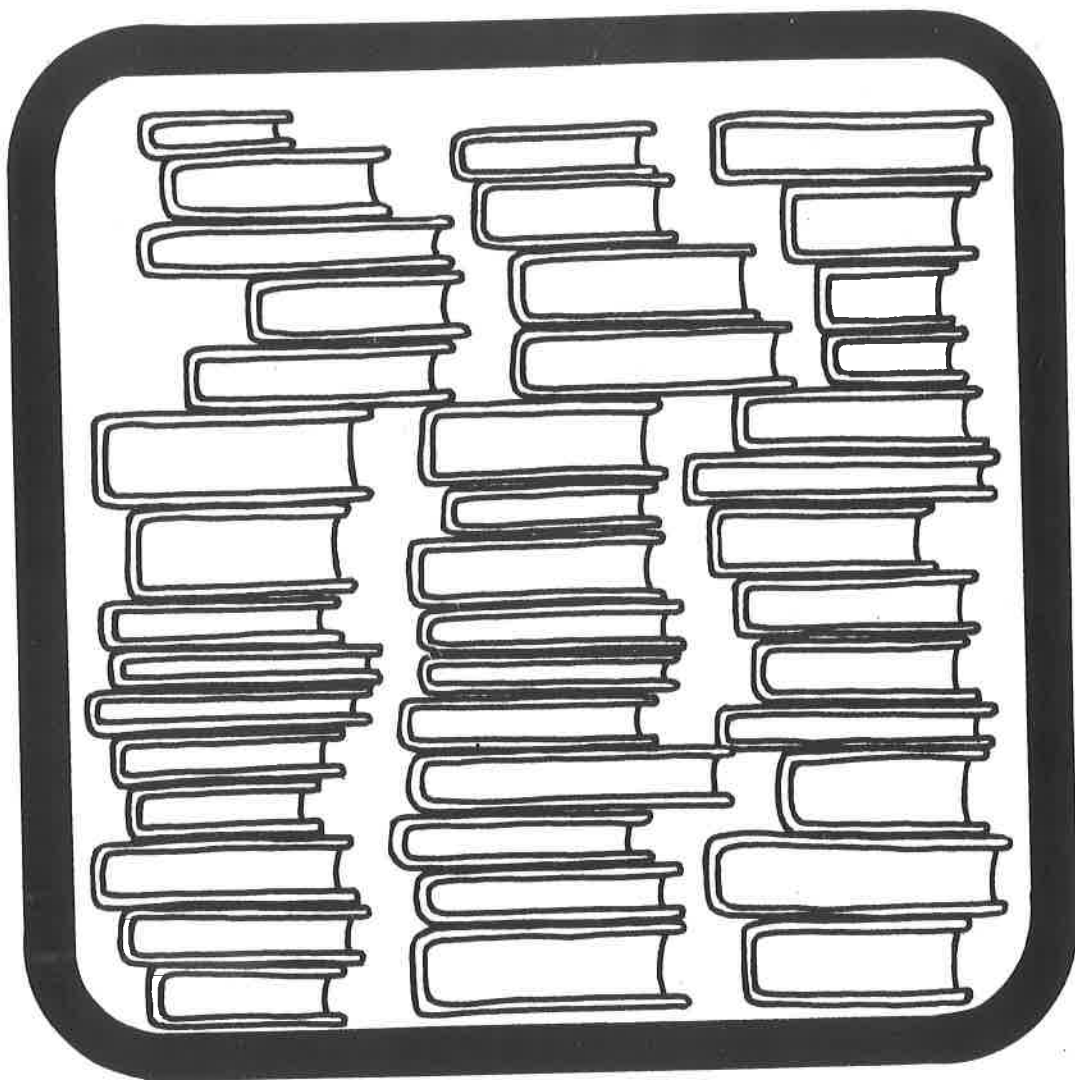


# **FRESH**

**IN EDUCATION**

August 1981/Vol. VII, No. 3



## **Improving Content Area Reading: Subject Matter Issues**

**Articles by:**

**Bradtmueller**

**Hanson**

**Karlin**

**McNamara**

**Mikulecky**

**Mullen**

**Readence & Wood**

**Vacca & Vacca**

**Walker**

# THRESHOLDS

IN EDUCATION

Vol. VII No. 3  
August, 1981

<b>EDITORIAL</b>	W.G. Bradtmueller and J.E. Walker	1
<b>CONTENT READING IN THE EIGHTIES: BROADER POPULATIONS AND HIGHER DEMANDS</b>	Larry Mikulecky	2
<b>CONTENT AREA READING: EVOLUTION AND DIRECTIONS</b>	John E. Readence and Karen D. Wood	5
<b>CONTENT AREA READING: BEYOND THE MOTTOES</b>	Jo-Ann Mullen	8
<b>COMMENTARY ON CONTENT READING</b>	Robert Karlin	11
<b>ASSESSMENT IN CONTENT AREA READING: A MATTER OF E-VALUE-WEIGHTING</b>	Richard T. Vacca and JoAnne L. Vacca	14
<b>TECHNIQUES FOR IMPROVING READING IN THE VARIOUS CONTENT AREAS</b>	Weldon G. Bradtmueller	18
<b>RESEARCH IN THE CONTENT AREAS: VOCABULARY</b>	James E. Walker	22
<b>KEY SOURCES FOR CONTENT AREA READING TEACHERS</b>	Lawrence P. McNamara	25
<b>INCREASING READING RATES—CONSIDERATION OF PHYSIOLOGICAL LIMITATIONS AND SUGGESTIONS FOR TEACHING IN RELATION TO CONTENT AREAS</b>	Earl Hanson	27

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# EDITORIAL

by Weldon G. Bradtmueller  
James E. Walker

In 1970, a professional textbook was published which, unlike many books, has singularly established a trend in education which still has not abated. We refer to Teaching Reading in Content Areas by Harold L. Herber. At that time, Herber and his doctoral students at Syracuse University conducted a series of research studies which were intended to explore teaching strategies in the classroom. Specifically, their emphasis was on research at the secondary level.

A perusal of professional texts before 1970 will reveal little direct discussion on the topic of reading in the content areas. Occasionally, mention would be made to reading in different subject fields. Now, there is rarely a reading text published, even at the elementary level, which does not have a rather extensive treatment on content area reading.

There is a true account of a teacher who wanted to enroll in a course to be able to help his students read better. Upon looking at a schedule, he said that he did not have the luxury to spend time on a course titled: Reading in the Content Areas. In this instance, the harried teacher had misread the title by

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putting the accent on the last syllable of Content. Accordingly, he thought the course would be akin to adolescent literature or, at least, have to do with recreational reading.

Most authorities today would agree that the teaching of any subject includes how to study that subject. The study skills, the appropriate rates and purposes for reading assigned selections and chapters, and generally the process involved in good study-reading are included under the rubric, Reading in the Content Areas.

Another way to consider the topic of this issue of Thresholds is to think of content area reading as functional reading. As such, we are excluding "general" reading or the type of reading that might typically be done in a reading class. The focus of each of the articles in this issue is on reading as it might be developed in all classes which students take in school. As Jo-Ann Mullen points out in her article, we do not mean to limit content area reading to the secondary level.

We have attempted to bring both a theoretical and a practical emphasis to this issue. To set the stage for some of the later articles, we have placed a few articles early in the issue to suggest some of the reasons why students have difficulties in reading in their various subjects. As an excellent update to what might be used for further reference, Lawrence McNamara has compiled a series of resources which you will want to consider. To this end, we wish you happy reading!



# CONTENT READING IN THE EIGHTIES: BROADER POPULATIONS AND HIGHER DEMANDS

Larry Mikulecky

Educators concerned with content reading in the '80's face a two-fold challenge. Census data (HEW, NCES, 1979) indicate that the population of students attending high school for twelve years and going on to higher education has increased drastically over the last generation or so. In 1940, less than 50% of the 17-18 year old population completed high school and only 15% went on to higher education. Currently, high schools

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. . .With a higher percentage of students seeking schooling, educators are finding reading problems cropping up on both the high and low end of the continuum. . .

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can count on approximately 80% of 17-18 year olds completing twelve years of schooling and slightly more than 50% of that age group continuing on for higher education. Many of these newer students do not read as competently as the elite minority of students who stayed in school in previous generations. A second problem also faces high school and college instructors--perhaps as an outgrowth of schools having to concentrate resources on basic training for the increased percentage of students staying in school past the age of sixteen. The National Assessment of Educational Progress (1981) indicates that though 17 year olds on

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the average have improved significantly in basic reading skills during the period from 1970 to 1980, they have declined in higher level inference and comprehension skills. This finding tends to concur with recent concern over declining SAT scores which also measure higher level reading abilities.

