DOCUMENT RESUME

ED 088 022   CS 000 945

AUTHOR   Palmer, William S.
TITLE   Teaching Reading in the Content Areas: Three
                Pitfalls, Three Possibilities.
PUB DATE   May 74
NOTE   14p.; Paper presented at the Annual Meeting of the
                International Reading Association (19th, New Orleans,
                May 1-4, 1974)

EDRS PRICE   MF-$0.75 HC-$1.50
DESCRIPTORS   *Content Reading; Decoding (Reading); Elementary
                Grades; Reading; Reading Comprehension; Reading
                Development; *Reading Improvement; *Reading
                Instruction; Reading Processes; *Reading Programs;
                *Reading Skills; Secondary Grades

ABSTRACT
                A common pitfall is the assumption that the teaching
of reading in the content areas is an esoteric mystery to be solved
only by the reading specialist. The teacher of a content area should
guide his students in the application of basic skills and study
methods to the materials used. A second pitfall is the assumption,
often made by the unskilled teacher of reading, that the best place
to begin reading instruction is the extensive training in phonics.
The good reader combines phonic skills, context clues, and sight
vocabulary. A third pitfall is the tendency to teach reading as if
this highly complex mental activity required little more than just a
bag of devices. The possibilities for improving the teaching of
reading should include putting into practice the teaching of reading
as a process. The discerning teacher of a content area uses in part
the student's self as content, thereby placing the teaching of
reading as a process in as broad a context as possible. A second and
related possibility for improving reading instruction in the content
areas is the building of instruction upon significant leads from
linguistics. A third possibility is bridging the gap between the
spoken language, experiences, and the variety of patterns within
printed language. (WR)

TEACHING READING IN THE CONTENT AREAS: THREE PITFALLS, THREE POSSIBILITIES

William S. Palmer, Ph.D.
The University of North Carolina at Chapel Hill

INTRODUCTION

At one time in the school curriculum, the term "content area" referred

to one of four basic subjects--math, science, English, or social studies.

Today the phrase is often extended to include business education, foreign

languages, home economics, industrial arts, music and still other fields.

Regardless of the area of study, all school subjects at one time or another

require students to handle specialized forms of language.

General reading competence, however, does not automatically include the

particular skills and habits needed to cope with such printed information.

These abilities are so important that their development cannot be left to chance--

nor to the capricious notions of either the teacher or the student. Thus,

sound instruction in reading must be more than mere exposure to content, more

than mere reading assignments. Sound instruction in reading must also be a

matter of helping students benefit from the reading experience. Only the teacher

who has attempted to learn how can do this. In learning how, the teacher should

avoid certain pitfalls and test-out certain possibilities.

PITFALLS

The first pitfall is the assumption that the teaching of reading in the

content areas is an esoteric mystery to be solved only by the reading specialist.

Some content teachers argue that they have chosen to be content teachers, not

reading teachers, that they are happy as content teachers, and that, more likely

than not, they will remain content teachers. Constance McCullough (1973)

reminds teachers that "We are all bird dogs following semi-true and false scents,

and reading, our prey, is very clever." One false scent is the content
teacher's assumption that sending students to the reading specialist will
solve all the student's reading problems (Sawyer, 1974). This assumption is
complementary to the reading specialist, but it is, nevertheless, a false
scent. The view holds the reading specialist and the school's basic reading
program totally responsible for reading improvement. When the teaching of
reading becomes limited to reading specialists and reading classes, it burgeons
out of reasonable proportion.

Ironically, the development of reading competence is best achieved when
the student's focus is on the content of the material and not on reading it-
self (Goodman, 1970). Psychology of learning has long pointed out that what is
taught is most effective within the context in which it is used. The content
classroom provides a place where reading abilities may be developed functionally.
The implications are apparent. Every teacher of whatever subject and level
must be prepared to help students meet new demands in reading and to develop
the special strategies which these demands require.

A related and an additional false scent is the content teacher's assumption
that he must be first trained as a reading specialist if he is to help students
meet such demands in reading. Of course some training is necessary, but the
role of the reading specialist and the role of the content teacher as a teacher
of reading must not be equated nor confused. Whenever they are, content teachers
tend to become even more apprehensive about their own application of some instruc-
tion in reading. Most continue, nevertheless, to assign vast sums of reading
each day to keep their students abreast of new knowledge.

