University of Northern Iowa
UNI ScholarWorks

Graduate Research Papers
Student Work

1987

Writing in the content areas: A review of current literature

Thomas H. Wiegand
University of Northern Iowa

Let us know how access to this document benefits you

Copyright ©1987 Thomas H. Wiegand

Follow this and additional works at: https://scholarworks.uni.edu/grp

Part of the Education Commons

Recommended Citation
Wiegand, Thomas H., "Writing in the content areas: A review of current literature" (1987). *Graduate Research Papers*. 3556.
https://scholarworks.uni.edu/grp/3556

This Open Access Graduate Research Paper is brought to you for free and open access by the Student Work at UNI ScholarWorks. It has been accepted for inclusion in Graduate Research Papers by an authorized administrator of UNI ScholarWorks. For more information, please contact scholarworks@uni.edu.

Offensive Materials Statement: Materials located in UNI ScholarWorks come from a broad range of sources and time periods. Some of these materials may contain offensive stereotypes, ideas, visuals, or language.

Writing in the content areas: A review of current literature

Abstract

For many years experts in the field of education have emphasized the importance of writing in the content areas. As early as 1919 a manual was published which called for more composition work by teachers of history, science, and other content areas (Harwood, 1985). In the 1960's a book was published in which it was argued that only when teachers in all disciplines emphasize the importance of writing will students, in turn, recognize its value (Fader, 1968). It was during the 1970's that the major call went out for "writing across the curriculum" (Britton, 1975).

This open access graduate research paper is available at UNI ScholarWorks: https://scholarworks.uni.edu/grp/3556

WRITING IN THE CONTENT AREAS:
A REVIEW OF CURRENT LITERATURE

A Research Paper

Submitted to

The Department of Curriculum and Instruction

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts in Education

University of Northern Iowa

by

Thomas H. Wiegand

This Research Paper by: Thomas H. Wiegand

Entitled: Writing in the Content Areas: A Review of Current Literature

has been approved as meeting the research paper requirement for the Degree of Master of Arts in Education.

Oct 16, 1987	Marvin Heller
Date Approved	Director of Research Paper
Oct 16, 1987	Marvin Heller
Date Approved	Graduate Faculty Advisor
Oct. 16, 1987	Loretta Kuse
Date Approved	Graduate Faculty Reader
Oct. 19, 1987	Greg P. Stefanich
Date Approved	Head, Department of Curriculum And Instruction

TABLE OF CONTENTS

Chapter 1 Page

Introduction.................................. 1

Statement of the Problem...................... 2

Scope of the Review........................... 3

Chapter 2

Introduction to the Review.................... 6

Handling the Workload......................... 8

Writing Activities for Every Classroom....... 10

Journal Writing in the Content Areas......... 12

Writing in Math.............................. 15

Writing in Science........................... 18

Writing in Social Studies.................... 21

Motivating Students to Write................. 25

Evaluating Student Writing................... 27

Chapter 3

Summary and Conclusions...................... 31

Bibliography................................. 34

Writing in the Content Areas:

A Review of Current Literature

CHAPTER 1

Introduction

For many years experts in the field of education have emphasized the importance of writing in the content areas. As early as 1919 a manual was published which called for more composition work by teachers of history, science, and other content areas (Harwood, 1985). In the 1960's a book was published in which it was argued that only when teachers in all disciplines emphasize the importance of writing will students, in turn, recognize its value (Fader, 1968). It was during the 1970's that the major call went out for "writing across the curriculum" (Britton, 1975).

The rationale for encouraging writing in all classrooms is deceptively simple; students who write about topics understand them better (Shuman, 1984). Writing enhances thinking. More than just a means for expressing what we think, writing is a means to knowing what we think. It is a means of shaping, clarifying, discovering, and illuminating our thoughts (Britton, 1975). Writing enables the writer, perhaps for the first time, to sense the power of his or her own language to affect another. Writing becomes a tool for communicating, and with this tool, students can make

sense of the surrounding world and ultimately, have an effect on it (Greenberg & Rath, 1985).

In the content area classroom, writing aids the student in learning subject matter. Writing about a topic being covered in class requires students to think about the topic and to focus on and internalize important concepts; then those concepts, to some degree, become their own (Kennedy, 1980). Through writing, students will become better readers and better thinkers. They will gain an indepth understanding of the discipline that they may fail to gain when content is discussed in an oral activity and tested by means of an objective type of test (Melton, 1985).

Statement of the Problem

Despite a renewed interest in writing across the curriculum, there has been little improvement in the quality or the quantity of writing that takes place in the content areas. Attempts to implement writing in content area classrooms has met with resistance from teachers who hold the common misconception that writing skills have little use in their classrooms and should be the responsibility of the English teacher (Melton, 1985).