With a higher percentage of students seeking schooling, educators are finding reading problems cropping up on both the

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high and low end of the continuum. A larger number of students have remained in school who need training in the basics, but, at the same time, student competence in making higher level inferences seems to have declined significantly. It seems no longer justified to assume that brighter students are going to succeed if teachers turn the majority of their efforts to the needs of less skilled students. Both basic and higher level needs must be attended to and teachers are finding ineffective the older methods which worked reasonably well with the elite minority of students graduating from high school or attending college in earlier generations.

Recent research findings suggest that many teachers may be avoiding assignment of reading/writing activities as a method of coping with student problems. Wolf and Greenwald (1980) monitored time spent actually employed in reading/writing activities in high school

classrooms. They found students average only 90 minutes daily on such activities. Mikulecky (1981) found high school juniors in urban schools spend an average of 98 minutes daily on both in-school reading and homework assignments. To place these findings in perspective, the same study found blue collar workers to average 97 minutes daily spent reading and writing on the job.

Educators in the '80's (both reading specialists and instructors in various content fields) will need to come to grips with the fact that they are truly serving a new population. College instructors who today angrily expect the same performance standards present a generation ago among the 15% of the population who then attended college are,

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. . . Considerably more students, many with less than full reading competence, are staying in high school and large percentages are going on for further education. .

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in effect, expecting that the bottom 2/3 of their enrollment be dismissed. (This also implies, of course, that 2/3 of college instructors would not be needed). A similar, though less extreme, observation can be made about parallel complaints and demands at the high school level. Now, more than ever before, simply assigning a single reading to all students is inadequate. Avoiding the problem by not assigning any reading is equally inadequate and unrealistic in light of the high out-of-school literacy demands present in the workplace.

Once students leave school to take employment, they are unlikely to find a relaxation of literacy demands. Research by Moe, Rush, and Storlie (1980); Mikulecky and Diehl (1980); and Mikulecky (1981) indicate that the difficulty level of reading material on most jobs ranges from 10th to 12th grade level. Mikulecky (1981) found no significant differences between the literacy demands faced by students and adults in the work force.

Workers spend more time reading and writing on the job than students do in school and they read a broader range of materials to greater depth (beyond literal levels). A much greater use of print in conjunction with

graphs, tables, charts, and forms is present on the job than in school. Students leaving school for jobs, whether they be professional or blue collar, can expect to read considerably more for application and assessment than they report reading in high school (Mikulecky, 1981).

To summarize, teachers concerned with content reading in the '80's must clearly recognize the presence of a broader student population in high school and college classrooms. Considerably more students, many with less than full reading competence, are staying in high school and large percentages are going on for further education. Simply assigning a single reading to a class of today's students is a guarantee that many students will be unable to read the assigned material and that many others are likely to experience difficulties with making higher level inferences and applications of what has been read. Dropping reading and writing assignments, as some teachers have elected to do, ignores the fact that literacy demands present on jobs in our technological society appear to be greater than those present in schools. Considering the broad range of the current student population, application of content area reading techniques is called for if teachers expect student success in high school and beginning college classrooms. Teachers who truly want the majority of their students to succeed, should plan to:

1. provide a conceptual framework e.g. an advanced organizer, for students before each assigned reading;
2. introduce key vocabulary and concepts from the selection before assigning reading;
3. provide students with specific purposes for reading;
4. use a variety of reading material at various levels of difficulty rather than a single text (much like the work world); and
5. make sure that reading material matched to student's ability levels is available and that students are expected to read that material.

## REFERENCES

Digest of Educational Statistics, 1979.

U.S. Department of Health, Education and Welfare, National Center for Educational Statistics, 1979, pp. 14,63,93.

Mikulecky, L. J. and Diehl, W. Job literacy, Bloomington: Reading Research Center, Indiana University, February, 1980.

Mikulecky, L.J. Job literacy: the relationship between school preparation and workplace actuality, Final report, National Institute of Education study #NIE-G-79-0168, February, 1981. Available through National Institute of Education, Washington, D.C. or author.

Moe, A., Rush, R. T., and Storlie, R. L. The literacy requirements of ten occupations on the job and in a vocational training program. (Project Report.) West Lafayette, IN: Purdue University, Department of Education, November, 1979.

National Assessment of Educational Progress, Three national assessments of reading: changes in performance, 1970-1980. Education Commission of the States, Suite 700, 1860 Lincoln St., Denver, Colorado, 80295, April 1981.

Wolf, A. and J. Greenwald. Frequency of reading in secondary content areas: a follow-up observation study. A paper presented at the National Reading Conference, San Diego, California, December 3-6, 1980.

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# CONTENT AREA READING: EVOLUTION AND DIRECTIONS

by John E. Readence  
Karen D. Wood

Enhancing student's ability to read and learn from text material has long been a concern of educators at all levels. In fact, the current emphases of content area reading instruction can be traced back to early writings in this century. For instance, Gray (1952) stated that the importance of providing guidance in reading in all curricular areas was first emphasized on a national scale in a 1925 report by the National Committee on Reading.

An examination of the research and professional literature reveals four distinct emphases which emerged in the first half of this century and which have continued to exert an impact on reading instruction in the content areas:

1. Emphasis on comprehending text information (Huey, 1908; Thorndike, 1917);
2. Emphasis on learning and retaining text information (Yoakam, 1928; Washburne, 1929);
3. Emphasis on various reading demands of content subjects (McCallister, 1936; Shores, 1943); and
4. Emphasis on improving reading abilities of older students (Center &

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Karen D. Wood, is a Doctoral Candidate at the University of Georgia. She has been active in professional organizations and in classroom teaching.

Persons, 1937; Kottmeyer, 1944).

But while the concept of content area reading instruction is not a new one, it has only been brought to the forefront in the last decade or so, led by the work of Harold Herber who published the first textbook that dealt exclusively with "Teaching Reading in Content Areas" in 1970. Since then, publication on the need to merge sound reading principles with content area instruction has seemed to proliferate.

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. . .state departments and school boards, pressured by the accountability movement in education, have become increasingly concerned over the reading achievement of secondary level students. . .

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At least two reasons can be cited for this. First, state department and school boards, pressured by the accountability movement in education, have become increasingly concerned over the reading achievement of secondary level students. Now, in almost every state, there is some form of competency testing designed to determine the literacy level of those students nearing graduation as well as the competency of those teachers involved in their education. Second, an increasing number of states have mandated required reading courses for all preservice secondary education majors. Evidence for this transition can be found in surveys conducted over the past decade. For instance, Estes & Piercey (1973) found that 17 states, or 34%, required or were considering requiring reading courses for secondary teachers. More recently, Thomas & Simpson (1979) reported that approximately three-

quarters of the states surveyed fell into this category, thus demonstrating an increasing trend in this area.

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. . . though reading instruction can no longer be considered the exclusive domain of the reading teacher, content area teachers have resisted this new-found responsibility and, perhaps, rightly so. . .

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However, though reading instruction can no longer be considered the exclusive domain of the reading teacher, content area teachers have resisted this new-found responsibility and, perhaps, rightly so. Slogans such as "every teacher a teacher of reading" have caused teachers to resist the prospect of teaching yet "another subject." Compounding this is the prevailing model for middle and secondary school reading--the skills model (Dishner & Readence, 1978). Seeing reading taught via workbooks, activity kits, and controlled readers in a remote area of the school can only make content teachers apprehensive, at the very least, about teaching reading in the content areas. Unfortunately or not, the skills model of reading instruction has become associated with poor readers, and obviously, content teachers must focus their attention on readers of all ability levels.

Helping all students learn from text material is the responsibility of content teachers, a responsibility with which they would agree (Singer, 1979). One objective for teacher trainers would be to consider a broader perspective which would help ameliorate prior associations content teachers may have about reading instruction. Since reading is only one of the interrelated communication processes along with listening, speaking, and writing, and since teachers should attempt to communicate content to all students in a manner which will enhance their learning from text, it may be more appropriate to view content reading as "content communication" (Readence, Baldwin, and Dishner, 1980). This proposal has been corroborated by Manzo & Sherk (1978) who discussed "languaging in the content areas" as a means to enhance students' learning from text and by Postman (1979) who advocated that every teacher become a "language educator" to increase students' learning in subject matter areas. This broader perspective

seems most appropriate when one considers that all communication processes are necessarily utilized when dealing with the content of any course. Additionally, this holistic view of learning from text also incorporates a growing concern about the writing skills of students and that teachers should capitalize upon the relationship between the reading and writing processes in learning from text. Recent writings by Smith & Bean (1980) and Arthur (1981) have advocated the use of writing in the content areas as an effective means to enhance the understanding and retention of text information.

