEACHING AND LEARNING* (1987).

³⁹ Ackerman, *supra* note 5, at 335.

⁴⁰ Ackerman was not, of course, the first researcher to challenge the research on writing to learn. In his 1984 article, Applebee, *supra* note 2, concluded that the research had not yet established the connection between writing and reasoning, let alone the nature of that connection.

Ackerman asserts that in most of the research, the researchers were “spiritually in league with practitioners and theorists who believe that writing will inevitably promote learning.”⁴¹ As a consequence, their research has often been guided by what Ackerman labels as a faulty assumption: “[T]hat writing has inherent qualities, different from other modes of discourse, that produce or tap the conversational nature of intellectual work.”⁴² Because they were trying to prove the inevitability of writing as a mode of learning, Ackerman believes that the researchers failed to consider factors that might have confounded their results. In particular, Ackerman criticizes the researchers for failing to consider the “cultural and institutional context” in which the writing occurred and for failing to compare writing with activities that produce similar student attention and engagement. For example, in only one study did the researcher compare writing with speech activities.⁴³

In addition, Ackerman criticizes the studies on the grounds that most of them measured the effect of writing on recall and comprehension, a fact that suggests that the researchers equated learning with remembering. Only one-third of the studies included some type of transfer or application measures; of this one-third, some of the measures were really measures of delayed recall. Finally, Ackerman asserts that the researchers overstated their results: despite inconclusive findings, a number of researchers conclude their reports by asserting that writing is, in fact, a unique method of learning. For example, Ackerman notes that while the writing assignment in studies by Newell⁴⁴ and Hayes⁴⁵ produced no statistically significant gains in learning outcomes, these researchers finished their reports with qualified assurances that writing facilitates conceptual learning.⁴⁶

PART II: IN SEARCH OF A THEORY

Given the mixed evidence on writing-to-learn, we could, like Ackerman, conclude that writing does not facilitate learning. Or, like teachers in other fields, we could ignore the evidence and, based on our own beliefs and experiences, continue to tell our

⁴¹ Ackerman, *supra* note 5, at 357.

⁴² *Id.* at 351.

⁴³ *Id.* at 354.

⁴⁴ Newell, *supra* note 23.

⁴⁵ Hayes, *supra* note 36.

⁴⁶ Ackerman, *supra* note 5, at 357.

students to prepare written briefs and outlines. There is, however, a third approach. We can, as Gary M. Schumacher and Jane Gradwohl Nash⁴⁷ have suggested, shift our approach from the anecdotal and empirical to the theoretical. Given current theories of learning and writing, does it seem more or less likely that writing promotes learning?⁴⁸

A. *Writing-to-Learn and the Behaviorist Model of Learning*

A central claim of behaviorism is that learning occurs through practice.⁴⁹ Thus, if writing is a way of practicing, then students who write should learn more than those who do not write, and the more writing students do, the more they should learn, or at least remember. For example, a student who takes notes on a particular text should remember more than a student who merely reads, and a student who writes an essay should remember more than a student who only takes notes.

Some of the evidence supports these hypotheses. For example, Kulhavy, Dyer, and Silver⁵⁰ found that students who underlined did better than students who only read the text and that students who took notes on an 845-word passage did better on a recall measure than students who underlined. Other studies, though, contradict these hypotheses. In his studies, Marshall found that students who answered short-answer questions did less well on recall measures than did students who did no writing,⁵¹ and Penrose found that students who wrote essays did no better on recall measures than those who only took notes.⁵²

Several conclusions can be drawn from this evidence. First, we can conclude that not all writing facilitates recall. While the simple copying of information seems to improve the recall of that information, more complex writing assignment may actually interfere with recall. Second, we can conclude that behaviorism, as a theory, is inadequate to explain writing-to-learn.

⁴⁷ Gary M. Schumacher & Jane Gradwohl Nash, *Conceptualizing and Meaning Change Due to Writing*, 25 RES. IN THE TEACHING OF ENG. 67 (1992).

⁴⁸ For another approach, see the recent article by Perry D. Klein, *Reopening the Inquiry into Cognitive Processes in Writing-to-Learn*, 11 EDUC. PSYCHOLOGY REV. 203 (1999).