Content area teachers resist efforts to add to their heavy responsibilities any other duties that might increase their preparation time or that might reduce their present instructional time (Shuman, 1984). Some teachers say that

they are not clear about the role they should assign to writing in their curriculum, or what specific skills might be developed as a result of using writing in their classrooms (Swanson-Owens, 1986). They complain that they have had little or no preparation or guidance in employing writing to enhance learning, and they are concerned about not having enough time to correct their papers (Bader & Pearce, 1983). Teachers have even expressed the fear that by including writing in their classrooms, they will have to completely change their style of teaching (Tchudi, 1986).

Teachers who do not want to leave their neatly packaged style of teaching, in which the instructor is the expert, doling out knowledge to students, often resist the more uncertain modern model of learning as described by Dewey, Bruner, and Piaget. They fear losing control. In the modern paradigm, the learner must be the meaning maker, not the teacher, and the role of writing is to help the student move through the chaos of uncertainty and to generate questions, speculate, correct, revise, and respond to the material presented by the teacher in the content area (Danish, 1985).

A recent study of seventy high school classroom teachers in grades 9 through 12 from the midwestern states of Illinois, Iowa, and Michigan revealed the

limited amount of writing that goes on in content area classrooms. Although most of the teachers interviewed had their students engage in some kind of writing activity, the majority of student writing in content classes was of a kind that could be classified as copying, with the most frequently assigned writing activities being the answering of essay questions and writing the answers to review questions in the class textbook (Pearce, 1984).

Arthur Appleby (1982) surveyed writing practices of 754 teachers in six subjects. He found that in English classes, 39% of the writing activities were at the level of filling in the blanks or providing one or two-sentence responses. In science classes, 53% of the writing was at or below the sentence-writing level.

The problem clearly is one of convincing content-area teachers to incorporate writing into their classrooms. Teachers need assurance that adding writing to their coursework need not add to their workload. They need encouragement and guidance if they are to be expected to provide writing experiences for their students. They must be shown that writing can enhance student learning of content and enliven the classroom environment.

This paper will provide answers to the following questions:

1. How can teachers incorporate writing into

classrooms without increasing their workload?

2. What guidance does the current literature provide content-area teachers to aid them in incorporating writing into their classrooms?

3. How can teachers motivate their students to write?

4. How can teachers who are not trained in the English subject field evaluate student writing?

Scope of the Review

Due to the recent interest in writing across the curriculum, a great deal of literature has been published on the topic. For this reason it was decided to limit the scope of this review to the content areas of math, science, and social studies. This paper will review the literature to provide general guidance and specific activities for teachers in each area. It will also provide information for evaluating and responding to student writing. Various sources were consulted to obtain information in these three areas. Among them were the Current Index to Journals in Education (CIJE), Resources in Education (RIE), Educational Resources Information Center (ERIC) documents, and the Educational Index. Journal articles, books, and other research reports were obtained from the University of Northern Iowa Library and from the Area 7 Education Agency, Cedar Falls, Iowa.

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction to the Review

A review of current literature reveals that educational leaders across the curriculum agree that writing should not be the concern of English teachers alone. The development of student writing ability requires content involvement, and all content teachers should, to some extent, serve as writing teachers (Shadiow, 1981). Writing about a topic being covered in class requires students to think about the topic in ways other than rote rewriting of material from the textbook, which is little more than copying (Emig, 1977). Writing about content can cause students to analyze, compare facts, and synthesize relevant material (Farrell, 1978). A school-wide emphasis on writing can help students to improve their understanding of math, science, social studies, or any discipline across the curriculum (Glatthorn, 1981).

When content-area teachers are asked to incorporate writing into their classrooms, they often resist due to a feeling of inadequacy. This feeling probably stems from thinking that writing in their classrooms must be transactional writing (Shuman, 1984). Transactional

writing is writing that people produce in formal situations when they try to inform, persuade, or instruct (Sheidley, 1985).

In a study by James Britton (1975), 2,000 writing samples produced by four grade levels in a range of subject areas were collected. Sixty-four percent of the writing was transactional. In the same study, 84% of the writing of seniors in high school was transactional, indicating that the emphasis on transactional writing increases as students progress in school.

A more recent survey of 110 junior high school teachers revealed that most of their classroom writing assignments were transactional in nature. Student writing about course concepts was sporadic, and most of the writing appeared to be for purposes of evaluation or of a nature that could be classified as non-original writing (copying), recitation of facts presented in classes, and answering review questions (Bader & Pearce, 1983).

Current research points to the necessity of engaging regularly in expressive writing if one's writing skills are to improve (Fulwiler, 1984). Expressive writing is language written for oneself. It is thinking and speculating on paper (Sheidley, 1985). Teachers' main function should not be to judge products, but to encourage learning through writing. Just as they use classroom discussion to accomplish

learning about the content they teach, content-area teachers can use regular expressive writing to accomplish similar ends (Shuman, 1984).

