

## **The Effects of 'Playing Historian' on Learning in History**

JENNIFER WILEY and JAMES F. VOSS

*University of Pittsburgh*

### SUMMARY

The present study investigates conditions under which undergraduates may adopt a view of history more similar to that of historians and how learning and understanding may be affected under such conditions. Two manipulations, one of the reading material and the other of writing task, were introduced within the standard 'read-to-write' approach of history instruction. Undergraduates were either given a textbook chapter about Ireland between 1800 and 1850, or the same information in the form of separate sources. After reading the presented material they were instructed to write a history, a narrative or an argument regarding what produced the significant changes in Ireland's population between 1846 and 1850. It was expected that the separate source/argument writing condition would yield the most historian-like behaviour. Indeed, students in this condition learned the material as well as, or better than, students in any other condition, but had the best understanding of the material, especially of causal and explanatory relationships.

### INTRODUCTION

Intuitively, many students see historical accounts as stories that describe past events. Alternatively, because of their familiarity with history textbooks, students may see histories as chronological lists of facts, names and events (Holt, 1990). Historians, on the other hand, view history as an analysis or an argument about the past that the historian constructs from available evidence to explain what led to changes over time (e.g., Mink, 1987). The present study investigates conditions under which undergraduates may adopt a view of history more similar to that of historians, that is, as a constructed argument, and how historical learning and understanding may be affected under such conditions.

Address correspondence to: James F. Voss, 634 LRDC, 3639 O'Hara Street, University of Pittsburgh, Pittsburgh, PA 15260, USA.

Jennifer Wiley and James F. Voss, Department of Psychology and Learning Research and Development Center.

This research was supported by the Office of Educational Research and Improvement of the United States Department of Education through an award to the Learning Research and Development Center as the National Research Center on Student Learning. The contents of this paper do not necessarily reflect the positions of any of these organizations. The authors thank Laurie Silfies for her assistance with this study.

CCC 0888-4080/96/SI0063-10

© 1996 by John Wiley & Sons, Ltd.

*Accepted 2 July 1996*

For the present study, we distinguish between learning and understanding in the following way. Learning is assumed to reflect the amount of information that is retained from what is presented. Learning performance is thus measured as the percentage of content that is recalled and/or recognized. Understanding, on the other hand, is the perception of relationships, especially those that are causal and explanatory. Operationally, understanding would be reflected by the number of causal and other connective relations that are established among the text contents.

Our interest in having students act like historians was not because we wanted them to imitate experts *per se*, but because historians engage in more 'constructive activity' as they write, bringing together information from various sources and prior knowledge to support their own interpretation or explanation. In this way, historians are 'knowledge transformers' similar to the expert writers studied by Bereiter and Scardamalia (1987), whereas students are usually 'knowledge tellers', using their writing to report what they have read. Thus, we were interested in creating a context in which students would be more similar to historians in the amount of constructive activity or knowledge transformation that they engage in during writing. Further, because knowledge transformation involves deeper and more extensive processing than knowledge telling, such contexts should lead to better learning and understanding.

#### Manipulating the 'read-to-write' approach

A standard approach to historical instruction is to have students read information about a historical event or period, and then have the students write about what they have read. In this study, two manipulations are introduced within this traditional 'read-to-write' approach to promote more constructive activity during writing. One involves the presentation format of the material to be read while the other involves the nature of the writing task. Undergraduates were given either a textbook chapter (the more traditional format) or a number of separate sources about Ireland between 1800 and 1850. Both forms of presentation had the same contents; they were just arranged differently. After reading the presented material, students were asked to act as a historian in one of three writing conditions. Students were instructed to construct a history, a narrative, or an argument of what produced the significant changes in Ireland's population between 1846 and 1850.

