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AN ANALYSIS OF THE INSTRUCTION
IN READING INSTRUCTIONAL RESEARCH

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Laura R. Roehler

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2

Institute for Research on Teaching

Teachers' thoughts and decisions are the focus of studies currently under way at Michigan State University's Institute for Research on Teaching (IRT). The IRT was founded in April 1976 with a $3.6 million grant from the National Institute of Education. A new grant obtained in 1981 from the NIE extends the IRT's work through 1984. Funding is also received from other agencies and foundations. The Institute has major projects investigating teacher decision-making, including studies of reading diagnosis and remediation, classroom management strategies, instruction in the areas of language arts, reading, and mathematics, teacher education, teacher planning, effects of external pressures on teachers' decisions, socio-cultural factors, and teachers' perceptions of student affect. Researchers from many different disciplines cooperate in IRT research. In addition, public school teachers work at IRT as half-time collaborators in research, helping to design and plan studies, collect data, and analyze results. The Institute publishes research reports, conference proceedings, occasional papers, and a free quarterly newsletter for practitioners. For more information or to be placed on the IRT mailing list please write to: The IRT Editor, 252 Erickson, MSU, East Lansing, Michigan 48824.

AN ANALYSIS OF THE INSTRUCTION
IN-READING INSTRUCTIONAL RESEARCH[1]

Gerald G. Duffy and Laura R. Roehler[2]

Researchers of reading have long been interested in the

processes of reading and how individuals learn to read. Less

emphasis has been placed on instruction and what teachers do to

teach reading. Recently, however, a change has occurred.

Stimulated by findings from research on teaching and by the needs

of practitioners, more and more reading research has focused

on instructional issues. For instance, Durkin (1979) has examined

the comprehension instruction in elementary classrooms; Calfee

and Pointkowski (1981) have looked at decoding instruction;

Hansen (1981) has studied the teaching of inferencing; Cohen

and Stover (1981) have examined the teaching of comprehension of

math story problems; and Carver and Hoffman (1981) have examined

computerized teaching of fluency.

A particular interest has surfaced regarding the instruction of reading comprehension. For instance, The Center for the Study of Reading, University of Illinois, has committed itself to the study of direct instruction of comprehension (Note 1), and the National Reading Conference, led by researchers such as Patty Anders (University of Arizona), Mark Aulls (McGill University), James Cunningham (University of North Carolina), Michael Kamil (University of Illinois-Chicago), P. David Pearson (University of Illinois), Michael Strange (University of Texas), and Cathy Wilson (University of Iowa), has in the last three years sponsored a continuing study of reading instructional research in comprehension.

For those of us who are concerned about the instructional issues associated with reading comprehension, this interest in instruction is a happy circumstance. We can expect that, as a result of these efforts, we will soon be in a position to inform the practice of teachers and teacher educators regarding effective teaching of reading.

Currently, however, progress toward this goal is slow, partly because researchers of reading instruction, having been less than precise in the use of the term "instruction," are now having trouble defining what it is we are studying. For instance, there is a debate over what Durkin (1979) really meant when she reported that the teachers she observed spent little time instructing comprehension; Hodges (1980) argues that instruction is more than what Durkin said it was, while Heap's (Note 2)

& critique of Durkin is based on yet another definition of what
instruction is. Such lack of clarity regarding the nature of
instruction is also illustrated by comparing Barr's (1981)
instructional focus, the view of instruction implicit in the
two treatments used by Hansen (1981), the "corrective" model used
by Gohen and Stover (1981), the "story map" presented by Beck
and McKeown (1981), the modeling espoused by Carnine and Silbert
(1979) and the explicative instructional function for which we have
argued (Duffy and Roehler, in press). In each case, instruction
means something different. Yet all of those cited used the term
as if they shared a common definition. This sometimes means that
researchers have difficulty interpreting the implications of even
the finest research studies, such as the one in which Calfee and
Point kowski (1981) conclude that instruction should be "direct and
structured" but fail to specify exactly what that is. While variety
in viewpoints about instruction is desirable, not knowing where
one person's "instruction" intersects with another's makes it
difficult for researchers to talk to each other and for the
teachers and teacher educators who are the consumers of the
research to know how the findings inform practice. Hence, we
need to think rigorously about what is the "instruction" in
reading instructional research.