, Teachers can no longer ignore the dual responsibility of the basic reading
program and instruction in the content areas. The role of the reading specialist
is to teach the skills that are fundamental to all reading of whatever kind.
On the other hand, the teacher of a content area should guide his students in

the application of basic skills and study methods to the materials used.
If content teachers understand and accept this delineation of roles, then
the teaching of reading becomes a responsibility faced by all teachers.

The second pitfall is the assumption often made by the unskilled teacher
of reading that the best place to begin reading instruction is with extensive
training in phonics. The time and place for instruction in phonics must be put
in proper perspective. Instruction in phonics does have its place in reading,
especially in beginning reading. Heilman (1968) warns, however, that the
history of reading instruction in America is a chronicle of frustration which
stems in part from our predilection to make reading consist exclusively of
letter-sound analysis. The good reader combines phonic skills, context clues,
and sight vocabulary because he realizes that these skills in reading are tasks
that live within one another.

Moreover, at the secondary level, the study of phonics is only one of
many ways to the analysis of polysyllabic words. Of course we have words that
divide phonically into syllables. But we also have many non-phonetic words.
We have, in addition, compound words. And we have words that share similar
roots. For many years, Olive Niles (1973) has continuously stressed more than
phonetic ways to word recognition, among them the use of context clues and
structural analysis.

One reading theorist, Frank Smith (1973), even challenges the assumption
that to comprehend in reading, a student must first decode to sound. According
to Smith, sound, if produced at all, comes after the comprehension of meaning.
Similarly, Goodman (1970) contends that it is not the symbols, phonemes, or
letters, but the systematic structuring of these symbols that makes comprehension
of meaning possible. In Goodman's model, the good reader samples, predicts,
tests, and confirms--strategies that help him select only the most productive
cues within the structure of words and within the language structure.

The third pitfall is the tendency to teach reading as if this high complex mental activity required little more than just a bag of devices. To improve comprehension in reading, the content teacher is often advised to identify levels of comprehension and to lead his students to analyze content, in part, by applying these levels to the materials being read. Through the preparation of multi-level reading guides, the content teacher structures the reading experiences of his students in orderly steps, levels, or taxonomies. This method of improving reading can become an artificial lock-step device.

Comprehension in reading does, of course, take place at different levels of cognition, and in his interaction with print, the student is indeed confronted with phenomenon that he must put together: the letter symbols and the concepts of meaning behind the symbols. When a student reads for meaning, however, he may read for many purposes at once. The student's contribution to the reading comprehension experience--his personal involvement--his creative, critical, and cognitive juices--often stir inside him simultaneously as he reads. Hence, his reading comprehension is often the result of a spontaneous way of happening. Thus, reading comprehension must involve more than just the systematic progression through sequential and cumulative levels. Reading comprehension guides, however, may enable contents teachers to use them as informal inventory checks for finding the range of cognition in his students. The content teacher must remember, nevertheless, that this device for improving reading comprehension--if not used judiciously, can produce knowledge "about" the content rather than a capacity to read books and respond to them.

Another device in the application of fragmented skills to particular passages of print. According to Niles (1973), there is nothing wrong with breaking the teaching of reading into parts as long as the parts are put back together again. However, at one time or another, many teachers are prone to apply

reading skills to particular passages of print in a piece-meal fashion. The student

learning to read under these conditions does so by building block upon block

of factual knowledge, and usually through drills, rules, memorization, and

classifications. To the student, the teaching of isolated reading skills will

not be highly motivating. Moreover, the teaching of reading skills one by one

usually focuses on short term goals. Thus, the content teacher who works to

improve reading solely within this framework often removes the student to the

periphery of more meaningful reading experiences. Consequently, he defeats the

ultimate goal of sound reading instruction--to produce self-realized, critical

readers.

Some content teachers feel more secure with still other devices, such as pre-

packaged reading materials and the "speed" machine--with rate builders, power

builders, reading recorders, and tachomatic films. Without doubt, there are times

when these materials and machines do reinforce vocabulary development, speed, and

comprehension. And, indeed, there are times when particular students in partic-

ular circumstances gain from some supervised instruction in a reading laboratory.

However, whatever the benefits derived from these materials and machines, they

should not comprise a total reading program in the school. Nor should they be

used to teach reading in a content class at the expense of keeping the student

from reading with power. When a student reads for power, he reads beyond expos-

ition. He reads for reasons that go beyond mere recognition and recall. He reads

with power to extend, to realize, to participate, to experience--if only vicariously.

Therefore, a cavaet which the content teacher must continuously remind himself

is this: "I must be careful not to give my students just a bag of devices."

