DOCUMENT RESUME

ED 155 665 CS 004 184

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TITLE The Content Area Reading Project: An Inservice Education Program for Junior High School Teachers and Teachers of Adults. Final Report.
INSTITUTION Pennsylvania State Univ., University Park. Coll. of Education.
SPONS AGENCY Office of Education (DHEW), Washington, D.C.; Pennsylvania State Dept. of Education, Harrisburg.
BUREAU NO 09-6905
PUB DATE Sep 77
NOTE 166p.; For related documents, see CS004184-187

EDRS PRICE MF-$0.83 HC-$8.69 Plus Postage.
DESCRIPTORS Adult Basic Education; Class Organization; *Content Reading; *Demonstration Projects; *Diagnostic Teaching; Evaluation Methods; *Inservice Teacher Education; Junior High Schools; Language Styles; Program Development; Program Evaluation; Reading Diagnosis; *Reading Instruction; Reading Material Selection; Reading Skills; Student Motivation; *Teaching Models

ABSTRACT

The Content Area Reading Project was designed to provide teachers in junior high schools and adult basic education classes with inservice workshops and on-site consultant assistance in content area reading methods. Chapter one of this report discusses the need for such a project and outlines the procedures used in developing it. In chapter two, the inservice training model used and evaluated in the project is presented. Chapter three outlines the step-by-step diagnostic teaching model by means of which project participants were taught the administration and uses of informal diagnostic procedures. Chapter four describes the seven content strands that made up the content component of the workshops: diagnosis, linguistic differences, motivation, organization for instruction, reading skills, selection of materials, and evaluation. Chapter five reports the results of the project in terms of changes in attitude and skills in experimental and comparison groups. Chapter six summarizes the project and presents conclusions and recommendations for future work with inservice content area reading programs. Numerous tables are included in the report. (GW)

"The activity which is the subject of this report was supported in whole or in part by the U.S. Office of Education, Department of Health, Education and Welfare. However, the opinions expressed herein do not necessarily reflect the position or policy of the U.S. Office of Education, and no official endorsement by the U.S. Office of Education should be inferred."

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## Acknowledgements

The Directors wish to express their appreciation to the many people without whose help this Project could not have succeeded. We are grateful to:

The University faculty who have served on the Advisory Board. Drs. Victor L. Dupuis, Lester S. Golub, Murray R. Nelson, Robert L. Shrigley and Fred H. Wood, for assistance with topics and materials for the Project.

Dr. Gordon Godbey, who supported this Project with advice and counsel, phone calls at important moments, and other acts of kindness.

Dr. Irene Reiter, who came from Philadelphia to help in the planning of the Project and provided encouragement and support throughout.

The administrations of the cooperating school districts, whose encouragement and support were essential:

Harrisburg School District
Dr. Benjamin Turner, Superintendent
Dr. Peter F. Flynn, Assistant Superintendent
Mr. Frank Korkuch, Principal, Harrisburg Middle School

Penns Valley School District
Mr. Robert C. Downie, Superintendent
Dr. Francis E. Bogert, Assistant Superintendent
Mr. John L. Rimmey, Principal, Penns Valley Junior-Senior High School

State College Area School District
Dr. William E. Babcock, Superintendent
Dr. Robert C. Campbell, Assistant Superintendent
Mr. Lewis Rodrick, Principal, Park Forest Junior High School
Mr. John M. Kriner, Principal, Westerly Parkway Junior High School
Mr. John D. Dittmar, Director of Continuing Education

Dr. Donald Johnson and the media specialists at the University Division of Instructional Services. Without their expertise and commitment, production of the videotapes and other media would not have been possible.

Ms. Betty Holmboe and Mr. Larry McLamb, University faculty members who worked on the development of the videotapes and other media.

Dr. Joyce Lee, who allowed the Project to use her dissertation data and text and provided important evaluation of the Project's results.

Dr. J. Jackson Barnette for the use of facilities for data collection and analysis at the Center for Educational Research and Evaluation and Carlotta Joyner Young for attending to the data analysis with care and skill throughout the entire Project.

Dr. Terry Countermine and Ms. Monica Bahn of the Instructional Support Center, College of Education, for their assistance with the computer-managed record system used during the workshops and for providing individual printouts for each teacher at each workshop.

Mrs. Brenda Burrell, for her editorial assistance and general research support.

Mrs. Jean Harrington, Project secretary, for her patience and hard work despite adversity.

Mrs. Lela Weaverling, Division secretary, Mrs. Jeanine Culbertson, Ms. Cynthia Lyons, Ms. Polly Jo Muthersbaugh, for their support, especially with the final phases of the Project.

Mrs. Trudy Bodkin, Division Budget Clerk, who kept the Project financially sound.

Sr. Cornelia Hennigan and Mrs. Shirley Heidrich, whose typing skills are evident in the final manuscript. Their patience and willingness to meet deadlines were invaluable during the last months of the Project.

Mrs. Sandra L. Snyder for assistance with professional materials selection, ordering, cataloging and distribution; Mr. George Towle for assistance with materials developed by teachers during the Project.

Our special thanks to Sr. Andrea Lee and Ms. Jill Craig, for their extraordinary work in preparing this final report and its appendices. Without their help, patience and perseverance, the report would not have been completed.

Despite the help of these dedicated professionals, the total report is our own responsibility, including errors and omissions.

Mary M. Dupuis
Eunice N. Askov
Project Co-Directors

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# CHAPTER ONE

## BACKGROUND AND PROCEDURES

The Content Area Reading Project was funded by the Division of Adult and Community Education, Bureau of Vocational Education, Pennsylvania Department of Education to investigate ways of providing inservice instruction in reading methods to teachers in junior high schools and Adult Basic Education/General Educational Development (ABE/GED) classes. Funding supported a planning phase (January 1 - June 30, 1976), an instructional development phase (July 1 - August 31, 1976), and a instructional phase (September 1, 1976 - June 30, 1977).

The dual clientele was chosen to see whether teachers with similar needs but different teaching situations could profit from joint inservice programs. The junior high emphasis was preventive in nature, aimed at preventing dropouts and, thus, future students in ABE/GED classes. The Project also agreed to test its inservice program in sufficiently different sites to determine whether it would be equally useful in the widely varying schools and communities in Pennsylvania.

### Content Area Reading

The Content Area Reading Project has been based on the premise that teachers of content subjects in junior high school and Adult Basic Education/General Educational Development can become competent and confident in teaching reading skills as an integral part of their content teaching. The integration of content objectives with those of reading necessitates long range planning for instruction and careful assessment of student ability by

the classroom teacher. The Project also asserts that teacher sensitivity to students' individual differences can be developed so that teachers will appreciate the necessity for providing individual and small group experiences for all students. These are the general premises on which the Project's workshops, teaching materials, and techniques were based. The goal of the first year of this Project was to improve teachers' attitudes toward the importance of teaching reading, their feeling of confidence in their own ability to do it, and their command of some techniques for doing it geared to each one's subject area.

The problem of reading instruction, and its place in content area teaching, has long been and continues to be a subject of debate among educators. Kingston (1964) points out that while interest in the reading problems of students beyond the elementary level has resulted in increased concern for the reading tasks faced by these students in mastering the content in subject areas such as English, social studies, science and math, not much guidance or assistance has been generated by research for the secondary teacher who must cope with these problems. Early (1973) suggests that the status of reading instruction in secondary schools has changed very little in the past thirty years, pointing out that the current demands for the whole faculty to teach reading in the content areas are the same as those noted in the literature as far back as 1942. She notes that only limited progress has been made in extending reading instruction beyond the elementary grades. A chapter in the 26th National Society for the Study of Education Yearbook (1937) is entitled "Reading in the Various Fields of the Curriculum." In this chapter, Snedaker and Horn propose to discuss the "responsibilities of all teachers for the effective direction of the reading pertinent to their curriculum fields" and further,

to present "methods and means for developing (these) reading habits" (page 133).

A review of the literature of the past fifteen years suggests that four issues underlying the problem of reading instruction in the content areas can be identified. First, secondary teachers are in general inadequately, if at all, prepared to deal with reading instruction. Second, these teachers appear to be unaware of the reading skills associated with their content areas and in fact may not be competent themselves in those skills. Third, the attitude of secondary teachers toward the integration of reading instruction in the content areas is frequently negative. Finally, the issue of student achievement can be related to the problem of inadequate reading instruction in the content area classrooms.

Issue One: Preparation of Secondary Teachers. McGinnis (1961) reports the results of a questionnaire mailed to a random sample of Michigan secondary teachers to determine how well prepared they were to develop reading skills among their students. Less than 10% of the teachers responding reported receiving any pre or inservice instruction in how to teach reading to high school students; yet approximately one-third of the respondents reported that they interpreted one of their teaching responsibilities to be the provision of instruction in reading. The same year the McGinnis report appeared, Mary Austin, et al, (1961) published their recommendations for improving teacher education which included the strong suggestion that a course in basic reading instruction be required of all prospective secondary teachers.

Estes and Piercy (1973) present the results of a national survey conducted to determine various state certification requirements in the area of reading. At that time only four states and the District of Columbia required any training in reading education for certification at

the secondary level. Four other states required such training for English teachers only. And, only eight states reported that such a requirement was "under consideration." In other words, thirty-five of the fifty states neither required nor were considering requiring training in reading instruction as a prerequisite for secondary certification as of 1973.

Data from a later survey, that of Roeder and Roeder in 1974, provides information regarding graduation requirements for secondary education majors from 972 colleges and universities in the United States. Approximately 75% of these institutions reported that prospective secondary teachers were not required to enroll in any reading methods courses. Roeder and Roeder suggests that in view of the results of this and other surveys, it is impossible to expect secondary teachers to provide reading instruction and that students can expect little, if any, help from these teachers in the skills they need in order to succeed in reading increasingly more demanding content area materials.

Issue Two: Teachers' Awareness of Reading Skills and Competence in These Skills. The second issue underlying the problem of reading instruction in the content areas is that of secondary teachers' awareness of the skills associated with reading content area materials. Singer (1972) suggests that for the most part students are expected to transfer the skills acquired in the elementary school developmental reading program to all the content areas. While certain of these skills parallel skills students need for materials used at the secondary level and beyond, Singer believes there are specific differences (such as the reading and interpretation of maps and charts, the awareness of various patterns of writing, and the adjustments of rate and technique according to purpose) that can and should be taught at the secondary level.

Few studies have focused on assessing inservice teachers' awareness of the skills associated with content area reading materials premise that knowledge of the skills necessary for successful rea... of subject matter material is a prerequisite for teaching such material, Braam and Roehm (1964) conducted a survey to determine the extent to which a group of secondary teachers were aware of those skills. The responses of these teachers were compared to those of several "experts" in the field of reading instruction. Braam and Roehm conclude that there is a considerable difference between the responses of the teachers sampled and those of "experts" as to the extent and specification of skills needed in the content areas. This conclusion leads them to suggest that the ideas and findings of these "experts" are not being effectively transmitted to teachers.

In a replication of the Braam and Roehm study, Braam and Walker (1973)report similar findings. In general, teachers appear to be unaware of the majority of reading skills needed by students for reading successfully content area materials.

Another aspect of the issue of teachers' awareness of content area reading skills is that of their own competence in utilizing these skills. While a number of researchers have focused on teacher competency in the area of basic word attack strategies (Ilika, 1970, for example, reviews seven studies conducted between 1959 and 1963 to assess teachers' skills in phonics), few have attempted to test teachers' mastery of specific reading-study skills. Askov, Kamm, and Klumb (1976) used the upper level of the criterion referenced study skills tests developed as part of the Wisconsin Design for Reading Skill Development in assessing a group of sixty-five elementary teachers' mastery of many of the skills their students are expected to learn. The generally low scores attained by the

teachers suggest the need for increased attention to assessing the skills of pre and inservice teachers with an eye toward designing teacher education programs which focus on the development of skills known to be inadequate.

Issue Three: Teachers' Attitudes Toward Content Area Reading Instruction. A third issue underlying the problem is that of teachers' attitudes toward the integration of reading instruction in the content areas. McGinnis (1961), as another part of the survey previously cited, asked respondents whether or not secondary students need reading instruction and, if needed, on whom the responsibility for this instruction should fall. Many teachers responded that reading instruction is necessary at the secondary level but that the responsibility for this instruction should be assigned only to trained reading teachers. Schleich (1971) reports that on an opinion survey completed by content area teachers as part of an inservice program, the majority of teachers responded that students should be taught how to read prior to entering secondary school and that any reading instruction at the secondary level should be conducted outside the regular classroom by special teachers. On the other hand, Otto (1968) administered an attitude inventory to eighty-seven secondary teachers and reports that in general the teachers sampled reflected positive attitudes toward teaching reading within the content area classroom. Most teachers indicated a willingness to accept the responsibility for teaching skills specific to their subject areas. Significantly, however, most of these same teachers indicated a need for more training if they were to do an adequate job of incorporating reading instruction in the content areas. Hudson (1975) reports similar results from a survey conducted among social studies teachers. Most of the teachers in this survey recognized the necessity for incorporating reading skills instruction

in their classes but felt inadequate to the task. However, perhaps of greatest significance is the finding that the part of the sample which had the services of a trained reading consultant indicated a more positive attitude toward taking the responsibility of teaching reading skills simultaneously with content rather than turning this job over to the person specially trained in reading.

Issue Four: Student Reading Achievement. Finally, a fourth issue underlying the content area reading problem is that of student achievement and is therefore the most critical. While it is of course important to be concerned about the fact that secondary teachers are in general poorly prepared to deal with reading problems, that they are generally not aware of content area reading skills, and that they have generally negative attitudes toward taking responsibility for reading instruction, what is most important is to consider what effect all of this has on student achievement.

Schleich (1971) notes that in a school-wide testing program conducted prior to an inservice project in reading instruction, mean scores on a standardized reading test at each successive grade from nine to twelve showed a significant downward trend for the same group of students, suggesting that these students did not continue to develop adequately higher level skills as they moved through high school. Rubin (1974) has suggested that one of the most salient factors leading students to drop out of high school is lack of the reading skills necessary for success in the content areas. Singer (1972) reports that particularly among minority students, reading deficiencies can create sufficient frustration in secondary students of average intelligence that many drop out rather than face the embarrassing consequences of continued failure or low achievement in the

content areas.

It is of interest to consider what happens to some of these high school drop-outs who at some later time enroll in ABE/GED programs in order to qualify for high school equivalency status. It would be gratifying to note that these students would finally be under the direction of teachers adequately trained to deal with their reading problems. However, the evidence indicates that this is not the case. Bailey (1973) reports the results of a survey of one thousand Adult Basic Education teachers in a thirteen state area that reveals that 66% of the respondents reported that they had never had formal preparation in the teaching of reading. Hall and Coley (1975) point out that one of the reasons for this lack of preparation on the part of Adult Basic Education teachers is the fact that frequently such teachers are volunteers who have no formal educational training at all. It is therefore unlikely that such personnel would be trained to teach reading.

Inservice Training Model

The Project further proposed that the inservice training given serve as a model for further training throughout the state. Therefore, the inservice model was important for Project evaluation. In order to assess the model's state-wide implications, sites were chosen to reflect school districts across the state. The proposal suggested seeking sites as identified in Table 1.

The Project directors visited and talked with administrators and teachers in several districts in order to select three sites. After receiving administrative and teacher approval, the urban, suburban and rural sites were chosen and became the three sites of the Content Area Reading Project for 1976-77. Table 2 includes the school site, its student and

Table 1

The Proposed Sites

| Site | Estimated Student Population | Estimated Teacher Population |
|---|---|---|
| Type I: Junior High Schools | | |
| 1. Inner-city, highly urban junior high school | 500 | 50 |
| 2. Rural, consolidated area junior high school | 200 | 20 |
| 3. Suburban junior high school | 300 | 30 |
| Type II: ABE/GED Programs | | |
| 1. Urban ABE/GED Program | 100 | 10 |
| 2. Rural ABE/GED Program | 100 | 10 |

teacher population, and the number of workshop teachers enrolled at each site.

The total teacher population at each site was invited to participate in the Project. Voluntary participation and commitment were important because the Project required 15 three-hour workshops, plus working with staff members and on their own assignments between workshops. There was some attrition in the junior high teacher population and a high attrition rate among teachers of adults. Reasons for this attrition will be discussed in detail in Chapter Six.

In order to conduct Project evaluation, a comparison group at each

Table 2

Teacher Participants

| | Site | Student Population | Total Teacher Population | Workshop Teacher Population |
|---|---|---|---|---|
| Type I: | Junior High Schools | | | |
| Urban | Harrisburg Middle School<br>Harrisburg, Pennsylvania | 2554 | 138 | 21 |
| Rural | Penns Valley<br>Junior-Senior High School<br>Spring Mills, Pennsylvania | 510 | 66 | 17 |
| Suburban | Park Forest and<br>Westerly Parkway<br>Junior High Schools<br>State College, Pennsylvania | 1927 | 113 | 20 |
| Type II: | ABE/GED Programs | | | |
| Urban | Adult Learning Center<br>and Standard Evening<br>High School<br>Harrisburg City School<br>District<br>Harrisburg, Pennsylvania | 1415 | 59 | 7 |
| Rural | State College Area<br>Adult Education Program<br>State College, Pennsylvania | 303 | 11 | 1 |

site was selected and tested, although they did not receive any Project treatment. All members of the comparison groups were regular teachers at each site who had chosen not to become participants in the Project.

Tables 3 and 4 provide the number and percent of participants in each site in each subject area. Table 3 shows junior high participants; Table 4, teachers of adults. As expected, a large percentage of junior high participants teach English or reading, but the total workshop group includes representation from every major segment of the junior high school faculty. The spread of teachers of adults is less broad, with representation clustering around major subject areas. The comparison groups were selected to match as far as possible the workshop groups in all demographic areas, especially in content area representation. Tables 3 and 4 illustrate that the Project was successful in matching by content area, with only one category being significantly different in number (junior high science).

Further demographic data on participants included their sex, teaching experience, level of education, and previous reading instruction. Tables 5 and 6 detail their response by frequency and percent. The attempt to match comparison groups with workshop groups was successful. The most notable exception is in years of teaching experience. The workshop participants were significantly less experienced than the comparison groups. However, all teachers, workshop and comparison, are relatively inexperienced.

Workshop Schedule. Workshops were scheduled to meet every two weeks at each site. The original scheduling called for the following meetings by site:

| | | |
|---|---|---|
| Harrisburg | 2nd & 4th Tuesday | 2:45-5:45 p. m. |
| Penns Valley | 1st & 3rd Wednesday | 7-10 p. m. |
| State College | 1st & 3rd Monday | 7-10 p. m. |

Table 3

Junior High Participants by Content Area and Site

| | Harrisburg | | | | State College | | | | Penns Valley | | | | Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Workshop (N = 21) | | Comparison (N = 21) | | Workshop (N = 20) | | Comparison (N = 29) | | Workshop (N = 16) | | Comparison (N = 22) | | Workshop (N = 57) | | Comparison[1] (N = 72) | |
| | f | % | f | % | f | % | f | % | f | % | f | % | f | % | f | % |
| I. Teaching Area | | | | | | | | | | | | | | | | |
| English | 6 | 28.6 | 1 | 4.8 | 3 | 15.0 | 5 | 11.2 | 6 | 37.5 | 5 | 22 | 15 | 26.3 | 11 | 15.3 |
| Social Studies | 4 | 19.0 | 5 | 23.8 | 2 | 10.0 | 7 | 24.1 | 4 | 25.0 | 2 | 9 | 10 | 17.5 | 14 | 19.4 |
| Science | 4 | 10.0 | 1 | 5.0 | 5 | 25.0 | 2 | 6.9 | 3 | 18.8 | 1 | 4 | 12 | 21.1 | 4 | 5.6* |
| Math | 2 | 9.5 | 3 | 14.3 | 2 | 10.0 | 6 | 20.7 | 4 | 25.0 | 5 | 22 | 8 | 14.0 | 14 | 19.4 |
| Health education | 0 | 0 | 1 | 4.8 | 1 | 5.0 | 0 | 0 | 1 | 6.3 | 2 | 9 | 2 | 3.5 | 3 | 4.2 |
| Home economics | 2 | 9.5 | 1 | 4.8 | 3 | 15.0 | 0 | 0 | 1 | 6.3 | 0 | 0 | 6 | 10.5 | 1 | 1.4 |
| Vocational ed. | 1 | 4.8 | 1 | 4.8 | 2 | 10.0 | 2 | 6.9 | 4 | 25.0 | 4 | 18 | 7 | 12.3 | 7 | 9.7 |
| Business ed. | 0 | 0 | 1 | 4.8 | 0 | 0 | 1 | 3.4 | 2 | 12.5 | 3 | 13 | 2 | 3.5 | 5 | 6.9 |
| Special ed. | 0 | 0 | 3 | 14.3 | 2 | 10.0 | 1 | 3.4 | 1 | 6.3 | 1 | 4 | 3 | 5.3 | 5 | 6.9 |
| Consumer ed. | 2 | 9.5 | 1 | 4.8 | 3 | 15.0 | 2 | 6.9 | 5 | 31.3 | 4 | 18 | 10 | 17.5 | 7 | 9.7 |
| Reading | 4 | 19.0 | 8 | 38.1 | 3 | 15.0 | 1 | 3.4 | 4 | 25.0 | 0 | 0 | 11 | 19.3 | 9 | 12.5 |
| Music | 2 | 9.5 | 1 | 4.8 | 0 | 0 | 1 | 3.4 | 0 | 0 | 4 | 18 | 2 | 3.5 | 6 | 8.3 |
| Art | 0 | 0 | 1 | 4.8 | 2 | 10.0 | 0 | 0 | 1 | 6.3 | 0 | 0 | 3 | 5.3 | 1 | 1.4 |
| Foreign Language | 3 | 14.3 | 1 | 4.8 | 1 | 5.0 | 1 | 3.4 | 0 | 0 | 2 | 9.1 | 4 | 7.0 | 4 | 5.6 |
| Bilingual ed. | 0 | 0 | 1 | 4.8 | 2 | 10.0 | 0 | 0 | 0 | 0 | 1 | 4.5 | 2 | 3.5 | 2 | 2.8 |
| Librarian | 0 | 0 | 0 | 0 | 1 | 5.0 | 4 | 3.8 | 1 | 6.3 | 0 | 4 | 2 | 3.5 | 4 | 5.6 |
| Non-teaching personnel | 1 | 4.8 | 1 | 4.8 | 1 | 5.0 | 6 | 20.7 | 0 | 0 | 1 | | 2 | 3.5 | 8 | 11.1 |

[1]Significance levels reported in this column are for difference between Comparison and Workshop Teachers, using Chi Square.