This paper is a first step in that direction. It suggests
analytic categories for describing and thinking about instruction,
particularly that found in current research of comprehension

teaching. We have no illusions about the long-term utility of
this effort. It no doubt will and, indeed, <u>ought</u> to be soon
made obsolete by more refined, more elegant, and more descriptive
efforts. It does, however, serve as an example of the type of
thinking we feel must be done if we are to become more precise
in our study of instruction. It is offered here in the hope
that it will challenge others to develop a "grammar of instruction"--
a description of the components of instruction and their
interrelationships.

The Analytic Categories of Instruction

To clarify thinking about the instruction in reading instruc-
tional research, we analyzed studies currently being reported and
tried to rationally determine what instructional distinctions are
being made. The result was eight analytic categories, starting with
the broadest distinctions about the meaning of instruction and moving
steadily through finer and finer distinctions. Each analytic cate-
gory is identified with an arabic numeral and includes one or more
distinct conceptual types, although we realize that in practice such
distinctions are seldom clear and that, indeed, teachers may sometimes
deliberately combine types.

Figure 1 provides an overview of the direction the analysis
takes. Note that the eight categories are divided into three
sub-sets: Categories 1-3 describe the rhetorical distinctions
that are often made about instruction, providing a background to
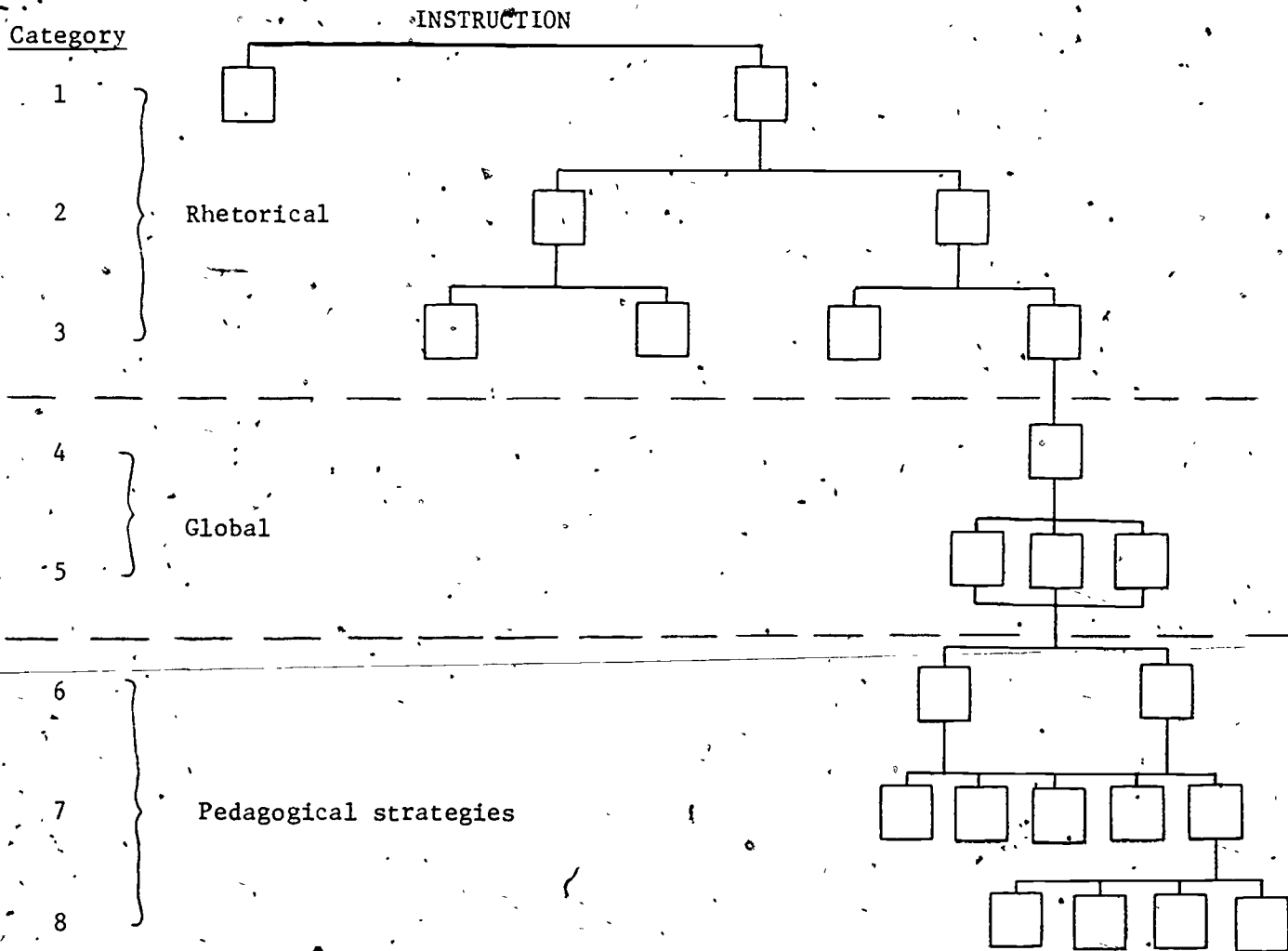
Figure 1. Analytic categories to describe reading instructional research.