An additional direction educators should pursue in fostering content area instruction is to examine just which teaching strategies are the "best" strategies to use in helping students learn effectively. Numerous strategies have been recommended to accomplish this, but, to date, little empirical evidence exists regarding their efficacy for classroom practitioners to work cooperatively to validate these recommended strategies and to comparatively study their effect on student learning (Patberg, 1979). One example of such a research effort to validate an instructional strategy has been the work of Barron (1979) who systematically refined the graphic organizer as an effective classroom tool. We may well be surprised to find some methods far superior to others and some methods which may need to be refined, or discarded altogether.

As a final note on the status of content area reading, we need to consider the implications of the present state of the American economy. As the money situation continues to languish, one can surmise that the availability of funds for education may become even more and more limited. As funds become limited, compensatory programs may gradually be reduced. Logical candidates for reduced funding may well be Title I and other remedial programs at the secondary level. When this occurs, the burden for reading instruction will, more than likely, fall on regular classroom teachers. Should this occur emphasis on content area reading instruction will become a greater necessity. We, as educators, should be prepared to make this a greater reality.



## REFERENCES

- Arthur, S. V. Writing in the content areas. In Dishner, E. K., Bean, T. W., & Readence, J. E. (Eds.), Reading in the content areas: improving classroom instruction. Dubuque, Iowa: Kendall/Hunt, 1981.
- Barron, R. F. Research for the classroom teacher: Recent developments on the structured overview as an advance organizer. In Herber, H. L. & Riley, J. D. (Eds.), Research in reading in the content areas: the fourth report. Syracuse, N. Y.: Syracuse University Reading and Language Arts Center, 1979, pp. 171-173.
- Center, S. S. & Persons, G. L. Teaching high school students to read: a study of retardation in reading. New York: Appleton-Century, 1937.
- Dishner, E. K. & Readence, J. E. Content reading: Past. Present! Future? Reading Horizons, 1978, 19, pp 78-81.
- Estes, T. H. & Piercey, D. Secondary reading requirements: Report on the states. Journal of Reading, 1973, 17, 20-24.
- Gray, W.S. Progress achieved and the tasks faced in improving reading in various curriculum areas. In Gray, W. S. (Ed.), Improving reading in all curriculum areas. Supplementary Educational Monographs No. 76, 1952, pp. 6-11.
- Huey, E. B. The psychology and pedagogy of reading. New York: Macmillan, 1908.
- Kottmeyer, W. Improving reading instruction in the St. Louis schools. Elementary School Journal, 1944, 45, pp. 33-41.
- Manzo, A. V. & Sherk, J. K. Reading and languaging in the content areas: A third generational approach. The New England Reading Association Journal, 1978, 13, pp. 28-32.
- McCallister, J. M. Remedial and corrective instruction in reading: a program for the upper grades and high school. New York: Appleton-Century, 1936.
- Patberg, J. P. Validation of reading strategies in secondary content areas. Journal of Reading, 1979, 22, pp. 332-336.
- Postman, N. Teaching as a conserving activity. New York: Delacorte Press, 1979.
- Readence, J. E., Baldwin, R. S., & Dishner, E. K. Establishing content reading programs in secondary schools. Journal of Reading, 1980, 23, pp. 522-526.
- Shores, J. H. Skills related to the ability to read history and science. Journal of Educational Research, 1943, 36, pp. 584-593.
- Singer, H. Research: Slogans and attitudes. Journal of Reading, 1979, 22, pp. 756-757.
- Smith, C. C. & Bean, T. W. The guided writing procedure: Integrating content teaching and writing improvement. Reading World, 1980, 19, pp. 290-294.
- Thomas, K. J. & Simpson, M. Reading requirements and basic secondary teacher certification: An update. Reading Horizons, 1979, 20, pp. 20-26.
- Thorndike, E. L. Reading as reasoning: A study of mistakes in paragraph reading. Journal of Educational Psychology, 1917, 8, pp. 276-282.
- Washburne, J. N. The use of questions in social science material. Journal of Educational Psychology, 1919, 20, pp. 321-359.
- Yoakam, G. A. Reading and study: more effective study through better reading habits. New York: Macmillan, 1928.



# CONTENT AREA READING: BEYOND THE MOTTOES

by Jo-Ann Mullen

As reading in content fields or content area reading becomes more firmly entrenched in reading education, many of the expressions associated with this approach to reading instruction become increasingly familiar to teacher education students, teachers, administrators and others involved with the teaching of reading. The philosophy of reading in content fields is often expressed as "reading to learn instead of learning to read," working toward making "every teacher a teacher of reading", emphasizing "process vs. product" and "reading for life."

While these expressions do perhaps capture the spirit of content area reading, like most mottoes, it is not intended that they go beyond the limitations imposed by their brevity--to do so would certainly lessen the effectiveness and catchiness of these thoughts. I believe, however, that it is important for us to look into what these expressions are taken to mean and at some of the implications and ramifications of these slogans for the teaching of reading at all levels.

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. . .I believe that, as early as in the primary grades, children are--and should be--developing content area reading skills and competencies. . .

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Jo-Ann Mullen, is an Assistant Professor of Education at the University of Northern Colorado. She reviews materials regularly for the Journal of Developmental and Remedial Education.

READING TO LEARN INSTEAD OF LEARNING TO READ. It may seem apparent that first children learn to read, then they read to learn. I question the existence of this dichotomy and the advantage of promoting such a 2-step approach to the development of mature reading.

I believe that, as early as in the primary grades, children are--and should be--developing content area reading skills and competencies. This is happening as they "learn to read" in basal readers or with alternative and supplemental approaches to beginning reading and, ideally, this continues until an advanced stage of reading maturity is attained. A readiness set for content area reading is beginning as early as the onset of familiarity with the concept of a book. Philosophies of reading that go beyond simply decoding to meaning orientations are advocating reading for content from the beginning. This will later be the foundation for the more traditional content area reading awareness and instruction that is usually reserved for grades 4 and beyond. If we acknowledge and advance the early stages of content reading instruction in primary grades, it stands to reason that youngsters in intermediate grades and middle school will have an improved readiness set and an appropriate conceptual development for further enhancing their content area reading skills, attitudes and habits.

EVERY TEACHER A TEACHER OF READING. Certainly the idea of involving every teacher in reading improvement is an exciting one. However, one can easily see how the content field teacher might very well question the intent of this 'goal'...does it purport to educate every teacher in remedial methods? Will

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. . . One point that must be stressed is that content area reading is not remedial in nature. In fact, it is quite the opposite--an attempt to expand the reading and thinking abilities of our students...

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all teachers be expected to spend part of their time providing structured drillwork in phonics? Will content teachers be expected to be as familiar with diagnosis as reading specialists? Will content teachers, in fact, be expected to become reading specialists? Of course this is not what is meant by "every teacher a teacher of reading."

What is meant? One point that must be stressed is that content area reading is not remedial in nature. In fact, it is quite the opposite--an attempt to expand the reading and thinking abilities of our students.

Harold Herber helped to clarify this at the Colorado Council of the International Reading Association Conference in Denver in 1978. He explained that there were three variables that could be manipulated to arrive at various levels of content area reading instruction. These are the room, the teacher, and the methods and materials. At one extreme the content teacher uses content materials in the content room. This would be traditional content area instruction. At the other end of the spectrum the reading teacher uses reading materials in the reading room, this being traditional reading instruction. The other possibilities involve interaction of reading and content: the reading teacher may work with the content material in the content classroom--perhaps to introduce a certain reading skill or book. The content teacher may arrange for the reading teacher to coordinate materials in the reading room. The content teacher may incorporate reading methods or materials in the content classroom. These possibilities are examples of forms of content area reading instruction.

As reading specialists, perhaps we do at times become insensitive to the needs of content teachers or classroom teachers presenting content materials when we encourage them to build upon student interest in their fields to hook

youngsters on reading. While it is certainly a noble effort or objective to want to foster positive reading attitudes and habits of students, I feel that sometimes, to borrow a phrase from President John F. Kennedy, "we expect content area teachers to ask not what reading can do for their field, but what their field can do for reading." In other words, while we are aware of how content teachers can help students to want to read by using interest in a specific subject area as a springboard, we should remember that the content teacher needs to see how an awareness of reading skills and demands can help to more effectively impart content area material to the students. Content area reading aims to reach in both of these directions and it is important that we don't lose sight of either one.

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. . . If we are to prepare students for reading needs of their lifetimes, we must look ahead and attempt to ascertain what these needs may be. . .

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PROCESS VS. PRODUCT. This phrase can be effectively illustrated by the age old adage "if you give a man a fish, he will eat for a day; if you teach him to fish, he will eat for a lifetime." Applied to reading, this becomes crucial in light of the information explosion of recent years. It is much more important for students to know how and where to find information, than it is for them to possess sets of facts and data. The teaching of research skills and other competencies needed for independent reading, information gathering and assimilating must be an integral part of reading instruction. Because the methods and means of access to information vary across disciplines, it is essential that content field teachers share in the teaching of these process skills.