POSSIBILITIES

What then, are other alternatives for improving the teaching of reading

in the content areas? The first possibility is to put the cliche "teaching

reading as a process" into practice. Over the years, numerous experts have

defined reading to suit their own interests and needs. These definitions

range from mere cracking the code, or barking at words, to new psycholinguistic

definitions of reading. One of the earlier and more powerful explanations of

the reading process is one penned by Arthur Gates (1949).

> Reading is not a simple mechanical skill; nor is it
> a narrow scholastic tool. Properly cultivated, it is essentially
> a thought process. However, to say that reading is a "thought-
> getting" process is to give it too restricted a definition. It
> should be developed as a complex organization of patterns of
> higher mental processes. It can and should embrace all types
> of thinking--evaluating, judging, imagining, reasoning, and
> problem-solving. Indeed, it is believed that reading is one
> of the best media for cultivating many techniques of thinking
> and imagining.

Although it is still not known exactly what constitutes the reading process,

recent research in psycholinguistics using information-processing models offers

even more promise for a clearer understanding of this complex activity. More-

over, the implications of these recent models supply a strong rationale for

developing teaching strategies in reading that enable the reader to decode

directly to meaning. The implications are of much significance for improving

the teaching of reading at all levels--especially in the upper grades. Instead

of beginning instruction in reading with a set of discrete and fragmented skills,

the discerning teacher makes use of skills involved in reading in a different

way. He does--to repeat--put certain reading skills to work, but they are

those reading skills that go to work within the framework of meaning--getting

strategies. Thus, the student, instead of becoming a passive identifier of

letters and words, becomes an actvie searcher for meaning. But to succeed in

reading, the student must make use of both visual and non-visual information.

Non-visual information transcends the text or printed material being studied.

First, non-visual information involves the student's ability to conceptualize

and his previous experiences and reading, particularly in relation to the topics

of the material at hand. Second, non-visual information involves the student's

prior knowledge of language and familiarity with the structures and patterns

within forms of written discourse. Visual information, on the other hand,

involves similar yet other complex strategies of information-processing.

The redundancies within printed language greatly influences the student's task

of correctly making decoding responses. Redundancy in print occurs at a number

of levels. There is featural redundancy in individual letters. For example,

some letters are curved while others are straight. The same kind of featural

redundancy occurs in words. There is also much redundancy within the structure

of words because in the English language patterns of features tend to occur

only in certain combinations. These highly consistent patterns of features

are examples of orthographic redundancy. Redundancy also extends across sequences

of words and thus involves syntactic and semantic constraints.

Reading in the content areas is an activity often done to obtain information--

or, in other words, to reduce uncertainty. However, teachers must remember

that the student who is a skilled reader minimizes his use of feature analysis

and maximizes his use of graphic redundancy to reduce uncertainty. Goodman

and Smith (1973) theorize that this kind of student uses the most direct route

and as few cues as necessary to arrive at his goals--reading comprehension. He

does not need to make use of all the information available to him for reading

comprehension to occur. His understanding of language structures and his under-

standing that every bit of information may be conveyed by several cues make

it possible for him to predict and analyze the printed grammatical patterns on

the basis of identifying a few elements within it. The context in which the

language occurs, created by the previous meanings he has gathered, allows him

to predict the meaning that will follow. To comprehend in reading, then, the

proficient reader predicts as he reads, selects only the most predictive cues,

and samples the graphic cues as he tests out his predictions. When his pre-

dictions are not confirmed, then he engages at this time in greater visual

ysis.

Teaching reading in the content areas, then, must go beyond the meeting of superficial visual requirements. Otherwise, the curriculum itself is likely to be of little importance to the student's life and the school, in short, will contiue to ignore the realities of reading and life surrounding the student. Hence, reading, as William Gray suggested years ago, must be perceived a n activity that permits students to find meaning in what otherwise would be mere facts. Thus, the discerning teacher of a content area uses in part the student's "self" as content, thereby placing the teaching of reading as a process in as broad a context as possible.

A second and related possibility for improving the teaching of reading in the content areas is the building of instruction upon significant leads from linguistics. In recent years, the impact of linguistics upon the teaching of reading has had a shattering effect, with many similar implications for improving the teaching of reading as those already stated. The linguist has buttressed the understanding of the process whereby the all-important concept is either illuminated or dulled by the manner in which it is expressed. In the content areas, overdependence on instructional methods and materials ignore recent insights into the nature of language and impairs the effective teaching of reading. Thus, there is a need for content teachers to become conscious not only of the concepts they are teaching, but how the concepts are expressed in printed language.