⁴⁹ George L. Gropper, *A Lesson Based on a Behavioral Approach to Instructional Design*, in INSTRUCTIONAL THEORIES IN ACTION: LESSONS ILLUSTRATING SELECTED THEORIES AND MODELS (Charles M. Reigeluth ed., 1987).

⁵⁰ Raymond W. Kulhavy, et al., *The Effects of Notetaking and Text Expectancy on the Learning of Text Material*, 68 J. EDUC. RES. 363, 364 (1975).

⁵¹ Marshall, *supra* note 28, at 57.

⁵² Penrose, *supra* note 30, at 476-77.

Behaviorism recognizes only one type of learning, the acquisition of knowledge, presumably as measured by the ability to recall portions of the text. It does not discuss changes in knowledge structures, the strength and flexibility of knowledge structures, or the ability to apply knowledge to new situations, all of which are types of learning that writing may promote.

B. *Writing-to-Learn and Flower and Hayes's Models of the Writing Process*

Since 1980, Flower and Hayes have proposed a number of models of the writing process. Under their first model, the 1980 model,⁵³ writing does not result in any new learning. Although the writer's content knowledge, that is, his or her understanding of the subject matter, and discourse knowledge, that is, his or her understanding of the genre, inform the writing, they are not affected by it.⁵⁴

Flower and Hayes's 1980 Model of the Writing Process

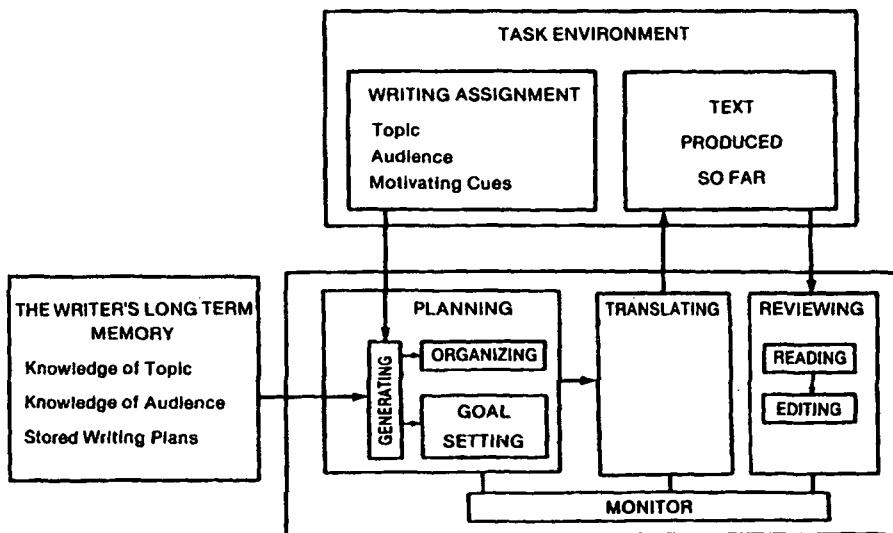


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⁵³ BEREITER & SCARDAMALIA, *supra* note 7, at 25 (chart reprinted from Hayes & Flower, *supra* note 6).

⁵⁴ *Id.*

In contrast, in their second model, the 1981 model,⁵⁵ the arrows run in both directions. The writer's content and discourse knowledge inform the writing, and the writing process changes the writer's content and discourse knowledge.