READING FOR LIFE. If we are to prepare students for the reading needs of their lifetimes, we must look ahead and attempt to ascertain what these needs may be. Trends indicate that, in the future, society will have increasing access to technology in the home for entertainment and information and that reading skills

as we think of them today may not be adequate. Our students must grow as critical listeners as well as critical readers and must learn how to "read" television and newer technology with critical, mature judgment and viewing skills. Content area reading, if it is really going to meet the needs of our students for the course of their futures, will have to make students aware of the probable changes that will happen in information sending and receiving and how to best deal with possible changes.

Yes, the mottoes surrounding content area reading do give us an excellent starting point for discussion of this approach to developmental reading instruction. I believe if each of us periodically looks beyond the phrases and thinks about what they say and ask, and what these statements and questions mean to us as reading educators, then content area reading may very well become the unifying thread between the content fields and the academic skills that students need to insure lifelong reading and learning.



# COMMENTARY ON CONTENT READING

by Robert Karlin

In the past, most reading instruction has consisted of teaching students required skills for reading story-type, narrative materials. This kind of reading guidance has been carried over from the primary into the intermediate and upper grades where so often emphasis in instruction has been upon learning to read and not on reading to learn, despite the fact that reading requirements have changed.

## Reading Requirements

It is apparent from the results of research and demonstration that students comprehend informational writing, i.e., content materials, less well than narrative or story-type materials. Why is this so? In addition to recognizing words readily, grasping literal and inferred meanings, and evaluating ideas students must learn to accommodate to a different style of writing that contains unfamiliar sentence structures and is marked by a no-nonsense approach in which description and elaboration are reduced to a minimum; the materials contain technical vocabulary and concepts they do not fully understand and that are not fully explained; moreover, students are expected to master and remember information to an extent that the reading of narrative materials does not require.

Then, in order to solve problems when they read and study content, they must know how to establish purposes for reading when none is given; they must

locate information from single and multiple sources; they must be able to select pertinent information from the larger body of text, sorting important ideas from lesser ones and recognizing relevant and irrelevant details; they must be able to extract ideas from graphic materials and recognize how these and the text complement each other; they must learn to vary the ways they approach all these requirements. All these activities are functions of reading and studying content. Certainly many students lack expertise in meeting these requirements. This is why it is necessary to help students of all ages improve their reading and study strategies.

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. . . If we require students to read printed materials, it doesn't seem unreasonable to help them use the materials in order to learn what we and others deem important. . .

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## Sharing Responsibility

Now that this has been said, there are issues associated with improving reading in content areas. One of these concerns the subject teacher in whose classes students may be experiencing some difficulties in completing reading assignments and attaining program objectives. What responsibility, if any, does this teacher have for helping students use reading as a tool for learning? Many years ago this observation was made:

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Robert Karlin, is a Professor of Education at Queens College, CUNY. He is the author of Teaching Elementary Reading and Teaching Reading in the High School.

...the greatest opportunity for progress in teaching reading... lies in an intelligent attack on reading problems that arise in the content fields. Satisfactory results can be attained only as... teachers...recognize clearly their responsibility for promoting the development of desirable reading attitudes and habits in the reading activities that they direct and greater intelligence and discrimination in the use of printed instructional materials.

I do not interpret this to mean that subject teachers should have the major responsibility for helping students improve their reading ability. What it means to me is that subject teachers can help students develop strategies and competencies to master content better and more efficiently. If we require students to read printed materials, it doesn't seem unreasonable to help them use the materials in order to learn what we and others deem important.

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. . .it is not realistic to expect subject teachers to provide for the needs of students who have severe reading problems and/or are reading at levels several years below their age-peers. . .

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Many teachers in self-contained classrooms--those who teach most subjects in the curriculum--try to do this. But for subject teachers conditions are not the same--they are subject specialists. Nevertheless, increasing numbers are making real efforts to offer reading guidance in their classes. We should be aware of the difficulties they face. Few have had much preparation for helping students master content through reading. These teachers should not be told what they have to do; instead, opportunities for observing and discussing what possibilities exist for integrating reading and content learning should be provided. This means that knowledgeable staff must assume the responsibility for helping subject teachers come to grips with unfamiliar and often difficult requirements.

However, it is not realistic to expect subject teachers to provide for the needs of students who have severe reading problems and/or are reading at levels several years below their age-peers. Each school should have specialized reading personnel to work with these students who cannot achieve some measure of success despite the efforts of subject teachers.

#### Skills of Subject Areas

Do students need one set of skills to read efficiently in a given subject and another set in a different subject? A careful examination of the literature on differentiated reading requirements reveals extensive overlapping of the reading skills listed as required for each of the content areas.

What seems to be unique about each subject field is its use of specialized vocabulary. There are words that take on special meaning when used in different content fields--for example, exponent in mathematics and social studies--and still other words generally reserved for one subject--for example, molecules in science. Then too, there are differences in the kinds of graphic materials used in mathematics, social studies, and other subjects. Social studies books are likely to contain a variety of maps, while science and mathematics books have a profusion of diagrams and charts which are used with less frequency in other subjects.

Some skills have greater relevance in one subject than another. For instance, readers of science books are often told to conduct experiments, which means that they must be able to follow directions carefully. When they read a mathematics problem they are not given directions to follow; in developing a mathematical concept, however, authors might enumerate a series of procedures for readers to carry out in sequence. One reads directions only occasionally in social studies.

It appears that most if not all the skills enumerated--that is, word recognition, comprehension, critical evaluation, and all the reading-study skills--apply in varying degrees to each subject, but that some special requirements of a particular subject might call for adjustments in the way in which a skill is

applied to reading materials. With instruction and maturity in reading development will come the ability to use reading skills in a flexible way. This is justification for using a variety of materials to help solve the problems students face when they read in the content fields.

. . . Teachers should remember that most of these materials are not self-instructional, that is, they ask students to perform reading tasks but do not teach them how..

### Materials of Instruction

Better results in the improvement of content reading will be obtained by teachers who use the materials students read: textbooks, reference books, newspapers, and so forth. By using such materials rather than others not associated with the content students read and study, teachers do not have to worry about students' inability to apply what they have been taught to the materials of their subjects. This is no less true of instruction conducted by reading teachers than it is for the guidance in reading offered by subject teachers. Of course, it is assumed that the materials assigned for reading are not so far beyond the students' ability to comprehend them that less difficult materials must be used.

Some commercial materials reproduce pages and/or passages from classroom materials. The closer they represent what students read in subject classes the more useful they are likely to be. Teachers should remember that most of these materials are not self-instructional, that is, they ask students to perform reading tasks but do not teach them how. A few do offer instruction before requiring students to respond; teachers might model reading and study activities after those that seem to meet the needs of their students.

### In Conclusion

This capsule treatment of content reading is an attempt to underscore some issues school staffs might explore. This is a task not the exclusive domain

of any single group; everyone who has some responsibility for the education of students might participate. Both students and teachers will be the beneficiaries.



# THRESHOLDS

In Education

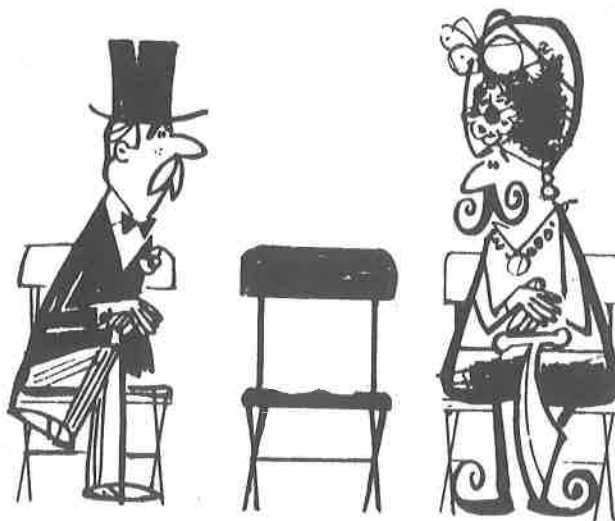
## Foundation

is expanding its professional activities to include an annual Fall Conference.

The photographs on pages 21 and 24 show members of the foundation at the First Annual Conference.