8

the analysis of the instruction found in current instructional research (see Figure 2, page 10); Categories 4 and 5 describe the global ingredients which are descriptive of the instructional mode currently being researched (see Figure 3, page 14); and Categories 6-8 describe the specific pedagogical behaviors being studied in reading instructional research (see Figure 4, page 20). Note also that the analysis progresses to the right in Figure 1, rather than developing in balance. This is because the reading instructional research currently being reported is almost exclusively of the "direct instruction" mode. Because the other modes are discussed but seldom researched, there was no instruction to analyze in these modes.

Categories 1-3: Rhetorical Distinctions

These seldom-researched but much-discussed distinctions focus on broad differentiations about instruction and result in four theoretically-feasible modes of instruction. While only one of these modes is represented in current reading instructional research, all four are important, since many of the debates about the way comprehension should be taught are based on these rhetorical distinctions.

Category 1. The first category is strictly definitional. It makes a distinction between what to teach and how to teach it. The question of "what to teach" is a curriculum issue; its focus is the content to be selected for instruction. Instruction, however,

refers to how one imparts this content to learners. While instruction cannot occur without content, and teaching effectiveness depends both on teaching the right thing and teaching it well, the "what to" and "how to" questions are nevertheless conceptually different. Concerns such as whether we should include more writing in the reading period, or whether we should teach syllables rather than phonograms are problems of "what to teach." Instruction--the "how to"--occurs after such content desicions have been made. Consequently, in analyzing the instruction in reading instructional research, the first distinction is between "the what" and "the how." Instruction refers to the latter.

Category 2. The second category focuses on the source of the materials of instruction, since all reading instruction implies that something must be read. Two conceptual types are possible here (although we remind you again that, in practice, they can be combined). The first conceptual type is "textbook-bound" instruction. Such instruction is based on the assumption that students will read a textbook of one kind or another. The basal textbook is the prevalent example found at the elementary level, although softback programmed materials, instructional kits and even computer assisted instruction are of this conceptual type.

The second conceptual type in this category is "textbook free" reading instruction. Such instruction is based on the assumption that students will not use a textbook; instead, reading materials will be selected and/or created by the students

themselves. Most versions of the language experience approach are typical of this type, as are "individualized reading" approaches that call for the use of trade books.

Category 3. This category focuses on the teacher's instructional role when bringing students together with the materials. This role can be one of two types. In the first, the teacher brings the materials and students together according to the directives of an instructional design (either prescribed or developed by the teacher) which includes a logically developed sequence of both content and instructional activities; in the second, the teacher allows children to explore and experience the materials in an unstructured manner and responds in appropriate ways to the "teachable moments" that arise from such encounters. Rhetorically, this distinction between "designed" and "responsive" instruction is a crucially important one. Designed instruction provides opportunity for students to learn; responsive instruction waits for pupil responses that provide the teacher with the opportunity to teach. Designed instruction expects the teacher to adhere closely to the instructional prescription; responsive instruction expects spontaneous and inventive teacher responses to children's interactions with text. Designed instruction assumes that instruction creates learning outcomes; responsive instruction assumes that instruction facilitates learning outcomes. In short, designed instruction is what most people are talking about when they describe "direct instruction" in reading. It is exemplified by

most of the standard basal text programs and other commercial
reading materials found in today's classrooms. Responsive instruction,
on the other hand, is more consistent with the practices espoused
by "open classroom" advocates. In reading, its ideals are
reflected in language experience and individualized reading
approaches.

Summary. As seen in Figure 2, the distinctions in the first
three categories result in four possible modes of instruction:
textbook-bound/designed, textbook-bound/responsive, textbook-free/
designed, and textbook-free/responsive. However, while such
instructional diversity is theoretically possible, only the
textbook-bound/designed mode of instruction is reflected in the
reading instructional research currently being reported.
Consequently, we now pursue our analysis in that direction.

Categories 4 and 5: Global Ingredients

When examining the reading instructional research currently
being reported, two characteristics are apparent. First, as noted
above, nearly all the studies reflect the textbook-bound/designed
mode of instruction. Second, within this mode, certain instructional
characteristics prevail. These characteristics of textbook-bound/
designed instruction are discusses in Categories 4 and 5.

