ABSTRACT

        A study assessed the relationship between formal main
idea statements in text and substantive material that students need
to understand the key concepts in textbooks. The study addressed two
questions: (1) What percentage of textbook paragraphs contains
material important for understanding major textbook concepts? and (2)
How important are formal main ideas for a substantive understanding
of textbook material? Chapters from three textbooks representing
mainstream sociology texts were examined. Areas covered by the
chapters include culture, the family, and social inequality, topics
treated somewhat uniformly in most mainstream textbooks. To
distinguish between "substantive" and "useful" material, the number
of paragraphs in each chapter containing substantive material was
compared with the total number of paragraphs in each chapter.
Location of paragraphs without substantive material and the kind of
material contained therein were also noted. Results of analysis
indicated that large numbers of paragraphs contained no substantive
ideas; the importance of finding main ideas, which were significant
79% to 91% of the time; and the need to study supporting details in
order to gain understanding of important material. In most of the
paragraphs containing important information, one or more supporting
details were needed to understand what was being said, while the
formal main idea was sometimes too general and contained little of
value for understanding the subject matter. (HTH)

The Relation of Formal Main Ideas to Substantive Textbook

Material

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Abstract

The purpose of this article is to investigate the
relationship between formal main ideas -- those fitting
traditional definition of main idea -- and substantive textbook
material. In a 1985 study, Ashton, O'Hear, and Pherson had
established that authors of sociology textbooks explicitly stated
main ideas for most textbook paragraphs and that multiple clues
pointed the way to these main ideas. It remained to be
determined whether these formal main ideas really pointed to
substantive material. The present study, using the same texts
and chapters as those covered in Ashton, O'Hear, and Pherson's
research, indicates that formal main ideas are strongly related
to the substantive material in textbook chapters.

THE RELATION OF FORMAL MAIN IDEAS TO SUBSTANTIVE TEXTBOOK MATERIAL

Although there exists some disagreement about the importance
of locating main ideas for effective reading, this skill has long
been taught in college developmental reading courses. This study
does not attempt to evaluate the relative merit of specific skills
instruction as opposed to other means of teaching reading.
Rather, its purpose is to assess the relationship between formal
main idea statements in college textbooks and substantive material
-- material that students need to learn to understand the key
concepts in textbook chapters.

Review of the Literature

A recent study of thirteen developmental reading texts
(Ashton, O'Hear, & Pherson, 1985) identified eight different clues
for locating main ideas (first position, last position, examples,
repetition, key words/numbers, subheadings, second position, and
highlighting). Using a literal count of clues used in all
paragraphs in selected chapters of sociology textbooks, Ashton,

O'Hear, and Pherson determined that, while developmental reading

texts did not agree on the number or relative importance of main

idea clues, all eight clues worked in finding formal main ideas --

sentences that met the traditional requirements for main ideas.

Specifically, they found that, beyond first sentence in

paragraph (which was the location of the main idea in 52.9% of the

paragraphs tested) and last sentence in paragraph (the location of

main ideas in 18.8% of paragraphs), the importance of other clues

was greater than indicated by developmental reading texts.

Examples (67.8%), repetition (36.6%), key words/numbers (25.2%),

subheadings (25.1%), second sentence in paragraph (15.9%), and

highlighting (11.8%) were found to be important clues. Only 5.1%

of the paragraphs in texts studied had no clues to formal main

ideas. In fact, the study found that most paragraphs contained

two or more clues to point to the main idea.

Beyond the Ashton, O'Hear, and Pherson study of formal main

ideas, there has been no recent study of the importance of main

ideas in college textbooks. Braddock (1974) studied main ideas in

articles by popular writers. He concluded that formal main ideas

were frequently not directly stated, although he wished they were.

Moore and Readence (1980) go so far as stating that main ideas are

seldom directly stated except in reading improvement materials.

However, their only real evidence is the Braddock study, which

says nothing about college textbooks. Other studies, including

Alexander (1975) and Axelrod (1976) indicate the importance of

main ideas. Baumann (1983), in his review of research on

principles of reading instruction, lists locating main ideas as a
comprehension strategy to teach. Even Moore and Readence admit
the importance of finding main ideas. However, they think of
finding main ideas more as an analytic skill than one of finding
material directly stated.