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# ASSESSMENT IN CONTENT AREA READING: A MATTER OF E-VALUE-WEIGHTING

by Richard T. Vacca  
JoAnne L. Vacca

The shopping mall plays a big part in the lives of retirees---at least in the case of Rich's parents. Since they moved from Long Island to the warmer climes of St. Petersburg, the local shopping mall has become a source of exercise (they enjoy walking), entertainment (last week they just happened to "walk in" on The Great Sylvester, a local magic act), surprise (sometimes they will come across friends from "the old neighborhood" whom they haven't seen for years), and even an occasional business transaction! Rich's dad, who boasts of not having been to a doctor's office in years, has his blood pressure tested periodically. Where? You guessed it---the shopping mall!

And so it is that a retired English teacher (Hassett, 1978) told of the time he also had his blood pressure checked in a shopping mall on one of the machines that provided instant computerized results for fifty cents:

The reading was alarmingly high and my wife requested that I see a doctor as soon as possible. After an electrocardiogram, a chest x-ray, numerous blood tests, and several blood pressure readings before and after vigorous exercise, the doctor informed me that my blood pressure was well within the normal levels.

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Richard T. Vacca, is a Professor at Kent State University. He is the author of the recent Content Area Reading, a distinctive text on the topic.

JoAnne L. Vacca, is an Assistant Professor at Kent State University. She has written widely on topics of middle and junior high school reading problems.

So much for shopping malls! The doctor explained to the English teacher that the machine gave him an inaccurate reading, or that some physical or emotional problem was bothering him at the time.

Interpreting an indicator of reading performance is much like reading the results of the computerized blood pressure machine or, for that matter, an ammeter on a car. The needle on the car's ammeter, for example, tells us when and to what degree the battery is charging or discharging. It allows us to make inferences about the internal state of the battery and the charging system. Likewise, reading indicators in content areas can signal how well and to what degree students are using reading to learn the text materials.

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. . .The problem, however, is that any single indicator of reading performance, whether it is the product of observation, a standardized test or an informal inventory, can give a content area teacher misleading results. . .

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The problem, however, is that any single indicator of reading performance, whether it is the product of observation, a standardized test or an informal inventory, can give a content area teacher misleading results. This may be particularly true if a student was having "a bad day" at the time of testing or observing. It is also possible that the test or activity itself was not an accurate means of giving the teacher a "read-out" of the student's performance. This is why assessment in content area reading should involve multiple indicators



of student performance. Several modes of collecting information about students' reading performance help form a corroborative framework in which classroom teachers can make effective decisions about instruction.

Nevertheless, from the content area teacher's point of view, assessment is one of those double-edged swords. One of the most persuasive reasons for evaluating reading performance is to help the content teacher plan instruction more effectively. Yet, Samples, et al (1977) contend that evaluation is a "weed" that classroom teachers can't get rid of. A weed by its very nature is alive and growing, but it represents something that most people just don't like. Our experience in working with content area teachers supports Samples' contention. They often view reading diagnosis or assessment or evaluation (call it what you wish) as one of those weeds they must put up with. For one thing, assessing reading performance takes time away from teaching---and this is the bane of most content area instructors. For another, content area specialists sometimes find it difficult to link information gathered during a reading assessment to instructional practices.

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. . . E-value-ations are continuous, even though as teachers we sometimes rely on blind faith as a way of knowing. We know, almost intuitively, that what we are doing in class is effective. . .

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Although Samples, et al (1977) feel that evaluation is something teachers can't get rid of, they also make the point that it is something that we do all the time anyway. Whether we admit it or not, we constantly make value judgments about students and their abilities. Teachers can put these judgments or "e-value-ations" to good use as indicators of content area reading performance.

E-value-ations are continuous, even though as teachers we sometimes rely on blind faith as a way of knowing. We know, almost intuitively, that what we are doing in class is effective. Often, however, e-value-ation can best be achieved through observation of students

as they work on tasks that require reading. The strengths and weaknesses that students bring to text assignments can be assessed in classroom situations through their responses to questions, performance in class discussions and small groups, or their written work.

Observation, by itself, is not a sufficient means for teachers to make instructional decisions. When a content teacher feels that she or he lacks information necessary to plan instruction, an e-value-ation may take a more deliberate turn. Teacher-made group reading inventories can be useful in collecting information that will help the content specialist make value judgments in a more informal test situation.

#### OBSERVATION

Observational techniques provide enough raw data, in most cases, to plan instruction effectively. The day-by-day classroom interactions that transpire between the teacher and students provide a wealth of information that can lead to valuable insights about student performance. However, unless the content area teacher makes a systematic attempt to tune into students during instruction, she or he may miss the meanings of these interactions (Vacca, 1981).

The teacher has to be a good watcher and listener of students; in effect, a participant/observer who searches for the meanings of events that happen in class. As participant/observers, teachers guide their e-value-ations by asking themselves questions which reflect their instructional objectives. How did students react to the class presentation? Which students seemed to have trouble with the reading assignment? How did the students respond to my questions? Which questions gave them trouble? What adjustments should I make in the next class?

To safeguard against the limitations of memory, it is a good idea for the observer/teacher to take notes about what happens in class. These "field notes" aid in classifying information, making inferences and predictions about instructional procedures and students' performance. As Robinson (1975, pp. 17-18) suggests:

Students should be observed

as they work independently, as they respond to questions...and as they interact with their peers. The teacher should concentrate on one or at most a few students at one time and record dated impressions. In this way the instructor is able to compare observations for given students over time while coping with specific reading/study tasks.

A checklist is an appropriate observational tool for making judgments about students' content area reading performance. A checklist reveals the categories of information that the teacher feels are important and has preselected for observation. That is to say, when we use a checklist to evaluate, we know beforehand which reading and study tasks or attitudes we want to observe. Items on the checklist serve to guide our observations in a selective manner.

The various types of instruments that can be adopted to guide observations of reading in content classes have been described elsewhere (Vacca, 1980). The important point that we wish to make is that observation often gives the content area teacher enough information to make good decisions about instruction.

Nevertheless, observation is but a single indicator of student performance. Within the corroborative framework that we have suggested, instructors should also consider weighing the importance of using additional evaluative techniques to support instructional decisions. In particular, it makes sense at times to analyze reading performance through the use of teacher-made tests.

#### TEACHER-MADE TESTS

Content area teachers tend to resist the use of informal tests to evaluate student performance. Such tests, when recommended by a reading specialist, tend to fractionate the reading process into a wide array of subskills, which in all probability would not be taught by a subject matter teacher in the first place. In short, content area personnel see little connection between the informal test and their instructional actions.

However, when reading is viewed as a meaning-based process which can be taught without fragmenting the process

into snippets of subskills, teachers respond favorably to assessment through informal tests. These tests, called content area reading inventories (Vacca, 1981), can be used at the beginning of a course or at the start of an instructional unit of study.

A beginning-of-course reading inventory administered in the first two months of a new school year gives the information a teacher needs to make initial decisions about students' reading performance on actual text materials used in class. Reading authorities (Robinson, 1975; Shepherd, 1978; Estes and Vaughan, 1978; Vacca, 1981) differ on the degree of testing that should be done. We suggest the following assessment procedures in four instructional areas for a beginning-of-course inventory:

1. Assess location of information: Construct 15-20 questions which assess students' ability to use (a) book parts, (b) textbook aids, (c) graphic aids, and (d) library resources.
2. Assess levels of comprehension: Select a representative text selection of 500-1000 words. Construct 10-15 questions that test students' ability to read at (a) literal level, (b) interpretive level, and (c) applied level.
3. Assess vocabulary inquiry: Construct questions to test students' ability to analyze technical terms through (a) context, (b) structure, and (c) dictionary/glossary.
4. Assess rate of comprehension: Determine the number of words in a passage that is selected for levels of comprehension test. Note the time it takes individual students to complete reading it. Determine words-per-minute (wpm) performance. Compare rate with percentage of correct comprehension answers.

A content area reading inventory in these four areas will help teachers decide upon the appropriate length of reading assignments and the amount of assistance that individual students might need in order to read for meaning and use the textbook effectively.

As far as teacher-made reading inven-

tories at the beginning of a unit are concerned, they can be designed to make value judgments about (1) the existing knowledge that students bring to the unit, (2) students' familiarity with technical terms, (3) students' ability to comprehend the material to be read, and (4) rate of comprehension. The assessment procedures in these areas might take this form:

1. Assess existing knowledge:
  - a. Ask several open-ended questions that tap students' understanding of important ideas in unit;
  - b. Construct a knowledge-based pre-assessment test that reflects content objectives in the unit;
  - c. Construct a reaction guide to assess concepts/attitudes/values related to the important ideas in the unit.
2. Assess familiarity with terminology:
 

Construct an inventory of students' knowledge of technical terms.
3. Assess levels of comprehension:
 

Same steps as in Procedure #2 for Beginning-of-Course Inventory.
4. Assess rate of comprehension:
 

Same steps as in Procedure #4 for Beginning-of-Course Inventory.