Flower and Hayes's 1981 Model of the Writing Process

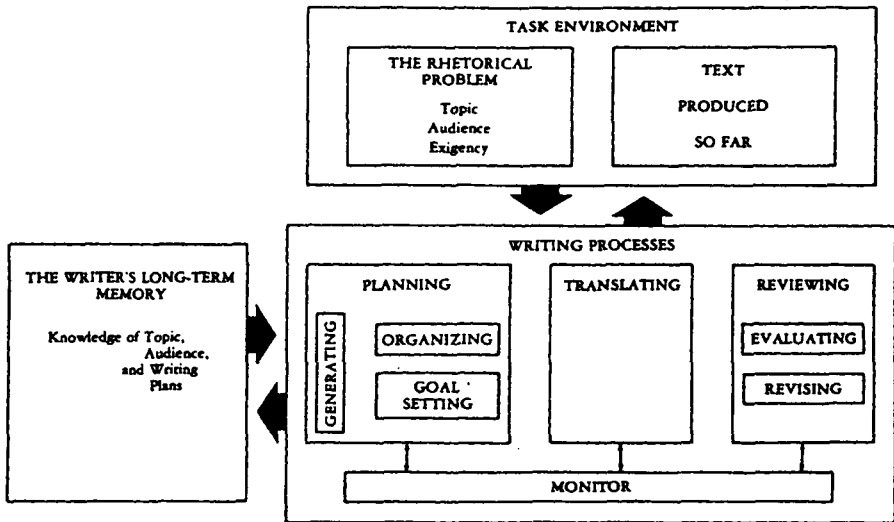


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More recently, Flower, Stein, Ackerman, Kantz, McCormick, and Peck⁵⁶ have proposed a more complicated model illustrating the relationship between writing and reading. Although in this model the arrows run in only one direction, implicit in the model is the idea that reading and writing involve the "construction of meaning."⁵⁷

⁵⁵ Linda Flower & John R. Hayes, *A Cognitive Process Theory of Writing*, 32 *C. COMPOSITION & COMM.* 365, 372 (1981).

⁵⁶ LINDA FLOWER ET AL., *READING-TO-WRITE: EXPLORING A COGNITIVE AND SOCIAL PROCESS* (1990).

⁵⁷ FLOWER, *supra* note 6, at 56.

Flower, Stein, Ackerman, Kantz, McCormick, and Peck's 1990 Model of Discourse Construction.

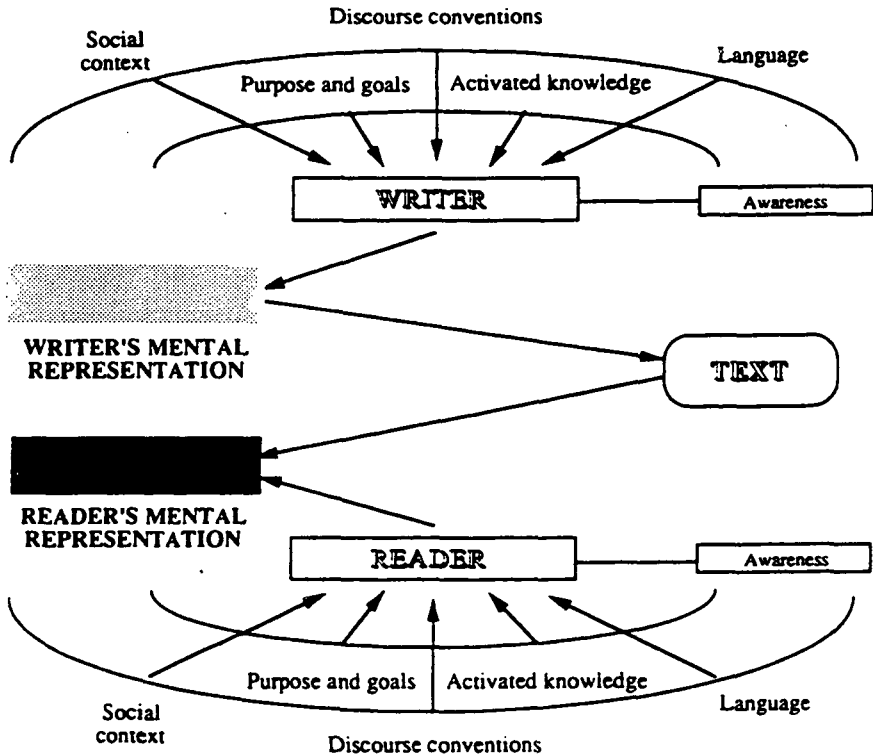


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In addition, Flower has proposed several theories that might explain how writing facilitates learning. For example, in 1984, Flower and Hayes proposed their Multiple Representation Thesis.⁵⁸ In this thesis, Flower and Hayes assert that, while composing, writers employ at least four different modes of representation.⁵⁹ In the first mode, the representations are nonverbal: the writer has only a visual image of the object about which he or she is writing.⁶⁰ In contrast, in the second mode, the representations are more abstract. The writer places the topic within

⁵⁸ Linda Flower & John R. Hayes, *Images, Plans, and Prose: The Representation of Meaning in Writing*, 1 WRITTEN COMM. 122, 129 (1984).

⁵⁹ *Id.* at 129-30.