Category 4. The fourth analytic category for describing
and thinking about instruction is the only one for which there is
no apparent disagreement. Regardless of one's instructional

INSTRUCTION

Content to be taught
(What to)

Strategy for teaching it
(How to)

Textbook free

Textbook bound

Responsive

Designed

Responsive
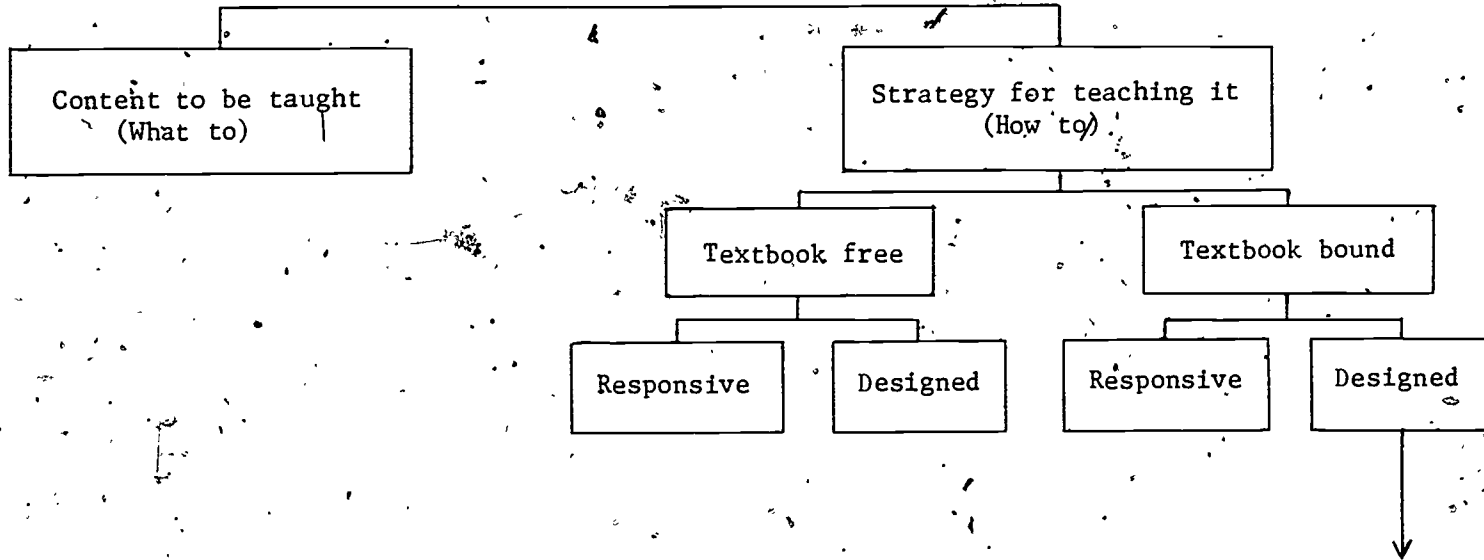
Designed

Figure 2. Rhetorical distinctions.

13

position (especially within the textbook-bound and designed mode),
there is agreement that instruction must solicit a response
from students and that such responses are best obtained in a
directed practice situation using the textbook and/or its
associated instructional materials (such as the workbook). In
short, practice is a necessary part of instruction. Even
advocates of textbook-free and responsive modes of reading
instruction agree that practice is important (although they
prefer to call it "experiences with text" or "encounters with
print"). Consequently, whatever other difficulties there may be
in describing the instruction in Reading instructional research,
there is no doubt about whether practice will be part of it.
It will be.

Category 5. The complexity of instruction is revealed in the
fact that, while practice is central to instruction, a variety of
teacher instructional behavior is expected during practice. The
research includes three distinct types.

We label the first "organizational behaviors." These are the
instructional behaviors teachers use to organize their classroom.
They include the scheduling and management behaviors associated with
allocated instructional time and engaged time on task, the grouping
behaviors associated with placing pupils in appropriate reading
groups and the pacing behaviors that, to a large degree, govern
the amount of content covered. Many of the findings from research

on teaching, especially the process-product studies, have focused
attention on the importance of such organizational behaviors.
In reading, Barr's (Note 3) emphasis on the time resources
allocated to reading groups gives priority to the teacher's
function as an organizer and dispenser of instructional time.