In relation to the writing task manipulation, it was expected that the instruction to write a specific argument would be the task condition under which students would engage in the most constructive activity during writing. Because of the 'build an argument' instruction, we felt it would not be easy for students to simply 'borrow' information from the presented materials. Instead, they would need to select the text contents that they felt were important to the position they were taking and would need to integrate such information to develop their argument. Thus, writing an argument was expected to be interpreted as a 'knowledge-transforming' task. In response to the instructions to construct a narrative, students were expected to take much of the information directly from the text contents, interpreting the task as one of 'knowledge-telling'. Instructions to write history essays were expected to produce essays more closely resembling narrative than argument essays, with the instruction being interpreted as 'knowledge-telling' because students presumably tend to conceive of history more as narrative than as argument (Mink, 1987; Voss and Wiley, 1996).

Regarding the presentation format manipulation, the use of separate sources as opposed to a textbook format was expected to make writing more of a 'knowledge-transforming' task. When a student receives separate sources, the student presumably needs to select and integrate information, whereas the use of a textbook chapter promotes the direct incorporation of the information from the text, or 'knowledge-telling' (Spivey, 1990; Spivey and King, 1988). Differences in the extent of integration, especially in terms of causal explanation, were expected to occur between the two formats; the use of separate sources should require the development of more relationships than the textbook-like chapter. Separate sources should prompt students to generate new connections, especially causal inferences, among the presented material. Meanwhile, students in the textbook condition should be content to rely on the connections or the organization already present, even though the connections are only loosely temporal and not causal.

While both the presentation format and the writing conditions were expected to yield main effects, we were especially interested in the combined effect of the two manipulations. Although all students were asked to take the role of historian as they wrote, the instruction to write a specific argument in conjunction with presentation of information via separate sources, was expected to promote the most historian-like writing behaviours. Instead of simply reiterating the information they have read, students in the source/argument condition should be the most likely to select, integrate, transform and synthesize the presented information in support of their own explanations. Further, engaging in such constructive activity should contribute not only to better recall of the text information, but a greater recognition of relations among the text concepts, resulting in better understanding. In support of this prediction, other studies have found that when students generate their own inferences and explanations from textual information, it can lead to better learning and understanding (Chi, de Leeuw, Chiu and LaVancher, 1994; Slamecka and Graf, 1978; Voss and Siffrin, 1996). It was hypothesized, therefore, that of the 6 cells in the 2 (separate source, textbook)  $\times$  3 (write a history, narrative, argument) design, the separate source/argument condition would produce the most analytical and explanatory accounts, as well as the best recall, of the Irish population change.

## METHOD

### Participants

Sixty undergraduates at the University of Pittsburgh participated in this experiment for credit as part of an Introductory Psychology subject pool.

### Materials

One-half of the participants received information about Ireland from 1800 to 1850 in the form of eight separate 'sources': a map, biographical accounts of King George III and Daniel O'Connell, brief descriptions of the Act of Union, Act of Emancipation, 1829, and the Great Famine, census data on the population size, the death rate, the emigration rate between 1800 and 1805, and economic statistics on crop-selling prices, rent costs, distribution of land holdings, and occupational

breakdowns between 1800 and 1850. The other half of the participants received the same content, but it was integrated into a textbook-like chapter, with the exception that the textbook format contained an introductory sentence and some transitional clauses at the beginning of paragraphs. Each of the eight sources in the textbook version constituted approximately one-eighth of the textbook contents in approximately the appropriate chronological order, while the eight separate sources were presented in a non-systematic order.

A short-answer general history knowledge test was created with 20 questions. Two example questions are 'What did Gutenberg invent around 1450?' and 'The Boxer Rebellion occurred in what country in 1900?' A short-answer test of recall of the presented material was also created with eight items, such as 'What did the Catholic Emancipation allow Catholics to do?' and 'What was the typical size of a plot of land owned in Ireland in 1831?'

#### Procedure

Participants were given packets containing information about Ireland from 1800 to 1850 either as separate sources or in textbook form. After reading through the information, subjects were presented with a writing instruction page, which began 'Historians work from sources including newspaper articles, autobiographies, and government documents like census reports to create histories.' In the source condition it continued 'In this packet there are a number of documents about Ireland between 1800 and 1850'. In the textbook condition, the instructions continued 'You just read a textbook chapter about Ireland between 1800 and 1850'. Both sets of instructions then continued with 'Your task is to take the role of historian and develop a history about what produced the significant changes in Ireland's population between 1846 and 1850. You will have about an hour for this task. You are expected to make full use of that time.'