⁶⁰ *Id.* at 130-36.

a network of knowledge or schema, which allows him or her to cluster and organize his or her ideas and to see interrelationships among various aspects of the represented ideas with other knowledge that the writer may have.⁶¹ The third mode of representation is the writer's plan for the piece of writing, which may include not only the writer's knowledge of the genre, but also his or her goals for the particular piece.⁶² The final mode is the text itself.⁶³

If this thesis is correct, we would expect that more learning would occur when, for example, students write a report to a specific audience for a specific purpose than when they simply take notes on a case. In the first instance, the writing assignment would require students to represent the information at all four levels; in the second instance, students might be able to complete the assignment without representing the information at anything other than the text level. Because the studies done to date have not involved writing to a particular individual for a particular purpose, we do not have a basis for evaluating Flower and Hayes's thesis. All we know is that more extended writing, for example, Newell's essays⁶⁴ and Marshall's analytical writing,⁶⁵ seem to produce more learning than less extended writing, for example, notetaking.

More recently, Flowers has described three metaphors for writing: writing as reproduction, writing as conversation, and writing as negotiation.⁶⁶ Under the first metaphor, writing is a one-way process in which writers create meaning by reproducing existing knowledge. "Writers produce meaning by reproducing existing or available meanings."⁶⁷ Under the second metaphor, writing has variously been viewed as a conversation between the writer and the larger society,⁶⁸ as a conversation between the writer and his or her reader,⁶⁹ or a conversation between the prosecution, defense, and judge.⁷⁰

⁶¹ *Id.* at 136-42.

⁶² *Id.* at 143-52.

⁶³ *Id.*

⁶⁴ Newell, *supra* note 23; Newell & Winograd, *supra* note 27.

⁶⁵ Marshall, *supra* note 28.

⁶⁶ FLOWER, *supra* note 6.

⁶⁷ *Id.* at 56-58.

⁶⁸ *Id.* at 59.

⁶⁹ *Id.* at 60.

⁷⁰ *Id.* at 60-61.

Under the third metaphor, writing as negotiation, writing facilitates learning when two conditions are met: (1) when the process of meaning making is subject to pressure, to converging constraints and options, or to conflict among goals, and (2) when the writer turns his or her attention to managing or negotiating this problematic cognitive and rhetorical situation.⁷¹

In the process we are tracking, outer forces (of social and cultural expectations, of discourse conventions, of language, of teachers, of collaborators and more) appear as inner voices, speaking in conjunction with the writer's own goals and available knowledge. As these forces open doors, promote options, and suggest action, they may come into conflict. Writers who choose, if only momentarily, to entertain and attend to this conflict (at some level of awareness) enter into the construction of negotiated meaning. In the negotiation of these forces, which we can sometime glimpse at points of conflict and decisions, the writer constructs not only a web of meaning, but the hidden logic, or more often, the hidden logics that shape the writer's text.⁷²

If the first metaphor accurately describes the writing process, writing would not facilitate an individual writer's learning. In writing, the writer is simply reproducing societal and his or her own understanding of societal knowledge. If, however, the second and third metaphors are more accurate descriptions of the writing process, then, at least in some circumstances, writing may facilitate learning. Although there are no studies that have specifically tested these hypotheses, Flower has presented evidence that suggests that when students engage in certain types of conversations or recognize and attend to certain types of conflicts, writing does result in new learning. For example, in a study that looked at the effect of collaborative planning, Flower found that at least some students engaged in conversations that resulted in new learning.⁷³ Similarly, during a "think aloud," an at-risk teenager engaged in new learning when she recognized a conflict between what the teenager she interviewed was saying and what she wanted to say in her own writing and looked for a rhetorical strategy that would allow her to reconcile

⁷¹ *Id.* at 59-61.

⁷² *Id.* at 67. See also text and chart accompanying *supra* note 56 (1990 model of the reading and writing process).

⁷³ See generally *id.* at 148-91.

that conflict.⁷⁴ In addition, Penrose's study suggests that the way in which students interpret a writing task determines, at least in part, what the student learns from that task.⁷⁵ Unfortunately, though, neither Penrose's study nor any of the other students have looked at conditions that Flower identified as leading to the construction of negotiated meaning. We do not know whether the assignments presented the students with converging constraints or conflicts among goals and, if they did, whether the students attended to these constraints and conflicts.