The second type of instructional behavior is the teacher's
socio-cultural instructional behaviors. Here, the focus becomes
the teacher's role in forging working relationships with students,
in maintaining activity flow, in resolving various role conflicts
and in establishing and maintaining the classroom social system.
The work of McDermott (1977), Mehan (1979), Doyle (1979), Au and
Mason (1981), and others are particularly relevant here. The
common focus of this teacher instructional behavior is the teacher-
pupil interaction and its relationship to the social organization
in the classroom. The assumption is that the teacher's instructional
behavior must solicit student responses within an environment
governed by social and cultural conventions.

The third type of teacher instructional behavior is labeled
"verbal-pedagogical." This type of behavior is implicit in nearly
all discussions of instruction because it is universally assumed
that teachers will say something to students when soliciting
responses during practice. Further, it is assumed that what
teachers say is pedagogically based--that is, that teacher's
verbal interactions with students embody pedagogical strategies
that increase the chances that the student will respond

successfully. The various kinds of verbal-pedagogical strategies found in current reading instructional research are discussed in Category 7.

Summary. As seen in Figure 3, the textbook-bound and designed mode of instructional always focus on student response to directed practice and call for organizational behaviors, social management behaviors, and verbal-pedagogical behaviors by teachers. Since such specific verbal-pedagogical teacher behaviors are the topic of much of the reading instructional research, they are the focus of categories 6-8.

Categories 6-8: Specific Pedagogical Behaviors

As noted in Category 5 above, effective teaching requires at least three kinds of teacher instructional behavior since (1) classrooms must be organized, (2) instruction must be conducted within a social system and (3) teachers must say helpful things to students. It is the specifics of the latter set of teacher behaviors that now becomes our focus.

Category 6. While it is generally agreed that teachers ought to say helpful things to students, the source of such instructional comments takes two forms. The first (and most prevalent) is typified by the standard basal textbook in which the design prescribes both the curricular sequence and the sequence of instructional activities but stops short of specifying the exact words the teacher must use when presenting

2   Textbook bound

3   Designed

4   Directed practice

5 | Organizational behaviors | Socio-cultural behaviors | Verbal-peda-gogical |
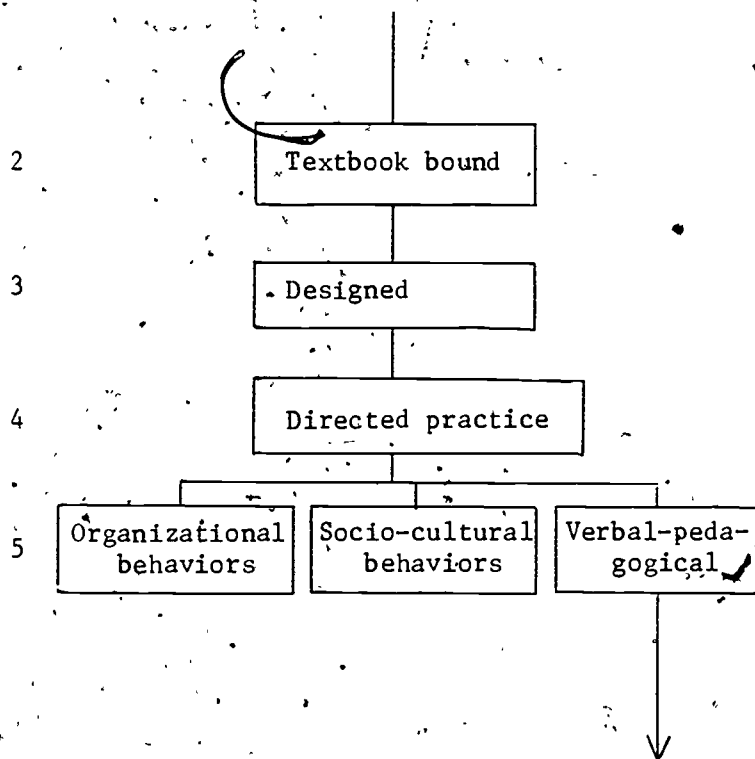
Figure 3. Global ingredients.

17

instruction. The second, like the first, prescribes a design

for curricular sequence and for instructional activities; in

addition, however, it provides a script that teachers are

expected to follow verbatim when presenting instruction (e.g.,

DISTAR, a popular reading program). Thus, an analysis of the instruc-

tion in reading instructional research must include instructional

communications, whether they are to be created and articulated by

teachers themselves or created and scripted for teachers by "master

developers" (Rosenshine, Note·4).