* $p < .05$

Table 4

Teachers of Adults by Content Area

| I. Teaching Area | Workshop (N = 8) f | % | Comparison (N = 9) f | % |
|---|---|---|---|---|
| English | 2 | 25.0 | 5 | 55.6 |
| Social Studies | 3 | 37.5 | 4 | 44.4 |
| Science | 2 | 25.0 | 5 | 55.6 |
| Math | 2 | 25.0 | 7 | 77.8* |
| Health Education | 0 | | 2 | 22.2 |
| Home Economics | 0 | | 3 | 33.3 |
| Vocational Education | 0 | | 2 | 22.2 |
| Business Education | 0 | | 3 | 33.3 |
| Special Education | 0 | | 5 | 55.6* |
| Consumer Education | 1 | 12 5 | 5 | 55.6 |
| Reading | 2 | 25.0 | 4 | 44.4 |
| Music | 0 | | 0 | |
| Art | 0 | | 0 | |
| Foreign Language | 1 | 12.5 | 0 | |
| Bilingual Education | 2 | 25.0 | 1 | 11.1 |
| Librarian | 0 | | 0 | |
| Non-teaching personnel | 1 | 12.5 | 1 | 11.1 |

* $p < .05$

Table 5
Demographic Data on Junior High Participants by Site

| | Harrisburg | | | | State College | | | | Penns Valley | | | | Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Workshop (N = 21) | | Comparison (N = 21) | | Workshop (N = 20) | | Comparison (N = 29) | | Workshop (N = 16) | | Comparison (N = 22) | | Workshop (N = 57) | | Comparison (N = 72) | |
| | f | % | f | % | f | % | f | % | f | % | f | % | f | % | f | % |
| I. Years teaching experience in primary content area | | | | | | | | | | | | | | | | |
| 0-3 | 8 | 38.1 | 10 | 47.6 | 9 | 45.0 | 7 | 25.0* | 5 | 31.3 | 1 | 4.5* | 22 | 38.6 | 18 | 25.4*** |
| 4-7 | 10 | 47.6 | 7 | 33.3 | 8 | 40.0 | 5 | 17.9 | 7 | 43.8 | 3 | 13. | 25 | 43.9 | 15 | .1.1 |
| 8-11 | 1 | 4.8 | 1 | 4.8 | 3 | 15.0 | 2 | 7.1 | 3 | 18.8 | 4 | 18. | 7 | 12.3 | 7 | 9.9 |
| 12-15 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 7.1 | 1 | 6.3 | 5 | 22. | 1 | 1.8 | 7 | 9.9 |
| more than 15 | 2 | 9.5 | 3 | 14.3 | 0 | 0 | 12 | 42.9 | 0 | 0 | 9 | 40.9 | 2 | 3.5 | 24 | 33.8 |
| II. Total years teaching experience | | | | | | | | | | | | | | | | |
| 0-3 | 8 | 38.1 | 5 | 23.8 | 5 | 25.0 | 6 | 20.7** | 5 | 31.3 | 1 | 4.5 | 18 | 31.6 | 12 | 16.7*** |
| 4-7 | 9 | 42.9 | 10 | 47.6 | 10 | 50.0 | 4 | 13.8 | 7 | 43.8 | 3 | 13.6 | 26 | 45.6 | 17 | 23.6 |
| 8-11 | 0 | 0 | 2 | 9.5 | 4 | 20.0 | 2 | 6.9 | 1 | 6.3 | 3 | 13.6 | 5 | 8.8 | 7 | 9.7 |
| 12-15 | 1 | 4.8 | 0 | 0 | 0 | 0 | 3 | 10.3 | 1 | 6.3 | 4 | 18.2 | 2 | 3.5 | 7 | 9.7 |
| more than 15 | 3 | 14.3 | 4 | 19.0 | 1 | 5.0 | 14 | 48.3 | 2 | 12.5 | 11 | 50.0 | 6 | 10.5 | 29 | 40.3 |
| III. Level of education | | | | | | | | | | | | | | | | |
| high school grad | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0* |
| some college | 0 | 0 | 1 | 4.8 | 0 | | 0 | | 0 | | 1 | 4.5 | 0 | 0 | 2 | 2.8 |
| undergrad degree | 18 | 85.7 | 14 | 66.7 | 9 | 45.0 | 9 | 31.0 | 12 | 75.0 | 8 | 36.4 | 39 | 68.4 | 31 | 43.1 |
| master's degree | 3 | 14.3 | 6 | 28.6 | 11 | 55.0 | 18 | 62.1 | 4 | 25.0 | 12 | 54.5 | 18 | 31.6 | 36 | 50.0 |
| doctorate | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 6.9 | 0 | | 1 | 4.5 | 0 | 0 | 3 | 4.2 |
| IV. College credits beyond undergrad. | | | | | | | | | | | | | | | | |
| 0-10 | 2 | 9.5 | 4 | 19.0 | 1 | 5.0 | 2 | 6.9 | 5 | 31.3 | 0 | 0 | 8 | 14.0 | 6 | 8.3 |
| 11-20 | 11 | 52.4 | 5 | 23.8 | 4 | 20.0 | 3 | 10.3 | 3 | 18.8 | 3 | 13.6 | 18 | 31.6 | 11 | 15.3 |
| 21-30 | 4 | 19.0 | 5 | 23.8 | 3 | 15.0 | 3 | 10.3 | 1 | 6.3 | 7 | 31.8 | 8 | 14.0 | 15 | 20.8 |
| 31-50 | 4 | 19.0 | 5 | 23.8 | 8 | 40.0 | 11 | 31.9 | 2 | 12.5 | 6 | 27.3 | 14 | 24.6 | 22 | 30.6 |
| more than 50 | 0 | 0 | 2 | 9.5 | 4 | 20.0 | 10 | 34.5 | 5 | 31.3 | 6 | 27.3 | 9 | 15.8 | 18 | 25.0 |
| V. Reading instruction courses | | | | | | | | | | | | | | | | |
| 0-6 credits | 15 | 71.4 | 10 | 47.6 | 18 | 90.0 | 18 | 62.1 | 11 | 68.8 | 14 | 63.6 | 44 | 77.2 | 42 | 58.3 |
| 7-12 | 5 | 23.8 | 6 | 28.6 | 1 | 5.0 | 5 | 17.2 | 4 | 25.0 | 7 | 31.8 | 10 | 17.5 | 18 | 25.0 |
| 13-18 | 1 | 4.8 | 1 | 4.8 | 0 | | 4 | 13.8 | 0 | 0 | 1 | 4.5 | 1 | 1.8 | 6 | 8.3 |
| 19-24 | 0 | 0 | 2 | 9.5 | 0 | | 1 | 3.4 | 0 | 0 | 0 | | 0 | 0 | 3 | 4.2 |
| more than 24 | 0 | 0 | 2 | 9.5 | 1 | 5.0 | 1 | 3.4 | 1 | 6.3 | 0 | | 2 | 3.5 | 3 | 4.2 |
| VI. Certified reading specialist? | 0 | 0 | 0 | 0 | 1 | 5.0 | 3 | 10.3 | 1 | 6.3 | 0 | | 2 | 3.5 | 3 | 4.2 |
| VII. Sex | | | | | | | | | | | | | | | | |
| male | 9 | 42.9 | 6 | 28.6 | 3 | 15.0 | 14 | 48.3* | 9 | 56.3 | 14 | 63.6 | 21 | 36.8 | 34 | 47.2 |
| female | 12 | 57.1 | 15 | 71.4 | 17 | 85.0 | 15 | 51.7 | 7 | 43.8 | 8 | 36.4 | 36 | 63.2 | 38 | 52.8 |

NOTE: Significance levels related to Chi Square tests comparing Workshop and Comparison within each site. In some cases it was necessary to combine adjacent categories.

* $p < .05$
** $p < .01$
*** $p < .001$

Table 6

Demographic Data for Teachers of Adults

| | | Workshop (N = 8) | | Comparison (N = 9) | |
|---|---|---|---|---|---|
| | | f | % | f | % |
| I. | Years teaching experience in primary content area. | | | | |
| | 0-3 | 2 | 25.0 | 1 | 11.1 |
| | 4-7 | 2 | 25.0 | 5 | 55.6 |
| | 8-11 | 2 | 25.0 | 1 | 11.1 |
| | 12-15 | 2 | 25.0 | 2 | 22.2 |
| | more than 15 | 0 | | 0 | |
| II. | Total years teaching experience | | | | |
| | 0-3 | 2 | 25.0 | 1 | 11.1 |
| | 4-7 | 2 | 25.0 | 3 | 33.3 |
| | 8-11 | 1 | 12.5 | 2 | 22.2 |
| | 12-15 | 2 | 25.0 | 3 | 33.3 |
| | more than 15 | 1 | 12.5 | 0 | |
| III. | Level of education | | | | |
| | high school graduate | 0 | | 0 | |
| | some college | 0 | | 0 | |
| | undergraduate degree | 4 | 50.0 | 4 | 44.4 |
| | master's degree | 4 | 50.0 | 5 | 55.6 |
| | doctorate | 0 | | 0 | |
| IV. | College credits beyond undergraduate | | | | |
| | 0-10 | 1 | 12.5 | 1 | 11.1 |
| | 11-20 | 1 | 12.5 | 1 | 11.1 |
| | 21-31 | 1 | 12.5 | 3 | 33.3 |
| | 31-50 | 2 | 25.0 | 2 | 22.2 |
| | more than 50 | 3 | 37.5 | 2 | 22.2 |
| V. | Reading instruction courses | | | | |
| | 0-6 credits | 5 | 62.5 | 6 | 66.7 |
| | 7-12 | 2 | 25.6 | 2 | 22.2 |
| | 13-18 | 1 | 12.5 | 1 | 11.1 |
| | 19-24 | 0 | | 0 | |
| | more than 24 | 0 | | 0 | |
| VI. | Certified reading specialist? Yes. | 0 | | 0 | |
| VII. | Sex | | | | |
| | male | 2 | 25.0 | 3 | 33.3 |
| | female | 6 | 75.0 | 6 | 66.7 |

The co-directors serving as workshop instructors planned to alternate workshops at each site, so that one would be present at each workshop and conduct half the workshops at each site. The reasoning behind this procedure was that both directors would become familiar with the teachers and schools at each site and, in addition, the instructor variable would be controlled for in the research design. By the fifth workshop, it became clear that the teachers at each site did not like the alternation. The teachers felt that they were not able to get to know the instructors well enough and that there was some lack of coherence in workshop presentations. The Project staff met over the Christmas break and agreed that the teachers' view be accepted. Therefore, co-director Askov worked with Penns Valley teachers for workshops 6-15; co-director Dupuis worked with Harrisburg teachers for workshops 6-15. They worked with State College teachers in clusters: Askov conducted workshops 6-10 and Dupuis conducted workshops 11-15. Both co-directors attended the final workshop at each site, as they had attended the opening one, in order to provide a sense of closure to the experience.

Several workshop dates were changed to avoid conferences and holidays. One workshop in State College was canceled because of weather (Workshop 7, January 24) and held the following week. Otherwise, the difficult winter weather did not affect workshop scheduling. The scheduling of workshops in Harrisburg was adversely affected by the teacher strike which closed school in October. The first two workshops, scheduled for October 12 and 26, were not held. Instead, the first five workshops were held in shortened time, on November 9, 16, 23, December 7 and 14.

The actual workshop dates and the instructor at each is given in Table 7.

Table 7

Dates For Workshops Held By Site

| Harrisburg | | Penns Valley | | State College | |
|---|---|---|---|---|---|
| 2nd & 4th Tuesday | | 1st & 3rd Wednesday | | 1st & 3rd Monday | |
| November 9 | Dupuis/Askov | October 6 | Askov/Dupuis | October 4 | Dupuis/Askov |
| November 16 | Askov | October 20 | Askov | October 18 | Askov |
| November 23 | Dupuis | November 3 | Askov | November 1 | Dupuis |
| December 7 | Askov | November 17 | Askov | November 15 | Askov |
| December 14 | Dupuis | December 8 | Dupuis | December 6 | Dupuis |
| January 11 | Dupuis | January 12 | Askov | January 10 | Askov |
| January 25 | Dupuis | January 26 | Askov | January 31 | Askov |
| February 8 | Dupuis | February 9 | Askov | February 7 | Askov |
| February 22 | Dupuis | February 23 | Askov | February 21 | Askov |
| March 8 | Dupuis | March 9 | Askov | March 7 | Askov |
| March 22 | Dupuis | March 23 | Askov | March 21 | Dupuis |
| April 12 | Dupuis | April 6 | Askov | April 4 | Dupuis |
| April 26 | Dupuis | April 20 | Askov | April 18 | Dupuis |
| May 10 | Dupuis | April 27 | Askov | April 25 | Dupuis |
| May 24 | Dupuis/Askov | May 18 | Askov/Dupuis | May 16 | Dupuis/Askov |

Project Staff Assistance in Schools. Project staff members were chosen for their familiarity with particular types of schools and their experience as secondary teachers and teachers of adults and in supervisory experience with teachers. The schedule of their work with each site was as follows:

| | | |
|---|---|---|
| Jill Craig | Harrisburg Middle School<br>Harrisburg ABE/GED | 1 day/week<br>1 day/week |
| Andrea Lee | Harrisburg Middle School | 2 days/week |
| Joyce Lee | Harrisburg Middle School<br>State College ABE/GED | 1 day/week<br>1/2 day/week |
| Pat Marra | Penns Valley | 1 day/week |
| George Towle | State College | 1 day/week |

A brief description of background and related experience for each staff member is included here to illustrate his/her suitability for the assignment given.

Jill Craig, Doctoral Candidate in Curriculum and Instruction. Staff member for Harrisburg ABE/GED programs and Harrisburg Middle School.
Experience: supervision of student teachers (1 year); instructor in English education methods; secondary ESL teaching (3 years) partly in urban settings.
Present position: Staff member, Penn State Teacher Corps Project, Renovo, Pennsylvania.

Andrea Lee, Doctoral Candidate in Educational Administration. Staff member for Harrisburg Middle School.
Experience: supervision of student teachers (2 years); elementary and junior high school teaching (5 years) - 3 years in urban setting, 2 years as Reading coordinator.
Present position: Supervisor of Elementary Language Arts and Reading Practicum, State College Area Schools (Penn State University program).

Joyce Lee, D.Ed. Curriculum and Instruction, 1977. Staff member for Harrisburg Middle School and State College ABE/GED programs. Also taough L.Ed. 400, Teaching Reading in the Elementary School, to provide released time for co-director Askov.
Experience: Instructor in Reading methods; junior high school English teaching (6 years).
Present position: Instructor in Reading, Penn State.

Patsy Marra, Doctoral Candidate in Curriculum and Instruction. Staff member for Penn Valley Junior High School.
Experience: Reading supervisor (K-12) (3 years); Elementary teacher (6 years).
Present position: Language Arts coordinator and Director, Title III Project, Lewisburg, Pennsylvania.

Sandra Snyder, Doctoral Candidate in Curriculum and Instruction. Materials Coordinator. Also taught DRR 442, Reading Problems in Secondary Schools, to provide released time for co-director Dupuis.
Experience: Library acquisitions (3 years); secondary teaching ( 1 1/2 years).
Present position: Graduate teaching assistant in Measurement and Evaluation, Penn State.

George Towle, M.Ed. Curriculum and Instruction, 1977. Staff member for Park Forest and Westerly Parkway Junior High Schools, State College. Also taught DRR 442, Reading Problems in Secondary Schools to provide released time for co-director Dupuis.
Experience: Developmental Reading teacher (10 years).
Present position: Department Chairperson and reading teacher, Greensburg, Pennsylvania.

These staff members were the key to teacher implementation of material discussed in workshops. Staff members observed teachers, at teacher request, trying out techniques and materials derived from the workshops. They assisted teachers in developing teaching materials, like units and learning centers, with which teachers were unfamiliar. They counseled teachers and generally helped them develop a sense of confidence in their own ability to teach reading and a positive attitude toward the integration of reading and content material. More specific discussion of this staff work will be found under the discussion of the Inservice Model in Chapter Six.

Liaison Teachers in Schools. A liaison teacher was designated at each school after consultation with the principal and, sometimes, the assistant superintendent. These liaison teachers scheduled rooms and audio-visual equipment, disseminated information on workshop and staff schedules, and disseminated materials from the workshops, professional

library, and published materials on loan from the Project library. Workshop participants in each school who served as liaison teacher include:

| | |
|---|---|
| Carolyn Carter (September-December 1976) | Harrisburg Middle School |
| Eva Tucker (January-June 1977) | Harrisburg Middle School |
| Carl Gaffron | Penns Valley Junior-Senior High School |
| Drucila Connor Weirauch | Park Forest Junior High School, State College, Pa. |
| Dorothy Delafield | Westerly Parkway Junior High School, State College, Pa. |

Professional Library and Teaching Materials. A professional library was developed for each site. Appendix 1.1 lists the contents of that library. A single copy of each title was available at Penns Valley Junior-Senior High School and at each junior high school in State College. Two copies of each title were available at the Harrisburg Middle School. The libraries were housed with the regular professional libraries at each school, on loan to project teachers as needed to complete reading assignments and to use as models for teaching materials. The liaison teachers supervised the lending of library materials.

The professional library is made up of references for professional information on topics discussed in the workshops. Most of these sources could be used as texts for regular college courses. Teachers received the benefit of several points of view on given topics rather than being restricted to a single view, as they might have been if a single text had been required. Some workshop participants bought copies of texts they particularly preferred. One school bought copies of several for retention in their permanent collection. If the follow-up study currently being planned occurs in each school, the professional library will remain there

for use during the 1977-78 school year.

A second part of the Project library is a collection of Model Professional Materials collected throughout the Project. Its major purpose is to provide teachers with samples of new materials which integrate reading skills and content objectives. Teachers were encouraged to search for published materials to fit their needs or, if none were available, to develop their own, using these as models. Special emphasis was placed on practical materials for adult and junior high readers, materials with high interest and low reading levels, materials covering Adult Performance Levels (APL) breakdown into content areas, and materials that stress the application of concepts. Some of these are listed in Adult Basic Education Instructional Material, An Annotated Bibliography by Eunice N. Askov and Joyce W. Lee, distributed by the Division of Continuing Education, Bureau of Vocational Education, Pennsylvania Department of Education. A complete listing of the junior high school materials is given in Annotated Bibliography of Junior High School Materials for Reading Development in the Content Areas by Sandra L. Snyder, which appears as Appendix 1.2 of this report.

Additional materials were duplicated for use in workshops. These included background material, sample teaching materials and other reading related material. These materials will be described when each topic is discussed in Chapter Four.

Workshop Objectives and Graduate Course Offering. Graduate credit was available to all workshop participants through Continuing Education at the Pennsylvania State University. Workshop objectives were organized by courses, permitting teachers to choose one or two courses for credit after determining what each course required. In accordance with University

requirements, one objective was required from teachers taking each course for credit in addition to the objectives required of all workshop teachers.

The following objectives were handed out to all teachers at the first workshop:

1. Each teacher will demonstrate his understanding of informal diagnosis by creating two informal diagnostic procedures: an IRI, a cloze procedure or another precedure described in class.
   Evaluation: Diagnostic procedures followed formats given in workshop.

2. Each teacher will use the results of his diagnostic procedures (Informal Reading Inventory, cloze, other) to develop grouping patterns or other classroom management plans.
   Evaluation: 1. Teacher will present at least one plan for grouping students in a class by reading skill needs based on diagnostic information.

   2. Teacher will present at least one plan for grouping students in a class on a basis other than reading diagnostic information.

3. Each teacher will develop <u>three</u> alternative instructional procedures, as follows:

   a. a unit (3-6 weeks long) following format given (to be done in groups or by using an existing unit and extending it).
   b. a Learning Activity Package or Learning Center teaching a reading skill included in unit.
   c. a lesson or longer instruction involving a medium besides reading.

   Evaluation: 1. Each segment follows procedures outlined in workshop.
   2. Relationship between three types of instruction clearly identified.

4. As part of a content area group, each teacher will develop an <u>annotated</u> bibliography of teaching materials in his content area and/or reading.
   Minimum: 50 entries per group.

5. Each teacher will demonstrate understanding of linguistically and culturally different students by:

   a. outlining the major language problems faced by black and Appalachian students.
   b. describing in essay form one dialect or linguistic problem and suggesting three ways to work with it in his classroom.

6. Each teacher will develop five exercises to teach a reading skill in his content area. At least <u>one</u> exercise will teach a skill in each major skill area: vocabulary, comprehension and study skills.

Evaluation: 1. Follows format and time frame given in class.

2. Reading skill clearly identified.

3. Context in content material is appropriate.

7. Each teacher will demonstrate his ability to write comprehension questions at differing levels by writing at least six questions on one piece of reading, using at least two levels of questioning.
Evaluation: 1. A minimum of six questions on reading material appropriate for grade and subject

2. Questions labeled correctly as to level.

3. Answers are included and support level identified by teacher.

8. Each teacher will identify paragraph functions for each paragraph in a piece of reading in his subject area.
Evaluation: 1. Functions correctly identified, according to list of functions given in workshop.

9. Each teacher will demonstrate his understanding of the concept of readability by:

a. applying at least two readability formulas to three texts currently in use in his classes.
b. writing a critical evaluation of the effectiveness of readability measurements in his content area.
Evaluation: 1. Formulas accurately applied to texts.

2. A two-page paper attached to readability data.

10. Each teacher will develop a case study which follows one or more students over the length of the workshops, according to one of the following options:

a. given the results of an IPI on a class, choose two or three students who need help on a specific skill and follow them all year on that skill;
or
b. given the results of an IRI on a class, set up, give and score follow-up IRI's or tests each two to three months to see if these skills are improved;
or
c. if a student or group of students has more than one project teacher, those teachers may follow the same students through diagnostic/prescriptive activities similar to those in a or b;
or
d. Reading teachers may use diagnostic tests, including miscue analysis, on two to three students and develop a thorough case study on them, focusing on their reading needs in different content areas.
Evaluation: Information clearly presented, logically organized;

analysis of data suggests what the student needs at the end of the study.