C. *Writing-to-Learn and Bereiter and Scardamalia's Model of the Writing Process.*

Bereiter and Scardamalia have suggested two models of the writing process: the knowledge-telling model and the knowledge-transforming model. As the name suggests, under the first model, the writer simply tells what he or she already knows. The writer's content knowledge, that is, his or her knowledge of the subject matter, informs the writing process without being affected by it. In contrast, under the knowledge transforming model, there is a two-way interaction between the writer's content knowledge and the rhetorical problem space resulting, presumably, in the production of new knowledge.⁷⁶

⁷⁴ *Id.* at 7-8.

⁷⁵ Penrose, *supra* note 30.

⁷⁶ BEREITER & SCARDAMALIA, *supra* note 7, at 6-12.

Bereiter and Scardamalia's Knowledge Telling Model⁷⁷

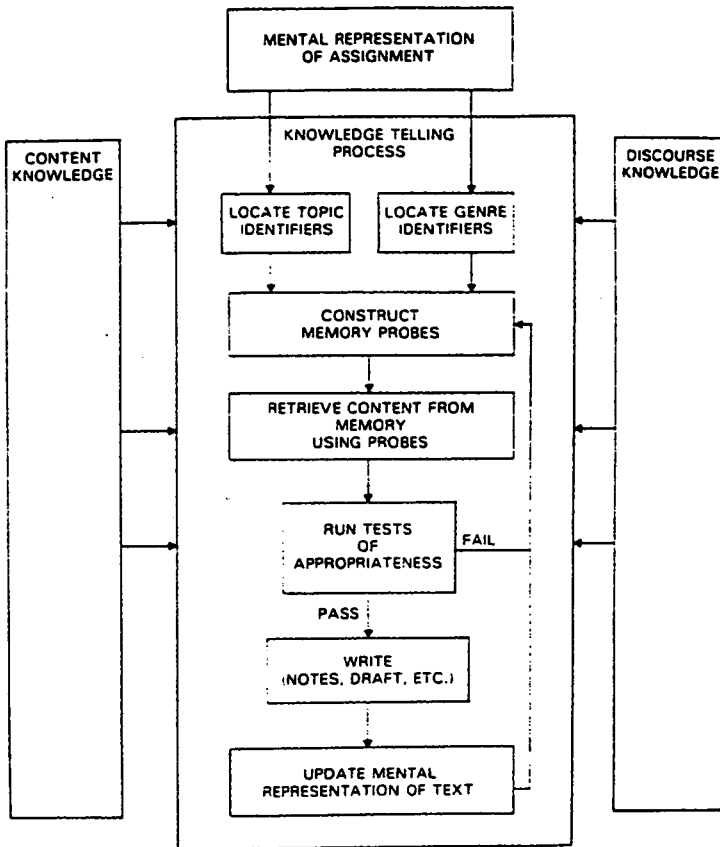


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⁷⁷ *Id.* at 8.