Category 7. Examination of current reading instructional

research (both scripted and non-scripted) indicates that there

are five "verbal-pedagogical" instructional behaviors being

studied: (1) setting expectancies, (2) giving directions, (3)

monitoring with corrective feedback, (4) modeling, and (5)

explaining. At first glance, these appear to be five distinctly

different types. However, as we have argued elsewhere (Duffy

and Roehler, in press), this apparently diverse set of instruc-

tional behaviors is really an illusion. When examined in terms

of the assumptions upon which they are based, there are only two

distinct conceptual types of verbal-pedagogical behavior.

The first is based on the assumption that if students are

exposed to a task, they will spontaneously develop an intuitive

understanding of how to do it. This type (which we call

"spontaneous generation") includes behaviors 1-4 above. Let's.

examine the first one: setting expectancies. The pedagogical.

strategy is that teachers can help children learn by establishing

an instructional environment in which learners are/expected to

use the desired outcome. A recent research example of this

verbal-pedagogical instructional behavior is Hansen's (1981)

question strategy, in which she asked only inference questions of

one group on the assumption that, by posing only such questions,

the student is encouraged to learn how to answer them. Pearson

(Note 5) explains that this type of pedagogical strategy may

work because "the pattern of questions sinks in." In

short, students will respond to the teacher's expectancy by

spontaneously developing an understanding of how to do the

cognitive processing required.,

A similar belief is reflected in the second verbal-pedagogical

behavior, in which the teacher gives procedural directions for

doing the directed practice. The pedagogical strategy is that

the student, if given clear directions for doing·the task, will

learn how to do it. A recent example in reading instructional

research is the directions given to the subjects in the Carver

and Hoffman (1981) study of computer-assisted instruction of

fluency. Again, the expectation is that the directions and the

subsequent directed practice will spontaneously produce in

the student an understanding of how to process the desired outcome.

The third example of teacher "verbal-pedagogical" instructional

behavior is monitoring with corrective feedback. Here, the teacher

monitors pupil responses to practice and supplies correctives
when errors are made. This version of verbal-pedagogical behavior
is cited by Cohen and Stover (1981) in their study of comprehension
of math story problems, by Hodges (1980) in her critique of
Durkin and by Heap (Note 2) in his critique of Durkin. It is
also the type of instruction that Allington (1980) expects when
he studies teacher interruption behavior and that Hoffman,
O'Neal and Baker (Note 6) expect when studying teacher feedback
to miscues. The pedagogical strategy is that teachers can help
children learn if, after errors are made, corrections are provided.
While much depends here upon how corrections are provided (with
the scarcity of such descriptive information being one of the
major frustrations in understanding instruction), the assumption
frequently seems to be that, if one is corrected enough times,
the understanding of how to do the task will spontaneously
appear.

The final example of "spontaneous generation" is modeling.
Here, the teacher demonstrates the desired response for pupils
prior to directed practice. The pedagogical strategy is that the
teacher can help the student learn by having the student follow
his/her example. Such modeling is emphasized in Carnine and
Silbert (1979) and in Hansen's (1981) strategy treatment in which
she modeled the inferencing response using a weaving analogy.
Such modeling, however, demonstrates only the response; it
neither demonstrates the cognitive processing employed nor

illuminates how one arrives at the response. Like the other
"spontaneous generation" examples, the assumption is that both the
desired response <u>and</u> an intuitive understanding of how to do the
required processing will be achieved spontaneously by virtue
of repeated exposure to the task as it is modeled and responded
to during directed practice.

Only one verbal-pedagogical teacher behavior stands in
contrast to "spontaneous generation." It is teacher explanation
behavior. Based on the assumption that teachers should verbally
explain to students not only what the correct response is but
also the processing involved, this type of verbal-pedagogical
teacher behavior focuses on (1) identifying the cognitive
processing that readers use when successfully completing the
task and (2) explicitly explaining to students how to do such
processing when reading. Such verbal-pedagogical behavior
reflects a belief that, because language is a system of conventions
and principles that we all share (albeit sometimes intuitively and
unconsciously), students who do not spontaneously grasp these
conventions and principles should be made aware of them through
explicit explanation. Examples of various approaches to teacher.
explanation behavior follow.

Category 8. Although most of the instruction in reading
instructional research reflects the "spontaneous generation" type
of verbal-pedagogical behavior, recently, this situation has
changed, and three examples of teacher explanation can now be
provided.

The work of Brown and her colleagues (1981) at the Center

for the Study of Reading at the University of Illinois has been

the most influential in stimulating interest in teacher

explanation. They have conducted research of instruction

employing metacognitive strategies. Students are made consciously

aware of their own mental processing so that they can make sense

out of the task and monitor their own thinking. As Brown (1976)

states, it is a process of "externalizing an internal mental event."