Teacher-made tests, whether developed for use at the beginning of a course or for a unit of study, can be administered piecemeal over several class sessions. Large segments of instructional time, as a result, will not be sacrificed.

When combined with observation during instruction, teacher-made informal tests can provide corroborative indicators of reading performance that will lead to focused instruction in content reading situations. In the final analysis, we must weigh the importance of various types of assessment information to make decisions that will help students read texts more effectively. That's what e-value-weighting is all about.

## REFERENCES

- Estes, T. and Vaughan, J. Reading and learning in the content classroom. Boston: Allyn and Bacon, 1978.
- Hassett, J. "Checking the accuracy of pupil scores in standardized tests," The English Journal, 67, 7, 1978, pp. 30-31.
- Robinson, H.A. Teaching reading and study strategies. Boston: Allyn and Bacon, 1975.
- Samples, R., et al. The wholeschool book: teaching and learning late in the 20th century. Reading, Mass.: Addison-Wesley, 1977.
- Shepherd, D. Comprehensive high school reading methods, 2nd Edition, Columbus: Charles E. Merrill, 1978.
- Vacca, J. "Surveys: valuable tools for the reading consultant." Reading Horizons, 20, 4, (Summer, 1980), pp. 268-275.
- Vacca, R. Content area reading. Boston: Little, Brown, and Company, 1981.

# THRESHOLDS

In Education

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# TECHNIQUES FOR IMPROVING READING IN THE VARIOUS CONTENT AREAS

by Weldon G. Bradtmueller

Content area reading or functional reading is the reading we all do to gain information, learn how to do things, pass courses in school, and become familiar with new developments. It is a kind of reading by which we get to know better what we already knew by adding layers of new meaning to existing knowledge and by comprehending and utilizing new concepts that then become a part of our cognitive conceptual storehouse.

The teaching of the reading skills necessary for the successful completion of a course of study in a content area requires that the teacher be cognizant of the importance of the specific skills related to his/her subject area specialty.

Many content area teachers tend to rebel at the notion that they should now learn an entirely new set of skills and abilities necessary to the teaching of their subject area. It would seem to this author that there need not be an extensive period of study and effort expended by these teachers in becoming proficient in teaching content area reading. They do not need to learn all the various theoretical models of teaching reading or master the basic phonetic principles for teaching word recognition skills. But it would seem essential that they learn the specific reading skills pertinent to the effective instructional planning for their own content area. The following is an outline of how this might be done. It involves principles of good teaching and takes the point of view that reading is

a means to gaining more information more effectively about the subject being studied.

## Basic Principles of Reading Instruction in the Content Areas

1. Establish readiness for reading and studying a book, chapter, article, selection, etc.
2. Give direct instructions to students in the development of study techniques directly applicable to the specific content area under consideration, e.g., SQRRR (Survey, Question, Read, Recite, Review; cf. Tierney, Readence, Dishner).
3. The common reading skills initially introduced earlier need to be consciously and constantly reinforced in each content area.
4. Specific reading skills particularly pertinent to a content area should be introduced initially by the content area teacher as the need for that skill becomes evident.
5. When only one basic text is available for a class it is essential that the teacher differentiate assignments.
6. Use multi-level, multi-text materials whenever possible.
7. Develop awareness of the various types and patterns of writing utilized in the various content areas. (cf. N.B. Smith, Be a Better Reader, Prentice-Hall.)

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8. A classroom library, related to each content area and containing materials at various interest and reading levels, should be available.

A more detailed outline of specific content area skills follows:

Common Skills Pertinent to all subject areas

1. Set a purpose for reading.
2. Identify main and subordinate ideas.
3. Vocabulary, specialized.
4. Concepts, specialized.

Social Studies

1. Recognize propoganda techniques.
2. Interpret graphics.
3. See cause and effect relationships.
4. Read critically.

Science

1. Critical reading.
2. Read to follow directions precisely.
3. Careful and analytical reading.
4. Scientific method:
  - a. Identify problem
  - b. Search for facts
  - c. Formulate hypotheses
  - d. Choose a hypothesis--test it
  - e. Evaluate the results
  - f. Accept or reject and choose another
5. Problem of concept density.

Mathematics

1. Deliberate and thoughtful reading and rereading.
  - a. Follow directions
  - b. Obtain, analyze and interpret facts
  - c. Recognize and comprehend basic mathematical processes and quantitative relationships
  - d. Draw implications
  - e. Make applications

2. Problem of learning that is built upon previous learnings.

Language Arts

1. Study skills
  - a. Locating information
  - b. Assembling information
  - c. Compile into useable form
  - d. Writing it in the best style and form possible
2. Literature appreciation
  - a. Literature as an art form
  - b. Reading as an end in itself
  - c. Emotional involvement with literature
    - 1) Shades of meaning
    - 2) Interrelationships of detail
    - 3) Evaluation of what is meant by what is said
    - 4) Develop interest and tastes
    - 5) Offer a study of:
      - a) Character
      - b) New and varied experiences
      - c) Opinions, sensations and emotions
  - d. Literature forms:
    - 1) Novels
    - 2) Dramas
    - 3) Short stories
    - 4) Essays
    - 5) Poems

This outline deals with the general structure of knowledge found in any given subject area and is generally adaptable to most classroom situations. It is directed toward the teacher and his/her plans for instruction as he/she analyzes the content and prepares it for instruction. The teacher also needs to have some knowledge about how well students can use the various study skills. Karlin (1972) presented a "Checklist of Study Skills" that would provide this information.

Checklist of Study Skills

Study Skills	Level of Student's Performance
	Poor/Fair/Good
I. Selection and Evaluation	
Can the student do the following?	

- a. recognize the significance of the content
- b. recognize important details
- c. identify unrelated details
- d. find the main idea of a paragraph
- e. find the main idea of larger selections
- f. locate topic sentences
- g. locate answers to specific questions
- h. develop independent purposes for reading
- i. realize the author's purpose
- j. determine the accuracy and relevancy of information

- d. read and interpret charts
- e. read and interpret maps
- f. read and interpret cartoons
- g. read and interpret diagrams
- h. read and interpret pictures

As a result of using this observational checklist it would be possible to determine which students need help in which study skills.

Additional resources that might be used to help students develop these skills are presented in the article by Professor McNamara elsewhere in this issue.

One other technique that recent research has demonstrated to be a valuable device is the addition of listening to the reading task. Provide students with an audio taped copy of the material to be read. Then have them read and listen to the text material at the same time. This permits those who have difficulty reading content area texts to listen and read at the same time. They can learn the concepts while the teacher helps them build the reading skills needed to read and comprehend. This technique has been proven effective with ten to fifteen percent of students having learning problems. Many students with learning problems will be able to comprehend materials via listening two to three levels above their reading comprehension level.

## II. Organization

Can the student do the following?

- a. take notes
- b. determine relationship between paragraphs
- c. outline single paragraphs
- d. outline sections of a chapter
- e. outline an entire chapter
- f. summarize single paragraphs
- g. summarize larger units of material

## III. Location of Information

Can the student do the following?

- a. find information through a table of contents
- b. locate information through the index
- c. use a library card catalog to locate materials
- d. use the Reader's Guide to Periodical Literature to locate sources of information
- e. use an almanac to obtain data
- f. understand and use various appendixes
- g. use glossaries
- h. use encyclopedias to locate information

## IV. Following Directions

Can the student do the following?

- a. see the relation between the purposes and the directions
- b. follow one-step directions
- c. follow steps in sequence

## V. Graphic Aids

Can the student do the following?

- a. understand the significance of pictorial aids
- b. read and interpret graphs
- c. read and interpret tables

## REFERENCES

- Aulls, Mark W. Developmental and remedial reading in the middle grades. Boston: Allyn and Bacon, 1978.
- Duffy, Gerald D. (ed.). Reading in the middle school. Newark, DE: International Reading Association, 1974.
- Estes, Thomas H., and Joseph L. Vaughn Jr. Reading and learning in the content classroom. Boston: Allyn and Bacon, 1978.
- Forgan, Harry W., and Charles T. Mangrum II. Teaching content area reading skills. Columbus, OH: Charles E. Merrill Publishing Company, 1976.
- Herber, Harold L. Teaching reading in the content areas (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall, Inc., 1978.

Karlin, Robert. Teaching reading in high school. Indianapolis, IN: Bobbs Merrill, 1972.

Smith, N.B. Be a better reader. Englewood Cliffs, NJ: Prentice-Hall, Inc. 1968.

Smith, Richard J., and Thomas Barrett. Teaching reading in the middle grades. Reading, MA: Addison-Wesley Publishing Company, 1974.

Strang, Ruth. Diagnostic teaching of reading. New York: McGraw-Hill, 1964.