Bereiter and Scardamalia's Knowledge Transforming Model⁷⁸

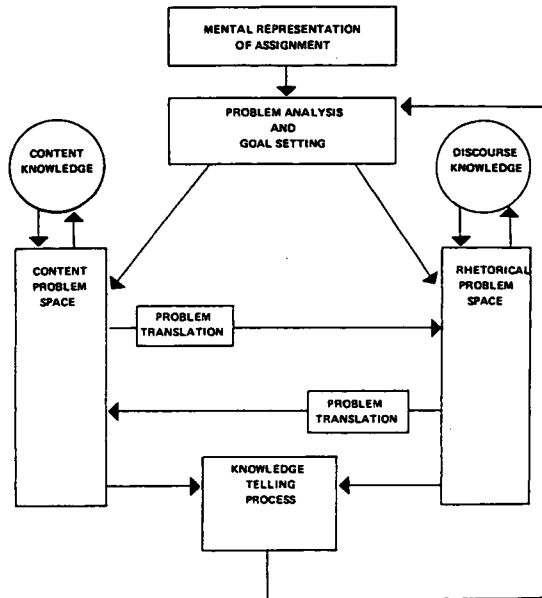


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Under these models, writing assignments that require only knowledge telling should result in less learning than those that require knowledge transforming. For example, in Newell's 1987 study,⁷⁹ most of the students probably viewed notetaking and answering study questions as knowledge telling assignments. Although students would use their content knowledge to complete the task, there would be no interaction between their content knowledge and rhetorical problem space. In contrast, at least some of the students probably viewed essay writing as knowledge transforming: for these students, in writing the essay there was an interaction between their content knowledge and the problem space. Similarly, in Marshall's study⁸⁰ most of the students probably saw the restricted writing exercises as knowledge telling assignments while at least some of the students saw the extended personal and formal analytical writing assignments as knowledge transforming assignments. In both instances, the results support the hypothesis. Those activities that

⁷⁸ *Id.* at 12.

⁷⁹ Newell, *supra* note 23.

⁸⁰ Marshall, *supra* note 28.

required interaction between content knowledge and content problem space tended to produce more learning, as determined by both Newell's passage specific knowledge measure and Marshall's measure of recall, than those that did not.

What is more difficult to explain is Marshall's finding that short answer questions produced less learning than no writing⁸¹ and Penrose's finding that writing a report produced less learning than studying for a test.⁸² To explain Marshall's results, we would have to show that in knowledge-telling assignments, the writing task not only does not result in learning but interferes with the writer's development or retention of content knowledge. To explain Penrose's findings, we would have to distinguish report writing from essay and extended analytical writing. Specifically, we would need to show that while report writing is a knowledge-telling task, essay and extended analytical writing are knowledge-transforming assignments. In addition, we would need to show that in knowledge-telling assignments, essay writing interferes with the writer's development and retention of content knowledge.

D. *Writing-to-Learn and Cognitive Psychology*

Cognitive psychologists place types of learning on a continuum. At one end of the continuum is learning that involves the incorporation of new information into existing knowledge structures with little or no changes to the structures themselves. At the other end is learning that involves the creation of entirely new knowledge structures or the restructuring of old ones.⁸³

According to Schumacher and Nash,⁸⁴ certain types of writing are likely to foster, or hinder, certain types of learning. For example, while notetaking and writing exercises that ask students to answer specific questions may help students incorporate new knowledge into existing knowledge structures, it is unlikely that these activities will result in a structuring or restructuring of the students' knowledge base. For this latter type of learning, the writing activities have to trigger a recognition of anomalies that cannot be explained by existing knowledge structures and provide students with mechanisms for creating new, intelligible ones.

⁸¹ *Id.*

⁸² Penrose, *supra* note 30.

⁸³ Schumacher & Nash, *supra* note 47, at 73-74.

⁸⁴ *Id.* at 74.

Schumacher and Nash⁸⁵ suggest that some types of writing foster both of these cognitive activities. For example, journal writing can be used to force students to recognize and confront discrepancies between their own beliefs and a new idea or concept. In addition to being a place where students can record their responses and ideas, journals can be a place where, through exploring questions that expose their misconceptions, students are forced to examine their existing knowledge structures and to begin developing new ones. Similarly, writing assignments that require students to reconcile the holding in two cases or to evaluate two conflicting arguments can be used to help students see and resolve anomalies between conflicting positions.

To date, only a handful of studies have tested the effect of writing on knowledge restructuring. Newell⁸⁶ and Langer and Applebee⁸⁷ used passage-specific knowledge to determine whether the abstractness of the writer's knowledge was affected by the writing task, and Hayes⁸⁸ used a text integration and the generation of constructions to measure the introduction of new information not found in the source text into the writer's knowledge base.

There is, however, evidence both in the protocols collected by researchers like Penrose⁸⁹ and in the writing of students recorded in books like *Roots in the Sawdust*⁹⁰ that suggests that some types of writing either produce or facilitate knowledge restructuring. As Schumacher and Nash note, though, to determine whether writing does facilitate learning, we will have to conduct studies specifically designed to measure knowledge restructuring and not merely knowledge accretion.⁹¹

PART III: WHEN WRITING PROMOTES LEARNING

At the most basic level, what the data and existing theories suggest are that not all writing assignments facilitate learning and, that among those assignment that do facilitate learning, different assignments facilitate different types of learning.

⁸⁵ *Id.* at 76-77.

⁸⁶ Newell, *supra* note 23.

⁸⁷ LANGER & APPLEBEE, *supra* note 38.