Transaction writing often encourages students to use language that is not their own, to copy or regurgitate information from the textbook. Expressive writing, on the other hand, encourages writers to find their own words to represent what they are learning. It demands that students interpret, synthesize, and actively think about course content (Mayher & Lester, 1983).

Teachers in the content areas may feel threatened by the demand for more writing in their classrooms if writing is perceived as being transactional. They may envision huge stacks of lengthy reports which they must dutifully read and correct. A review of the literature shows that this need not be the case. Teachers in all content areas can increase the amount of student writing in their classrooms without adding to their workload. They can do this through a variety of writing strategies and time-saving methods of responding to and evaluating student writing which will be discussed in the remainder of this paper.

Handling the Workload

Teachers can increase the amount of writing they ask of their students without increasing the workload. If

writing is used in place of, rather than in addition to, other activities, the workload will not be unduly increased. Writing activities can often replace worksheets, quizzes, book reports, and discussions, while producing similar or better results.

Reading and evaluating student writing need not be time-consuming and stressful for the content-area teacher. Writing does not have to be lengthy to be effective. Often a paragraph or two will provide the same information as a daily quiz or worksheet, and a teacher can read and respond to such writing quickly. A teacher may reinforce student learning by underlining or highlighting good points in a student's paper and by using question marks or brief comments or questions for points which are unclear or which need further development. Such evaluation takes little time, yet is an effective way for teachers to communicate with students.

When longer, transactional types of writing are assigned, a teacher can ease the burden of evaluation by spacing the due-dates for papers over a period of several days or even weeks. In this way, a teacher will have time to evaluate and respond to each student's paper without being rushed. Other ideas for using writing without increasing the workload will be discussed in later sections of this paper.

Writing Activities for Every Classroom

Writing can be an integral part of every instructional program across the curriculum. There are many writing activities that content-area teachers can use to help their students learn concepts and synthesize knowledge. Listed below are some practical writing activities that can be used in all content areas. (Activities one through three are from the National Education Association, 1983, and activities four through six are from Charles E. Martin, et al, 1984):

1. Admit Slip. These are brief "What do you think" written responses to a previous lesson or activity. They are collected prior to class and read aloud anonymously at the beginning of class. They can be in the form of questions and can be compiled and listed for further detailed writing.

2. Exit Slip. These are brief "What do you think" responses written by students at the end of class and collected by the instructor. They provide the teacher with a 100% engagement response of a summary or questions about the class.

3. Brainwriting. In this activity, students write down three thoughts regarding a topic prior to a small group or large group discussion. They take their writing to their group. They add to their list during discussion. Near the

end of the discussion, the teacher has everyone write again, summarizing and combining their original thinking with the group efforts.

4. Problem-Solving. Students are presented with a problem either raised by their reading or related to content and are asked to write a possible solution or solutions to the problem. When students have finished writing, their solutions can be shared.

5. What If? Students are asked to speculate in writing about what would happen if something were changed in the content of the text. This could be the elimination of a character, the changing of an outcome, such as a battle or a natural disaster, or the addition of important new information. A physical education instructor might use the activity in this way: "We have been discussing the size of the soccer field and how it affects play. What would happen if the size of the field was reduced by half? Try to think of effects of this change on such things as scoring, rule changes, and fan support."

6. Next? This activity asks students to predict what will happen next. It requires students to take the information they read and compare it to cause-effect relationships with which they are familiar. Their predictions may then be verified by further reading. In this way, they are setting purposes for their reading while they are writing.

Journal Writing in the Content Areas

Students who do not write regularly have difficulty achieving fluency, and those who have achieved it can maintain it only by continuing to write frequently (Shuman, 1984). One way teachers can help students to develop fluency is through journal writing.

Since the idea behind journal writing is to improve fluency, free writing is often encouraged. Free writing is a nonthreatening way of writing that removes the restraints of spelling, punctuation, and usage. The important thing is to keep the words flowing across the paper (Macrorie, 1976). Fluency is the first consideration. It is the basis for all that follows. The idea is to provide daily writing practice in a humane and accepting atmosphere and give students the opportunity to find their own voice in their writing (Kirby & Liner, 1981).

According to Peter Elbow (1983), free writing also teaches creative "first order" thinking. Elbow defines first order thinking as the intuitive thinking we use when we get hunches or see gestalts. We use it when we write fast without censoring and let words lead us to associations and intuitions we had not foreseen. It is different from "second order" thinking, which Elbow describes as conscious, directed, critical thinking.

James Britton (1975) strongly advocates that students keep journals in every class and that a regular part of every class session - probably no more than five minutes - be devoted to journals. Toby Fulwiler (1978) suggests that in-class journal writing can substitute for other routine writing assignments, from quizzes to book reports.