Tierney, Robert J., John Readence, and Ernest Dishner. Reading strategies and practices: a guide for improving instruction. Boston: Allyn & Bacon, Inc., 1980.



## THRESHOLDS

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# RESEARCH IN THE CONTENT AREAS: VOCABULARY

by James E. Walker

A common complaint in schools today is that students can't read well and they can't write well either. At the risk of generalizing, perhaps three main reasons might be offered for this situation: 1) students are not required to read assignments which have actually been made by the teacher (there is no follow through); 2) teachers tend to feel inadequate about dealing with the problem ("I never had a reading course"); 3) the readability level claims for books is often higher than the grade in which the text is used. The latter claim is one borne out by inservice offerings in which readability formulas have been applied to classroom textbooks. Further, Curtis' (1938) finding so many years ago still seems to be true. He found that authors tended to overestimate the level of understanding that students had for books they were required to use. It seems reasonable that with the open competition for sales, textbook publishers are attending more than ever to readability factors.

The first reason suggested above for the existence of reading problems has a self-evident remedy--that of being sure that follow-up activities designed to check on students' reading are completed.

Call and Wiggins (1966) conducted a study in which a mathematics teacher taught the control group and an English teacher taught the experimental group. While the teaching unit was the same,

the difference in the teaching was that the experimental group had to get meaning from the words and translate the meaning into mathematical symbols. When reading ability and mathematical aptitude were controlled, the experimental group did better than the control. The authors concluded that teachers who have never been trained to teach reading had great difficulty in helping students deal with word problems.

## Vocabulary Strategies

Advance organizers, structured overviews, anticipation guides, three-level reading guides, and reaction guides are some of the strategies which have been proposed for content area reading (Vacca, 1981). Teachers who have adopted the use of these strategies speak in glowing praise of them and wonder why they did not know of them sooner. But the question arises: How effective are they? Patberg (1979) urged that more research needs to be done before we continue to promote these strategies.

In reference to content areas, "technical" or "term" is used to indicate specialized vocabulary as distinct from general vocabulary or word development. For technical vocabulary, a teacher has to decide what terms to preteach and how. Early (1969) has suggested a few points in helping us choose words that we would then teach. She prefers to use key words, i.e., those that readers must understand in order to comprehend main ideas and important principles. She also prefers words that are socially useful and interesting. The history, derivation, coinage, and sound might be ways to consider a term

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"interesting." Probably a most significant criterion would be words that illustrate principles of vocabulary building, i.e., words that can be defined in the sentence context or words that have prefixes, roots, and suffixes which can be analyzed for their meanings, and words that have multiple meanings, e.g. cube, contract, form, etc. Herber (1970) also pointed out that teachers need to be selective and simply face the situation that at times some words have to be deleted from the preteaching phase.

Barron (1979) systematized the matter by including a series of steps in the process:

1. List terms you think are necessary for students to understand the content.
2. Arrange the words in a way that stresses how they are related.
3. Add terms to help clarify the rest of the course material.
4. Use an overhead or a ditto; have students in small groups discuss the terms and their relationships.
5. Provide feedback and explanation when necessary.

Having students work through a list of approximately twelve to eighteen words per chapter in trying to establish what the relationships are among those words is called a graphic organizer or an advance organizer.

Following a similar plan, Walker (1975) had fifth and seventh graders working in groups arrange key words into a schema which suggested the concepts being studied. This seemed to make a difference in how students understood the content area concepts.

Barron (1971) completed a two-year study of vocabulary development in biology. In order to reinforce terms already taught, he found that matching and word puzzle type exercises were the most productive to students' learning. Categorizing words was also a highly productive activity.

According to Patberg (1979), the success of these approaches depends quite heavily on the consistency with which teachers use it.

## Further Resources

The reader is referred to the article by McNamara elsewhere in this issue for some important resources. Vacca (1981) is especially helpful on teaching vocabulary. In addition, Herber (1973), has a masterful collection of vocabulary activities which can be used as models for almost any content area textbook.

Recent reports on the rising scores on the SAT's are encouraging. In order to help this trend continue, we need to learn more ways of assisting students in their study-reading. To this end, vocabulary development is an essential ingredient in every class, in every grade.

## REFERENCES

- Barron, R. F. The use of an iterative research process to improve a method of vocabulary instruction in tenth grade biology. Unpublished doctoral dissertation, Syracuse University, 1971.
- \_\_\_\_\_. "Research for the classroom teacher: Recent developments on the structured overview as an advance organizer." In H.L. Herber and J.D. Riley (Eds.) Research in reading in the content areas: The fourth report, Syracuse, NY: Syracuse University Reading and Language Arts Center, 1979, pp. 171-176.
- Call, R. J., and N.A. Wiggins. "Reading and mathematics," Mathematics Teacher, 59 (February 1966), pp. 149-157.
- Curtis, F. D., Investigation of vocabulary in textbooks of science for secondary schools. Boston; Ginn & Co., 1938.
- Early, M. J. "A note on teaching vocabulary in content subjects." Syracuse, NY: Syracuse University Reading and Language Arts Center, (Mimeo), 1969.
- Herber, H. L. Teaching reading in content areas. Englewood Cliffs, NJ: Prentice-Hall, 1970.
- \_\_\_\_\_. Success with words. New York: Scholastic Book Services, 1973.

Patberg, J. P. "Validation of reading strategies in secondary content areas." Journal of Reading, 22 (January, 1979), pp. 332-336.

Vacca, R. T. Content area reading. Boston: Little Brown & Co., 1981.

Walker, N. M. An investigation into the effects of graphic organizers on the learning of social studies readers in the middle grades. Unpublished doctoral dissertation, Syracuse University, 1975.



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# KEY SOURCES FOR CONTENT AREA READING TEACHERS

by Lawrence P. McNamara

More teachers of English, science, social studies, math, industrial arts, and other disciplines are becoming interested in helping their students get more out of their textbook reading. This type of reading is generally referred to as content area reading. With this surge in interest, there are many new publications which extol various reading strategies to be used in the content areas. This article selects several key sources to help begin and refine a reading program for content area teachers to use in teaching their discipline.

The article is divided into two parts. The three sources recommended in part-one introduce and illustrate the many techniques used in a total program for the classroom teacher. Part two suggests sources for refining techniques already practiced.

## I. An Overview

Herber, H.L. Teaching reading in content areas. Englewood Cliffs, NJ: Prentice-Hall, 1978.

Herber is the source for modern approaches to teaching reading in the content areas. While this book is somewhat difficult to read, it has a wealth of practical examples which are easy to follow. Reading guides, pattern guides, reasoning guides, vocabulary development, prediction guides, and lesson structure are amply illustrated. This text must be in your professional library.

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Roe, B.D., Stoodt, B.D. & Burns, P. Reading instruction in the secondary school, (Rev. ed.). Chicago: Rand McNally, 1979.

This textbook contains practical examples of study skills, word recognition, vocabulary development, basic skills for content area reading, and assessment procedures. Chapters 9A and 9B give detailed methods for improving reading in social sciences, science, health, math, English, foreign language, industrial arts, business education, home economics, physical education, and art. Each chapter has selected references, and the appendices list publishers and addresses as well as other reading materials.

Vacca, R.T. Content area reading. Boston: Little, Brown, 1981.

This is an exceptionally well written text. Chapters 5 through 9 give practical examples of the basic procedures for teachers to use to help students read their textbooks. This book should be in your personal professional library as a handy reference for clarifying difficult concepts in your content area reading assignments.

## II. Other Sources

Adams, W.R. How to read the humanities. Glenview, IL: Scott, Foresman, 1969.

While this series is written primarily for the college student, the practical examples and exercises can be adapted to almost any level. There is a step-by-step analysis of representative

reading samples which shows the reader how to deal with each genre's particular reading demands. Note-taking, library research, and test-taking are also reviewed. See also How to Read the Sciences and How to Read the Social Sciences.

Herber, H.L. & Vacca, R.T. (Eds.), Research in reading in the content areas: the third report. Syracuse, NY: Reading and Language Arts Center, Syracuse University, 1977.

This is one of a series of monographs which attempt to review functional reading research in the classroom. There are four reports available.

International Reading Association, P.O. Box 8139, Newark, DE 19711.

This organization publishes the Journal of Reading which contains numerous articles on content area reading. It is recommended that you read this journal regularly.

Lundstrum, J.P. & Taylor, B.L. Teaching Reading in the Social Studies. Newark, DE: International Reading Association, 1978.

Combines practical approach with a brief review of the reading problems encountered. Readability formulas, cloze, maze technique, teacher-made reading tests, motivational devices, vocabulary, structural overview, and grouping are illustrated. There is also an annotated bibliography.

Readence, J.E., Bean, T.W., & Baldwin, R.S. Content area reading: an integrated approach. Dubuque, IA: Kendall/Hunt, 1981.