But are these formal main ideas of substantive value as well?
That is, do main idea clues truly guide the reader to ideas
critical for comprehension of important material in textbooks?

Research Questions

The research questions addressed in this study are two.
First, what percentage of textbook paragraphs contain material
important for understanding major textbook concepts? Second, how
important are formal main ideas for a substantive understanding of
textbook material? It is necessary, of course, to ascertain which
paragraphs contain important material first, for if a paragraph
contains no important information, locating its main idea would be
a superfluous exercise.

For the purpose of this study, a formal main idea is defined
(as in the Ashton, O'Hear, & Pherson study, 1985) as that sentence
which is general enough to include all of the information provided
in a paragraph, but not so general as to be useless to those
trying to understand the paragraph. A main idea must be a
statement. It can never be a question because, although a
question can focus on the subject of a paragraph, it contains no
controlling idea to establish what will be said about the subject.

Substantive here means critical to an understanding of central textbook topics. Thus, it is possible for a textbook to have paragraphs containing formal main ideas (sentences conforming to the definition listed above), but not containing material students will need to know for understanding critical text ideas.

Research Method

In investigation of these questions, the present researchers chose to use the same sociology textbooks and chapters used by Ashton, O'Hear, and Pherson (1985) in their study of formal main ideas. The books used were: DeFleur, M.L., D'Antonio, W.V., & DeFleur, L.B. (1984). Sociology human society (4th ed.). New York: Random House; Robertson, I. (1981). Sociology (2nd ed.). New York: Worth; Tischler, H.L., Whitten, P., & Hunter, D.E.K. (1983). Introduction to Sociology. New York: Holt, Rinehart and Winston. (These books will hereafter be referred to by primary author.) These texts were originally chosen because they are among the best selling introductory sociology texts on the market and because their format and material presentation are typical of mainstream texts in sociology aimed at a university/liberal arts college audience. As in the Ashton, O'Hear and Pherson study, chapters examined were those on culture, the family, and social inequality, topics important in all introductory sociology courses and treated somewhat uniformly in most mainstream textbooks, including those listed.

Ashton, O'Hear, and Pherson (1985) had identified formal main
ideas -- or lack thereof-- for all paragraphs (except chapter
summaries) in the relevant chapters of these textbooks. Now the
present researchers, a sociology professor and a reading
specialist, established criteria for substantive material. These
guidelines were verified by a second sociology professor. The
researchers read the three chapters from each book independently,
looking for substantive material. The researchers initially read
and underlined this material. When a comparison brought to light
disagreements, analysis of the differences resulted in
modification of criteria. This procedure follows guidelines
suggested by Borg and Gall (1979) for establishing inter-rater
reliability.

At this point, it is necessary to further distinguish between
"substantive" and "useful" material. The criteria for determining
what material is substantive are probably easier to see by looking
at the kind of material which was considered merely useful.
Useful material falls into several categories. Repetition and
extended examples (of the non-research variety), research examples
which were not treated in detail (e.g., series of research
examples in Robertson used to illustrate the relationship of
language and culture, p. 73), situation-setters (e.g., several
paragraphs in Robertson on language in Orwell's 1984 as an
introduction to the linguistic relativity hypothesis, p. 72), and
sections not as clearly relevant to sociology as to other subject
areas (e.g., material on evolution, language in other animals,

etc.) were all considered as merely useful. Thus, substantive material was that which was clearly related to the comprehension of basic sociological concepts, including definitions, causes/effects, research examples (which were treated in some detail), sociological theories and the facts supporting them, and statements of social conditions.

It should be clear that the researchers are not suggesting that material considered "useful" serves no function in the textbook chapters. Quite the contrary, such material serves necessary functions. Writers do need to arouse interest, provide transitions, etc. However, while these tasks must be accomplished, the paragraphs which fill these purposes usually do not contain material critical to an understanding of the text concepts. To say that students should learn this useful, but unimportant information would be akin to insisting that students write down all the words of a lecture because these words are there. Further, the researchers are not suggesting that this useful material does not aid comprehension of substantive materials any more than they would suggest that individual algebra problems discussed in a lecture had no bearing on comprehension of a specific formula. Rather, it is argued that the point itself is substantive and to be remembered; the other material, regardless of function, needs to be remembered only if the student feels the desire or need to remember it. There is no suggestion here that writers pad text material; rather, the point is that students need to know that certain material is critical to comprehension while

other material is not.