Because the journal is less structured and more subjective than most school writing assignments, many students find it instantly inviting. They will write more frequently and for longer periods of time because they use the journal to write about those things that they are interested in (Kirby & Liner, 1981). Journal writing is a private, enlightening procedure that can lead students to ideas that surprise even themselves (Burton, 1985).

Advocates of journals have offered valuable suggestions for their use. Since one of the primary purposes of asking students to keep journals is to help them to increase their fluency, journal writing should be done in a nonthreatening environment. Not all writing needs a response from the teacher (Searle & Dillon, 1980). Valuable responses to both content and form can be made by a student's classmates. Some students believe that

if their journals are not read by a teacher, they may have little worth. In such a case, teachers may choose to read journals, but reading need not be evaluating (Fulwiler, 1978). Some journal advocates believe that journals may be scanned periodically, but to grade them would defeat the purpose (Shuman, 1984). Others suggest reading only what students want you to read, and then giving them credit by assigning points or a plus or a minus for their thoroughness (Kirby & Liner, 1981).

Fulwiler (1978) offers some suggestions for using journals across the curriculum:

1. Introduce a discussion class with a five-minute journal-write.

2. Precede a lecture with a short journal-write to start students thinking about the scheduled topic.

3. End a class with a journal-write so students can pull together what they have learned.

4. Interrupt a lengthy lecture with a five-minute journal-write so that students can re-engage themselves if they have been daydreaming.

5. Interrupt a discussion which has digressed or which has become rambling with a journal-write.

6. Use the journal-write to solve problems that come up in class.

7. Assign journal writing as homework that requires students to go beyond a vague response but stops short of a formal written assignment which might produce anxiety.

8. Keep journals to keep written records of laboratory experiments or observations.

Writing in Math

It is a common misconception that writing skills and mathematics skills have little in common beyond the transcription of word problems. Much of the logic and organizational effort that goes into good writing parallels the processes involved in solving math problems. Teachers of mathematics often fear being put into the role of writing teacher, but they need not think of themselves as writing teachers any more than they think of themselves as reading teachers when they help their students to understand their math textbook (Myers, 1984). Writing can and should be used to enhance learning in the mathematics classroom.

Free writing can be used to help students learn math concepts. It can be used before a lesson is taught to engage thinking or to find out what students already know or need to know about the day's lesson. It can also be used at the end of the class period to help students become specific about the areas that are still causing them problems (Burton, 1985).

A journal can also be a useful writing tool in the math classroom. It can provide a record to help students discover patterns of thought that produce growth and those that do not. Reticent students often will jot down a question or express a problem they are having more readily than they will respond orally to the teacher's questions. If journals are left in the classroom after each class period, the teacher can easily monitor students' progress.

Writing consultants Gordon Pradl and John Mayher (1985) have explained how an algebra teacher might use writing successfully in the classroom. The teacher would begin by asking each of the students to keep a "learning log." The last five minutes of class would be spent summarizing and recording the day's accomplishments and recording questions about what remained unclear or confusing to them. They would also be asked to jot down their expectations and predictions of what newly introduced topics might involve. After each new theorem was introduced, students would write down their understanding of it in their own words. The teacher would also assign short oral and written reports over applied or historical topics in mathematics. Finally, the teacher would start a "Math Newsletter" and the students would take turns

writing up class learning events, brief summaries of their reports, and synopses of any outside articles concerning math in the modern world.

In every math classroom there are always one or two students for whom logic or story problems are easy; and there are a few who never seem to be able to understand them. Asking students who have solved the problem to write down the steps they followed in solving it will help them to clarify the process in their minds, and may provide a basis for leading slower students through the process (Myers, 1984).

Writing can also be used for enrichment in the math classroom. In 1983 the National Education Association published "Starter Sheets" with suggestions for incorporating writing through enrichment activities in all subject areas. Some suggestions for using writing to supplement and enrich mathematics are:

1. Interview local business people about how math functions in their areas; then write a report, including sample calculations of math in the real world.

2. Design original story problems; then write explanations of the correct answers.

3. Investigate the role of math in a possible career, from firefighting to teaching home economics.

4. Invent and develop a better monetary system and put it into operation in a class or school simulation, including written explanations.

5. Research and update school sports records; or keep a sports statistics book on a favorite sport or athlete; or design a computer program that maintains up-to-date statistics for a favorite sport or athlete.

6. Write a book of measurement. Starting without the benefit of standardized measuring units, invent and standardize new measures; then write descriptions of how tall, short, heavy, and fast things are, using the new criteria.