⁸⁸ Hayes, *supra* note 36.

⁸⁹ Penrose, *supra* note 30.

⁹⁰ *ROOTS IN THE SAWDUST*, *supra* note 18.

⁹¹ Schumacher & Nash, *supra* note 47.

A. *Writing Assignments That Do Not Facilitate Learning*

There appear to be two situations in which writing does not facilitate learning: (1) when the writer is simply presenting information that he or she knows well, and (2) when the writing task interferes with the type of learning being sought.

The first situation is that posited under both Flower and Hayes's 1980 model of the composing process⁹² and Bereiter and Scardamalia's model of knowledge telling.⁹³ As the arrows in both models indicate, neither the writer's content nor discourse knowledge is affected by the writing process. The task elicits content and discourse knowledge without altering that knowledge. For example, an exam question that simply requires students to write down information that they have already mastered would not result in any new learning.

The second situation is that which occurred in Marshall's⁹⁴ and Penrose's⁹⁵ studies. If the writing assignment draws the student's attention away from the material that is to be learned, then the assignment may result in less, or at least different, learning than was intended. For instance, if the student's goal is to memorize a rule, an exercise that requires more than simply copying the rule may result in worse, rather than better, recall of that rule. Instead of spending time rehearsing the information to be memorized, the student may spend time thinking about the composing process itself, for example, the construction of a particular sentence, the proper way to punctuate a particular clause, or the correct spelling of a word.

B. *Writing Assignments That Do Facilitate Learning*

Most writing assignments, however, appear to facilitate at least some type of learning. At one end of the continuum are those writing assignments that facilitate the recall of information, for example, the facts of a case, a common law rule, or the elements of a crime. In these instances, the assignment facilitates learning by forcing rehearsal and by engaging the student in several simultaneous learning strategies: doing, seeing, and representing.

⁹² BEREITER & SCARDAMALIA, *supra* note 7, at 25.

⁹³ *Id.* at 8.

⁹⁴ Marshall, *supra* note 28.

⁹⁵ Penrose, *supra* note 30.

In the middle are writing assignments that help students either to integrate new information into their existing knowledge structures or to create new knowledge structures. Although such assignments can take a variety of forms, for an assignment to do more than just facilitate the recall of information, it must require more than just knowledge telling. The students' existing knowledge must be transformed. For example, an assignment that requires students to paraphrase the rule set out in one of their cases is unlikely to do more than help them recall that rule. In contrast, an assignment that requires students to compare the rule set out by the court with the rule that they would have applied is likely to result in the integration of the new rule into their existing knowledge structures by forcing students to see and attend to a conflict. Students must place that new rule within their existing knowledge structures or modify their existing knowledge structures to accommodate the rule.

The problem with most writing assignments in the middle of the continuum is that students can interpret them as either knowledge-telling or knowledge-transforming tasks. For example, for some students, the preparation of a case brief is a knowledge-telling task. In preparing their briefs, they simply copy or paraphrase what the court said without connecting their reading of the case to their existing knowledge. In contrast, for other students, case briefing involves knowledge transformation. These students either integrate the case into their existing knowledge structures or create a new knowledge structure to accommodate the case. Similarly, for some students outlining is a knowledge-telling task while for others it involves knowledge transformation. The student who simply copies a fellow student's outline or uses a commercially prepared outline is engaged in only knowledge telling while the student who struggles to create his or her own structure and connections is engaged in knowledge transformation.

At the far end of the continuum are those assignments that facilitate the development of expertise by requiring the student to write, and thus think, in the way that a lawyer writes and thinks. In law school, the most common of such assignments are objective memos and trial and appellate briefs. The structure of memos and briefs forces students to think in a particular way. Students learn to set out the rules first, examples of how those rules have been applied in other cases second, the arguments third, and their conclusion last. In addition, in writing the memo, students are forced to assume a number of different

roles. In setting out the rules and cases, they act as a reporter; in determining what each side is likely to argue, they act as an analyst; in predicting how the court is likely to rule, they engage in evaluation; and in advising the attorney about the next step, they become a strategist. In each instance, instead of simply telling what they know, the students are being required to monitor their comprehension, assess the importance of various pieces of information, recognize structures, and make connections between pieces of new information and between new information and previously acquired knowledge, all of which are acts that can result in knowledge transformation.