Within each presentation format (source or textbook), one-third of the subjects saw the above instructions. For another third of the subjects, the underlined word was replaced with narrative and for another third the underlined word was replaced with argument. The resulting design was a 2 x 3 (presentation format x writing instruction) with one-sixth of the subjects in each cell.

After the writing task, participants completed a short questionnaire that requested information such as age, sex, educational status, number of college history courses taken, and amount of interest in history. Participants then completed a general history knowledge test. The final task was a recall test on the presented material about Ireland from 1800 to 1850. Each session lasted about 2 hours.

### RESULTS

Understanding and learning of the presented material was assessed, the former through analyses of the structure and content of the written accounts and the latter through the test of recall of the presented material. As no differences were found in general history knowledge across either task or source conditions ( $F_s < 1$ ), this variable is not further discussed.

#### Analysis of students' written accounts

Three general aspects of students' writing were considered: the structure of their accounts, the selection of the information to be included in the accounts, and the integration of that information. Overall, analysis of the students' accounts indicated that both the presentation and writing task manipulations had an effect on the way students organized their written accounts and transformed and integrated the content within their accounts, especially with regard to causal relations.

Specific analyses of students' writing included: (a) the organization or structure of the account (i.e., linear listing of ideas versus analytical essay); (b) the completeness of the account (i.e., the extent to which the idea units mentioned in the text were included in students' accounts); (c) the origin of the information (i.e., information taken directly or paraphrased from sources, versus transformed or completely novel information); (d) the extent of explanation (i.e., number of causal connectives); and (e) the connection of idea units (i.e., the extent to which students recognized the possible relations between the ideas that were presented). A more detailed description of each analysis is presented below along with the results. The essays were coded by a single rater. Reliability of each measure was established by asking a second rater to read a random sample of 20% of the data with the aid of an explicit written coding scheme developed by the first rater. There was better than 90% agreement on all five measures.

#### Organization

Organization of the written accounts was determined by examining the top-level structure of each account. Two kinds of structures were identified in the accounts. One was a linear structure in which students listed events or ideas (frequently but not necessarily in chronological order) without relating them to a thesis about what produced the population changes in Ireland. The other was an analytical essay structure in which students stated a thesis and provided support for it. As can be seen in Table 1, both writing task and source manipulations affected the way students structured their essays. Chi-square indicated that the distribution of structures in the textbook condition (Table 1, row 1) was significantly different from the distribution in the separate source condition (row 5),  $\chi^2(1) = 5.71$ ,  $p < 0.02$ . While listing structures were considerably more frequent than analysis structures in the textbook condition, the separate source condition yielded relatively more analytical essays.

Across writing task conditions, the distribution of structures was significantly different in the argument (row 12) and narrative conditions (row 11),  $\chi^2(1) = 6.67$ ,  $p < 0.01$ , with narrative yielding a greater frequency of listing structures, and argument yielding a greater frequency of analytic essays. No significant differences were observed between the history condition (row 10) and either the narrative (row 11) or the argument condition (row 12), indicating the distribution of performance in the history condition fell between the narrative and argument conditions. Within writing task conditions, only the argument task yielded a near-significant difference between source conditions (rows 4 and 8),  $\chi^2(1) = 3.33$ ,  $p < 0.07$ , indicating that only the argument instruction tended to interact with the presentation type. The tendency was, as expected, for more analytical essays to be produced when subjects in the argument condition received separate sources than when they received the textbook chapter.