After the researchers located substantive material, findings were analyzed for inter-rater reliability.

The number of paragraphs in eacn chapter containing substantive material was compared with the total number of paragraphs in each chapter. Note was taken of where paragraphs without substantive material were located and what kind of material was contained therein. Then data on substantive material was compared with data from Ashton et al. (1985) on formal main ideas. Tallies were made of those paragraphs in which only the main idea was important, those in which the main idea and other material were important, and those in which the formal main idea was not important. Note that it is possible for a sentence to fulfill the formal definition of a main idea while not containing substantive material. This occurred most frequently in paragraphs with main ideas too general to be of use to a reader.

Results

The first question to be considered is that of inter-rater reliability. Borg and Gall (1979) indicate that raters should confer among themselves to establish criteria and then to modiify these criteria as needed. A 70% to 80% agreement on important material is needed to fall within the range of reliability. Table 1 presents data on reader agreement for this study.

Insert Table 1 about here.

As the table indicates, inter-rater agreement was far higher than that needed to establish reliability. Based on this agreement, the researchers tabulated the number of paragraphs containing substantive material. Results of this tabulation appear in Table 2.

Insert Table 2 about here.

Table 2 indicates that large numbers of paragraphs in given chapters contained no substantive ideas. Interestingly, Tischler and Robertson both had two chapters with substantive material in 55% to 70% of the paragraphs. Each also had one chapter with substantive material in roughly 80% of the paragraphs. This discrepancy indicates that textbook chapters may vary in the amount of substantive material they contain. Again, it is crucial to remember the distinctions between substantive and useful material made earlier.

Table 2 indicates that DeFleur presented an interesting contrast to the other two books. Two chapters of DeFleur were similar to those of the other books with important material in 56% to 68% of the paragraphs. However, the third chapter (on culture) contained important material in only 27% of the paragraphs. This was due, in part, to a long, chatty example of life at the Air Force Academy, which contained no really important material.

It is important to note that, despite the style difference, all texts contained the same type of important material. In fact, the substantive material presented varied only slightly from text to text.

A detailed exploration of a textbook chapter will contribute to a better understanding of the distribution of important and merely useful material. Tischler's chapter on culture (Chapter 3, pp. 68-101) contains significant material in 58.6% of the paragraphs (51 out of 87). The chapter begins with an interest-raiser detailing the history of our species followed by an outmoded definition of culture; neither of these qualify as important material according to the study's criteria. Next comes the important definition of culture and its meaning. A discussion of biological needs follows. This in itself has little to do with important sociological concepts, though it sets a background for discussing culture.

Then comes a lengthy discussion of culture traits. Only four paragraphs in this section are considered unimportant by our criteria. These are used to give added examples to support key concepts located in other paragraphs. There follows a lengthy discussion of biological and cultural evolution, in effect a background section dealing with topics more directly connected with biology and anthropology than with sociology, and thus considered unimportant.

However, as soon as the discussion turns to sociologically important definitions, substantive material predominates over

several pages with only one example paragraph appearing as
unimportant through the definition of the Sapir-Whorf hypothesis
(a particular theory of the relationship of culture and language).
This definition is followed by two example paragraphs, one of
repetition of points already made, and two on animal language,
none of which is critical to understanding the sociological
content of the chapter.

Next, subcultures (important material) are defined. However,
this discussion is continued at length by detailing types of
subcultures (religious, ethnic, etc.), which, while interesting,
are supplemental to understanding the core concept of subculture.
Counterculture is defined (important), but is followed by a
four-paragraph example (unimportant). The rest of the chapter
paragraphs deal with other important material on culture, except
for two example paragraphs and one on the noble purpose of
sociology.

In short, examples, situation-setters, and material more
proper to other disciplines -- mainly items which aid chapter
readability and provide background -- form the bulk of merely
useful material. Indeed, such material fills 41.4% of the chapter
paragraphs.

Our second research question dealt with the importance of
formal main ideas for substantive understanding of textbook
material. Table 3 contains the results of our tally of
substantive material.

Insert Table 3 about here.