11. Each teacher will demonstrate his ability to apply content area reading principles by teaching at least three lessons including content area reading skills, observed by a project staff member and discussed in a follow-up session. These observations will be scheduled at the teacher's and staff member's mutual convenience and will be evaluated by the form provided.

12. Each teacher will keep a weekly logbook of activities and lessons involving content area reading, in at least one class. This book will be evaluated at the end of the project (May, 1977) and must contain at least one entry per week to be acceptable.

Teachers taking L.Ed. 470 for graduate credit will complete the following objective, in addition to objectives 11 and 12 given above.

13. Each teacher will present to his workshop class a report on one of his teaching experiences using a content area reading practice (10 - 30 minutes long). He will schedule this presentation with the instructor and prepare all materials needed by other workshop participants. Suggestions for materials to share in this presentation include:

    1. A diagnostic tool and data from its use in one class;
    or
    2. A lesson plan and data from its use in one class;
    or
    3. A media presentation (videotape, audiotape, etc.) developed by the teacher and used in conjunction with a lesson or unit plan;
    or
    4. Data on linguistically different students in one class and the teacher's work with them on a specific skill or lesson;
    or
    5. Other related activities approved by the instructor.

Objectives 3a, 3b, 3c, 5, 10 and 13 can be awarded an A (outstanding), S (satisfactory) and I (incomplete) grade.

All other Objectives can be awarded only a S or I grade.

The two courses offered for credit were:

1. DRR 450, Content Area Reading, three credits. This course was taught in a similar manner as on the main campus and in other Continuing Education offerings. Objectives 1-10 were required for DRR 450 as the Content Component of the Project.

2. L.Ed. 470, Workshop in Content Area Reading, three credits.

This course was designed specifically for this Project. Objectives 11-13 were required for this course, the Demonstration Component of the Project.

Teachers who chose not to take the course for credit were required to complete Objectives 1-9 and Objectives 11 and 12 to receive a certificate of completion of the Content Area Reading Project (a sample certificate is attached as Appendix 1.3).

Two major emphases of this Project were the Inservice Model(discussed in Chapter Two)and the Diagnostic Teaching Model(discussed in Chapter Three). The objectives relating to each emphasis are discussed in the appropriate chapter. The Content Components are also discussed in Chapter Four in which specific strands are described in detail.

Teacher Attitude and Skills

The Project has operated on the premise that changing teachers' attitude toward teaching reading in content classes is a key factor in developing their skills in reading instruction. Teachers' attitude toward teaching reading has been reported in the literature usually to be negative. Yet most secondary teachers, when pressed, admit that their students have difficulty reading the assigned material. Further, in each of the school districts involved in this study, secondary teachers had listed "Reading in the Content Areas" as a high priority for inservice work. After considerable study of teacher attitude in general and toward reading in particular, the Project staff hypothesized that attitude toward teaching reading was not a monolithic entity but a combination of several elements:

1. The teachers's attitude toward the importance of reading and the teaching of reading in his/her classroom.

2. The teacher's attitude toward the feasibility (or loosely stated, the practicality) of teaching reading in his/her classroom.

3. The teachers's perception of his/her skill in teaching reading in his/her own subject area.

4. The teacher's general attitude toward teaching and the teaching situation.

5. The teacher's mastery of knowledge about reading skills.

Teacher Attitude Toward Reading. Elements 1, 2, and 3 of the list above were assessed by two attitude instruments developed by Project staff and geared specifically to content area teachers and reading:

1. Statements Survey: Teaching Reading in Content Areas uses the Likert technique to assess element 1 in some depth.

2. Situations Survey: Teaching Reading in the Content Areas uses the semantic differential technique to assess elements 1, 2 and 3.

The Statements Survey is a twenty-item test resulting in a score ranging from 20-100. Each statement is responded to on a five-point scale from "agree" to "disagree." Data on the development, validation and reliability study of the Statements Survey, along with a copy of it, is included in Appendix A.1.

The Situations Survey uses the semantic differential technique to assess elements 1, 2, and 3 on the list. For each item, a classroom situation relating to reading was presented and a plan of action for teachers to consider. Teachers then rated the situation and teaching plan on a series of bipolar adjectives. The first five sets of adjectives assessed their attitude toward the plan. The sixth set asked them to consider the plan's feasibility in the classroom, and the seventh set asked them to assess their skill at carrying through a plan like the one described. Ten items made up the survey, resulting in three scores: an attitude score, a feasibility score, and a perceived skill score. Data on the development,

validation and reliability study of the Situations Survey is included in Appendix A.2, as is a copy of the instrument.

Both of these attitude surveys were administered before and after the workshops to all Project participants and comparison teachers.

General Teacher Attitude. Element 4 appeared to involve general teacher morale. While improving teacher morale was not the objective of this Project, teacher morale unquestionably affects the performance of teachers and their willingness to undertake a project like this and complete it successfully. The Project proposed to each teacher a system of teaching, the Decision Model for Diagnostic Teaching by Grouping, which asked them to examine critically and, in many ways to change their teaching organization and practice. Such a change in teacher behavior might have seemed to be too great an effort for teachers whose general morale was low.

In addition, teacher morale is affected by forces external to this project, such as salary disputes, administrative behavior and community pressure. It seemed reasonable that over an academic year, forces like this could affect the morale of teacher participants in ways that would confuse the Project's findings but were beyond its control.

Therefore, teacher morale was assessed, pre and post, with the Purdue Teacher Opinionaire, an established, standardized scale for measuring teacher attitude toward administrators, teaching organization, curriculum change, salary, community support of schools, and other factors. This measure was included to alert the staff to changes in teacher morale not directly due to this Project. It was administered pre and post to both workshop and comparison groups. A copy of the Purdue Teacher Opinionaire is included in Appendix A.3.

Reading Skills Test. Further testing seemed necessary to assess teachers' cognitive knowledge of reading skills. Project staff developed a criterion-referenced test to measure change in teachers' skill levels during the workshop program. A 23-item multiple-choice test was developed and field tested. The test was referenced to the workshop objectives and mastery level was set at 80%. Field-testing and validation of the skills test are discussed in Appendix A.4. A copy of the test is included.

## Dissemination

The Project began dissemination procedures with the development of a brochure describing the Project (Appendix A.8). Materials have been and continue to be disseminated at cost.

Professional dissemination has included participation in the following conferences:

-National Reading Conference

Atlanta, Georgia; December 1-2, 1976

Papers Presented:

Inservice Training Model of the Content Area Reading Project. Eunice Askov and Mary Dupuis.
Diagnostic Teaching in Content Area Reading. Mary Dupuis and Eunice Askov.
The Development of Two Instruments for Measuring Teachers' Attitudes Toward Reading in the Content Areas. Joyce Lee and Carlotta Young.

Attended by Mary Dupuis, Eunice Askov and Joyce Lee.

-Pennsylvania Association for Adult Education Mid-Winter Conference,

Harrisburg, Pennsylvania; February 18-19, 1977.

Distributed brochures.

Attended by Eunice Askov, Mary Dupuis, Andrea Lee and Jill Craig.

-Conference on Black Basic Education

Harrisburg, Pennsylvania; February 4-5, 1977.

Attended by Andrea Lee and Jill Craig

-Keystone State Reading Association

Bloomsburg, Pennsylvania; March 31-April 2, 1977.

Distributed brochures.

Attended by Eunice Askov, Mary Dupuis, Joyce Lee, and Sandra Snyder.

-International Reading Association Annual Convention

Miami Beach, Florida; May 2-4, 1977.

Paper presented:

Content Area Reading Project: Incorporating Reading Skills in Content Subjects by Mary Dupuis, Eunice Askov and Joyce Lee, in the symposium, Teaching Reading to Adults: Everything You Ever Wanted to Know But Were Afraid to Ask.

Attended by Eunice Askov, Mary Dupuis and Joyce Lee.

Current plans call for Project results to be discussed further at the following professional conferences in 1977-78.

-Keystone State Reading Association

Pittsburgh, Pennsylvania; November 10-12, 1977.

Proposed:

a full session on the Content Area Reading Project describing how to organize and conduct an inservice program in content area reading.

-National Council of Teachers of English Annual National Convention

New York City; November 24-26, 1977.

Accepted:

Training Resource Teachers for Content Area Reading.

-National Reading Conference

New Orleans, Louisiana; December 1-3, 1977.

Accepted:

Evaluation of a CBTE Reading Inservice Program for Junior High School and ABE Teachers. (follow-up to the symposium presented at National Reading Conference, December, 1976).

-Eastern Reading International Reading Association Conference

Hartford, Connecticut; March 2-4, 1978.

Accepted:

Content Area Teachers and Middle School Reading.

-International Reading Association Annual Convention

Houston, Texas; May 1-5, 1978

Proposed:

A symposium entitled Alternative Models for Inservice Education in Content Area Reading chaired by Eunice Askov who will give an overview and moderate the discussion; a paper by Mary Dupuis, Combining University and School-based Inservice Education in Content Area Reading.

Further inservice teacher education programs are planned with Intermediate Units and school districts within the state.

This final report and its appendices will be distributed to participating school districts and interested members of the University Advisory Board. Other professional requests will be filled at cost. This report will be submitted to ERIC and other data retrieval systems.

## Overview of the Report

The remainder of this report is organized to describe in greater detail the concepts underlying Project activities, and the content of actual workshop sessions, as well as evaluation of the Project.

Chapter Two describes the Inservice Training Model used and evaluated in the Project.

Chapter Three describes the Diagnostic Teaching Model, as the central organizing principle for implementation by workshop participants.

Chapter Four describes the seven content strands which made up the cognitive component of the workshops: Diagnosis, Linguistic Differences, Motivation, Organization for Instruction, Reading Skills, Selection of

Materials, and Evaluation.

Chapter Five reports the Project's results in terms of changes in attitude and skills in experimental and comparison groups.

Chapter Six includes an overall summary of the Project, conclusions and recommendations for future work with inservice content area reading.

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# CHAPTER TWO

## THE INSERVICE EDUCATION MODEL OF THE CONTENT AREA READING PROJECT

Inservice teacher education programs take many forms. A typical form of inservice involves a visiting consultant who is invited to the school for an hour or two to speak on his/her area of expertise. Teachers listen dutifully; some even take notes. But no serious change in their practices and attitudes is either expected or achieved.

The Content Area Reading Project involved an inservice effort for junior high school teachers and teachers of adults. The Project's goal was, first, to change attitudes positively toward teaching reading as part of content area subjects and, second, to effect change in that direction in classroom practices. The Project staff realized that as outsiders or "visiting experts," they might in fact have very little impact on teachers' classroom practices and attitudes (Otto and Erickson, 1973). Therefore, they chose a model for inservice education which might be used more often by a consultant regularly employed by a school district (e.g., curriculum director, reading consultant) in which a series of sessions could be scheduled over a long period of time with follow-up in the classrooms.

Following recommendations made by others (Campbell, 1973; Parker and Campbell, 1973), the Project staff developed a year-long program for volunteer teachers, consisting of fifteen bimonthly sessions, each lasting three hours. Three or six hours of University credit were available as an option for teachers who wished to pay for the credits. Content teachers who might be well versed in their subject areas frequently have difficulty

individualizing instruction for different reading abilities due to large, changing content classes (Burnett and Schnell, 1975), or they resist teaching reading skills "by rationalizing that 'reading isn't my subject'" (Axelrod, 1975). Therefore, changing attitudes was considered of primary importance. Since affective objectives are attained primarily through activities with high experience impact and two-way communication (Otto and Erickson, 1973), follow-up between inservice sessions seemed essential to observe and provide feedback on progress toward integrating reading skills in the content subject, to discuss assigned projects, and to provide demonstration teaching as requested.

A competency-based format was selected since the Project staff anticipated differences among the teachers in entry levels and progress in both skills and attitudes. It was also hoped that modeling a diagnostic-prescriptive approach in the workshops would influence teachers toward diagnostic-prescriptive teaching. Objectives were written at three levels -- cognitive, simulation, and application. The skills learned in the workshops were applied and observed in the classroom during the demonstration phase, in which the teacher integrated in the classroom the skills previously mastered at lower levels.

## Procedures

The target group for the study consisted of 120 teachers of junior high and ABE/GED students at three sites. Since reading instruction for teachers of adults has been generally lacking (Hall and Coley, 1975), they were included with junior high school teachers who teach potential or future members of ABE/GED classes (if students drop out in high school). Reading specialists were also included so that they might become more sensitive to the demands of the content area classroom and provide help to

content teachers as they deal with students of all reading abilities. The actual number and percent of teachers representing each content area is listed in Tables 3 and 4, pp. 12-13.

## Incentives for Teachers

Because change in teaching behavior is a long-term process and one in which teachers feel uncomfortable and insecure, the Project sought to provide incentives for teachers to join and become committed to this process. It was reasoned that such a commitment would support teachers through difficult periods in the change process. At the three Project sites representing rural, urban and suburban settings, teachers were offered the option of released time during the school day with substitutes hired by the project, or to receive extra compensation for attending the training sessions in the evening or after school. At each site, they chose to have the sessions after school hours and receive the extra compensation ($25 per workshop for attendance). The project had originally intended to offer University credits as an additional incentive. However, the Pennsylvania Department of Education decided that provision of credit at no cost to participants was not appropriate and might establish an undesirable precedent. Therefore, teachers were allowed to choose to take three or six credits or no credit as described in Chapter One.

## Professional Support Procedures

Other professional support procedures were developed to aid the teachers in the change process. An Advisory Board was established consisting of professors at The Pennsylvania State University from the various content areas which are typically taught in junior high schools and ABE/GED programs. Each Advisory Board member identified sample

materials from his/her content field that might be used in junior high school and ABE/GED programs as well as professional books relating reading skills to the content area subject. A list of the Advisory Board is given in Appendix 2.1.

A professional library, consisting of books suggested by Advisory Board members plus many other resources dealing with content area reading, was developed for each site (See Appendix 1.1). The professional library was provided so that teachers could complete the assigned readings without having access to a university library and use the references as sources of model techniques for teaching reading.

In addition to the professional library, the Project purchased many student materials for secondary and adult content reading. These materials served as commercial models of student materials to be used by teachers during workshops or to be signed out to a teacher for a short time after they were used in workshops in order to complete workshop assignments.

Model materials were also created by Project staff to demonstrate how teachers might construct similar materials and develop these techniques in their classrooms. The Project staff encouraged the use of media by modeling their use in the workshops with staff-created materials. For example, a videotape was created on how to make a videotape concerning the teaching of vocabulary in a social studies unit. Listening centers pertaining to note-taking were set up to give teachers experience in listening comprehension and to encourage the use of such centers in their classrooms. Particular use of media will be described as part of Chapter Four.

A staff of five graduate students (See Chapter One, p. 18) was hired to serve as coordinators. Each was assigned to teachers in a particular school to provide follow-up in the classrooms between workshop

sessions. They not only attended the workshops at their particular sites, assisting the two university instructors, but also observed classes, held conferences with teachers, and did demonstration teaching as requested. In addition, a workshop participant was identified at each school to serve as a liaison teacher in scheduling classroom visits for the coordinators, relaying questions to staff members from other teachers, and arranging for equipment needed for each workshop session.

Finally, since the workshop objectives called for application in the teaching of reading skills in the content area classroom, an observation form was needed. (See Appendix 2.2). When a teacher wanted to demonstrate classroom application of an objective, he/she requested a visit from the coordinator who completed the observation form and indicated whether or not the demonstration of the objective was satisfactory. A follow-up conference between teacher and observer was also held to provide feedback on each classroom observation. Project staff helped develop the observation form and received training in using it during the planning period before the workshops began.

## Evaluation of the Inservice Model

An evaluation design was planned to determine the effectiveness of the inservice education model. Not only was mastery of each workshop objective assessed as recommended by Otto and Erickson (1973); the effectiveness of the inservice model was also evaluated. Since results can not be expected to be observable among junior high and ABE students immediately, only teacher variables were considered during this year.

The overall evaluation of this inservice model is contained in Chapter Five and Six of this report. Major considerations are:

1. Change in attitude of workshop participants.

2. Adequacy of competency-based objectives and processes for inservice programs.

3. Adequacy of modeling procedures in workshops as a means for encouraging change in teaching behavior.

4. Adequacy of teacher incentives in encouraging long-term teacher commitment.

5. Adequacy of on-site Project staff and liaison teachers in providing support for teacher change.

These considerations will be further discussed in Chapter Five and Six. In addition to implementing the inservice model during the workshops and follow-up sessions, the staff presented a model for diagnostic teaching as a tool designed to assist teachers in planning for instruction. This model will be the subject for discussion in Chapter Three.

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CHAPTER THREE

# DIAGNOSTIC TEACHING IN CONTENT AREA READING*

Diagnosis is not a concept which is discussed frequently with content teachers, junior high or adult. When diagnosis enters, it usually is construed as diagnosis of students' cognitive level or their mastery of content material. Diagnosis of reading level has been presumed to be the responsibility of the reading teacher, or for secondary teachers, the oft-maligned elementary teachers. The Content Area Reading Project premise is two-fold:

1. Informal diagnosis of reading levels is the responsibility of the content teacher, and that content teachers can develop, administer, and evaluate informal diagnostic instruments.

2. Content teachers can use diagnostic information, teach the necessary reading skills, and not neglect their content responsibilities.

## Needed Diagnostic Information

Content teachers need to know a great deal about the reading skill levels of their students (Shepherd, 1973). First, teachers must analyze the objectives and materials on which their courses are based to determine which skills students must be able to use in order to be successful. Then they must determine from earlier teachers, curriculum guides, etc., to which skills the students have already been exposed. Questions to be answered include: Which of these skills have the students mastered? Can students transfer skills learned in reading class (or any other class) to the content material in this class?

* This paper will appear in The Yearbook of the National Reading Conference, in press.

A great many skills are introduced in the elementary grades in the context of reading class; e.g., word attack skills using roots and affixes to find the meaning of unfamiliar words. The task of the secondary content teacher and the teacher of adults is to teach consciously for the necessary transfer of this basic word attack skill, reinforcing and expanding the skill for particular use in the given content area.

For example, with regard to roots and affixes, students enter seventh grade having some familiarity with inflectional affixes and some basic derivational affixes. The junior high science teacher must begin using specifically scientific affixes and the Greek and Latin roots so common in scientific language. Diagnostic questions include:

1. Can students identify and apply inflectional affixes in non-scientific words?

2. Can students take basic scientific terms apart into component parts?

3. Can students build new words from groups of roots and affixes and identify probable meanings?

After the basic skill is transferred and reinforced, the science teacher can introduce more elaborate root and affix work, combining basic sound pattern rules (again, familiar from elementary school) and the word-building process (consider the movement from microscope to microscopic to microscopy). The complexity of the process of vocabulary building is easy for reading teachers to see, but content teachers are often unaware of it. The same procedure applies to teachers of adults as they approach content materials.

This latter set of word attack skills, synthesizing several basic skills in the approach to unfamiliar words, represents the second major

diagnostic problem for content teachers. Once students' mastery of skills taught earlier is ascertained, content teachers must assess their mastery of developing skills, ones not assumed to have been mastered earlier. On such skills as these, students will need direct instruction, not merely transfer and reinforcement. These skills will need sequential work, carefully planned and systematically introduced. Examples of developing skills include higher level problem-solving and searching skills; drawing abstract conclusions, like determining the "theme" of literature; appreciating figurative language.

A third diagnostic problem for content teachers at all grade levels is to match the reading level of texts and other pieces of reading to the reading abilities of the students. This requires that content teachers be able to assess the difficulty of texts. It also requires that they be able to assess the reading levels of their students. With this information, teachers can find reading materials appropriate for the students or, if that is not possible, they can adjust their teaching and the students' uses of the material to account for differences. Most content teachers are not trained either to assess materials or to assess student reading levels. Nor are they trained in adjusting their teaching or their students' reading materials. Nor are they familiar with alternative and supplemental materials.

## Using Diagnostic Information

The Content Area Reading Project proposed to help junior high content teachers develop the skills necessary to answer these and other questions and problems in incorporating the teaching of reading in their special content. The project aimed to have its teacher participants learn about reading techniques, develop usable models, and evaluate their use in

the classroom.

The long-range goal is the synthesis of necessary reading skill instruction with regular content instruction. Selection of content goals is the primary consideration, with the students' mastery of these content goals the critical outcome. However, since such mastery will not occur without adequate reading skills, these content goals must be coupled with reading skill instruction for those students who need it. This requires both the application of diagnostic information and integration of reading objectives with those in the content area.