Table 1. Top-level structure of written accounts by writing task and presentation format

Row	Source/Task conditions	Structure	
		Listing	Analysis
1	Textbook	23	7
2	History	8	2
3	Narrative	9	1
4	Argument	6	4
5	Separate sources	14	16
6	History	5	5
7	Narrative	7	3
8	Argument	2	8
9	Across conditions	37	23
10	History	13	7
11	Narrative	16	4
12	Argument	8	12

These results suggest that students in the different presentation format/writing task conditions organized their accounts in different ways. Students given the instruction to write an argument were more likely to write an analysis of a number of factors contributing to the population decrease, whereas students given the instruction to write a narrative were more likely to write a linear account or provide a listing of ideas with no top-level statement. The instruction to write a history yielded results that fell between the other two conditions. In addition, the presentation format affected the organization of the students' written accounts. Students were more likely to write an analysis when presented with the information in the form of separate sources than when presented with a textbook-like chapter. Further, although only marginally significant, it seems that students in the separate source/argument condition were the most likely to write an analysis.

#### Completeness

Of interest was the number of ideas from the presented materials that were included in the students' written accounts. There were 70 basic idea units included in the presented materials. Student accounts were coded for the number of these ideas that were mentioned. The average number of ideas from the reading that were included in the students' written accounts was approximately nine. No significant effects were observed for either the task or source manipulation ( $F_s < 1$ ), nor was the interaction significant ( $F < 1.28$ ).

#### Origin of information

The content of each sentence in the students' written accounts was coded as to its origin. In an expansion of a measure used by Greene (1994), the content of each sentence was classified into one of three categories: borrowed, transformed or added. Borrowed information was taken directly or paraphrased from the presented material. Sentences were marked as transformed when they contained some presented information in combination with a new claim or fact, or when they

included two bits of presented information not previously connected. A sentence was coded as added when it contained only novel information.

The frequencies within the three origin categories were analysed as proportions of the total number of sentences written. Although there were no significant differences in the total amount written due to either writing task,  $F(2,54) = 1.18$ ,  $p < 0.32$ , presentation type,  $F(1,54) = 2.20$ ,  $p < 0.14$ , or their interaction,  $F < 1$ , students in the separate source condition tended to write more sentences ( $M = 22.1$ ) than students in the textbook condition ( $M = 18.5$ ), and students in the history condition tended to write less ( $M = 17.7$ ) than students in the narrative ( $M = 21.1$ ) or argument ( $M = 22.1$ ) conditions.

While no significant effects were observed in the proportion of borrowed ( $F_s < 1.62$ ) or added ideas across conditions ( $F_s < 1.88$ ), a significant main effect was obtained for presentation format on the proportion of transformed ideas,  $F(1,54) = 12.29$ ,  $p < 0.001$ . Students writing from separate sources combined old information with novel information proportionally more (21.8%) than did students writing from the textbook-like passage (12.1%). In addition, neither the main effect for task ( $F < 1$ ) nor the interaction of task and source ( $F < 1.78$ ) was significant. However, when we tested the a priori hypothesis that the separate source/argument condition would yield the most knowledge transformation, students in the separate source/argument condition were found to have the highest proportion of transformations in their accounts (26.8%), Scheffé's  $F(1,54) = 5.11$ ,  $p < 0.01$ , and the lowest proportion of 'borrowed' information (33.8%), Scheffé's  $F(1,54) = 3.57$ ,  $p < 0.03$ . The other five conditions were all similar, with approximately 15% of sentences containing 'transformed' information and 50% of sentences containing 'borrowed' information.

#### Explanation

We analysed the use of causal connectives in each account. This served as an index of the extent to which students attempted to explain the causes of the population change in Ireland, rather than just describe the events of the era. Each sentence of the students' accounts was coded as to whether or not it contained a causal connective (e.g. because, due to, as a result of, in order to, had an effect on, so that, etc.) that related to the change in Ireland's population. A significant effect was found for the writing task manipulation,  $F(2,54) = 5.19$ ,  $p < 0.01$ . A higher percentage of sentences contained a causal connective in the argument condition (32.2%) than in the narrative condition (17.0%). In addition, Tukey's HSD indicated that the history condition (24.2%) was not significantly different than either the argument or the narrative conditions. No significant main effect was found for the presentation format manipulation or the interaction ( $F_s < 1$ ), but a comparison of means indicated that the students in the separate source/argument condition included a significantly higher proportion of causal attributions (34.2%) than the other five conditions (22.5%), Scheffé's  $F(1,54) = p < 0.04$ .