Writing in Science

The science classroom is a logical place to use writing to learn. Like writing, scientific discovery is a matter of observing, synthesizing, and describing one's world. Yet, most writing in the science classroom consists of completing short study questions, taking notes, and writing essays (Langer, 1986). Assignments often consist of such tasks as copying the chart on the water cycle and its associated description from an encyclopedia (Mayher & Lester, 1983). Most science instruction presents students with the results of scientific inquiry as if scientists had already solved the important problems. Students are asked to memorize, repeat, and copy the findings of science in the language of scientists.

As James Britton (1980) once said, "We ask students to limp around in someone else's language." Such assignments do not encourage students to find their own voice or their own words to describe what they are learning.

Writing can be used to help science students go beyond the facts to the concepts and ideas and even the feelings that control those facts (Fisher, 1986). If students are told at the start of a lecture or demonstration that they will be writing afterward, they are likely to pay more attention, take more detailed notes, and generally perform better when tested on the material covered (Myers, 1984).

A learning log or a journal can help students learn in the science classroom. By jotting down their daily reactions to ideas, and not just writing down bare facts, students can use their own language to personalize new concepts. Teachers might ask students to keep a "lab journal" to record reactions to experiments. Such an account adds a personal dimension to lab records and provides a place to make connections between one observation and the next (Fulwiler, 1978). In an essay title, "What If All the Whales Are Gone Before We Become Friends?" Chittenden (1982) described how her science students used learning logs for personal purposes and later to communicate with other audiences as well.

Writing in the science classroom should go beyond the basic lab report, notetaking, and study questions. In a recent study, Langer (1986) examined how students approached the three common study tasks of completing short answer study questions, taking notes, and writing essays. She found that topic knowledge increased most from essay writing, next from notetaking, and least from answering study questions. This suggests that extended writing activities give students a better opportunity not only to think about content, but also to integrate it into more highly organized units of knowledge.

The 1983 "Starter Sheets" for Natural Science from the National Education Association offer some imaginative writing suggestions:

1. Investigate and design inventions people need to make their lives better, publishing a book of needed inventions as a final project.

2. Investigate and write an explanation of why something doesn't work right: the kitchen blender, the hot water heater, the automobile engine.

3. Prepare science fact sheets on basic principles for use by younger students; or start a science facts column in the school or PTA newsletter.

4. Research and write about careers in science; or study colleges which have strong science programs and write analyses of their offerings.

5. Write imaginary letters to the legendary figures of science: Curie, Pasteur, Galileo; or write scripts showing great moments in their careers; or write scripts for visits of those people to the classroom.

Writing in Social Studies

It would seem that a classroom where history, politics, government, and current events are taught would be well suited for a variety of writing activities. A survey of teachers in the Midwest showed that social studies teachers do use a variety of activities in their classrooms (Pearce, 1984). In the study, social studies teachers were asked about what kinds of writing they required. The survey revealed that 54% of the teachers required a research paper, 69% used essay questions on tests, 38% assigned writing as homework, 38% used in-class writing assignments, and 15% used activities in which students wrote and then compared their writing with other students in small groups.

With the exception of the in-class activities and the writing that was compared in small groups, the activities above generally employ repeating, nearly verbatim, the material found in the text to answer end-of-chapter

questions, or copying facts for reports. Such writing is a classic example of regurgitation (Mayer & Lester, 1983). The written word is as important in social studies as in the other content areas, and students need to be made aware that when studying history, political science, or current events, words are powerful tools (Myers, 1984).

Writing in the social studies classroom, as in other classrooms, should be interesting to students and should help them both to remember and to learn more about the content they are studying. Social studies is such a broad area that dozens of writing activities can be adapted to strengthen learning and enliven the content (Fisher, 1986).

Oral history projects, such as the one in the Foxfire Book, published in the early 1970's by Eliot Wigginton, can engage an entire classroom of students in history of a personal nature. Students can go into their community, rural or urban, to interview older citizens and to record various types of folklore and personal histories (Myers, 1984). Students who read and then write out the interviews will learn history, but they will also learn something about the beauty and the power of language.

Students can also be asked to keep a personal history diary or log book. In it they can record the

events of their lives, as in this example (Steinaker, 1984):

> Over by my house yesterday, a train derailed. It went through the cement wall and hit one house. I saw them fixing up the tracks the day before. I guess it didn't work. Today, Mondale said he picked a woman to be Vice President. (My mom was happy.)

Historical role-playing is another effective way to use writing in social studies. Students in the role of American patriots might write a letter to the British, justifying the Boston Tea Party (Myers, 1984). Students could write imaginary letters between former President Thomas Jefferson, former slave Frederick Douglas, and feminist Lucy Mott (King & Flitterman-King, 1986.) During a unit on the Civil War, students could assume the role of Confederate or Union soldiers, slaves on the plantations, generals conducting the war, President Lincoln, or the common folks back home who are worried about their loved ones.