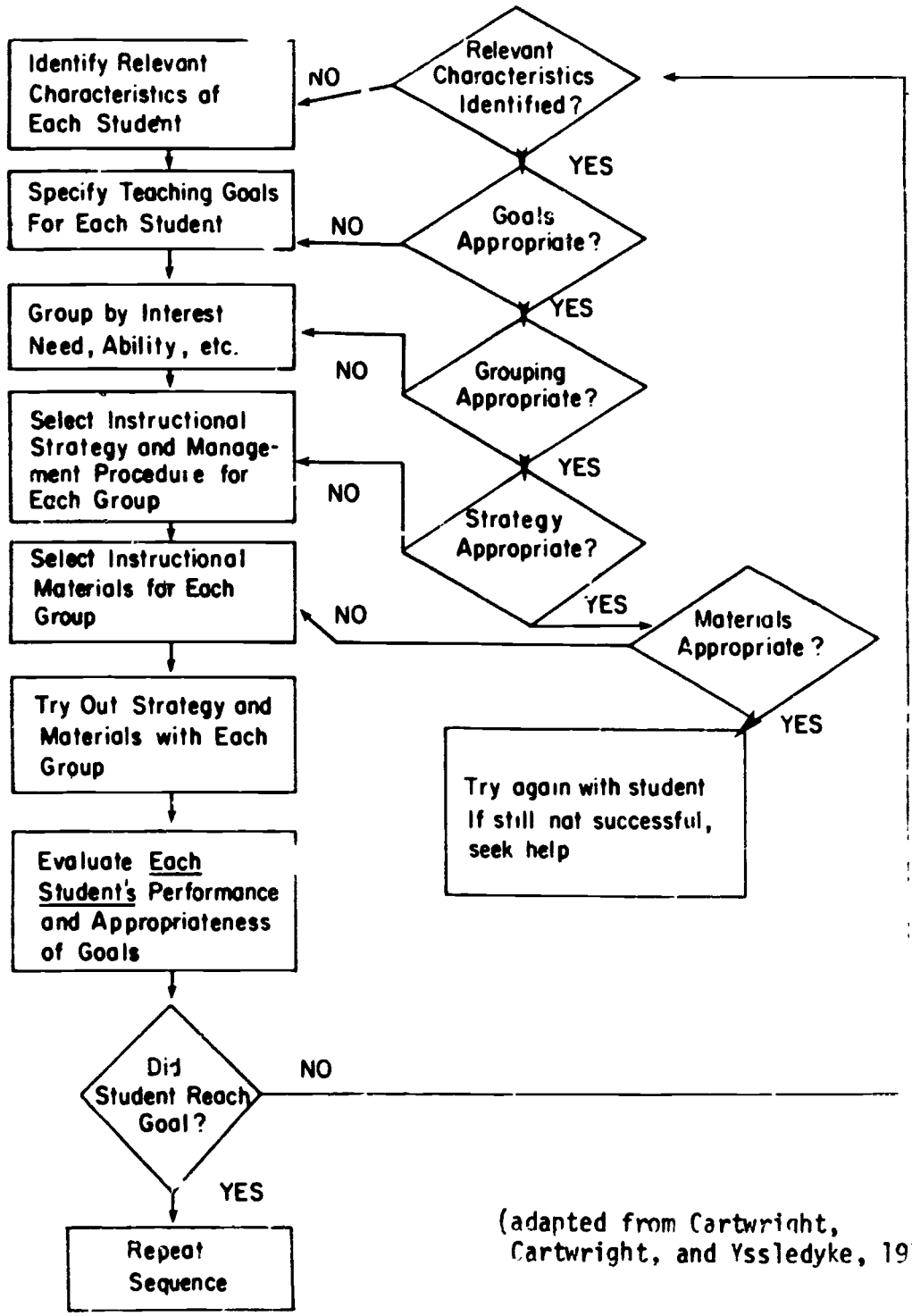
The Decision Model for Diagnostic Teaching

The key concept in the Project's approach to content teachers is the Decision Model for Diagnostic Teaching (Cartwright, Cartwright & Yssledyke, 1973). This model, based on analysis of each student's potential, requires professional decisions at specific points in the teaching situation. The original decision model was designed for teachers of special education students in regular elementary classes. The model works well in any class in which individualized attention can be given to a student, or in the individualized atmosphere of an adult learning center.

Realistically, individual attention to each student is not possible for secondary content teachers, faced with 150 or so students each day, for discrete periods of time, with little flexibility in space. A more reasonable model for such teachers is an adaptation of the Decision Model given in Figure 1. The adapted model also assists teachers of adults in forming groups for social as well as cognitive reasons. This adapted model differs from the original in several important ways. However, it is based on the same principle: a step-by-step planning sequence for a teacher to follow throughout the teaching-learning process.

Figure 1

The Decision Model for Diagnostic Teaching
Grouping




(adapted from Cartwright, Cartwright, and Yssledyke, 1973)

Step one is a careful assessment of each student to identify relevant characteristics, in this case of his/her reading ability. The project focused on informal assessment of important reading skills by content teachers using their own materials. Teachers developed group informal reading inventories (Shepherd, 1973; Thelen, 1976; Earle, 1976) and cloze techniques (Dupuis, 1976; Riley, 1973) and used classroom observation techniques. They assessed students' self-direction level, to see which students could best assume independent activities. Case studies of individual students focused on background information and student attitudes and interests. Many teachers have done this, but for too many, this valuable diagnostic information is gathered, then never used. The rest of the model forces teachers to act on this information. (For more detail, see Chapter Four, Diagnosis and Linguistic Differences Strands).

Step two asks teachers to specify teaching goals for each student. This will require writing objectives which speak to student learning, both in content area and in reading skills (Dupuis, 1973). The objective prescribed for each student may differ in which reading skill is being learned, or in what medium is the source of content information (e.g., book, videotape, microfilm, magazine article, audiotape, etc.). The objective may allow choice in the method of demonstrating knowledge (e.g., oral or written, creative project or research paper), or in the route to gaining the skill or information (e.g., class work, learning centers or learning packets). (For more detail, see Chapter Four, Organization for Instruction Strand).

It seems reasonable that these student objectives be considered in groups or clusters rather than individually. That is, objectives can be grouped together in clusters of three or four which are somehow similar: the reading skill is the same, or the topic is the same, or the process is

the same, etc. These clusters are found to be useful for several students, hence a group of students working on the same cluster of objectives.

Step three of the model is the process of grouping. The teacher makes the professional decision that certain objectives for certain students can be achieved in a group. These groups can be based on skill strengths or weaknesses, interests, special abilities; or a group of students can be matched to particular alternative reading materials. Such groups differ from typical homogeneous groupings because they are reevaluated after each sequence. They can be changed at any time; either when weaknesses have been corrected or interests have changed.

The Project staff guided teachers in forming different kinds of groups. The demonstration phase asked teachers to apply this procedure in a class and to evaluate its usefulness. Staff members observed these classes and discussed the results with the teachers. In addition, Project workshops demonstrated different grouping patterns within workshop sessions. (For more detail, see Chapter Four, Diagnosis Strand).

Step four of the model directs the teacher, perhaps with the students, to choose which instructional strategy to use - e. g., lecture, guided discovery, inquiry, small group discussion, independent lab work, research in the library, learning packages. Each of those strategies uses different skills, requires different kinds and amounts of reading. Each allows the teacher to direct students to use their strong skills and/or to build up their weaknesses. The classroom management procedure is dictated by the instructional choices. Will the class be in one large group? Small groups? Independent study in the classroom? Somewhere else? The teacher remains responsible for knowing what each student or group is doing. The teacher must direct or guide students carefully, allowing

appropriate degrees of decision-making by students. During this project, content teachers began to move into grouping patterns other than the single large group. The Project's hypothesis is that this change can only happen slowly and in small increments. Beginning with teachers' present grouping plans, other patterns can be introduced one at a time, for short periods of time. As teachers become comfortable in different situations, as they know they can manage the class, they are encouraged to try additional patterns. (For more detail, see Chapter Four, Organization for Instruction, Motivation, Evaluation, and Reading Skills Strands).

Step five is the one which seems out of place - selecting instructional materials. The prevailing wisdom is that this is the first step - the adopted textbook is the material. The Decision Model suggests that teachers put the horse and cart in the proper order, and make the materials serve the goals and procedures which the teacher has selected. The text may still be the appropriate material. However, vast numbers of alternative materials are available. The Project demanded that teachers become familiar with many different materials in their content area, assessing each in terms of its suitability in reading level, skills, and content material. An additional component at this step is learning to adapt texts for use by students who can not otherwise use them by developing study guides (Thomas & Robinson, 1973), reasoning guides (Herber, 1970), and even by rewriting the critical parts of the content material. (For more detail, see Chapter Four, Selection of Materials Strand).

Step six directs the teacher to try out these plans with each group. Each teacher in the Project tried out the techniques discussed in workshops in at least one of their classes. Their feedback is step seven-evaluation. At this point, the model shifts its emphasis from the groups

formed after step two back to the individual student. Each student's individual performance must be assessed to determine whether he/she met the designated objectives. This means, of course, that students in the same class may be reaching different objectives. While the content objectives may be the same for all of them, the reading skill objectives may well differ. (For more detail, see Chapter Four, Evaluation Strand).

The decisions to be made during the evaluation are included in diamond shape on the model. If the student reached the goal set, then the sequence can be repeated. If he/she did not reach the goal, the teacher looks for the reason why. At which step did the teachers's planning go awry? Suitable revision should allow the student to succeed on the next attempt. It is at this point that the grouping changes if the needs of the group have changed. Indeed, based on a new set of goals for each student, the grouping patterns will necessarily change frequently. Thus, the instructional pattern described here will not lock a student into a "track" or any kind of continuing group. The teacher's professional judgment will be used after each instructional sequence to be sure that the groups are serving the best interests of each student.

The Decision Model is based on a diagnostic-prescriptive rationale, useful for content teachers despite the large number of students they teach. However, the Project predicted that teachers would have difficulty adopting this model and making it operational. Hence the Project staff provided a full year of work, in workshops and in teachers' classrooms, in an attempt to change teacher behavior.

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CHAPTER FOUR

# THE CONTENT COMPONENT OF THE CONTENT AREA READING PROJECT

The content component of the Content Area Reading Project is the operational content of the theoretical process described in Chapters One and Three. It translates the theory into recognizable concepts concerned with reading instruction and methodology for using these concepts in the classroom. Each of them could be supported with detailed research, but the staff has chosen to concentrate on the actual concepts and procedures used, keeping references to a minimum. Selected professional references, especially to the materials in the Project's professional library, are included at the end of each section.

Strands were chosen as the means of presenting the content component, rather than listing the content of each workshop in order, so that the full coverage given each strand topic could be described coherently. Because each strand was dealt with in more than one workshop, Figure 3 near the end of the chapter will show graphically at which workshops each strand was treated. Figure 4 relates the strands to the ten objectives of the content component. The sequence of workshop topics was decided for several reasons:

1. certain topics precede others for logical development of concepts;

2. certain assignments require longer to complete and must therefore be introduced earlier;

3. topics were introduced in accordance with the Diagnostic

## Diagnosis Strand

As can be seen from the Diagnostic Teaching Model presented in Chapter Three a necessary preliminary step to prescribing appropriate instruction is diagnosis of students' abilities to handle reading demands as well as content requirements. One might ask how a content teacher who teaches in a departmentalized situation can take time to group students and provide differential instruction. Many workshop participants initially felt that they had neither the time nor the resources to implement Project suggestions. The workshop staff, however, were in the schools to provide the knowledge and resources, the teachers were expected to provide the time and effort in implementing the Diagnostic Teaching Model.

In all content areas - social studies, science, home economics, music, as examples - the need to individualize instruction was apparent. Differences in the ability to handle content demands were obvious for the teachers. One student might have background in a particular content area, such as industrial arts, through the influence of a family member. Another might excel in social studies due to extensive traveling and an interest in history.

Just as the teacher cannot assume that students have equal backgrounds in the content field, they also cannot assume that the reading abilities of their students are equal. Some students, even those who may have been adequate readers in elementary school using a basal reader, have difficulty reading junior high school textbooks. The need for diagnostic information is perhaps even greater among the teachers of adults. Adult students, by virtue of more extensive and varied life experience, may have acquired some competencies, but not others, making diagnosis

essential.

Therefore, diagnosis of abilities, in relation to both content requirements and reading demands, is a necessary preliminary step before instruction. The focus in this strand is on the reading skill requirements made in most content area studies.

Sources of Diagnostic Information

Information about students' reading abilities is available from a variety of sources. Previous teachers may pass on information about particular students' reading abilities. The librarian may also be able to provide information about student use of library resources, if library use is required in the content study. A questionnaire may be given to the student to determine self-perception of reading abilities. In the case of the adult student, his/her employer (with the student's consent) or family might be able to provide helpful information about his/her abilities.

Cumulative record folders usually contain reports of testing in reading done throughout the school career. These scores represent the results of the survey level of testing which is conducted primarily for the purpose of screening. Norms are provided so that individual and group scores may be compared to those obtained by students of the same age/grade placement. However, a simple score in reading - or even a separate score for vocabulary and comprehension - doesn't provide diagnostic information about the student's strengths and weaknesses in reading. These scores do, however, indicate a general level of functioning although they often represent the frustration rather than the instructional level of performance. Workshop participants were, therefore, made aware of the limitations of informal tests. Standardized norm-referenced tests, while not diagnostic in nature, do have the virtue of usually being valid and

reliable. With teacher-made informal tests, however, one does not always know whether students miss an item because they have not grasped what it is measuring or because it is a poorly written item.

Workshop teachers were encouraged to consider all sources in gathering diagnostic information. Indeed, the intent of Objective 10 (see Objective 10 in Chapter One and Appendix 4.1),making a case study of one or more students, was to make teachers aware of various types of diagnostic information. They were to consider not only reading abilities but also other factors such as linguistic differences and motivation. Since other types of diagnostic information are discussed later in the chapter, the focus here remains on the diagnosis of reading abilities. One of the major means of diagnosing students' reading abilities was not through formal reading tests but through informal teacher-made devices which are more useful in guiding instructional planning.

Assessing Reading Ability Through Informal Measures

Diagnosis of reading ability is twofold. First, diagnosis of general reading abilities must be carried out to determine whether students can use content curriculum materials. It is not at all unusual in a seventh grade social studies classroom, for example, for some students to function in reading ability at a third grade level while others are functioning at upper high school levels.

Likewise, proficiency in specific reading/study skills may vary widely depending on past experiences (especially among adult students), prior instruction, and general ability level. Although proficiency in specific study skills is certainly related to general reading ability, it is possible for poor readers to have achieved mastery of some reading study/skills through opportunities outside the classroom.

Both general reading ability in content materials and the ability to apply specific reading/study skills should be assessed by the content teacher. Accordingly, the technique presented to Project teachers for obtaining these types of information was the group reading inventory (Shepherd, 1973). An adaptation of the Informal Reading Inventory, which is an individual assessment used extensively by elementary teachers and reading specialists, the group reading inventory may be administered to a large group. Instead of orally reading a series of paragraphs graded in difficulty, students are asked to read silently a selection from the content textbook to determine their reading level in relation to the textbook itself. If several textbooks of varying difficulty levels are available, then a selection should be taken from each to determine which is most appropriate for each student.

Guides to constructing group reading inventories in various content areas are provided in the Model Materials, Section 7. In constructing a group reading inventory as part of Objective 1, workshop teachers first selected a representative complete section of the textbook, several pages in length. This section formed the basis for diagnosis of comprehension skills and reading rate. As part of the group reading inventory, teachers also assessed students' abilities to apply certain reading/study skills in relation to the content textbook. Some teachers also went beyond the textbook to include assessment of reading/study skills as related to the use of the library. The important first step was for the teachers to determine which skills are necessary in order for students to grasp content materials. As can be seen in the samples that are included in Appendix 4.2, the skills assessed may vary considerably with the content area.

Shepherd identifies some common skills, regardless of content

area, that should be assessed, such as use of the table of contents, index and glossary. Vocabulary skills, such as identifying word meanings in context, dividing words into syllables, and picking out frequently used roots and affixes can also be included in all content area assessments. Comprehension skills, as discussed above, are assessed through reading a particular selection from the textbook. Scanning to locate specific information and skimming to get a general overview may be assessed in addition to reading rate.

Workshop teachers also considered the graphic skills that may be unique to their content areas. For example, social studies teachers might include assessment of map reading skills while science teachers might access the interpretation of tables and graphs. Home economics teachers, on the other hand, might focus on students' abilities to read charts and diagrams.

After constructing group reading inventories and administering them to students, workshop teachers were instructed to create charts displaying the results of the assessment. Inspection of the chart could inform the teacher of which students had not mastered the skills necessary in using the content textbook. Sample grouping plans are found in Appendix 4.3.

In addition to determining the level of proficiency in each skill - both for individuals and the group - the teacher may also draw conclusions about the suitability of the textbook for individual students. Shepherd advises that scores above 90% correct indicate that the reading materials may be too easy, that scores between 70-90% correct indicate an appropriate instructional range, and that scores below 65% correct indicate that the reading material is at the frustration level, too difficult for use in instruction.

Another informal teacher-made technique for determining students' reading level is the cloze procedure. As part of Objective 1, teachers selected a passage of approximately 250 words taken from the content textbook or other required reading materials. After leaving the first sentence intact, every fifth word was deleted from the passage so that a total of fifty deletions was attained. The students were instructed to fill in the deleted words in the passage. The assignment guides and sample cloze tests created by teachers may be found in the Model Materials (see Model Materials, sections 7 and 1 or Appendix 4.18).

In scoring a cloze test, the teacher must decide whether only the exact work that was deleted is to be accepted as correct or whether a synonym is also acceptable. If the student must supply the exact words, then the instructional range is usually considered to be 44-65% correct (Burron and Claybaugh, 1972). Scores below that range may indicate that the material is too difficult. If the teacher chooses to accept synonyms for the deleted word, then scores of 50-70% correct would indicate suitability of the material for instruction. Acceptance of synonyms makes scoring more difficult, since each choice must be considered for acceptability. Acceptance of only the exact word speeds up the process of scoring; anyone (for example, an aide) may check to see if the correct word has been inserted.

Although diagnostic information about skill attainment is not obtained by use of the cloze procedure, an observant content teacher can draw some conclusions about students' language skills. If, for example, a student inserts a verb where a noun belongs, or if the sentence no longer makes sense, then the student probably is not deriving meaning from the reading selection.

Since a cloze test is so easily constructed and scored, teachers were urged to create them for all reading materials to insure that students are using appropriate materials. For example, if several resources were available on the same topic, a cloze test using a passage from each resource could indicate which students should be reading which resource.

Thus, reading level in relation to content materials may be determined by both the group reading inventory and the cloze procedure. Skill attainment, however, is best measured by the group reading inventory since the student is required to use content materials in application of skills.

Plans devised by teachers for using the results from the group reading inventory and the cloze test are presented in the Model Materials, section 2. Through diagnosis of reading abilities groups can be formed to make content learning more effective. The Diagnostic Teaching Model was implemented as teachers identified skill deficiencies for each student, grouped students together with common needs, and posttested for mastery after instruction.

As mentioned above, in the Content Area Reading Project diagnosis included more than diagnosis of reading abilities. In the next section diagnosis of linguistic differences among students is considered.

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## Linguistic Differences Strand

One of the major strands of the Project was that of diagnosis of students' strengths and weaknesses in reading. A significant part of that diagnosis, aside from particular skills in comprehension, vocabulary and study skills, was a sensitivity to language differences and an awareness of the language the student brings to school. The need to be aware of the dialects and registers (language style) used by students, teachers, and in teaching materials underscored the study of linguistic differences.

Goodman's (1970) definition of reading includes the use of syntactic and semantic information. Reading is a selective process. It involves partial use of available minimal language cues selected from perceptual input on the basis of the reader's expectation. As this partial information is processed, the reader makes tentative decisions to be confirmed, rejected or refined as reading progresses.

What Goodman is pointing out is that it is not enough to consider reading as decoding or word identification and comprehension. A student needs to be able to use language efficently to read well. The closer the match between his/her language and the language on the printed page, the simpler he/she will find the task of reading. How close is this match? What sort of language do students use? Is there a difference in-school and out-of-school language, or formal and informal language? What cultural variables affect the language of students in Pennsylvania classrooms? What sort of language models are teachers providing? What sort of opportunities are teachers providing to extend the language of their students? How much do teachers know about the language of their students and what influence it may have on the students' ability to read? These

were some of the Project's concerns.

In order to sensitize teachers to these questions, to the fact that their students may speak a casual non-standard English but be expected to read a formal standard English, two videotapes were produced. One videotape was made in Harrisburg, entitled Growing Up Black: A Study of Black Language and Black Culture, the other in Penns Valley entitled Growing Up in Rural Pennsylvania: A Study of Language and Culture. The tapes were made in schools where teachers in the Project taught, so that the tapes would reflect conditions in these schools and teachers could develop an awareness of the language in the specific locality it is used today. The tapes were designed to arouse discussion of the issues involved. Both tapes used a similar format: a short introduction set the scene with regard to culture and the possible influences on language; then each tape went upward from Kindergarten to Grade 12, showing the development of the language and how students switch registers in in-school and out-of-school situations; each concluded with some specific questions for teachers to discuss:

What developmental changes did you hear as speakers grew older?

What elements of black/rural culture are shown? How do they affect the child's language?

Is black/rural English a dialect? What registers are used by students?

What characteristics of language models seem most important? Are teachers good language models?

In addition, each tape was accompanied by a study guide summarizing selected research in the area of language and culture, and language and reading (See Appendix 4.4 and 4.5). Following the showing of the videotapes at each site, the implications of the students' language usage both

in and out of the classroom were discussed. One of the workshop objectives (Objective 5) required the demonstration of an understanding of linguistically and culturally different students. Teachers outlined the language differences between standard and non-standard speakers and described specific ways to help non-standard speakers in reading in their respective content areas.

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## Motivation Strand

The need for students to be motivated to learn is obvious in all branches of education. A student who is unwilling to learn will probably not learn, though all other conditions may be optimum. A student who is motivated to learn will do so in spite of conditions. The teacher's first job, then, is to motivate students to want to learn.

The Project tackled the question of motivation from two standpoints- the general overall motivation to learn, and the more specific motivation to read. Because of time constraints, the workshops could deal only briefly with the subject, but it appears central to the whole education process. Working on developing reading skills is not sufficient if students have no desire to use the skills. Developing a positive attitude to learning in general and reading in particular is the reading teacher's and content teacher's job alike.

Motivation is expressed along a continuum from extrinsic to intrinsic. Kohlberg (1971) has described how, in moral development, the motivation of doing something can range from an inborn desire to act because it gives pleasure to the participant to a desire to act to avoid punishment, an act performed in fear. Students can read a book because they enjoy reading it or because they are afraid of failing the test. The Project's initial concern was with what motivates students intrinsically - what they like or dislike, what their value system is - on the premise that motivation from within can be stronger and have fewer adverse repercussions than external motivation. The need to know what motivates a student, whether a junior high school or adult student, was stressed throughout the workshops.

One way of identifying the interests of students is the case study

(Objective 10) which, while dealing with only one student and providing a quantity of other data, will provide information on a students's interests, the kind of books he reads, TV programs he watches, etc. The data from one student may provide a guide to the interests of the class.