While such knowledge transformation may also occur as the result of listening, talking, or reading, writing may have several advantages. First, at least for proficient writers, the writing process may focus the writer's attention on the "subject" better than does listening, talking or, at least in some instances, reading. The text that has already been composed provides constant reminders of the task, of what has already been thought and written, and what still needs to be done. Second, because working memory has limits, when we listen, talk, and read, some information is likely to be "unavailable," inhibiting our ability to connect pieces of new information and new information with existing knowledge. In contrast, when we write, the existing text can supplement working memory, making more information available.

The following chart sets out some of the types of writing assignments that can be used in law school and the types of learning that they may facilitate.

Writing Assignment	Types of Learning that Assignment may Facilitate
<p>Case Briefs:</p> <p>Case brief in which student copies material from the case without changing the order</p> <p>Case brief in which student paraphrases information from the case without changing order</p> <p>Case brief in which the student actively tries to integrate the information contained in the case into his or her existing knowledge structures or tries to create a new knowledge structure for the information contained in the brief</p>	<p>Memorization of information that is copied.</p> <p>Memorization of information that is paraphrased. Student may have better recall of information when he or she paraphrases rather than copies information.</p> <p>Integration of new information into existing knowledge structures or the creation of new knowledge structures.</p>
<p>Short Writing Assignments Done Either Inside or Outside of Class:</p> <p>Questions that require locating specific information in a statute or case</p> <p>Questions that ask require students to write information that they already know</p> <p>Questions that require students to connect new information to prior experiences</p> <p>Questions that require student to connect two or more pieces of new information, for example, questions that require students to compare and contrast the rules, holdings, or</p>	<p>Memorization of information needed to answer questions. Professor can better control what information the student does and does not memorize.</p> <p>Because student already knows the information, the student is only engaged in knowledge telling. At best, such a task only reinforces the student's understanding of the information.</p> <p>Integration of new information into existing knowledge structures.</p> <p>Creation of new knowledge structures.</p>

rationales set out in two or more cases	
Questions that require students to evaluate one or more rules or policies	Evaluation and possible modification of existing knowledge structures.
Outlining	
Outline that is copied from another outline	Memorization of information contained in outline and the relationships and connections set out in outline.
Outline that is a paraphrase of another outline	Memorization of information contained in outline and the relationships and connections set out in outline. Student may have better recall of information when he or she paraphrases rather than copies information.
Outline in which the student determines the structure, order of information within that structure, and the connections between the various pieces of information	Creation of new knowledge structures.
Lawyering Tasks:	
Drafting an argument	Development of rhetorical knowledge. Application of existing knowledge to new situation. Creation of new knowledge structures.
Drafting an objective memo, trial brief, or appellate brief	Development of rhetorical knowledge. Application of existing knowledge to new situation. Creation of new knowledge structures.
Drafting a complaint, contract, will or other document	Development of rhetorical knowledge. Application of existing knowledge to new situation. Creation of new knowledge structures.

In each assignment described above, there is a presumption that learning occurs whether or not anyone reads what the student produces.⁹⁶ Additional learning is likely to occur, however, when a teacher responds to what a student writes. Because writing makes permanent at least some of a student's thought processes, a professor can, in reading a student's paper, analyze those processes more carefully than he or she can analyze a student's answers to oral questions. As a result, a good diagnostician can determine whether a student lacks a particular type of knowledge, whether that knowledge is organized in a conventional or flexible way, whether a student misunderstands a concept, and whether the student is skipping steps in the analysis or going through those steps in an inappropriate manner. In addition, a skilled professor can ask questions that engage the student in a dialectic that leads to knowledge transformation or the development of expertise.

CONCLUSION

Thus, those who believe that writing promotes learning are partially right. Both the research and theories of writing support the conclusion that some types of writing facilitate some types of learning. The research and theories also suggest, however, that not all types of writing facilitate all types of learning and that, in fact, some types of writing may actually interfere with some types of learning. As a consequence, as teachers we need to use writing as we would use any other teaching tool. We need to determine what it is that we want our students to learn and then carefully pick the tools that are most likely to facilitate that learning.

⁹⁶ PETER ELBOW, *WRITING WITHOUT TEACHERS* 117-39 (1973).