Two linguists, Postman and Weingartner (1967), urge content teachers to become language teachers as well, because learning how to learn means learning how to use verbal symbols. Students need to do certain things with language in the defining process, in the question-answer process, in the classifying process, and in the generalizing process. Education in how inquiries are made suggests that any teacher, regardless of the subject he is teaching is, or should be, a

language teacher. Not only is the inquiry process largely a language operation, but all subjects in the school curriculum are language.

However, certain findings in research show that students differ in language facility (Strickland, 1962) (Loban, 1963). These studies and numerous others also indicate that the student rated high in language ability tends to draw upon the rich resources of language, extending meaning through the use of complex forms, and by using a variety of words, patterns, and syntactic elements. In contrast, the student rated low in language ability tends to use fewer words and fewer complex forms. His sentences are typically short and simple, instead of extended, embedded, and combined. These studies likewise show a high correlation between a student's oral and written language facility and his ability to read. As the student with limited language facility interacts with print, he is likely to experience difficulty in understanding concepts when they are expressed in unfamiliar and complex grammatical forms.

The third possibility for improving reading in the content areas is developing ways of bridging the gap between the student's spoken language, experiences, and the infinite variety of patterns within printed language. The student's language ability provides the source for permitting him to be active and creative while learning to read. Students, encouraged to speak about content that interests them, reflect the cognitive and linguistic powers they already possess. Printed language has similar varieties and functions-- to communicate and to do so in multiple situations.

ORAL TASK-SETTING EXPERIENCES

In an attempt to improve reading with tenth graders in a vocational-technical school, one teacher used the language and theory-based rational under discussion. In one reading class, for example, he taught students specializing in becoming auto mechanics, library aids, stationary engineers, beauticians,

chefs, and printers. Each day, the teacher visited the trade classes and
shops of his students. His purpose was to assign each student an oral task:
to explain how a piece of machinery worked, to describe how a particular job
was accomplished, to clarify which tools should be used, for what tasks, and
why. The variation among the fields of specialization yielded numerous
topics for the teacher to use for assignments as oral tasks. Each oral
task assigned was of immediate use to each student, for each task related
specifically to the content each student was studying on the job and at that
time. To illustrate, one day the teacher visited a boy training to become
a stationary engineer and asked him to describe the boiler room. A trans-
cription of the boy's response to the task follows.

> There are three huge boilers in this room, one
> which is not operating because the firebrick has broken
> away from the inside of it, and needs to be replaced.
> The two boilers on the right are used to send hot water
> to the pipes of the heating system of the school.
>   These two twin tubular boilers are in two parts.
> The bottom part has pipes filled with hot water. It is
> heated by the hot blast of flames produced by the burning
> of oil. The hot water then goes up to the top part of
> the boiler and hits the baffle, that sheet-like appartus.
> The hot water surrounds the tubes in the upper part of
> the boiler and heats the air in the tubes. These tubes
> are made of steel and are surrounded with insulated material.

For this student, describing the boiler-room meant using verbal symbols
to define, list, classify, and generalize. In reading classes, the same teacher
frequently presented a printed transcription of the student's oral response to
his trade shop task. Students read their own papers first. Then, working
within small groups, they were encouraged to read their papers to each
other. The teacher's purpose, of course, was to emphasize communication com-
ponents in relation to one another. By combining their oral language with a
written form of it, the teacher hoped to lead his students on to a greater
understanding of concepts behind print and the complex patterns needed to express
them. For the student low in reading ability each phase of this approach comes

one step closer to reading and understanding someone else's recorded ideas.

The range of topics varied on a daily basis and sometimes purposely.
When the teacher was concerned with the student's limited understanding of a
particular mode of expression, such as sequence, he assigned a "how to" oral
task. The following list represents some kinds of oral tasks deliberately
assigned by the teacher.

> How to work with chemicals
> How to give a permanent wave
> How to clean oil strainers and burner tips
> How to give a check reading
> How to overhaul a car
> How to operate a kluge
> How to write over-due cars
> How to shelve books
> How to make a carrot cake
> How to do different hair styles
> How to apply eye make-up
> How to give a facial
> How to use the adjustable wrench
> How to clean the tool room and pumps

As before, the students read printed copies of their papers·
aloud. During this time, students often interrupted each other to ask a
question, sometimes about the meaning of a technical word, sometimes merely
to make a technical correction. In subsequent group sessions, students started
to question "sentence sense." Frequently, when the recorded syntax was
weak and the expression awkward, they asked each other "what was meant" and
for "more information"--in other words, to elaborate orally in order to clarify
Whenever the students were in agreement with each other's suggestions, they
were encouraged to write down the comment, for use in a written revision of their
oral task.