A second assessment of the values of students is the values questionnaire, of the type used in values clarification exercises (Simon, Howe and Kirschenbaum, 1972) to find out what students enjoy doing, in school and out of school, how closely they are influenced by their peers or family, whether they operate more as individuals or members of a group and so on. A prelude to this type of assessment of students was a discussion about whether or not values should be changed, how much students' values differ from the values of school or society, whether the value system of adult education students differs to any great degree form the junior high students, and given a different value system between students and teachers what implications there are for teaching. The discussion on how culture and language affect values, which was part of the strand on Linguistic Differences, tied in here. As part of this discussion in the urban site, An Open Letter to Black Parents: Send Your Children to the Library (Ashe, 1977) was distributed. Finding out what students value out of school and the availability of these activities within the school should allow teachers opportunities to better motivate their students.

A further concern of the Project was how teachers help students in their interactions with them, whether they stimulate students through the use of open ended questions and comments which draw the students to think further and expand on their ideas, or whether they cut them off or deflate them. A discussion on Enabling and Inhibiting Statements ("Science for the Seventies," 1975) (See Appendix 4.6) by teachers was part of the work-

shop structure.

Recognizing that being held back or pushed ahead too fast in a class can lead to problems for students and cause them to become disenchanted with school, the Project emphasized the idea of individualizing. Before rushing ahead into a completely individualized program, it seemed wise to point out to teachers that not all students work most efficiently in an individual setting. A self-directed behavior rating scale (See Appendix 4.7) was given to the teachers to try themselves and also to administer to their students. Students who can work by themselves, who are sufficiently organized and motivated, can manage far better in an individualized situation than students who need the support and control of a traditional classroom setting.

Within the area of motivation for reading, several techniques were demonstrated and discussed.

1. Individualized Reading. A slide/tape presentation was made stressing self selection, sustained silent reading, coordinated writing assignments, contracts for self pacing, self directing and self evaluating, adjustment to individual needs. The main advantage of an individualized program is the involvement and interaction of students, because they are doing something they want, something to do at their own speed. The usefulness of this approach for adult students was emphasized.

2. Learning Centers. The construction of Learning Centers is discussed further in the section on Organization for Instruction. The advantages of using a learning center to motivate students are numerous. They can be worked on individually at the student's own pace, and if a variety is offered, students can find a means of learning a skill or concept which corresponds to their particular learning style. Because

centers provide a more visual or tactile approach to learning, students can be motivated to learn at a center, when they are unmotivated to learn in a traditional classroom setting.

3. Language Experience Approach. This technique is commonly used in beginning reading classes, but the Project introduced the concept of using it with older students who are poor readers. (See Appendix 4.8). In the Language Experience Approach (LEA) students write to be read. Their reading is of materials that they have either dictated to the teacher or written themselves. This simplifies their reading because the content of the material is known, only the skills of reading need to be developed. Using LEA with older students provides for two very important considerations. Reading material for older "reluctant readers" must be of high interest to them, and secondly, reading material for older "reluctant readers" must contain vocabulary appropriate to their cognitive levels. Reading materials are thus tailor-made to match the language development, cognitive levels and interests of students.

4. Localized Textbooks. This concept of producing textbooks for content areas on local topics and local places as a means of motivating students to read and write is a direct practical application of the Language Experience Approach. The Localized Textbook Guide produced by the Lewisburg Area School District was used as an example of how students can take or draw the pictures, write the stories and then become involved in the production of the finished textbook.

A student's interest in, attitudes toward and valuing of reading will have an influence on how and what he/she reads. Equipped with this knowledge a teacher has a greater chance of motivating students to read.

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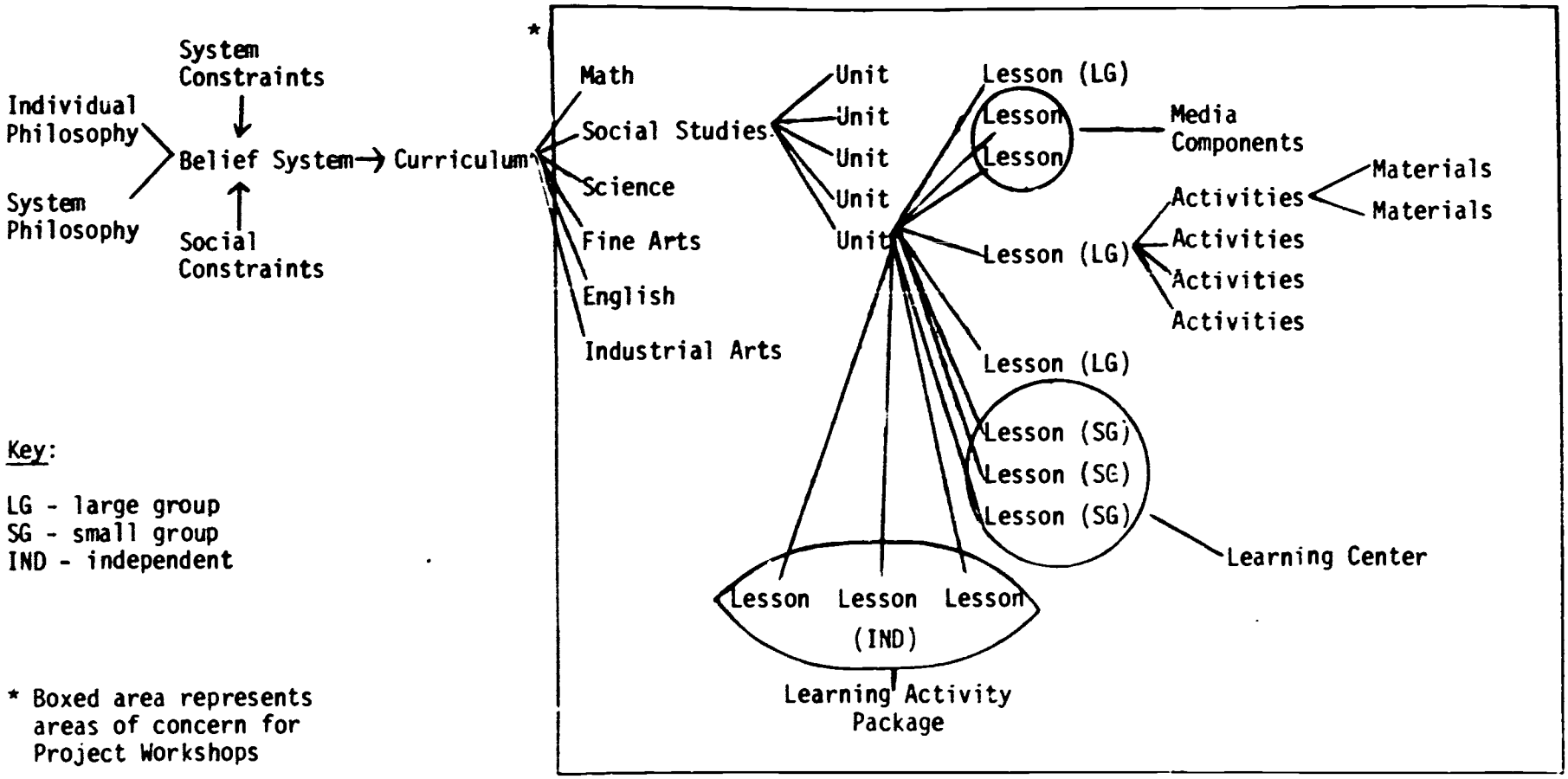
## Organization for Instruction Strand

The Content Area Reading Project staff developed a strand on Organization for Instruction as the primary example for development of the integration concept during the workshops. Assuming that teachers had a working knowledge of basic principles of instructional design, the staff reviewed the relationships between larger and smaller instructional components and the specific character of the various levels. The overall design was based on the classical model outlined in Figure 2. It was recognized that, due to time and other restrictions, the belief system as well as social and system constraints and the overall curriculum was accepted as given, and attention focused on five or six week instructional themes (termed Units) as the largest segments to be considered during the Project. All of the instructional components smaller than the Unit (e.g., single lessons, clusters of lessons in a Learning Activity Package or Learning Center, as well as activities or exercises) were viewed as components of the Unit, and therefore, also deserving of attention. Staff members were careful to point out that principles of Organization for Instruction which were developed during the workshops are equally applicable in the development of larger instructional components (e.g., curriculum), but the Unit and smaller components were chosen because they offered greater potential for successful results, given the Project's time constraints.

The emphasis in the workshops was to review briefly the design and structure of a Unit, Learning Activity Package (LAP), Learning Center, and other mediated instructional components within the framework of the Decision Model for Diagnostic Teaching by Grouping (discussed in Chapter Three). The staff devoted the majority of energy and time to demonstrating the

Figure 2

Content Area Reading Project
Instructional Design Areas of Emphasis




Key:

LG - large group
SG - small group
IND - independent

* Boxed area represents areas of concern for Project Workshops

principle of integration by:

1. describing graphically how the instructional components "fit" together;

2. describing how they function as subsidiaries of a larger instructional component (e.g., course of study, curriculum, etc.);

3. focusing on the specific incorporation of reading skill instruction as an integral part of the Unit, LAP, Learning Center, etc. (i.e., as a means for attaining content objectives).

A specific focus in the Organization for Instruction strand was on guiding teachers toward a more systematic approach to planning instruction as presented in the Diagnostic Model (Chapter Three). This model permits a careful diagnosis of needs, specific statement of objectives, appropriate grouping and selection of instructional strategies and materials, as well as an evaluation of each student's performance and the appropriateness of the planning itself. The seven steps in this model were used by workshop participants as they designed larger and smaller instructional components.

Teachers were encouraged to select a Unit of instruction which they had already developed or taught and to expand it by including performance objectives dealing with reading skills necessary for mastering the content. Teachers who had not previously used the Unit method in organizing for instruction, or who wished to design an entirely new Unit, were provided with assistance in planning the overall instructional sequence as well as specific activities for reading skill development. Staff members encouraged team or group planning of the Unit, as well as the LAP or Learning Center sections of the Unit. The Content Area Reading Project objective which dealt with long-range instructional planning (Objective 3) was structured to encourage group or team planning. Teachers who chose to

work in groups were required to submit one Unit , and one LAP or Learning Center, as well as one lesson using some form of media other than reading. Teachers developing Units on an individual basis were required to submit one Unit, and one LAP, Learning Center or lessor using media. The LAP, Learning Center and lesson incorporating media were presented as smaller parts of the Unit; i.e., these smaller components were viewed as instructional strategies designed toward attainment of some performance objectives which were part of the Unit.

Staff members pointed out that a well-designed Unit would not only include the smaller LAP, Learning Center or media segments (Objective 3 requirements), but would provide a meaningful framework for fulfilling other Project objectives (Informal Reading Inventory and cloze test - Objective 1; Grouping Procedures - Objective 2; Annotated Bibliography - Objective 4; Skill Development Exercises - Objective 6; Level of Comprehension Questions - Objective 7; Paragraph Functions - Objective 8; Readability Formulas and Materials Selection - Objective 9; Classroom Demonstration - Objective 11; Log Book - Objective 12; and Workshop Presentation - Objective 13). Workshop objectives dealing with multiculturalism and linguistic differences (Objective 5) could well be understood as part of the diagnostic process, as could Objective 10 which was the individual case study assignment.

Teachers who chose this approach toward fulfillment of Project objectives achieved the most comprehensive understanding of the principle of integration. Harrisburg Middle School music teachers, Deborah Paterson and William Robbins, team-designed a nine-week Unit on Playing the Recorder for their general music classes. Having written an accompanying text as well as having designed the Unit, Paterson and Robbins developed

materials for an Informal Reading Inventory, cloze test, grouping plans, Learning Activity Package, Listening Center, annotated bibliography of teacher and student materials, vocabulary, study skills and comprehension exercises, paragraph function exercise and determining readability and materials selection based on the Unit itself. The final product served as an entirely original example of the integration of reading skills in a content Unit, as well as tying together in a meaningful way at least ten of the workshop objectives. The Paterson and Robbins Unit was also based directly on the Diagnostic Teaching Model.

With a strong emphasis on integration of reading skills into the fabric of the content Unit itself, as well as among the various course objectives, Objective 3 (long-range Organization for Instruction) emerged as a central task for most workshop participants. Staff members provided ongoing assistance to teachers requesting help as they completed Objective 3 requirements. Many teachers took advantage of the opportunity to check in and recycle parts of the Unit, LAP, Learning Center or media lesson before the final submission for credit.

Despite the fact that Organization for Instruction is a many-faceted strand, selection of the Unit as the largest instructional component and presentation of the LAP, Learning Center and media lessons as strategy alternatives for attaining Unit objectives was not without definitive purpose. It is clearly recognized that topics concerning Motivation, Diagnosis, Materials Selection, Skills Development, Evaluation and Cultural/Linguistic Difference awareness may be properly subsumed under Organization for Instruction. They were regarded as having sufficient importance, however, to merit discussion in separate sections of this chapter. Discussion of the Organization for Instruction strand will continue with





9 still pictures

brief outlines of workshop presentations on the Unit, LAP, Learning Center and media components.

Unit

As stated in the overview of this strand, the Unit was the largest instructional component handled in workshop sessions and the target for long-range planning activities within the Project boundaries. All teachers participating in the Content Area Reading workshops were required to submit a three to six week Unit plan, either individually or as a group. The primary objective of the Unit-planning activity was the systematic integration of reading skill instruction within a content unit. Objectives geared toward development of reading skills were viewed simultaneously as means and ends; i.e., they both served as facilitators in the attainment of content objectives and possessed intrinsic functional worth at the same time.

Content Area Reading Project staff members presented the concept of the integrated Unit by distributing a staff-developed unit, Neighbors to the South. This model Unit was designed as a specific example of a social studies Unit which relied heavily upon reading skill development in the attainment of content objectives. Neighbors to the South also included explicit examples of each part of the Unit-planning activity required for completion of Project Objective 3a. (See Unit Plan Guide Sheet, Appendix 4.9 and Neighbors to the South, Appendix 4.10. Numbers on the Unit indicate where examples of the various components may be found). Emphasis in the workshop sessions dealing with Unit planning was on having teachers see the relationships between Unit theme, general and specific objectives, teacher strategies, student activities, materials selection and evaluation. The Neighbors to the South sample Unit accomplished this by

demonstrating relationships among the various Unit components using a number and letter system (See Appendix 4.10)

Once a Unit theme or topic was selected, staff members provided assistance as teachers clarified a small number of general objectives for the Unit, and the larger number of specific objectives directed at attainment of the general goals. Once the specific objectives were stated behaviorally, teachers were able to create an evaluation design for each objective. Evaluation precedures matched specific objectives in depth, variety and imagination. (The concept of evaluation will be more fully discussed as a separate strand in another section of this chapter). As teachers were able to perceive relationships among various Unit components, it became apparent that selection of appropriate teacher strategies, student activities and instructional materials would depend, at least in part, upon the actual objective. Again, the focus was on integration and appropriateness based on links between objectives, strategies, activities, materials and evaluation. Motivational and culminating activities gave the Unit a well-defined identity as well as setting the attitudinal stage for learning and providing a sense of closure. An obvious emphasis in the entire Unit design was on the systematic integration of reading skill instruction, practice and application into the content Unit. Examples were provided in the Neighbors to the South Unit, and considerable workshop time was devoted to developing reading activities and exercises which could be adapted for inclusion in the Unit.

A heavy emphasis was placed on incorporating appropriate media in selected lessons of the Unit, and development of Learning Activity Packages and Learning Centers as smaller but integral parts of the Unit (LAPs and Learning Centers as well as media selection will be discussed

separately). Teachers made use of skills acquired in judging appropriateness of reading materials by applying the readability formulas to texts chosen for the Unit, as well as selected alternative reading materials, to assure the inclusion of materials at various reading levels.

The Unit was the most comprehensive assignment completed by workshop participants. Those who understood the rationale behind the heavy emphasis on integration as a central concept (both in terms of synthesizing reading and content objectives, and in terms of pulling together assignments completed for various workshop objectives) found the long-range planning activity most productive.

Learning Activity Package

Having developed an overall Unit design, workshop participants were encouraged to select a small group of related objectives which might best be attained by means of alternative instructional strategies. In addition to exploring this possibility, further analysis of diagnostic information on students in terms of interests, or skill strengths and weaknesses in specific areas, could lead to development of more narrowly-focused instructional components. These learning capsules may deal with a selected group of Unit objectives; be directed toward more specialized treatment of individual or small group skill deficiencies; expand upon skill achievement, or explore interest in a particular area.

Project staff presented a LAP as one alternate method for learning a specific skill, idea or concept. This is a method which allows students to progress at their own rate through a carefully sequenced set of activities geared toward attainment of selected objectives. Attention was focused on the fact that a LAP may be a particularly appropriate means of teaching necessary reading skills within a content Unit. For while all

students in a particular class may need to master content, they may differ widely in their reading levels and skill development. Teachers might construct several LAPs which cover the same content concept but differ markedly in the reading skills which are to be emphasized (See Model Materials, section 5).

Teachers in the workshops were given a LAP on LAPs (Appendix 4.11) as a model for construction of their own LAP as part of the Unit plan. The LAP on LAPs provided teachers simultaneously with an experience in completing a LAP, which most of them had not done before, and complete directions and sequencing for developing their own LAP. Thus, their own LAP, fulfilling part of Objective 3, was the result of their successful completion of the Project's LAP on LAPs.

Requirements for teachers who chose to develop a LAP are included here as Appendix 4.12. The LAP was designed to teach specific skills to a specific group of students. Objectives are stated clearly, activities sequenced and accompanied by clear directions to facilitate independent progression through the LAP. Checkpoints at various stages of the LAP help teachers to maintain accurate records and monitor student progress. Although many LAPs contain only paper and pencil activities, staff members encouraged teachers to explore creative options as they selected activities for the LAP. Provision for some group activities was also demonstrated as an option with some worth. Designing an explanatory flowchart was an important requirement for workshop participants. It served as a check for teachers as to coherence, congruence and contiguity of activities, and for students, as a graphic portrayal of the LAP sequencing.

Learning Centers

Project staff members devoted a significant portion of workshop

time to instruction in, experience with, and development of Learning Centers as an alternative means of attaining both reading and content objectives. A rationale explaining the effectiveness of the Learning Center approach was offered to workshop participants and is included here.

It was pointed out that learning centers provide a means of handling the diverse learning styles of students, and offer an expecially attractive alternative for those needing a more visual or tactile approach to learning. From an organizational standpoint, a classroon utilizing a variety of Learning Centers maximizes chances that students will find a means of learning a skill or concept which corresponds to their particular learning style. Learning Centers allow students to progress at individual rates through carefully sequenced activities. Centers may offer a broad spectrum of optional activities addressing as diverse a spectrum of needs or interests. An important feature of Learning Centers is the emphasis on helping students become responsible and self-directed. A Learning Center may be instructional, i.e., teach a new skill or concept, or serve to reinforce already learned skills, particularly those recently acquired. A Learning Center is a well-planned, orderly set of experiences where students may work independently or in small groups toward acquisition or reinforcement of skills. Structurally, a Learning Center approach in a classroom makes optimum use of space. Centers may be portable or permament; eleborate or simple; address one or many concepts; and contain tasks or activities representing one or several levels. Choices are made in the light of professional knowledge and with reference to external constraints, such as space, time, cost, etc.

There are two basic types of centers - skill and interest centers. Centers which focus on acquiring necessary skills or knowledge are called

skill centers; those exploring ideas, concepts or topics tangential to the core content are termed interest centers. When teachers begin to introduce Learning Centers into their classrooms, students usually require much direction as to the type of center selected and amount of time spent on various activities. As they become more familiar with the center approach, students may be guided toward responsible selection of centers and productive use of them.

During the workshops, the teachers had the opportunity to work through five staff-developed centers. This was the initial experience in the use of Learning Centers for many of the junior high teachers and teachers of adults. The first of the five centers was introduced in conjunction with the Neighbors to the South Unit (See Objective "P" in Neighbors to the South, Appendix 4.10). The colorful center, called Lost Cities, developed structural analysis skills in using vocabulary chosen from the Unit content itself, and was a prime example of a Learning Center as a smaller component of a Unit plan, or as a means of attaining some Unit objectives.

Other staff-developed Learning Centers included one on comprehension and critical reading skills (That's News to Me); one developing library and reference skills; a center reinforcing map-reading skills (MAPerrific) and two audio-tape centers on listening, reading and notetaking. All teachers participated in the listening, reading and notetaking centers, and were able to choose two of the three other centers, in order to gain first hand experience of Learning Centers in operation.

The purpose of providing teachers with actual Learning Centers designed for older students was, of course, to encourage teachers to try creating centers of their own. Project staff members assisted teachers

who chose this option (in place of a LAP), both in identifying a reading skill or concept to be developed, and in the actual design of the center. Teachers were provided with concrete ideas for organizing centers in their classrooms, and in designing portable, durable and visually attractive centers. At the urban site, sixteen junior high school teachers from a total workshop population of 24 designed Learning Centers to fulfill part of Objective 3 (long-range instructional planning). For all but two of these teachers, this was a new experience. This was viewed as a positive outcome since the staff spent a significant amount of time providing a rationale for the use of centers, and dispelling the frequently negative reactions of secondary teachers to such alternative methods of instruction as LAPs and Learning Centers. A description of the staff-created Learning Centers is included here.

That's News to Me. A skill reinforcement center for comprehension development. This center is based on the format and content of the daily newspaper. Participants begin the center by listening to taped instructions, picking up teacher-designed guidebooks and examining a wide variety of local, national and international newspapers. Major sections of the newspaper (news, features, sports, editorials, etc.) are briefly presented, and coded task cards involve students in answering questions and completing activities based on actual newspaper articles. There are more than 100 articles and corresponding task cards based upon skill needs in comprehension levels (discussed in detail in the section on Comprehension Skills) with a major focus on the development of critical reading skills. Because this center is based on the newspaper and draws its content from many sources, it may be easily adapted for use in several content areas (See Appendix 4.13).

Library-Reference Center. A media approach to library and reference study skills. A short LAP guides students through this center. A pre and posttest allows the instructor to diagnose student needs, prescribe sections of, or the entire center, as well as monitor students' progress as they work through the center. The center utilizes a series of short tape-filmstrips to aid students in gaining skill in the use of the card catalog, reference materials and general library skills. Samples of actual reference materials are available for student perusal, and a sequence of practice exercises allows students to strengthen skills in areas where they have specific needs. Because instruction in, or reinforcement of, library and reference skills is best accomplished within the framework of actual research assignments in the content areas, it is suggested that this center may be used most effectively as part of a content unit (e.g., to accomplish objectives E and H - Neighbors to the South Unit. See Appendix 4.14).