The processing is deliberately and explicitly brought to the surface

in an attempt to make students consciously aware of how they learn

and how they know they know. It is startingly different from

"spontaneous generation" behavior because it does not assume that

all children learn as a result of repeated exposure to the

task but, rather, that some profit from explanations that make

explicit the processes of reading and thinking.

Graves (Note 7), working on the teaching of vocabulary meaning

at the University of Minnesota, also emphasizes teacher explanation

behavior. When teaching prefixes, for instance, he emphasizes the

importance of bringing to awareness the thinking processes the

student uses when dealing with an unknown prefixed word. He

accomplishes this by making students conscious of both the

facts about prefixes (the conventions and principles that

govern their use) and the strategies for using prefixes (the

mental processing one uses when unlocking prefixed words). He

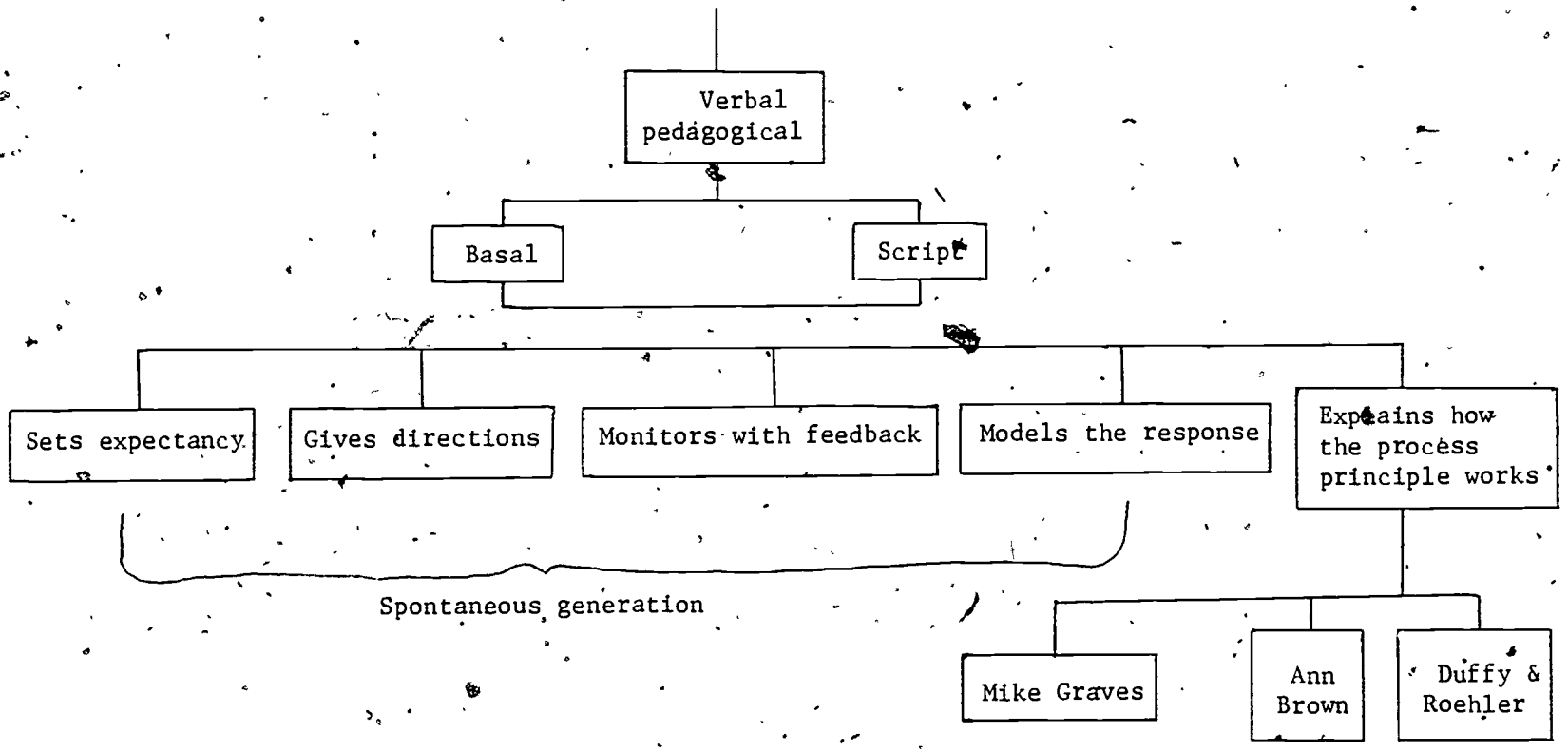uses rehearsals as a means for making the thinking process

Figure 4. Pedagogical strategies.

explicit, thereby going beyond simple demonstration or other forms of "spontaneous generation."