This text has a good review of how decoding and comprehension processes work in reading textbooks. There is a textbook evaluation checklist which could be used to select new textbooks. There is also a succinct review of reading-study strategies which is useful for planning a system for students to follow in studying a particular subject or course.

Smith, C.B., Smith, S.L., & Mikulecky, L. Teaching reading in secondary school content subjects: a book-thinking process. NY: Holt, 1978.

This book has two approaches not developed by the other sources cited in this article. They are the concepts of bookthinking, which attempts to help students master each discipline's special system of knowledge, and writing, which expresses the synthesis gained from reading. Both of these concepts need further development, but the kernel of a potentially powerful approach is presented.

Thelen, J. Improving reading in science. Newark, DE: International Reading Association, 1976.

Follows a very practical format by illustrating cloze procedure, study skills, vocabulary, structural overviews, several types of reading guides, comprehension skills, readability, and test construction. While all of the techniques are discussed so that a teacher may use them immediately, each chapter contains references for further reading.

Vacca, R.T., & Meagher, J.A. (Eds.). Reading through content: proceedings of the second annual special themes in reading conference. Storrs, CT: Reading-Study Center, U-33, 1979.

In part IV "Classroom Applications," there is a series of eight articles which cover study skills, guided reading, vocabulary, and comprehension. The techniques are clearly described and can be easily adapted to almost any discipline.



# INCREASING READING RATES— CONSIDERATION OF PHYSIOLOGICAL LIMITATIONS AND SUGGESTIONS FOR TEACHING IN RELATION TO CONTENT AREAS

by Earl F. Hanson

When one casually observes a person reading, the reader's eyes will probably appear to be sweeping from left to right across lines of print. Closer examination, however, reveals that the eyes are not moving smoothly. They are starting and stopping; they are jerking across the printed page.

If a person is reading general material for information or pleasure, his or her eyes will stop on an average of three times per line. When the material is difficult for the reader, there will be regressions and more fixations.

Perception of printed symbols does not take place while the eyes are moving, only when the eyes are stopped. When the eyes are stopped, it is important to note, the span of fixation is very limited. The area of clearest vision covers only about four letter spaces. About twelve to fifteen letters can be perceived in one fixation of the eye. Ruediger (1965) found that letters in eleven point type could be perceived fairly accurately at one inch (twelve to fifteen letter spaces) from the fixation point. There were no distinct boundaries to this area, as the clearness of form faded off gradually.

Span of perception is limited by the anatomy of the eye. The eye is a round globe-like structure with a tough, white covering on the outside called sclera. It is lined with a dark membrane called the choroid which serves to keep light from coming through the wall of the eye. On the inside of the eyeball next to the choroid lies the retina, the receiving

screen for the optical image.

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. . . Research (Walton, 1957) tends to show that individuals are capable of perceiving about 1200 words per minute. . .

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Two types of receptor cells or nerve endings are present in the retina. They are called rods and cones because of their shape. However, rods and cones differ not only in shape but also in type of nerve connection to the brain. Each cone has an individual pathway to the brain. Many different rods may be connected to a single pathway.

The number of cones or rods per unit area varies in different parts of the retina. Consequently, sensitivity over the surface of the retina is not uniform. At the center of the retina is a small pit or depression known as the fovea, or macula, where the nerve endings are all cones. Because each cone has a direct path to the brain, it is the fovea that can most readily discriminate detail, and it is because the area of the fovea is so small that our span of perception is physiologically limited.

Research (Walton, 1957) tends to show that individuals are capable of perceiving about 1200 words per minute. However, more important than speed and span of perception in determining reading speed is rate of understanding. The question often arises, "How fast can one or should one read?" Walton in his investigation of vision and rapid reading concluded that adults normally read between 220 and 270 words per minute (Walton, pp. 73-82). However, the answer to the question is contingent on

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one's purpose for reading a particular selection and the nature of the material. Regarding purpose: if one is reading to understand complex discourse, to solve problems in mathematics or to follow experimental procedures, for example, he or she must read slowly. On the other hand, if a person is reading simply to obtain general information or for pleasure, they can read more rapidly. Regarding the nature of the material: the easiest materials to read appear to be light short stories and novels (Judd and Buswell, 1922). The most difficult are probably scholarly works in different fields of study.

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. . . The purpose of instruction to increase reading rate is not simply to increase rate of reading but to develop flexibility of reading rate. . .

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It follows that two types of materials might be identified: study type reading and easy reading. The purpose of instruction to increase reading rate is not simply to increase rate of reading but to develop flexibility of reading rate. By flexibility of reading rate is meant the ability to adjust one's rate of reading to his or her purpose for reading and the nature of the material.

Although reading rates attained through participation in some programs for increasing reading rates appear to have been exaggerated, there is evidence to show that rates of reading easy and study-type material can be significantly increased through proper training. A program developed at the University of Chicago Reading Clinic utilizing the following procedures has been shown to be effective:

1. Practice in rapid reading of easy material at forced rate, accompanied by general questions. Pacers are used to help students push themselves to read more rapidly. The material read should be fast-moving, interesting and easy to read.
2. The reading of easy material accompanied by general questions without a pacer. Unspeeded reading rates are calculated, and a record of the selections read and the unspeeded rates of

each student is maintained. The unspeeded reading rate attained is used to determine the initial rate setting of the student's pacer for subsequent practice at forced rate. Teachers of specific subject matter areas might consider recommending related easy reading materials to students for practice in reading at unspeeded and forced rates.

3. Practice in reading study-type materials without a pacer; adjusting rate in order to understand concepts, note details, grasp main ideas, perceive relationships, draw inferences and make interpretations. The selections read are accompanied by general and specific questions. Reading assignments in various subject matter areas provide an ideal source of material for practice in study-type reading. Commercial study-type exercises are also used. The student's rate of reading study-type material and the extent of his or her comprehension of the selections read are recorded.
4. Students alternate between reading easy and study-type material, devoting about the same amount of class time to each in order to develop flexibility of reading rate. As a means of motivation, it is suggested that students, individually, record and plot their own record of progress.

Following the foregoing procedure, students have attained marked increases in rates of reading both easy and study-type materials, (Hanson, 1971). Maximal reading speed is usually attained in about twenty, one-hour sessions (Mitchell, 1953). It is important to note that reading rate training should be undertaken with students who possess sufficient vocabulary and comprehension skill to read general material for information or pleasure. Otherwise, attempting to increase reading speed simply causes the student to make more mistakes faster.

Curiously, it is evident that the maximum reading speeds attained by students of equal intelligence and comprehension ability vary widely (Mitchell, 1953). A possible explanation for the variation is that reading rates are partially determined by personal tempo.

During the early years of psychological inquiry, European investigators

noted that individuals tended to be remarkably consistent in the rate at which they performed certain motor tasks, and they termed the phenomenon personal or human tempo. As described by Frischeisen-Kohler (1933), "there is an individual tempo of personality, the personal tempo, which is expressed more or less markedly in all our doings, in our acts of perception and our volitional processes." Later research tended to characterize the concept as an integral, stable component of personality which could be described in terms of multiple factors (Rimoldi, 1951).

Although many tests of personal tempo have been developed, they have not been particularly useful in predicting the reading rates of individuals. Presently, there appears to be no reliable procedure for estimating one's potential rate of reading (Hanson, 1971). This is not surprising, considering the complexity of the reading process that reading rates are influenced by many different interrelated factors such as speed and span of perception, one's purpose for reading, and the reader's background of experience with respect to the subject matter.

#### REFERENCES

- Frischeisen-Kohler, I, "The personal tempo and its inheritance," Character and personality, 1 (June, 1933), p. 302.
- Hanson, E.F., "Relationships of personal tempo to reading rate among college students," (Unpublished dissertation, Department of Education, University of Chicago, 1971), pp. 90-91.
- Judd, C.H. and Buswell, G.T., Silent reading: A study of the various types. Supplementary educational monographs, No. 23, Chicago: University of Chicago Press, 1922, p. 23.
- Mitchell, J.F., "Prediction of increase in silent reading rate," Clinical studies in reading II, Supplementary educational monographs, No. 77 (Chicago: University of Chicago Press, 1953), pp. 89-93.
- Rimoldi, H., "Personal tempo," The journal of abnormal and social psychology, 46 (July, 1951), pp. 283-303.
- Robinson, H.M., Manual of instruction, reading rate controller. (Chicago: Stereo Optical Company, 1954), p. 7.
- Tinker, M.A., Bases for effective reading, Minneapolis: University of Minnesota Press, 1965, pp. 12-13.
- Walton, H.N., "Vision and rapid reading," American journal of optometry and archives of the american academy of optometry, 24 (February, 1957), pp. 73-82.



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