MAPerrific. A multi-faceted media approach toward reinforcement of map-reading skills. The center is based on certain assumed entry conditions, i.e., students have received instruction in basic map-reading skills. Another approach to using the center would be to leave the center up for a long period of time, allowing students to work through small sections as they receive instruction in the various map-reading skills covered in the center. The center is self-instructional and makes use of a teacher-made tape and set of transparencies corresponding to a fifteen page workbook in map-reading skills. Individuals or groups of students follow the explicit taped instructions, examining the transparencies and completing worksheets as directions are given. This is a long-term center requiring several weeks of student work in small periods of time. (Taped instructions

are "speeded-up" in the sample center to give workshop participants an opportunity to work through the entire center in a short period of time during the workshops). The skill-building media module is followed up by a series of skills application activities. Students may choose one or several Magnificent Map exercises which are graded in difficulty and of high interest to junior high school and older students. They provide a creative option for students who have demonstrated adequate skill development during the media module (See Appendix 4.15).

Listening and Notetaking Center. This center is designed as a skill development center for listening and notetaking skills. The center is based on an audiotape which guides participants through a series of exercises to be worked through as a group. The concept of notetaking is introduced as well as its purposes as a readiness or motivation technique. Teachers are then directed to devise their own list of guidelines, and these are discussed in the group before the tape is turned on. Techniques for notetaking are introduced, such as editing notes to make them organized and meaningful for the student, recitation and notetaking from memory using the Diagnostic-Instructional Pattern (DIP) format, and a review of notes. Participants apply these techniques in a skill practice when they are directed to take notes on a lecture and then compare their DIPs. The tape concludes with a review of notetaking procedures. The center is designed specifically for teachers but the concepts and techniques are, of course, useful to all students.

Reading and Notetaking Center. This skill development center comprises an audiotape and a number of activities designed to familiarize teachers with the purpose and procedures of reading and notetaking. The tape leads teachers to discuss the purposes of notetaking and then directs

them through the skills hierarchy. The section on skills used in preparation for notetaking, i.e., identifying specific tasks, locating information and judging relevance, is the subject of the participants' own notetaking practice - they are required to fill in a summary sheet recording the main idea and the supporting ideas. This kind of recitation or recall from memory was introduced in the Listening and Notetaking Center. A similar kind of summary sheet is completed by participants after the second section of the tape which deals with skills used during the process of notetaking. The final assignment is to create a summary of the entire tape - stating the author's message in shorter fashion in one's own words. The tape is a theory and practice example designed especially for teachers, but the skills are those required by students also and the skill development exercises are equally applicable to high school students. A practice packet for skills hierarchy (See Appendix 4.16) and a model for notetaking accompany the tape.

Media.

The workshops placed a heavy emphasis on the appropriate use of media as a tool in meeting learning objectives. Not only did the Project staff strongly encourage workshop participants to explore new possibilities for incorporating media in instruction, but the workshops themselves modeled the same behavior for participants. Workshop sessions frequently made use of media in order to more efficiently and effectively attain project objectives. Media presentations included staff-developed videotapes on language development in urban and rural environments, a videotape on making instructional videotapes, a slide-tape on motivation and creating classroom climate, and overhead transparencies for graphically demonstrating models used during the workshops. A description of the media produced

by Project staff follows.

Growing up Black: A Study of Black Language and Black Culture. This videotape developed by Content Area Reading Project staff members and the University Division of Instructional Services (UDIS) was designed to give an overview of the language of black urban students. Attention is drawn to language development as the tape proceeds by presenting audio recordings and slides of children in an early childhood center in Harrisburg, several classes in a primary school, the middle school and in John Harris High School. The concept of black dialect is presented as is register, and note made of the difference exhibited by students in their choice of in-school and out-of-school language. Questions for further discussion on the role of models in language development and dialect versus register are posed. This 30 minute tape is accompanied by a workbook entitled Black English in the School which is discussed further in the section on Linguistic Differences (See Appendix 4.4).

Growing Up in Rural Pennsylvania: A Study of Language and Culture. This 30 minute videotape is the sister to Growing Up Black and was designed to draw attention to the language and culture of rural Pennsylvania. Using audiotape and slides of students in the Penns Valley School District from grades one to twelve, it shows the developmental trends in language growth and poses questions as to the extent of cultural influence in language choice. Again the distinction between dialect and register is raised. The tape is accompanied by a workbook entitled Language and Culture which is discussed further in the section on Linguistic Differences (See Appendix 4.5).

Using Videotapes to Teach Reading in the Content Areas. This tape, produced with assistance from UDIS, is designed to integrate content and reading skills, and give instruction in the making of videotapes for such a purpose. Part 1 deals with the content (Mexico) and integrates the reading skill (roots and affixes). Using words that are introduced as part of the content (archaeologist, monolith, inscription), students manipulate blocks to make the learning of roots and affixes both visual and tactile. A Learning Center providing practice in 5 segments of this vocabulary skill follows student use of the videotape, (see the vocabulary section of the Reading Skills strand). Part 2 of the videotape discusses the planning that occurred before the implementation of the lesson. Part 3 is a general discussion about the use of videotapes in the classroom, their appropriateness and how a teacher goes about making one.

Creating the Atmosphere. A slide-tape presentation introducing the need to motivate students to want to learn and want to read. Teachers view slides of a school working with individualizing a reading program and hear a tape reproducing in part the views of students involved in the program. It also offers a number of other suggestions to teachers for enticing junior high students to want to read. It is accompanied by a packet of follow up activities, Making the Impossible Possible Through Creating the Atmosphere, including contracts, directed reading/listening activities,diagnostic-instructional patterns, self-directed reading activities and various follow up activities with self-evaluation (See Appendix 4.17).

Transparencies. Where a visual representation of a concept would make that concept more readily understood, the Project made use of overhead transparencies. The diagnostic model was introduced in stages using overlay transparencies. The graphs used in the grouping plans were also presented visually using multi-colored transparencies to show various grouping

strategies. This use of media was modeled in the workshops to show teachers the potential that media has for enriching and clarifying instruction.

There was also a strong emphasis on the effective use of media in the designing of Learning Centers (discussed earlier in this section). In all cases, after a workshop, participants were encouraged to explore ways in which use of media might be creatively adapted for use in their classrooms.

Staff members provided assistance in developing the teachers' skills in the appropriate selection of media for units or lessons. In answering the questions, 'What strategies, materials, etc., will be most effective and efficient in attaining this specific objective?" teachers examined criteria such as the following for media selection: "cost, availability, ease of use, estimated effectiveness for the purpose, practicality for use and storage, familiarity with the kinds of media available, anticipated maintenance problems and probable acceptability to the learners." (Gagne and Briggs, 1974, p. 150)

Project staff members embraced a rationale similar to Dale's (1969) "Cone of Experience" in selecting media for workshop sessions, and in assisting teachers to do the same in their own instructional planning. Dale lists twelve categories of media and suggests that an appropriate rule of thumb is to go as low on the scale as is necessary to ensure learning, but as high as you are able to go for the most efficient learning. Dale's categories range from "hands-on" experience to verbal symbolism and are listed below:

12. verbal symbols
11. visual symbols - signs; stick figures
10. radio and recordings

9. still pictures

8. motion pictures

7. educational television

6. exhibits

5. study trips

4. demonstrations

3. dramatized experiences (plays, puppets; role-playing)

2. contrived experiences (models; simulations)

1. direct purposeful experience

By considering factors of "slow but virtually guaranteed" to "fast butrisky," workshop planners selected media in direct relation to both objectives and diagnosed abilities of workshop participants, and encouraged teachers to do the same in their own instructional planning. Many teachers in the workshops investigated the media and equipment available in their school districts and experimented successfully with incorporation of media into instructional design.

All the components explained in the Organization for Instruction strand (Unit, LAP, Learning Center and media incorporation) were presented as structured enough to facilitate orderly, sequential learning, yet flexible enough to allow maximum creative input from teachers in planning instruction. The Content Area Reading Project objective of Integrating Reading and Content Objectives found its clearest expression in the Organization for Instruction strand, where teachers could readily see how and where skills learned during the workshops might be purposefully incorporated into their professional planning.

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## Reading Skills

During Content Area Reading Project workshops, reading skills were introduced as having two components for teachers:

1. identifying the skills needed to master the reading material.
2. developing teaching plans (lessons and skill exercises) to teach the use of the skill in the context of specific content material.

The skills needed to read successfully have been listed in many reading textbooks. The Project developed its own list, a shorter one than most, to emphasize the skills needed for content reading which will require attention from content teachers.

Vocabulary

1. Context clues
2. Root words and affixes
3. Syllabication
4. Concept labeling and symbol identification
5. Words with multiple meaning
6. Phonics, sound patterns

Comprehension

1. Developing interest, motivation
2. Providing purpose for reading
3. Reading for significant detail
4. Reading to locate information
5. Understanding the main idea
6. Recognizing sequence and relationships in time, place, ideas, events or steps
7. Drawing inferences

8. Understanding character and setting
9. Anticipating outcomes
10. Recognizing the author's tone, mood and intent
11. Understanding and drawing comparisons and contrasts
12. Drawing conclusions or making generalizations
13. Making evaluations
14. Developing the reader's appreciative reaction

Study Skills

1. Skimming and scanning and rate flexibility
2. Notetaking
3. Problem solving
4. Graph, chart, table and map reading
5. Searching skills (library, reference, outside search, dictionary)
6. Following directions
7. Book skills (parts of books).

The list was designed to focus teachers' attention and suggest areas to work with. It was not intended to be an exhaustive list or a complete list of all possible reading skills.

In order to make reading skills manageable for content teachers with minimal knowledge of reading, they were divided into the conventional vocabulary, comprehension and study skills sections and handled separately.

Vocabulary

Developing vocabulary skills in content area reading is primarily a conceptual problem for students. New vocabulary is largely terminology, concept labels for the new information which the reader must absorb in this context, for vocabulary is a tool for comprehension. The ultimate goal is for the reader to understand (comprehend) the concepts and relationships

between concepts which are the content of the reading. Viewing vocabulary as concept-oriented presents teachers with some specific problems and approaches toward solving them.

Concept formation and the learning theory related to concept development was discussed briefly during workshop sessions. Reading assignments giving basic information on concept formation were provided for those teachers needing a review. Reading as concept development was discussed extensively in workshops.

Concept labels and related words or phrases which might be unfamiliar to students must first be identified by the teacher. As content materials become more complex, the language used to describe them likewise becomes complex. Vocabulary becomes multisyllabic, more rooted in Greek and Latin, more abstract and less commonly used. Typical text materials are also written in a dense style, with many of these longer, less familiar, more abstract words per paragraph. The combination makes reading a painfully slow process for a student who does not have good word attack skills.

Concept labels are taught as concepts, rather than as words alone. Comprehension of the concept is necessary, rather than mere memorization of the word. This suggests learning the concept label in context, rather than in isolated word lists. The cloze procedure was presented as a technique to provide practice with concept labels in context. The model provided was on advertising terms, taken from a social studies unit. A special model was provided for math, in which both the concept label and its symbol were deleted. Both these models are appended to this report. In addition, a cloze exercise on nutrition from a Project home economics teacher was distributed to workshop participants (See Appendix 4.18). Other types of context-laden exercises included filling in labels on

figures and other pictures. Success with Words, in each professional library, gave examples of vocabulary exercises for concept-related material which emphasize the relationship between words as well as clarification of words with multiple meanings.

The structured overview was introduced as a potentially valuable technique to assist in concept development (See Appendix 4.19). Based on the work of Ausubel and Barron, the structured overview serves as a prereading technique and an advance organizer (Ausubel, 1960; Barron, 1969,) while it introduces students to the major concepts and concept labels of a lesson. A structured overview of an upcoming workshop session on motivation served as a model for workshop teachers. Teachers at each workshop then developed a structured overview for one of their students' reading assignments. A structured overview first asks teachers to identify the concepts and concept labels critical to the understanding of a particular topic. Then the teacher develops a graphic representation of the relationship between the concepts. In presenting this graphic overview to students, the teacher introduces them to both the concepts and the relationships between them. This provides a student with the basic conceptual organization of the material to use as he reads carefully for details, definitions, examples, etc. in the assignment.

Word attack skills were the second important set of vocabulary skills developed during workshop sessions. These skills will have been taught and used extensively by most students at the elementary level, but the students will not automatically transfer these skills to the more complex content material. For these skills, content teachers must diagnose students' skill levels and provide instruction for students deficient in each skill. All content teachers must teach for transfer at all times.

Diagnostic information was gathered from the Informal Reading Inventory and the cloze procedure (see Diagnosis strand). The word attack skills dealt with specifically include the use of context clues, structural analysis (roots and affixes), and searching skills (use of dictionaries and glossaries). Handouts and reading assignments which provided teachers with basic information on each of these skills are found in Appendix 4.19. Teachers were encouraged to group students so that practice in word attack skills could be provided for those who need it. In each case, such practice was on content materials being used in class at that time. This integration of skill teaching with content was difficult to accomplish, but with the assistance of the Project staff, teachers were able to implement this vocabulary component.

To provide teachers with models for exercises and teaching techniques, published materials were circulated at each site. Success with Words also provided examples of many types of word attack exercises. Teachers shared vocabulary exercises during and between workshop sessions. Examples of teacher-made vocabulary exercises can be found in section 3 of the Model Materials.

The Project also provided one model of systematic word attack skill development in the videotape lesson and Learning Center related to the Unit, Neighbors to the South (discussed in Organization for Instruction strand, section on media). The videotape lesson introduced roots and affixes (prefixes and suffixes) and double root words. The sequence of skills was:

1. root and suffix
2. root and prefix
3. root and prefix and suffix
4. double root words

Each word in the videotape lesson was taken from the lesson on Lost Cities of Mexico which is part of the Unit. Following the videotape, students move to the Learning Center, where a package of practice materials reinforces each of these structural analysis skills. The students could also build words with color-coded cubes and large poster board word parts organized on the flannel board. Practice materials for building nonsense words from prefixes, roots and suffixes provide a creative outlet, as well. This model series of vocabulary lessons is found in Appendix 4.20. It was designed to demonstrate again that systematic reading skill instruction can be integrated into content teaching.

Comprehension

Although research has not yet provided definitive answers about the best teaching technique to encourage comprehension of reading material, it seemed to the Project staff that some combination of work on levels of questioning and reading skills would be most useful to content teachers.

It has been adequately demonstrated (Guszak, 1967) that teachers tend to ask most questions about reading material at the literal level. In other words, the answers to their questions can be found in the reading material itself rather than requiring students to think beyond the material. If students are not required by their teachers' questions to go beyond recalling or recognizing what is in the reading material, it is unlikely that they will perform at other levels of comprehension (for example, inferential or critical) on their own (Smache, 1976).

To encourage students' thinking about reading material at various levels, Barrett's Taxonomy of Reading Comprehension (Barrett, 1976) was selected for teachers' guidance in formulating questions. Barrett's taxonomy is an adapted version of Bloom's taxonomy (Bloom, 1956) specifically for reading comprehension. Instead of Bloom's seven levels, Barrett

includes four as applied to reading comprehension - literal recognition or recall, inference, evaluation, and appreciation. Similar to Bloom's taxonomy, all four levels are divided into subsections. For example, literal recognition or recall includes recognition or recall of details, main ideas, sequence, comparisons, cause and effect relationships, and character traits. The categories under inference are the same as at the literal level (with two additional categories); however, the student is required to infer beyond the reading material in order to answer the questions. At the evaluation level the student is required to make critical judgments about the reading material, and at the appreciation level encouraged to identify emotionally with characters and events or to apply what he/she is reading to his/her own life.

To become thoroughly familiar with Barrett's taxonomy, the workshop participants were asked to write questions at different levels on their content reading material and to label the questions as to level. They were also given a list of comprehension skills derived from surveying various scope and sequence statements for comprehension. They were asked to try to incorporate the list of skills in the taxonomy specifically into their content areas. In other words, they were to determine which skills might be best taught and applied at each level of questioning. Some differences occurred in the content groups as teachers of certain content area (for example, science) felt that a given level of questioning (the appreciation level, for example) played little role in their content questioning.

The taxonomy and the list of skills were also used to evaluate commercial materials purporting to teach comprehension skills in content reading and published reading tests. Even in these materials teachers

noted a preponderance of questions at the literal level. Next the taxonomy and the list of skills were used as teachers studied the comprehension questions provided in their own textbooks.

Teachers were then asked to devise at least one activity for teaching a comprehension skill in their content area. The activity was also to reflect an awareness of its appropriateness in terms of Barrett's taxonomy. Sample activities are included in the Model Materials, section 3. Teachers also had the option of working through the Learning Center on the newspaper (See Organization for Instruction strand) in which comprehension questions were provided to assess various skills at the four levels of Barrett's taxonomy.

Techniques to promote comprehension were also presented. They are discussed below as teacher-directed techniques and independent study techniques.

Teacher-Directed Techniques. The directed reading activity was presented to workshop participants as an important technique for increasing students' comprehension of reading material. It has been adequately demonstrated (Spache, 1976) that teachers's questions and guidance before reading can significantly increase students' comprehension after reading. A directed reading activity usually consists of the following prereading activities: creating interest in the topic of the reading selection to motivate students to read, introducing new vocabulary words (perhaps through a structured overview) and a related vocabulary skill, building background concepts, and asking guide questions to be answered during or after reading the material. (The latter may take the form of a study guide which is discussed below).

After students have read the material, answers to the guide questions should be considered. Other questions at the four levels of Barrett's

taxonomy can also provoke discussion of the reading material. Finally, skill instruction - vocabulary, comprehension, or study skills - might follow, perhaps accompanied by enrichment work in the content area. For example, a social studies teacher might offer instruction in a library skill as a prelude to doing library research on various forms of transportation used during pioneer days.

As a supplement to the directed reading activity, paragraph functions were also considered by workshop participants. Using the functions identified in Shepherd (1973), teachers were asked to study their own textbook to consider the function of each paragraph (introductory, cause-effect etc.). Not only were they asked to identify the function of each paragraph in a given selection as part of Objective 8, but they were also urged to guide their students in identifying paragraph functions as part of the prereading activities. Some teachers went a step further by having their students independently determine the function or purpose of each paragraph. They were surprised to discover that students generally did not realize the structure that could be found. By identifying paragraph functions students realized that often main ideas, for example, may be found in the opening and concluding paragraphs. They realized that not all paragraphs needed a careful indepth reading.

Independent Study Techniques. One theme of the workshop was encouragement of students' independent learning. Use of reading/study guides is a technique for fostering students' independent learning which is still directed by the teachers. Conceivably, reading/study guides could also be student-directed if students created the guides for other students' use, after reading the material.

Various examples of study guides for students' independent use were

studied (as found in Thomas and Robinson, 1976; Thelen, 1976; Earle, 1976; and Herber, 1970). While specific aspects of the study guides may vary, they all guide students' comprehension of reading material as in the directed reading activity; however, students work on their own, freeing the teacher to work with individuals or small groups.

Study Skills

Study skills were presented to workshop participants as those skills that pertain to locating and interpreting information. They are the important skills which enable students to become independent learners. In addition to teaching students to use study skills, such as reading and interpreting a map, it is also important to promote positive attitudes toward skill application. For example, when a student is confronted with a map in his textbook or other reading material, he should not skip over it but instead study it to derive useful information.

Some evidence (Askov, Kamm and Klumb, 1977) exists that teachers themselves have not mastered all the study skills. It is unlikely, moreover, that teachers will teach skills that they themselves have not mastered. Therefore, a list of study skills (Karlin, 1972) was distributed to teachers to clarify the nature of the skills. On this list the skills are grouped into five categories - selection and evaluation, organization, location of information, following directions, and specialized skills (such as reading and interpreting maps, graphs, tables, cartoons, etc.).

Teachers were asked to consider the study skills on the list as process skills which could help their students better grasp the content of their subject field. In content groups, then, they were to consider which skills might be most applicable in their content areas. For example, social studies teachers might choose skills from all categories while

industrial arts teachers might find most useful those skills in following directions and specialized skills (such as reading and interpreting pictorial aids, graphs, tables, charts, and diagrams).

In addition to the list of study skills, teachers had access to the scope and sequence statement of study skills from the Wisconsin Design for Reading Skill Development (Chester, Askov & Otto, 1973) and to the Teacher's Resource File (Askov, Kamm, & Klumb, 1973) which includes teaching activities for each study skill.

Using these resources, plus other commercial materials, teachers were asked to design at least one activity for teaching a study skill related to their content area. Sample activities are included in the Model Materials, section 3.

Teachers were also given the option of working through the Learning Centers related to study skills. (See Organization for Instruction strand). The centers on reference and map skills demonstrate how Learning Centers may be used to promote students' independent acquisition of necessary study skills. All teachers also worked through the listening/notetaking and reading/notetaking centers (also described in Organization for Instruction strand) since these skills are so crucial in all content study.

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## Selection of Materials

The selection of instructional materials was presented in the Project in the context of the diagnostic teaching model. The model begins with the assessment of learner characteristics and proceeds to the specification of goals and the selection of instructional strategies. Having accomplished these three steps, participants in the Project were presented with several useful techniques for selecting materials through which their goals and strategies could best be implemented.

Throughout the sessions on materials selection, emphasis was given to the idea that selections need not be limited to the traditional method of selecting one common text to be used by all students. The Project staff attempted to encourage teachers to consider choosing materials of various levels of reading difficulty in the attainment of goals for students of varying ability levels. The point was made that in using a single text for an entire classroom the teacher would find that, while some students would be comfortable with that particular text, others would find it to be either too difficult or not challenging.

The first step in determining what materials to use is to assess the approximate reading levels of the learners. Since most materials are selected before the teacher has met his/her students, the Project participants were made aware of the fact that most junior high classes, even when they are homogeneously grouped, are made up of students whose reading abilities span at least a six-year range. A teacher with an average 8th grade class, for instance, can expect an ability range of at least 5th to 11th grade reading levels. Therefore, a variety of materials should be made available in order to provide each learner with access to

information sources he/she can understand. These materials need not all be in the form of textbooks. Other forms of supplementary materials are just as valuable for learning.