Writing about historical objects or artifacts can give students practice in critical thinking as well as enliven the study of history. Writing about objects can help students develop a wide range of skills, especially observation, inference, reasoning, and making

judgments (Lowderbaugh, 1984). For example, writing about a butter churn, an apple corer, or an old-fashioned can opener gives students practice not only in using observational skills, but also in looking beyond or beneath the surface of the units they are studying.

Keeping a journal is especially effective in the social studies classroom. Students can use their journals to record their feelings after viewing films, listening to a lecture, or discussing a current issue. On a given day, these responses can form the basis for a more formal class discussion (Fulwiler, 1978). Journals can also be used to record personal reflections about history units being studied, to help students identify with, and perhaps to make sense of the otherwise distant past. Ken Macrorie (1976) calls journals the "seedbeds" from which other kinds of writing will emerge. Students might begin with a journal entry about European immigrants in the United States early in the century, and end up with a well-researched story of historical fiction (Haley-James, 1982).

Students could also be asked to look up events, people, places, and things which existed at the time they were born, and at similar events, people, places, and things now. They could look upon themselves as detectives, and their assignment would be to identify

clues in the materials they examine that suggest possible contrasts and comparisons between how things were when they were born, and how things are today (Duke, 1985).

Motivating Students to Write

There are several ways that content-area teachers can motivate their students to write. One of the best methods is to provide students with positive feedback. Teachers should read students' papers not simply to correct errors, but to enjoy and discover what students have learned. By asking questions, sharing ideas, and pointing out what a student has done well, a teacher can encourage further writing. Responses such as "I'd like to know more about this," or "Why do you suppose this happened?" or "You have really tied this together well" will guide students to a better understanding of content and will make them more willing writers. Teachers should always point out something good in each student's paper. Praise is still one of the best motivators.

Another effective way to motivate students to write is through prewriting activities. Films, video-tapes, recordings, discussions, and demonstrations are all good ways to prepare students to write. Brainstorming ideas, making lists, and mapping ideas on the chalkboard are also effective means of stimulating writing. The idea is to

provide students with a means of "triggering" their memories so that they can draw on their background knowledge as they write. Once students discover that they have something to say, the idea of writing becomes more appealing.

Publishing is also a good way to get students to write. Publishing gives the student an audience, and the writing task becomes a real effort at communication, and not just writing to please the teacher or to fulfill an assignment. Publishing involves the student's ego, which is the strongest incentive for the student to keep writing (Kirby & Liner, 1981). There are several ways that teachers can publish their students' writing. Reading aloud, either by the teacher or the students, is a good way to share and enjoy good writing. Students may read their writing to a partner, within a small group, or to the class. The teacher may read students' papers aloud and model positive responses in his or her comments. Student writing may be displayed in the classroom or on a bulletin board elsewhere in the school. It is important to get the students' permission before publishing their work. Projection publishing is an effective method of sharing student writing. The teacher can make transparencies of student writing and show them to the class on the overhead projector as he or she points out concepts or insights that

student writers have effectively explained in their papers. Regardless of the method used, publishing student writing can be an effective way to motivate students to write.

Evaluating Student Writing

Perhaps no other issue is more worrisome to content teachers than that of responding to and evaluating student writing. Teachers in math, science, social studies, and all disciplines across the curriculum know that if they assign writing, they must evaluate it, and correcting papers takes time. They worry that the time spent evaluating papers will lessen the time they have to teach content. But this need not be the case. A review of the literature offers helpful suggestions and information pertaining to the evaluation of student writing.

First of all, teachers should consider their purpose in assigning writing. There are many different kinds of writing assignments, and different criteria should be used in evaluating them. Marking all errors in red ink, putting a grade on the paper, and returning it to the student without comment is perhaps the least effective way to help the student learn (Dodd, 1985). To mark every error will increase a student's sense of failure and inhibit future writing if the student fears that writing will expose his or her inadequacy (Protherough, 1985).

If a teacher's purpose is to assess how well a student has learned content, then the response to student writing should be predominantly to content or to meaning (Searle & Dillon, 1980). If content teachers do not teach mechanics, and feel uncomfortable correcting such errors, they should not do so. Only those aspects of content that have been taught and which students are expected to know should be evaluated.

If the teacher is concerned primarily with how well students are learning content in relation to other students in the classroom, a holistic grading strategy is best. Holistic grading is a guided procedure for sorting or ranking written pieces. The teacher uses the same carefully developed criteria on all pieces of writing. The scoring or grading can be done quickly and impressionistically because the teacher grades it only for the prominence of certain features important to that particular assignment (Kirby & Liner, 1981). In holistic grading, a teacher may read a paper very quickly and assign a grade or a numerical score guided by a holistic scoring guide which describes each feature and identifies high, middle, and low quality levels for each feature. The teacher does not make corrections or revisions in the student's paper.