We, too, are doing pilot work on a kind of teacher explanation behavior. Working within the framework of a teacher's daily classroom practice, we provide four patterns to be used immediately preceding directed comprehension practice. When taken together, these patterns constitute a teacher explanation. In the first pattern, the teacher explicitly states the purpose of the lesson, why it is important and the convention or principle to be employed; in the second, he/she models the <u>thinking</u> involved in completing the task with the intention of externalizing the internal processes employed; in the third, he/she provides students with a series of assisted steps that are gradually reduced until the child can do the task alone; and, finally, the teacher checks to make sure that the students are consciously aware of what has been taught, why it is useful and the secret to being able to do it successfully. The intent is not only to teach students to get the right answer but also to make them consciously aware of what they are doing, how they are doing it and how they know they have done it successfully.

Summary. Given that the teacher's ability to say helpful things to students is an important instructional behavior, two approaches seem to prevail: The one that dominates reading instructional research--labeled here as "spontaneous generation"-- is based on the belief that the key to learning is implicit in the

act of completing the task and that, therefore, teachers can be
most helpful by exposing students to the task in various ways.
The second--teacher explanation--assumes that some students
will not be sensitive to such implicit cues and that teachers
must make explicit for them the processing that undergirds the
task. Clearly, these are two conceptually different ways to think
about reading comprehension instruction.

Conclusion

It is difficult even in the best of times to design
rigorous research studies, to communicate with colleagues about
such work, and to report findings in ways that inform practice.
When the object of study is as complex as instruction, the
problems sometimes become nightmarish, mis-communication becomes
common, and progress is slowed.

In such situations, it is often helpful to analyze the
phenomenon in terms of categories and to examine the distinctions
between and within categories. Our analysis of instruction
suggests three sub-sets of such categories: first, distinctions
about the definition of instruction, the source of reading materials,
and the teacher's role in bringing students and materials together;
second, distinctions about the role of practice and the teacher's
instructional behaviors during practice; and, third, the teacher's
verbal-pedagogical strategies for helping students learn. By
thinking in terms of these categories, we have determined how our

own research on teacher explanation behavior fits in with other current studies of reading instruction. This insight alone has made this analysis worthwhile.

However, three broader benefits exist. First, this analysis reveals the totality of the reading instruction phenomenon. Up to now, research efforts in this area have been much like the story about the blind men and the elephant. Each researcher has researched his/her own version of instruction (the ear or the trunk or the leg) and each described instruction in terms of this limited perception. In contrast, this analysis by categories provides a glimpse of the instructional gestalt, and helps us place individual studies within this gestalt.

Second, this analysis helps us know what we are getting smarter about. For instance, we are getting smarter about textbook-bound and designed reading instruction (direct instruction), but we are not learning much about other modes of instruction. Within the textbook-bound and designed mode, we know much about teacher behaviors for organizing instruction and for operating within the classroom social system, but we know less about the teacher's verbal-pedagogical behavior.

Finally, this analysis helps us understand related issues. The debate about instructional decision-making in reading is illustrative (Borko, Shavelson, & Stern, 1981; Duffy, in press).

From the perspective of the analysis reported here, the issue
is not whether teachers make instructional decisions or not;
instead, it is that one's expectations about what constitutes
instructional decision-making varies greatly depending upon
one's referrent for "instruction." For instance, teachers
employing textbook-bound and designed modes of instruction
are clearly required to do a different kind of decision-making
than teachers employing a textbook-free and reactive mode of
instruction. Similarly, teachers following a script do a
different kind of decision-making than teachers using a standard
basal. Finally, teachers whose verbal-pedagogical behavior
is of the "spontaneous generation" type make different types
of instructional decisions than teachers whose instruction
attempts to provide metacognitive explanation.

There are multiple benefits of such conceptual analyses
of the instruction in reading instructional research. In a word,
however, the benefit is clarity of communication. Researchers
are better able to talk to each other about their work and teachers
and teacher educators understand better how the research informs
practice.

The task is not done, however. If researchers are to
become truly precise in the design of reading instructional
research, we must ultimately possess a "grammar of instruction."
We hope this paper is a step toward achieving this goal.

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