Each teacher in the Project was asked to evaluate a text in his/her content area. Given a checklist as a guide, the teachers analyzed the texts for various components. These included looking at: the mechanical elements of the text, study aids provided, methods of presentation, authorship and readability. Upon completion of the analysis, each teacher composed a subjective statement concerning the desirability of using a given text in a specified learning situation and grade level. The text evaluation checklist is included as Appendix 4.21.

In the Project, readability was discussed as a factor in text selection and in selection of other kinds of reading material. Readability, or the difficulty level of the material, is a function of four major components:

1. Linguistic factors
2. Reader's background information on the subject
3. Reader's interest in the subject
4. Aids to reading found in the text

Linguistic factors are the most often discussed in reading journals. Reiter (1973) suggests that readability involves:

1. Vocabulary - how long are the words? How familiar are they to the reader?

2. Sentence structure - the longer and more syntactically complex the writing, the harder it is to read.

3. Relationships - connections between words, sentences or parts of sentences; these usually mean relations between concepts, ideas, etc. The

more relationships required, the harder the reading.

4. Levels of abstraction - content reading becomes increasingly abstract; the reader must connect the real with the abstract; the more abstract the reading, the harder it is to read.

Readability is often handled by the use of formulas to measure difficulty level. Such formulas usually take into account only the first and second concepts mentioned above as linguistic factors and none of the other components. However, such formulas do give a rough estimate of reading level.

Evaluation of readability was accomplished, in part, by utilizing two of several available formulas. The formulas are based on prescribed measures of reading difficulty. The Fry Readability Graph was used by all participants as one of the two measures because of the facility of its use. For the Fry Graph, readability is based on the number of syllables in words as well as sentence length. Several formulas were recommended for specific types of texts, such as literature and mathematics texts. A complete list of formulas suggested is included in the Text Evaluation Checklist (Appendix 4.21).

Certain diagnostic techniques require the matching of student reading ability level with the most appropriate materials. Two specific methods were presented for this purpose: the Informal Reading Inventory and the cloze technique (See Diagnosis strand). Both methods allow the teacher to determine which students find a given text to be appropriate for their reading levels. Both methods determine which of three levels a student falls into when using a selected text: frustration level, instructional level or independent level. For those students reading at the frustration level, an alternate text or simplified supplementary materials are recommended. Those at the instructional or independent

level will probably find the text appropriate, with more challenging supplementary materials recommended for independent level students.

The Informal Reading Inventory is a series of questions subdivided according to the specific reading skills they are designed to evaluate. Scores obtained on the inventory facilitate grouping for instruction in specific reading skills. They also allow teachers to make further selection of supplementary materials based on student needs in reading development.

The cloze procedure is a method whereby teachers assess students' abilities to comprehend a specific text by matching the author's writing style and vocabulary to that of the student. This is achieved by systematically deleting every fifth word in a passage and asking the student to fill in the deletions with words that make sense to him/her. Students scoring at the frustration level of this task cannot be expected to comprehend the content as it is presented in that particular text, so that teachers must have alternative materials available.

The culminating activity in materials selection was the task of compiling a bibliography of materials. Teachers were expected to assemble a list of materials pertaining to their content areas that provided for different needs, learning styles and readability levels. Readability formulas were applied to all materials included in the bibliographies. Annotation accompanying the entries described the content and instructional aids included in the materials. The bibliographies included a selection of textbooks as well as materials to supplement textbooks. These bibliographies were similar in format to the Bibliography of Junior High Materials which appears as Appendix 1.2.

## References

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## Evaluation Strand

Evaluation of teacher effectiveness and student learning is a broad spectrum concept with nearly as many variances in meaning as persons explaining it. While not claiming evaluation of student learning to be an exact science, the Content Area Reading Project staff attempted to explore some of the current work technology regarding evaluation, in both systematizing procedures and examining creative alternatives for assessing student learning. Time constraints during the Project precluded an in-depth examination of Evaluation design. However, what follows is an explanation of the underlying philosophy and practice of evaluation as it took place during the Project. Project staff members worked closely with teachers as they prepared the Evaluation component of their Unit plan, applying the principles discussed here.

The evaluation strand was presented as part of the Decision Model for Diagnostic Teaching (discussed in Chapter Three) and logically related to the Diagnosis and Organization for Instruction strands (discussed earlier in this chapter). In line with the model, evaluation is seen as a process variable, occurring continuously throughout the teaching/learning process, as well as a culminating experience where a teacher may make a well-informed professional decision as to whether a student has attained a specific goal. The Project staff stressed methods of designing an evaluation component in an instructional unit which will increase certainty that a well-informed professional decision has, in fact, been made. Therefore, the Evaluation strand was developed as a partner to both the Diagnosis and Organization for Instruction strands, and rightfully understood as an integral part of the planning process. Workshop participants

were encouraged to design evaluation procedures to match each performance objective in the Unit plan (See Neighbors to the South Unit, section on evaluation). Teachers were able to see readily that well-defined performance objectives dictate at least a framework within which evaluation procedures may be designed. Besides giving clues as to the degree and quality of student learning, a complete evaluation component within a content Unit will include a systematic process for examining the teacher-designed goals and objectives, instructional strategies, activities and materials in terms of their appropriateness. Evaluation is viewed as more than simply determining whether an objective has been met. Understood in its most positive and productive sense, evaluation procedures are designed for the purpose of making corrective and adaptive decisions regarding subsequent learning.

Whether an evaluation design is directed toward assessing the quality of teacher planning or the degree and depth of student learning, its effectiveness is directly contingent upon the ability of the evaluation procedure to obtain relevant and valued information which will facilitate the decision-making process. While there is some place for "gut-level" or intuitive decisions as to what type and degree of learning has occurred, the emphasis in the Project was on assisting teachers in planning evaluation procedures which were systematic and valid and, as far as possible, based on authenticated data. It was pointed out to workshop teachers that the goal of evaluation design is achieving better decisions, not necessarily perfect ones. Increased proficiency in designing evaluation should, therefore, result in an improvement in the quality of decisions.

In assisting Project teachers as they designed evaluation procedures to accompany their unit plans, the staff focused first on the

specific behavioral objectives which had been designed earlier. Once the objectives were examined for content and direction, it became the teachers's job to select indicators which would be assumed to provide data as to whether learning had taken place, and the degree and direction of that learning. Choosing indicators requires a professional decision as to which might be the most useful, the least encumbered, and the most efficient criteria for assessing learning. It was pointed out here that the indicators chosen should be the most useful ones, not necessarily the most easily observed. The evaluation process was presented as encompassing far more than measurement; in its best form, it was shown to include diverse strategies for making particular behavioral phenomena more observable. Teachers were encouraged to design evaluation procedures which would provide for an examination of the relationships between objectives, strategies and learner outcomes on one hand, and between what is planned by the teacher and what actually occurs, or is observed, on the other hand. Once the effectiveness of a teacher's planning has been determined by an examination of the logical congruence between stated objectives, instructional strategies and expected outcomes, it becomes possible to assess student learning by examining how closely the outcome behaviors of learners match the expected outcomes initially predicted by the teacher.

It is true that the Project's emphasis was on systematic evaluation, and therefore, the staff encouraged application of quasi-scientific techniques in designing evaluation procedures. However, inherent in the entire evaluation design process, and at the root of the Project staff's beliefs, was the notion that any evaluation design is only as effective as a teachers's ability to make professional decisions regarding which indicators are most appropriate. These indicators determine whether or not an instructional objective has been met, as well as the adequacy of the overall

planning. Without a useful set of indicators, examination of a vast array of information which is generated in any classroom situation is likely to lead to inadequate or incorrect decisions on the part of the teacher. The indicators may take on great variety of form, and therefore preclude that the evaluation design will always, or even most of the time, involve paper and pencil tests. Project teachers were encouraged to explore a variety of different strategies in designing evaluation procedures, thus refining their ability to select appropriate indicators for assessing student learning and effectiveness of planning.

Returning to the original Decision Model for Diagnostic Teaching by Grouping (Chapter Three, Figure 1), in the context of which the Evaluation strand was developed, it is possible to see that step seven of the model, "Evaluate each student's performance and appropriateness of goals," involves much more than a single yes/no answer or a test score. These, of course, are part of it. The Project's emphasis, however, was to explore further refinement and development of the evaluation process in the light of the Diagnostic Teaching Model. It was constant referral to this model which allowed workshop participants to see the integration of evaluation design within the instructional planning process. Evaluation design, understood in its most comprehensive sense, is a complex set of professional decisions regarding planning effectiveness, the observed outcomes of the teaching/learning process, and the indicators selected to judge these first two factors. Developing teacher skill in these areas was the goal of the Evaluation strand of the Content Area Reading Project.

Although it is necessary to present the seven strands of the Project's Content Component in a linear fashion, it may be pointed out that the process most clearly resembles a circle - an effective evaluation design will be the most useful tool in structuring new diagnostic tools to

guide further instructional planning for integrating reading in the content areas.

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## Conclusion

The strands have been defined individually thus far. To give an overall picture of when the workshop sessions dealt with the different strands, Figure 3 is included. This shows, for example, that the Diagnosis strand was dealt with at Workshops 1, 2, 3, 4, 5, 7, 11, 14, and 15.

Figure 4 indicates which objectives required the use of which strand. For example Objective 3, the Unit plan, incorporates motivation, organization for instruction, materials selection and evaluation.

This chapter has presented an overview of the content components of the Content Area Reading Project, their selection, rationale and implementation, and the way they fit together in the framework of fifteen three-hour workshops.

Figure 3

Workshop Presentation of Content Strands

| Strand | Workshop | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Diagnosis | * | * | * | * | * | | * | | | | * | * | | * | * |
| Linguistic Differences | | | | | | | * | | | * | * | * | | | |
| Motivation | * | | | | | * | * | | * | * | * | * | | | |
| Organization for Instruction | | | | | * | * | * | * | * | | | * | * | * | |
| Skill Development | * | * | * | * | * | * | * | * | * | | | * | * | * | |
| Materials Selection | * | * | | | * | | * | | | | | * | | | |
| Evaluation | | | * | * | * | | | * | | | | | | * | * |

Figure 4

Objectives Implementing Content Strands

| Strand | Objective | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Diagnosis | * | * | | | | | | | | * |
| Linguistic Differences | | | | | * | | | | | |
| Motivation | | | * | | * | | | | | |
| Organization for Instruction | | | * | | | | | | | |
| Skills Development | | | | | | * | * | * | | |
| Materials Selection | | | * | * | | | | | * | |
| Evaluation | | | * | | | | | | | |

## CHAPTER FIVE

## EVALUATION OF THE PROJECT

Evaluation of the Project was of two kinds. A formative evaluation in the form of an assessment of how the Project was meeting the needs and expectations of participants was made after the fifth workshop, a third of the way through the Project. At this time all participants were asked to articulate their feelings as to the strengths and weaknesses of the workshops. As a result of this feedback, some changes were made in the workshop format, including maintaining the same workshop instructor at each site, and ensuring that at least some workshop time be spent directly in completing objectives to allow for greater participation of teachers.

A second formative evaluation was carried out after week ten when the Project staff discussed their perceptions of the effectiveness of workshops and teachers' implementation of reading concepts in their classrooms. Again, some changes of workshop format, procedure and emphasis were made as needed.

The summative evaluation of the Project will be reported under five separate headings:

1. teacher attitude change towards the integration of reading instruction in content area classrooms;

2. change in skill levels among participating teachers;

3. participants' reaction to the project objectives and their usefulness in the classroom;

4. staff members' analysis of the growth shown by participants in understanding and integrating reading instruction in content area

classrooms;

5. teachers' completion of workshop objectives.

Results for junior high teachers and teachers of adults will be reported separately.

## Results for Junior High Teachers

Change in Attitude Toward Reading. Chapter One proposed that teachers' attitudes toward teaching reading in content classes and their own skill in implementing reading instruction in their classrooms were the keys to success in the Project. To assess attitudes towards reading, Situations Survey and Statements Survey were given to both workshop and comparison groups pre and post the workshops. These instruments are found in Appendix A.1 and A.2 of this report.

The attitude measures were of three kinds. From the Situations Survey come two scores:

1. The Situations Survey Score which refers to the set of five bipolar adjectives to which teachers respond for each of twelve hypothetical instructional "plans." This score represents a somewhat indirect measure of attitude towards the integration of reading instruction in content areas.

2. The Feasibility Score, an additional but separately scored part of the Situations Survey to which teachers respond as to the feasibility of implementing the various hypothetical plans. This Feasibility Score is another dimension of attitude to differentiate between how teachers might evaluate a plan and how feasible they really think that plan is.

The Statements Survey yields the Statements Survey Score, a direct measure (Likert scale) of general attitude towards the integration of

reading instruction in content areas.

Table 8 presents the findings of an analysis of the attitude scores among junior high teachers showing the observed or actual mean scores on the three attitude measures for all sites combined, for the urban site, for the suburban site and for the rural site. A three way analysis of variance of mean scores adjusted for groups of unequal size was conducted to determine the effects of site difference, treatment group difference and pre to posttest difference. A significant time main effect was found, with posttest scores for teachers in all treatment groups and at all sites combined higher than pretest scores ($p < .05$ on Statements Survey score and $p < .001$ on Situations Survey score and Feasibility Scores). Gains made by the experimental group were significantly greater than those by the comparison groups. In other words, significant gains were made by all experimental teachers regardless of where the treatment (the inservice program)took place.

These findings would suggest that the Content Area Reading Project made a significant change in the attitude of teachers towards teaching reading and that by the end of the Project teachers had more positive attitudes towards teaching reading in their classrooms and in their ability to help their students overcome reading problems.

The total score for the Purdue Teacher Opinionaire, which can be considered a measure of general teacher morale, was used because it was anticipated that teachers' attitude toward the integration of reading instruction in content area classrooms might be significantly affected by their morale as measured by the Purdue Teacher Opinionaire. If this were the case, teacher morale could be used as a covariate for the effects of the experimental treatment.

Table 8

Pre and Posttest Observed Mean Scores on Attitude Measures

| | All Sites Combined | | Urban Site Only | | Suburban Site Only | | Rural Site Only | |
|---|---|---|---|---|---|---|---|---|
| | Pre | Post | Pre | Post | Pre | Post | Pre | Post |
| **Treatment Groups Combined:** | | | | | | | | |
| Statements Survey Scores | 85.40 (n=129) | 87.28 (n=129) | 83.78 (n=41) | 86.29 (n=41) | 88.29 (n=49) | 88.59 (n=49) | 83.49 (n=39) | 86.67 (n=39) |
| Situations Survey Scores | 348.17 (n=129) | 366.68 (n=130) | 349.76 (n=42) | 358.40 (n=42) | 354.69 (n=48) | 373.69 (n=49) | 338.44 (n=39) | 366.77 (n=39) |
| Feasibility Scores | 65.10 (n=129) | 71.30 (n=130) | 63.57 (n=42) | 69.36 (n=42) | 67.25 (n=48) | 72.71 (n=49) | 64.10 (n=39) | 71.62 (n=39) |
| **Experimental Groups Only:** | | | | | | | | |
| Statements Survey Scores | 86.06 (n=58) | 90.78 (n=58) | 84.62 (n=21) | 91.81 (n=21) | 88.90 (n=20) | 92.05 (n=20) | 84.53 (n=17) | 88.00 (n=17) |
| Situations Survey Scores | 346.96 (n=57) | 374.90 (n=57) | 347.43 (n=21) | 368.95 (n=21) | 351.68 (n=19) | 377.00 (n=19) | 341.12 (n=17) | 379.88 (n=17) |
| Feasibility Scores | 63.63 (n=57) | 73.14 (n=57) | 62.24 (n=21) | 72.19 (n=21) | 66.00 (n=19) | 74.05 (n=19) | 62.71 (n=17) | 73.29 (n=17) |
| **Comparison Groups Only:** | | | | | | | | |
| Statements Survey Scores | 84.86 (n=71) | 84.10 (n=72) | 82.90 (n=20) | 79.57 (n=21) | 87.86 (n=29) | 86.21 (n=29) | 82.68 (n=22) | 85.64 (n=22) |
| Situations Survey Scores | 349.13 (n=72) | 360.25 (n=72) | 352.10 (n=21) | 347.86 (n=21) | 356.66 (n=29) | 371.97 (n=29) | 336.36 (n=22) | 356.64 (n=22) |
| Feasibility Scores | 66.26 (n=72) | 69.79 (n=72) | 64.90 (n=21) | 66.52 (n=21) | 68.07 (n=29) | 71.76 (n=29) | 65.18 (n=22) | 70.32 (n=22) |

Note numbers in parentheses indicate total for that mean score.

Table 9 presents the pre and posttest observed mean scores for both treatment groups at the three sites combined and for each site separately, for the experimental groups only (combined and by site) and for the comparison groups only (combined and by site). A three way analysis of variance using mean scores adjusted for unequal groups was conducted to detemine the effects of site, treatment group and time on teacher morale. Although at only one site (urban) morale level between the two treatment groups differed significantly, across sites the two treatment groups were not significantly different when the investigation began. No significant time effects (pre to posttest difference) was found for Purdue Teacher Opinionaire scores overall (time main effect) or within sites (site x time interaction) or within treatment (treatment x time interaction) groups (See Table 10). Morale, as measured by the Purdue Teacher Opinionaire, held constant across time for all teachers and all sites.

Tables 11, 12 and 13 present the correlations between scores on the Purdue Teacher Opinionaire and the three attitude measures. Asterisks denote correlations that are significant. A close examination of these tables suggests that teacher responses on the attitude measures were not significantly affected by their response on the Purdue Teacher Opinionaire. Morale, as measured by the Purdue Teacher Opinionaire, appears not to have been a significant factor in determining teachers' attitudes towards the integration of reading instruction in the content areas as measured by the three attitude measures used in this investigation. It therefore was considered unnecessary to analyze the data using Purdue Teacher Opinionaire morale scores as a covariate to minimize the effect of morale on attitude.

Change in Skill Level in Junior High Teachers. To measure whether workshop participants developed reading skills in the course of the Project, the Content Area Reading Skills Instrument was used. (See Appendix A.4).

Table 9

Observed Mean Scores on Purdue Teacher Opinionaire

| | All Sites Combined | | Urban Site Only | | Suburban Site Only | | Rural Site Only | |
|---|---|---|---|---|---|---|---|---|
| | Pre | Post | Pre | Post | Pre | Post | Pre | Post |
| Treatment Groups Combined | 288.90 (n=127) | 288.11 | 235.08 (n=40) | 231.95 | 323.57 (n=49) | 324.06 | 300.84 (n=38) | 300.86 |
| Experimental Groups Only | 284.38 (n=55) | 284.33 | 245.21 (n=19) | 239.68 | 315.00 (n=20) | 317.70 | 292.63 (n=16) | 295.63 |
| Comparison Groups Only | 293.50 (n=70) | 292.93 | 223.15 (n=19) | 225.11 | 329.48 (n=29) | 328.45 | 306.82 (n=22) | 304.68 |

Table 10

Site x Treatment x Time Analysis
of Variance on PTO Scores

| Source | df | Mean Square | F | P |
|---|---|---|---|---|
| Site | 2 | 14,802.00 | 7.00 | <.01 |
| Treatment | 1 | 44.08 | <1 | <.05 |
| Site x Treatment | 2 | 220.08 | <1 | >.05 |
| Error (between Ss) | 119 | 2,114.80 | | |
| Time | 1 | 1.85 | <1 | >.05 |
| Site x Time | 2 | 40.03 | <1 | >.05 |
| Treatment x Time | 1 | 3.28 | <1 | >.05 |
| Site x Treatment x Time | 2 | 231.40 | <1 | .05 |
| Error (within Ss) | 119 | | | |

Table 11

Correlations Between PTO Scores and Three Attitude Measures for Treatment Groups Combined

| | Statements Survey Pretest | Statements Survey Posttest | Situations Survey Pretest | Situations Survey Posttest | Feasibility Pretest | Feasibility Posttest |
|---|---|---|---|---|---|---|
| **All Sites Combined** | | | | | | |
| PTO pretest scores | .16 | .20 | -.00 | .17 | .17 | .18 |
| PTO posttest scores | .16 | .21 | -.02 | .16 | .14 | .18 |
| **Urban Site Only** | | | | | | |
| PTO pretest scores | -.05 | .40* | -.09 | .23 | -.04 | .28 |
| PTO posttest scores | -.06 | .38 | -.04 | .13 | -.03 | .19 |
| **Suburban Site Only** | | | | | | |
| PTO pretest scores | .14 | -.02 | .08 | .09 | .31* | .09 |
| PTO posttest scores | .20 | .01 | .04 | .08 | .25 | .07 |
| **Rural Site Only** | | | | | | |
| PTO pretest scores | .16 | .18 | .06 | -.03 | .13 | -.08 |
| PTO posttest scores | .09 | .29 | -.09 | .09 | -.05 | .09 |

Note because of incomplete data, n's range from 126 - 130 for all sites combined, 38 - 42 for the Urban Site, 48 - 49 for the Suburban Site, and 38 - 39 for the Rural Site.

*p < .05

Table 12

Correlations Between PTO Scores and Three Attitude Measures for Comparison Groups Only

| | Statements Survey Pretest | Statements Survey Posttest | Situations Survey Pretest | Situations Survey Posttest | Feasibility Pretest | Feasibility Posttest |
|---|---|---|---|---|---|---|
| **All Sites Combined** | | | | | | |
| PTO pretest scores | .15 | .26* | -.04 | .21 | .10 | .24* |
| PTO posttest scores | .14 | .28* | -.08 | .23 | .09 | .23 |
| **Urban Site Only** | | | | | | |
| PTO pretest scores | -.18 | .43 | -.20 | .01 | -.32 | .10 |
| PTO posttest scores | -.20 | .44 | -.06 | .03 | -.27 | .05 |
| **Suburban Site Only** | | | | | | |
| PTO pretest scores | .01 | -.08 | -.03 | .09 | 21 | .13 |
| PTO posttest scores | .02 | -.09 | -.05 | .15 | .17 | .15 |
| **Rural Site Only** | | | | | | |
| PTO pretest scores | .22 | .27 | .10 | .14 | .16 | .07 |
| PTO posttest scores | .23 | .34 | -.11 | .26 | .15 | .19 |

Note because of incomplete data, n's range from 69 - 72 for All Sites combined, and 19 - 21 for the Urban Site. For the Suburban and Rural Sites, n's remain constant at 29 and 22, respectively.