WRITING AND GROUP REVISION

Writing is a neglected art in the content areas. Research has shown that
less than two percent of lessons in some content areas is spent in writing.
Through group writing activities, students together recommend readjustment in

form, as well as the qualifying of thought, the rephrasing and rearranging

of muddled expressions, and many sentence-combining possibilities.

Students, however, do not always succeed at first in the manipulation of

particular modes of expression in writing. Often this inability likewise

creates reading difficulties and interruptions during reading. For example,

the rather simple task of understanding how and why relationships are ex-

pressed in sequence poses, at times, problems for the student low in language

ability. However, the teacher of vocational students previously mentioned

observed that his students from the same field of specialization often com-

pleted a trade task jointly. In one reading class, the teacher asked three

students in the same field of work to write a short paragraph that described

their shop opportunities for that day. These young auto mechanics had just

participated together in an "Operation of a Teardown." Below are three

short examples of writing the teacher received from each student.

Operation of a Tear-Down

We pulled the heads off a Plymouth and pulled 1st piston
out of the head. We pulled the head first. After that, we
took the exhaust manifold. Then we took the first piston.

We pulled the heads off of a Plymouth and #1 piston and
the crankshaft and oil pan. We started by pulling the he .
bolts. Then, we pulled the exhaust manifold. Then, the ₁l
pan. After that, we pulled the head.

We pulled the head off a Plymouth. Then, we pulled out
the piston in No. 1 cylinder. We had to pull back the exhaust
manifold.

Spotting the inconsistencies in listing, the short and simple sentences,

and the lack of transitional information among the three papers, the teacher

typed all three paragraphs on the same sheet. Then he asked the boys to read

them to each other, to decide if they expressed differences in the steps a

mechanic must follow in conducting an operation of a tear-down. Also, he asked

them to discuss whether or not they had included all the steps. Finally, he

d them to write a group revision on which they all could agree, and reminded

them in the process to expand their sentences so that they told the reader

what their technical words mean or do. After much discussion, debate, and

rewriting, the boys submitted the following group revision.

> There are five steps involved in an operation of
> a tear-down. First, pull the exhaust manifold. An ex-
> exhaust manifold connects to the head of an engine.
> Second, remove the head. The head is connected to the
> block, a frame that holds the pistons in the crank.
> Third, remove the oil pan. Fourth, remove the #1 piston.
> Fifth, remove the crankshaft, the part that makes the
> piston function.

These kinds of learning activities help both the content teacher and

the student perceive reading as communication. Schools today can no longer

afford to push reading skills as activities by themselves. To improve reading

in the content areas, instruction should be process-centered in the sense that

students are frequently faced with content that affects them, and with the need

to explore choices. The decisions they make as a result of reading must con-

stantly be related to conscious directed behavior. In reading activities, there

must be a degree of emphasis on situations to be met rather than on content to

be mastered by itself. Reading activities provoked by process-centered situa-

tions, such as the one in the example given, will provide students with practice

in communication, thinking, working with others, and creating (Edwards, 1967).

The process of teaching reading in the content areas thus becomes an integral

part of learning.

REFERENCES

Edward, Bentley, et. al. Curriculum in America. New York: Crowell
    Press, 1967.

Gates, Arthur. "Reading in the Elementary School," Forty-Eighth
    Yearbook of the National Society for the Study of Education, Part II,
    Chicago: University of Chicago Press, 1949.

Goodman, Kenneth. "Behind the Eye" What Happens in Reading," Reading
    Process and Programs, National Council of Teachers of English,
    Urbana, Illinois, 1970.

Heilman, Arthur. Phonics in Proper Perspective, Charles Merrill and Co.:
    Columbus, Ohio, 1968.

McCullough, Constance. Personal letter. November 29, 1973.

Niles, Olive. Speech presented at a Lancaster, Pa. Workshop on
    Reading, Nov. 30, 1973.

Sawyer, Daine. "The Diagnostic Mystique - A Point of View," The
    Reading Teacher, March 1974, p. 555.

Smith, Frank. Psycholinguistics and Reading. Holt, Rinehart, and
    Winston: New York, 1973.