#### Connection

We scored the number of connections that students stated in their written accounts between the basic idea units that were presented in the reading materials. This measure was employed to determine the extent to which students recognized possible relations among factors. The connections that were coded in this analysis included

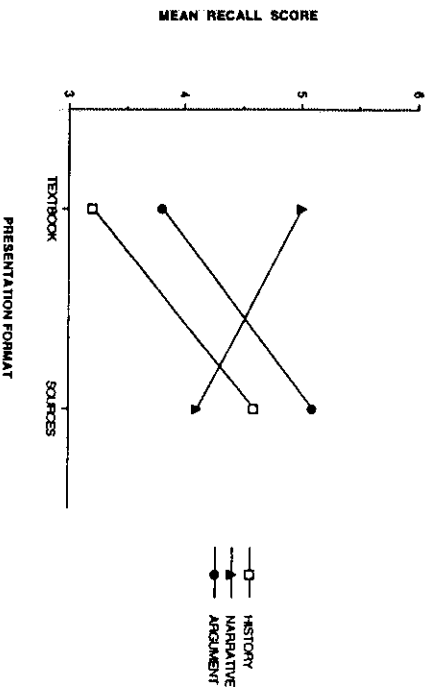


Figure 1. Mean recall score by writing task and presentation format.

inferences, attributions, correlations, temporal links, simple conjunctions, and causal links (e.g., because of, due to, at the same time as, and, with, then). Ideas that occurred in the same sentence, even without a connective term, were coded as connected. However, items that occurred in neighbouring sentences, although perhaps implicitly connected by the writer, were not included in this coding.

There was a significant effect of writing task on the number of connections that students made in their written accounts,  $F(2,54) = 10.32, p < 0.001$ . Tukey's HSD indicated that students in the argument condition made more connections ( $M = 10.7$ ) than students in either the narrative ( $M = 6.4$ ) or history ( $M = 7.4$ ) conditions. Although neither the source manipulation nor the presentation format/writing task interaction was significant ( $F_s < 1$ ), the students in the separate source/argument condition did make more connections ( $M = 11.5$ ) in their accounts than students in any of the other conditions ( $M = 7.5$ ), Scheffé's  $F(1,54) = 6.79, p < 0.01$ .

### Recall

Mean recall scores on the eight-item test are presented in Figure 1. While the effects of presentation type and writing task were not significant ( $F_s < 1$ ), a significant interaction was found between the two variables [ $F(2,54) = 5.55, p < 0.01$ ]. Better recall was seen in the separate source/argument condition than in other conditions,  $F(1,54) = 2.97, p < 0.05$ , with the exception of the textbook/narrative condition. Thus, the data provide some support for the specific hypothesis that the combination of an argument writing task and information presented in separate sources would improve recall. However, better recall was also found in the textbook/narrative condition as compared to the other four conditions,  $F(1,54) = 3.13, p < 0.05$ , ignoring the separate source/argument condition.

## DISCUSSION

Both the presentation format and writing task manipulations had an effect on students' understanding and learning of the history contents that were presented, although most notable are the combined effects of the two variables. When paired with the separate source condition, the argument writing task produced more causal statements, connective statements, and 'transformed' information than each of the other five conditions. Also presentation of the text contents via separate sources yielded more analytic essays, but only in the argument essay condition. Moreover, the separate source/argument condition, along with the textbook/narrative condition, produced the best recall or learning of the text contents. The results thus indicate that: (a) the separate source/argument condition yielded the most historian-like knowledge transformation during writing; (b) it produced the best understanding of the relations among the text concepts; and (c) with the exception of one condition it yielded the best learning.