Teachers who assign free writing should keep in mind the word "free." Not all writing has to be graded; it can be free of evaluation. Journals, in particular, need not be graded. Students grow when they use writing as a means of recording information, and when they realize that their writing will not be critically evaluated, they often feel more free to experiment and to engage in what Elbow (1983) calls intuitive "first order" thinking. Non-evaluative or non-judgmental responses can encourage creative thought in students (Cumming, 1977).

Of course, some students want their teachers to read their journals and their free writing. And reading student journals humanizes teachers (Fulwiler, 1978). Some teachers collect journals weekly, read them quickly for enjoyment, and then assign points for quantity (Kirby & Liner, 1981). Some teachers may prefer to offer extra credit for motivation and to encourage fluency. This can be done by offering extra-credit points for additional pages beyond what is required each week.

Peer group assessment is an effective strategy that is helpful to students and teachers alike. Students read each other's papers, or read their papers to each other in small groups, and conference in pairs to clarify content and to help each other correct errors (Dodd, 1985).

Students should be given guidance in how to respond to each other's papers before such evaluation is attempted. Once they learn to evaluate in this way, comments on their own or others' writing can offer a richness and understanding to material studied in class (Davis, Scriven, & Thomas, 1981). A classroom of writers writing for each other creates an interactive community where readers help writers just as listeners help speakers - by laughing at good jokes, asking questions, and making comments. Responsive readers praise, approve, question, and even disagree as they help each other learn (Stock, 1986).

Everyone enjoys praise, and students in the content areas are no exceptions. Criticism, with the emphasis on what is wrong with a piece of writing, makes for competition and stress (Ponsot & Deen, 1982). Teachers may wish to withhold judgment on student writing and simply respond to what is written (Cumming, 1977). Rather than reading student writing with the intent to correct (reading for errors), teachers should read to respond. Noticing and praising whatever a student does well improves writing more than any kind or amount of correction of what the student does badly, and that is especially important for the less able writers who need all the encouragement they can get (Kirby & Liner, 1981).

CHAPTER 3

SUMMARY AND CONCLUSIONS

A concensus exists among experts that student writing should be incorporated into every classroom. Writing has been shown to be an effective learning strategy for all content areas. Writing serves to clarify thinking about subject matter, and the act of writing facilitates the discovery of new insights. Students who use writing in content areas are able to construct knowledge and link new information to their own experiences. Writing, then, is a valuable teaching strategy that can be used in assisting students to master content in all subject areas.

Teacher resistance to using writing as a learning strategy stems from fear and misconceptions. They fear that they do not have the skills or knowledge necessary to use writing in their classrooms, and they worry about the added burden of evaluating student papers. They also believe that as more time is spent in writing, less time will be spent on content. Research reviewed in this paper provides answers to assuage these concerns. A wide variety of ideas for implementing writing in all subject areas has been presented. Through free writing, journals, and the specific content-area writing activities discussed,

teachers can help their students go beyond the facts to the concepts and ideas and even the feelings that control those facts.

This review of literature has shown that teachers must not think of writing as something separate from learning. Time spent writing in class is not time taken away from learning content, it is time spent internalizing and transforming concepts. Learning about a subject is more than memorizing names, dates, and statistics, it is using intellect to ask questions, and to develop and organize ideas about the subject. Writing, it has been shown, is well suited to this task.

Evaluating students' writing need not be either time-consuming or difficult. Through holistic grading teachers can quickly assign points or a grade to a paper according to their own preset standards. Peer evaluation can ease the burden of the teacher and help the students learn from each other. All writing need not be graded, and teachers can read to enjoy, not to correct their students' papers. Oral and written positive responses can be made quickly and are effective ways for a teacher to communicate with students.

In the past, writing was thought of as the sole province of the English or language arts teacher.

Teachers thought of the content of the curriculum as being something separate from the experience of the learner.

It is the hope of this writer that teachers in all disciplines will realize that writing can and should be used to help students learn content. When they do, writing will assume its proper place throughout the curriculum.

BIBLIOGRAPHY

Appleby, A. (1982). Writing in the secondary schools. Urbana, IL: National Council of Teachers of English.

Britton, J. (1975). The development of writing abilities. London, England: Macmillan Education.

Bader, L. & Pearce, D. (1983). Writing across the curriculum. English Education, 15, 97-106.

Burton, G. (1985). Writing as a way of knowing in a mathematics education class. Arithmetic Teacher, 33, 41-45.

Chittenden, L. (1982). What if all the whales are gone before we become friends? What's going on? Language learning episodes in British and American classrooms, grades 4-13, edited by M. Barr, P. D'Arcy, and M. K. Healey. Montclair, NJ: Boynton/Cook.