The figures in Table 3 show a remarkable consistency. Only in DeFleur, whose writing style tends to large generalizations, is there a significant difference.   As the table indicates, DeFleur's sections in which only the main idea was important occur with similar frequency to such sections in the other books. DeFleur states main ideas as frequently as Robertson and Tischler do. However, the vagueness of his phrasing makes other, more specific information stand out as substantive while main ideas do not seem as critical to remember.

Table 3 also points to the importance of finding main ideas, as these are significant 79% to 91% of the time. However, the data in Table 3 also make a strong case for the ancillary need to study supporting details in order to gain understanding of important material. In the great majority of paragraphs containing important information, one or more supporting details were needed in order to understand what was being said.

Finally, in some cases, the formal main idea was too general. While it covered the material in the paragraph, it contained little of value to understand the subject matter. For example, in Tischler's discussion of working women (p. 392), we find the main idea sentence, "While further progress is still necessary, a woman's economic potential in the workplace is significantly greater than in the past." This tells the reader what the paragraph is about, but does little to help one understand how

great this potential is or why it has become great -- two

important facts appearing later in the paragraph. Thus, the main

idea is too general to be of much value. Another example occurs

in Tischler's discussion of mate selection (p. 386). He writes,

"The age at the time of first marriage is fairly young." Indeed

the paragraph does talk about age at time of marriage. But the

facts about age of marriage are the critical information, not the

vague phrase "fairly young," which is contained in the main idea

statement.

When a main idea is too general to be of value, students must

learn either to supply their own main idea or to go beyond the

formal idea and to abstract from the rest of the paragraph

necessary information. However, in textbooks, as opposed to the

materials surveyed by Braddock (1974), main ideas are more

frequently found to contain substantive information.

Conclusions and Recommendations

1. While developmental reading textbooks frequently indicate

to students that all chapters do not have the same concentration

of important material, they do not indicate the possibility that

large numbers of paragraphs (30% or more) may not have important

material in them. Nor do these books indicate the wide

discrepancy between amounts of important material possible among

chapters in the same book. It seems that students should be made

aware of this discrepancy as a reinforcement for the importance of

selective reading.   They should be made aware also of the kind of
material that they are likely to find in these less important
paragraphs as an aid in effective reading.

2. Students need to work on spotting supporting details.
Many reading texts today have sections on locating supporting
details. In light of the present study, these sections assume
major importance if students are to acquire skills needed to read
texts effectively and come away with an understanding of the truly
important concepts therein.

This paper has dealt with the relationship between
substantive information and main ideas in introductory sociology
textbooks -- one subject only. Further research of this type is
needed with texts in other subject areas as well. Examination of
texts for other introductory courses, such as math and writing
classes, is particularly needed.

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Table 1

Inter-rater Reliability for Sociology Textbook Chapters

Chapter	DeFleur		Robertson		Tischler		Total
	Agree	Disagree	Agree	Disagree	Agree	Disagree	
Culture	74	13	65	21	77	13	
	(85.1%)	(14.9%)	(75.6%)	(24.4%)	(85.6%)	(14.4%)	(82.1%)
Family	62	10	90	12	96	17	
	(86.1%)	(13.9%)	(88.2%)	(11.8%)	(84.9%)	(15.1%)	(86.4%)
Inequality	97	18	62	8	87	7	
	(84.3%)	(15.7%)	(88.6%)	(11.4%)	(92.6%)	(7.4%)	(86.3%)
Total	233	41	217	41	260	37	
	(85.0%)	(15.0%)	(84.1%)	(15.9%)	(87.5%)	(12.5%	(85.6%)

Table 3

Relation of Formal Main Idea to Important Material in Paragraphs
Containing Significant Information

Book	Only main idea important	Main idea plus other material important	main idea unimportant
DeFleur n=132	26 (19.7%)	78 (59.1%)	28 (21.2%)
Robertson n=167	30 (18.0%)	118 (70.7%)	19 (11.3%)
Tischler n=195	37 (19.0%)	142 (72.8%)	16 (8.2%)
Total n=494	93 (18.8%)	338 (68.4%)	63 (12.8%)

Table 2

Number of Paragraphs Containing Important Information

Book	Paragraphs	Important	Unimportant
DeFleur	274	132 (48.2%)	142 (51.8%)
Robertson	258	167 (64.7%)	91 (35.2%)
Tischler	297	195 (65.7%)	102 (34.3%)
Total	829	494 (59.6%)	335 (40.4%)