In many ways, the textbook/narrative condition makes a good comparison case for the separate source/argument condition. The results indicated that the former: (a) tended to produce a report-like listing that was sometimes chronological; (b) produced relatively few knowledge transformations, causal statements or connective statements; but (c) did produce a relatively high level of recall, equivalent to that of the separate source/argument condition. A possible reason for this last result is that students are well-practised at learning facts through the textbook/narrative procedure, it being perhaps the closest to traditional classroom tasks. Another possibility is that students perceived the structures of the textbook and a narrative to be quite similar, and the ease of processing due to that similarity facilitated retention (e.g., Murnnes and Kintsch, 1987). Nevertheless, although recall was enhanced, the textbook/narrative condition did not lead to the level of understanding of relations among the text concepts found in the separate source/argument condition.

These findings suggest that understanding in history may be enhanced by manipulations that promote 'knowledge transformation', or more generally, the amount of constructive activity that occurs during writing. Within the context of our interpretation, better understanding is related to more extensive processing in which individuals need to relate the concepts activated by the text contents to other concepts, as found in the text or activated in long-term memory. Our results suggest that both knowledge transformation and understanding are facilitated when students are asked to write argumentative discourse from a number of sources. But, this does not mean a history textbook chapter should be cut up into eight sections with the sections being read in a random order. It does mean that it may be quite fruitful to ask students to relate particular contents of two or more different sources and then construct a position paper involving the contents of those sources. Such a procedure supports the position of Voss and Means (1991), which emphasizes the role of argumentation in producing understanding.

Finally, the results of the present study support the idea that there may be at least two different ways of learning history: a more active and constructive historian-like mode, and a more passive and reproductive traditional mode. The historian-like mode can be invoked by a writing task that encourages argumentation and by the use of multiple sources, which seem to prompt the self-generation of connectives and causal relations. Moreover, learning in this mode is equivalent to that in a more

traditional mode, suggesting that understanding can be gained without sacrificing performance in the learning of specific components of the subject matter such as facts. In sum, although all subjects were instructed to 'play historian', students seemed to best exemplify the constructive role of historian when they wrote an argument from separate sources. Further, working under these conditions can be an effective way of learning history, while providing for better historical understanding, and even understanding in general, than more traditional modes of read-to-write instruction.

#### REFERENCES

- Bereiter, C. and Scardamalia, M. (1987). *The psychology of written composition*. Hillsdale, NJ: Erlbaum.
- Chi, M. T. H., de Leeuw, N., Glaser, M. and Vanlehn, C. (1994). Eliciting self-explanations improves understanding. *Cognitive Science*, **18**, 439-477.
- Greene, S. (1994). Students as authors in the study of history. In G. Leinhardt, I. Beck and C. Stanton (Eds.), *Teaching and learning in history* (pp. 137-170). Hillsdale, NJ: Erlbaum.
- Holl, T. (1990). *Thinking historically*. New York: College Entrance Examination Board.
- Mannes, S. M. and Kintsch, W. (1987). Knowledge organization and text organization. *Cognition and Instruction*, **4**, 91-115.
- Mink (1987). *Historical understanding*. Ithaca, NY: Cornell University Press.
- Shamecka, N. J. and Graf, P. (1978). The generation effect: definition of a phenomenon. *Journal of Experimental Psychology: Human Learning and Memory*, **4**, 592-604.
- Spivey, N. N. (1990). Transforming texts: constructive processes in reading and writing. *Written Communication*, **7**, 256-287.
- Spivey, N. N. and King, J. (1989). Readers as writers composing from sources. *Reading Research Quarterly*, **24**, 1-14.
- Voss, J. F. and Means, M. (1991). Learning to reason via instruction in argumentation. *Learning and Instruction*, **1**, 337-350.
- Voss, J. F. and Sillescu, L. N. (1996). Learning from history text: the interaction of knowledge and comprehension skill with text structure. *Cognition and Instruction*, **14**(1), 45-68.
- Voss, J. F. and Wiley, J. (1996). Conceptual understanding in history: To appear in *International Journal of Educational Research*.