Cumming, P. (1977). Responding to writing. Free writing: a group approach toward a new and simple method of learning and teaching writing. Rochelle Park, NJ: Hayden Book Company, Inc.

Danish, B. (1985). What influences the way teachers use writing in their classrooms: the dialectic of chaos and order. A paper presented at the annual meeting of the National Council of Teachers of English, Philadelphia, PA. ERIC ED 269 773.

Davis, B., Scriven, M., & Thomas, S. (1981). The evaluation of composition. Point Reyes, CA: Edgepress.

Dodd, A. (1985). Try a total school effort to improve student writing. Middle School Journal, 13, 8-10.

Duke, C. (1985). An introduction to "research" writing. Seattle, WA: Northwest Regional Conference of the National Council of Teachers of English. ERIC ED 260 438.

Elbow, P. (1983). Teaching thinking by teaching writing. Change, 15, 17-40.

Emig, J. (1977). Writing as a mode of learning. College Composition and Communication, 28, 122-128.

Fader, D. (1968). Hooked on books. New York: Berkeley.

Farrell, T. (1978). Differentiating writing from talking. College Composition and Communication, 29, 246-250.

Fisher, C. (1986). Enhance learning through writing. Middle School Journal, 17, 4-7.

Fulwiler, T. (1978). Journal writing across the curriculum. A paper presented at the meeting of the Conference on College Composition and Communication, Denver CO.

Glatthorn, A. (1981). Improving writing across the curriculum. Writing in the schools: improvement through effective leadership. Reston, VA: National Association of Secondary School Principals.

Greenberg, J., & Rath, C. (1985). Empowering students through writing. Educational Leadership, 42, 11-13.

Haley-James, S. (1982). Helping students learn through writing. Language Arts, 59, 726-730.

Harwood, N. (1985). Writing across the curriculum: a lesson from the past. American Secondary Education, 14, 14-15.

Kennedy, M. (1980). Reading and writing: interrelated skills of literacy on the college level. Reading World, 20, 121-141.

King, D., and Flitterman-King, S., (1986). The tug-of-war is on between writing approaches: emphasis on process challenges the five-paragraph essay. ASCD Curriculum Update, December, 1-7.

Kirby, D., & Liner, T. (1981). Inside-out: developmental strategies for teaching writing. Upper Montclair, NJ: Boynton/Cook.

Langer, J. (1986). Learning through writing: study skills in the content areas. Journal of Reading, 29, 400-406.

Lowderbaugh, T. (1984). Making sense: writing from objects - a smithsonian approach. Washington, D.C.: Office of Elementary and Secondary Education. ERIC ED 260 445.

Macrorie, K. (1976). Writing to read. Rochelle Park, NJ: Hayden Book Company, Inc.

Martin, Charles E., Martin, Michael A., & O'Brien, David G., (1984). Spawning ideas for writing in the content areas. *Reading World*, 24, 11-15.

Mayher, J., & Lester, N. (1983). Putting learning first in writing to learn. *Language Arts*, 60, 717-721.

Melton, V. (1985). Reading, thinking, writing, learning. *Middle School Journal*, 16, 10.

Myers, J. (1984). Writing to learn across the curriculum. *Fastback 209*. Bloomington, Indiana: Phi Delta Kappa Educational Foundation.

National Education Association, (1983). Writing in the content areas. A Kit. Washington, D.C.: NEA Publications.

Pearce, D. (1984). Writing in content area classrooms. *Reading World*, 23, 234-241.

Ponsot, M., & Deen, R. (1982). *Beat not the poor desk*. Upper Montclair, NJ: Boynton/Cook.

Pradl, G., & Mayher, J. (1985). Reinvigorating learning through writing. *Educational Leadership*, 42, 4-8.

Protherough, R. (1985). *Encouraging writing*. New York: Methuen & Company.

Searle, D., & Dillon, V. (1980). Responding to student writing: what is said or how it is said. *Language Arts*, 57, 780-781.

Shadiow, L. (1981). Every teacher as a writing teacher: a definition of terms. NASSP Bulletin, 65, 48.

Sheidley, W. (1984). What is good writing? Storrs, CT: Connecticut Writing Project at the University of Connecticut. ERIC ED 260 440.

Shuman, R. (1984). School-wide writing instruction. English Journal, 73, 54-57.

Steinacker, D. (1984). Writing: don't leave it in the English classroom - activities to enhance teaching in all areas. San Jose University, South Bay Writing Project. ERIC ED 260 410.

Stock, P. (1986). Writing across the curriculum. Theory into Practice, 25, 97-101.

Swanson-Owens, D. (1986). Identifying natural sources of resistance: a case study of implementing writing across the curriculum. Research in the Teaching of English, 20, 67-74.

Tchudi, S. (1986). The hidden agendas in writing across the curriculum. English Journal, 75, 22-25.