*p < .05

Table 13

Correlations Between PTO Scores and Three Attitude Measures for Experimental Groups Only

| | Statements Survey Pretest | Statements Survey Posttest | Situations Survey Pretest | Situations Survey Posttest | Feasibility Pretest | Feasibility Posttest |
|---|---|---|---|---|---|---|
| **All Sites Combined** | | | | | | |
| PTO pretest scores | .18 | .17 | .05 | .14 | .26 | .14 |
| PTO posttest scores | .20 | .19 | .04 | .10 | .18 | .17 |
| **Urban Site Only** | | | | | | |
| PTO pretest scores | -.01 | .30 | -.01 | .34 | .22 | .43 |
| PTO posttest scores | .06 | .25 | .02 | .19 | .22 | .35 |
| **Suburban Site Only** | | | | | | |
| PTO pretest scores | .35 | .35 | .19 | .13 | .38 | .14 |
| PTO posttest scores | .50* | .49* | .13 | .02 | .31 | .05 |
| **Rural Site Only** | | | | | | |
| PTO pretest scores | .12 | .12 | .16 | -.15 | -.05 | -.22 |
| PTO posttest scores | -.10 | .27 | -.04 | -.13 | -.42 | -.02 |

Note because of incomplete data, n's range from 54 - 58 for all sites combined, 19 - 21 for the urban site, 17 - 20 for the suburban site, and 15 - 17 for the rural site.

*p < .05

This instrument was administered to participants before the Project began and again at the end of the Project. Its intent was to measure knowledge of basic materials and methods for teaching reading in various content areas.

Table 14 presents the numbers of teachers who reached an agreed-upon mastery level of 80% on pre and posttest at all sites combined and for each site separately. Of the 56 experimental group teachers who took the test at the first workshop session, only 3 scored 80% or better. Of these same 56 teachers, significantly more teachers, 22, reached mastery level of 80% on the posttest given at the final workshop session. In addition, in a site x time analysis of variance of actual pre and post Skills Test scores, significant gains ($p < .001$) were found. This would indicate that workshop participants significantly increased their knowledge of basic methods for teaching reading in content areas.

Another dimension of skill is reflected in teachers' response to the final question included as part of the Situations Survey. For each plan described in this instrument, the teacher is asked to rate his/her perceived degree of skill at executing the plan presented. Table 15 presents the observed mean Perceived Skill scores of subjects across sites and for each site considered separately. A three way analysis of variance using mean scores adjusted for unequal groups was conducted to determine the effects of site x treatment and time. This would indicate that by the end of the Project participants felt far more able to cope with situations requiring some expertise in reading and their confidence in their own abilities had increased.

Junior High Teachers' Reaction to the Project Objectives and Their Usefulness in the Classroom. At the end of the Project, participants were

Table 14

Frequency of Experimental Teachers in each Combination of Pre and Posttest Mastery Status on Skills Test

| | | Posttest | | |
|---|---|---|---|---|
| | | Nonmastery | Mastery | Total |
| **All Sites Combined** | | | | |
| Pretest: | Mastery | 1 | 2 | 3 |
| | Nonmastery | 33 | 20 | 53 |
| | Total | 34 | 22 | 56 |
| **Urban Site** | | | | |
| Pretest: | Mastery | 1 | 0 | 1 |
| | Nonmastery | 18 | 2 | 20 |
| | Total | 19 | 2 | 21 |
| **Suburban Site** | | | | |
| Pretest: | Mastery | 0 | 0 | 0 |
| | Nonmastery | 8 | 12 | 20 |
| | Total | 8 | 12 | 20 |
| **Rural Site** | | | | |
| Pretest: | Mastery | 0 | 2 | 2 |
| | Nonmastery | 7 | 6 | 13 |
| | Total | 7 | 8 | 15 |

Table 15

Observed Mean Perceived Skill Scores

| | All Sites Combined | | Urban Site Only | | Suburban Site Only | | Rural Site Only | |
|---|---|---|---|---|---|---|---|---|
| | Pre | Post | Pre | Post | Pre | Post | Pre | Post |
| Treatment Groups Combined | 61.60 (n = 129) | 69.96 | 61.76 (n = 42) | 71.55 | 62.79 (n = 48) | 68.71 | 59.95 (n = 39) | 69.82 |
| Experimental Groups Only | 59.46 (n = 57) | 74.91 | 60.52 (n = 21) | 75.48 | 58.11 (n = 19) | 73.21 | 59.65 (n = 17) | 76.12 |
| Comparison Groups Only | 63.29 (n = 72) | 66.06 | 63.00 (n = 21) | 67.62 | 65.86 (n = 29) | 65.76 | 60.18 (n = 22) | 64.95 |

asked to complete a questionnaire on which elements of the Project they had used and which they found valuable. This data is found in Table 16. It seems worthwhile stressing that the two major thrusts of the Project, diagnosis and organization for instruction, were not only used by participants, aside from completing workshop objectives, but largely considered valuable. This appears to be further indication that not only did the Project give participants skills in teaching content area reading but it also gave them the desire to use these skills.

Staff Analysis of Junior High Teachers. A final way to look at changes in skill level among teachers participating in the experimental treatment is to consider evaluations made by the on-site consultants who observed the teachers at work in their classrooms between workshop sessions. At the end of the treatment period, each consultant was asked to assign an entry rating to each teacher based on what the consultant believed to be that teacher's level of skill in relation to the objectives of the workshop program. In other words, teachers' entry ratings reflected the degree to which the consultants believed that the teachers incorporated reading instruction in their content area classrooms at the beginning of the experimental treatment. An exit rating was also recorded for each teacher, which reflected the extent to which the consultants believed that teachers incorporated reading instruction in their classrooms at the end of the experimental treatment.

Table 17 includes the mean entry and exit ratings on which a matched pairs t test was used for comparing ratings for all sites combined and for each site separately across all sites and for each site ($p < .001$), indicating that participants by the end of the workshops appeared to be incorporating more reading instruction in their classrooms than prior to

Table 16

Percentage of Participants Using Reading Concepts And Workshop Techniques and Percentage Considering Them Valuable

| | Concept/Technique | Strand | % Used | % Considered Valuable |
|---|---|---|---|---|
| 1. | Informal Reading Inventory | diagnosis | 87 | 94 |
| 2. | Cloze Procedure | diagnosis | 92 | 88 |
| 3. | Grouping Plans | diagnosis | 88 | 92 |
| 4. | Case Study (for DRR 450) | diagnosis | 50 | 57 |
| 5. | Concept of Linguistic Differences | linguistic differences | 47 | 63 |
| 6. | Concepts of Students Self-Direction | motivation | 71 | 79 |
| 7. | Unit | organization | 87 | 89 |
| 8. | LAP | organization | 54 | 75 |
| 9. | Learning Center | organization | 55 | 71 |
| 10. | Non-Print Media | organization | 85 | 90 |
| 11. | Vocabulary Exercises | skills | 97 | 99 |
| 12. | Comprehension Questioning Strategies at Different Levels | skills | 92 | 97 |
| 13. | Study Skills Exercises | skills | 85 | 93 |
| 14. | Reading and Study Guides | skills | 85 | 92 |
| 15. | Concept of Readability | selection of material | 90 | 88 |
| 16. | Alternative Reading Materials at Various Levels | selection of material | 80 | 86 |
| 17. | Concept of Paragraph Functions | selection of material | 55 | 66 |
| 18. | Weekly Logbook | inservice | 73 | 64 |
| 19. | Making Presentation (for LEd 470) | inservice | 50 | 58 |
| 20. | Observing Teaching Presentation | inservice | 79 | 85 |

Table 17

Mean Consultant Ratings of Skill Levels
for Experimental Teachers

| | All Sites Combined | Urban Site Only | Suburban Site Only | Rural Site Only |
|---|---|---|---|---|
| Entry Rating | 2.20 (n = 58) | 1.48 (n = 21) | 2.80 (n = 20) | 2.41 (n = 17) |
| Exit Rating | 3.54 (n = 58) | 2.81 (n = 21) | 3.85 (n = 20) | 4.06 (n = 17) |

Note: Ratings ranged from 1 to 5 with 5 being the highest positive rating.

the Project.

Teachers' Completion of Workshop Objectives. A summary of this data can be found in Table 18. Data were analyzed in various categories. Column 5 indicates which teachers taking the course for credit completed objectives 1 through 9, designated the Skill Level Objectives. Column 7 indicates which teachers registered for credit completed objectives 11 and 12, designated the Application Level Objectives. Column 9 refers to teachers registered for credit who successfully completed a sufficient number of objectives to receive graduate credit. No distinction is drawn in this table between teachers registered for three or six graduate credits.

Elaboration of this table raises the following points:

1. Among the experimental teachers who registered for credit, 91% completed all skill level objectives, (objective 1 through 9), 83% at the urban site, 100% at the suburban and rural sites. Among those not registering for credit, 13% completed these objectives, 33% at the urban site, 14% at the suburban site and 0% at the rural site.

2. Among the experimental teachers who registered for credit, 94% completed the classroom application objectives, (objectives 11 and 12), 94% at the urban site, 83% at the suburban site, and 100% at the rural site. Among those not registering for credit, 26% completed these objectives, 66% at the urban site, 29% at the suburban site, and 0% at the rural site.

3. Of the experimental teachers registered for credit, 89% satisfactorily completed all objectives required for graduate credit, 83% at the urban site, 100% at the suburban and rural sites. (No distinction is drawn here between participants enrolled for three or six graduate credits). Of those who did not register for credit 13% satisfactorily completed enough objectives to earn a certificate of completion.

Table 18

Comparisons Among Experimental Junior High Teachers On Variables of Graduate Credit, Completion of Workshop Objectives, and Workshop Attendance

| | Teachers selecting 6 credit option | Teachers selecting 3 credit option | Total teachers selecting credit option | Teachers selecting non credit option | Credit (3-6) teachers completing Skill Level objectives (1-9) | Non Credit teachers completing Skill Level objectives (1-9) | Credit (3-6) teachers completing Application Level obj. (11-12) | Non Credit teachers completing Application Level obj. (11-12) | Credit (3-6) teachers completing all required objectives (1-10 or 1-13) | Non Credit teachers earning Certificate of Completion (objectives 1-9, 11-12) | Mean Number of Workshop objectives completed of possible 13 | Mean Number workshops Attended of possible 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Sites Combined N = 58 | 31 | 4 | 35 | 23 | 32 | 3 | 33 | 6 | 31 | 3 | 9.48 | 13.51 |
| Urban Site Only N = 21 | 17 | 1 | 18 | 3 | 15 | 1 | 17 | 2 | 15 | 1 | 11.86 | 13 |
| Suburban Site Only N =20 | 5 | 1 | 6 | 14 | 6 | 2 | 5 | 4 | 6 | 2 | 7.10 | 13.35 |
| Rural Site Only N = 17 | 9 | 2 | 11 | 6 | 11 | 0 | 11 | 0 | 11 | 0 | 9.47 | 14 18 |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

4. Of a possible total of 13 objectives, 9.48 was the mean number completed by all experimental teachers credit and non credit, 11.86 at the urban site, 7.10 at the suburban site, and 9.47 at the rural site.

5. Of a possible total of 15 workshop sessions, a mean attendance of 13.51 was obtained for all experimental teachers, 13 at the urban site, 13.35 at the suburban site, and 14.18 at the rural site.

Results for Teachers of Adults

For a variety of reasons, to be discussed in Charter Six, the teachers of adults part of the total sample used in this investigation was considerable smaller than anticipated. Attrition among those teachers of adults who began as part of the experimental group was a serious problem as was maintaining a comparison group for pre and posttesting. Because the teachers of adults treatment groups eventually maintained were so small, data collected on these groups is reported separately from that of the secondary teacher sample. Meaningful comparisons between groups of such differing size are not suggested. In addition to noting the very small sample numbers for this part of the investigation, one additional caution needs to be made. For the secondary teacher population, only teachers who attended at least ten of the fifteen workshops were considered experimental teachers. Because one of the major reasons for the high attrition rate among the teachers of adults in the experimental group was the problem of attending workshop sessions that frequently conflicted with teaching commitments, it was decided to consider as an experimental teacher any teacher of adults who attended at least six of the workshop sessions.

Table 19 presents pre and posttest observed mean scores on the three attitude measures and the perceived skills scores for the experimental group. It would appear that the attitudes towards teaching reading in the

Table 19

Observed Mean Scores on Four Measures
for Experimental ABE Group Only (n=8)

| Measure: | Pre | Post |
|---|---|---|
| Statements Survey | 86.125 | 87.375 |
| Situations Survey | 338.250 | 351.625 |
| Feasibility Score | 63.750 | 69.500 |
| Perceived Skill Score | 53.125 | 64.375 |

adult sample did improve as a result of the workshop, though because of the small sample size caution should be taken in interpreting the data.

Table 20 presents the pre and posttest mean Skills Test score comparisons for the teachers of adults experimental group. No experimental teacher reached mastery level of 80% on the pretest. Two of the six teachers with complete pre and posttest data reached mastery on the posttest. Looking at mean scores indicates the extent of actual improvement among these teachers on the Skills Test. Table 20 indicates that for the total experimental Adult Basic Education group, the pretest mean score of 7, out of a possible 23, increased to a posttest mean of 14.50. This difference was significant, indicating that the teachers of adults significantly increased their knowledge of the basic methods for teaching reading in various content areas.

Only two of the teachers of adults in the experimental population elected to complete the workshop program for credit. Of these one teacher completed enough of the workshop objectives to earn a certificate of completion. None of the noncredit teachers of adults completed enough objectives to earn a certificate.

Table 21 presents data on the two other dimensions of skill analyzed in the investigation. Mean pre and posttest Perceived Skill scores are presented with mean consultant entry and exit ratings. Differences between pre and posttest Perceived Skill scores were not statistically significant. Differences between entry and exit consultant ratings were also not statistically significant.

A more complete analysis of the data is included in Appendix A.5. The interpretation of these data is presented in Chapter Six.

Table 20

Teachers of Adults Experimental Subjects' Skills Test Results

| | Total Reading 80% Mastery Level | | Mean Score of Possible 23 points | |
|---|---|---|---|---|
| | Pre | Post | Pre | Post |
| Subjects electing credit option (n = 2) | 0 | 0 | 3 | 11.5 |
| Subjects electing non credit option (n = 4) | 0 | 2 | 9 | 16.0 |
| Total Teachers of Adults (n = 6) | 0 | 2 | 7 (SD=4.09) | 14.50 (SD=3.94) |

Table 21

Experimental Teachers of Adults Mean Perceived Skills Scores and Mean Consultant Ratings

| | Mean Perceived Skills Scores | | Mean Consultant Ratings | |
|---|---|---|---|---|
| | Pre | Post | Entry | Exit |
| Subjects electing credit option (n = 2) | 53.5 | 62.5 | 1 | 1.5 |
| Subjects electing non credit option (n = 6) | 53 | 65 | 1.83 | 2.33 |
| Total Teachers of Adults (n = 8) | 53.12 (SD=11.37) | 64.38 (SD=10.76) | 1.625 (SD=.74) | 2.125 (SD=.83) |

# CHAPTER SIX

## SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS FOR FUTURE RESEARCH

### Summary

The literature suggests that most secondary and adult education teachers lack background in and have a somewhat negative attitude toward the integration of reading instruction in content area classrooms where large numbers of students have difficulty reading the materials assigned to them. The primary purpose of this Project was to determine whether or not a competency-based inservice education program in reading instruction would have an effect on the attitudes and skills of a group of junior high and adult education teachers at three differing geographical sites in Pennsylvania.

Funded under a grant from the Pennsylvania Department of Education, the program consisted of a series of 15 inservice workshops covering various precedures for incorporating reading instruction in content area classrooms. These workshops were held bimonthly during the school year and were supplemented by the services of on-site reading consultants who spent one to two days per week in the schools helping participating teachers implement workshop ideas.

Teachers received a small honorarium for attending each workshop and had the option of registering for graduate credit through the Pennsylvania State University. All participants in the workshops were expected to complete a number of specified objectives which required them to apply in written form or in their classrooms the procedures described

in the workshops. These objectives, some considered "skill level" and others "classroom application level", could be resubmitted to the consultants any number of times until they were considered to meet pre-established criteria.

Any teacher attending the workshops and satisfactorily completing the required objectives, whether registered for credit or not, was awarded a certificate of completion at the end of the school year. In order to measure the effects of the year long experimental treatment, a comparison between experimental and comparison groups was made. Teachers at the three geographical sites who elected to participate in the workshop program were considered experimental subjects while teachers who volunteered to participate only in pre and posttesting sessions, for which they received a small honorarium, were considered comparison subjects.

Five instruments were used for pre and posttest collection of data. Two attitude surveys, one using the Likert format and one using the semantic differential technique, were developed by the Project staff members. The Purdue Teacher Opinionaire (PTO), a commercially available instrument, was used as a measure of general teacher morale at each site. A questionnaire was developed for collecting demographic information for each teacher. Finally, a Project-designed criterion-referenced test, was used as one measure of teacher skill level. Field tests were conducted with each of the instruments in order to determine reliability estimates and to establish procedures for testing during the investigation.

At the beginning of the 1976-77 school year, all experimental and comparison teachers at the three sites attended a pretest session during which they completed the two attitude surveys, the PTO, and the questionnaire. During the first and final workshop sessions, the experimental

teachers completed the criterion-referenced skills test. At the end of the school year, all experimental and comparison teachers completed the two attitude measures and the PTO for a second time.

Demographic information was analyzed to determine on what factors, if any, the two treatment groups differed with regard to factors such as educational background, teaching experience, and subjects taught. Attitude scores analyzed on the dimensions of site difference, treatment group difference, and pre to posttest change. Scores on the PTO were obtained as a possible covariate for teacher morale level. Skills Test scores, obtained only for the experimental teachers, were analyzed to determine whether or not a significantly greater number of teachers reached an 80% mastery level at the end of the Project than did at the beginning.

The data from these tests were reported in Chapter Five. These results need to be placed in the perspective of the staff's evaluations and suggestions for future research. To facilitate this discussion, analysis and recommendations will be grouped according to their connection to:

1. The workshop participants and the attitude and skill testing procedures. (Junior high teachers and teachers of adults)
2. The Diagnostic Teaching Model.
3. The Inservice Training Model.

Junior High Teachers. Analysis of the demographic information gathered for each teacher participating in the investigation indicated that the comparison and experimental groups differed significantly on the variables of years of teaching experience and level of education, the comparison group reporting significantly more years of teaching experience and a higher level of education. This is not a surprising finding in that one

would expect that those teachers with fewer years of teaching experience and fewer post graduate credits would be more likely to participate in an inservice workshop program offering an opportunity to earn graduate credit. Many of these teachers would be those needing to acquire graduate credit in order to obtain permanent teaching certificates. Additionally, because salary increases in the school districts represented by teachers in the investigation are dependent upon both years of teaching experience and number of post graduate credits earned, it is understandable why teachers with fewer years of experience and fewer credits would be the ones most likely to participate in an inservice program offering a credit option.

Those experimental teachers who registered for credit were the ones most likely to complete both the skill level and classroom application level objectives. This finding suggests that if completion of the specified objectives of a competency-based inservice program is deemed important, participants are more likely to complete them if they register for credit. One of the major questions the Project staff wished to investigate was whether or not teachers needed to complete the objectives in order to change their attitudes and increase their skill levels. The finding that significant change in attitude and significant increase in skill level were not related to whether or not teachers were registered for credit suggests that completion of objectives is not necessary to effect attitude and skill level changes as measured by the instruments used in this investigation.

Another question of interest to the Project staff was that of whether similar experimental effects could be obtained at different geographical sites. Because the inservice program was conducted at three sites which differed considerably with regard to size of faculty, type

and size of student population, and type and size of community represented, it was possible that factors related to these differences, particularly morale, could make a difference in whether or not teacher attitude changed significantly.

The PTO was used to obtain a measure of general teacher morale which could be used as a covariate to control for the effect of morale on attitude. The finding that PTO scores held constant across time at all three sites suggests that general teacher morale did not change significantly during the treatment period for teachers in either treatment group or within any site. While morale was generally lower for all teachers at the urban site, and significantly lower for experimental teachers than for comparison teachers at that site, morale did not change significantly from pre to posttest. Lower morale at the urban site was of most interest to the Project staff because it seemed likely that generally low morale among the experimental teachers might have a detrimental effect on attitude.

Several factors appeared to contribute to the low morale level at the urban site, primarily a prolonged strike at the beginning of the school year which ended in what most teachers described as an unsatisfactory compromise. Bitterness toward the administration and the community at large appeared to increase rather than decrease during the school year. At this site, too, the Project staff reported receiving less administrative support for the Project than at the other sites. It was surprising, then, that morale at the urban site, as measured by the PTO, did not change significantly from pre to posttest, and even more surprising that responses on the three attitude measures were not significantly related to how teachers responded on the PTO. Attitude change, as measured in this investigation, appeared not to have been affected by morale, even at the

urban site where morale was much lower than elsewhere. PTO scores were therefore not used as a covariate in analyzing attitude scores in the investigation.

Change in attitude, as measured by the instruments used in this investigation, was significantly greater for experimental teachers than for comparison teachers and was not related to site or whether or not teachers registered for credit. These findings are of considerable interest to educators planning inservice education in reading instruction. The Project staff anticipated that attitude change might only be obtained among teachers at the two sites with generally high morale scores and only among those who would be working toward earning credit for workshop participation.

On all three dimensions of skill level measured, significant time effects were obtained for the experimental teachers. These effects were not significantly related to where the treatment took place or to whether or not the teachers registered for credit. Skill level change, as defined in this investigation, appears to be an obtainable effect regardless of geographical site or credit status of participants.

Teachers of Adults. As noted in Chapter Five, all findings based on the data for the teachers of adults must be considered with a great deal of caution because of very small sample sizes. A substantial number of teachers of adults were expected to participate in the workshop program from adult centers located in the urban and suburban sites. For several reasons, very few teachers of adults began the inservice program and even fewer remained for the entire school year.

The primary problem in maintaining a population of teachers of adults was that of scheduling. The teachers at each site had a voice in deciding when the workshops would be held, with the majority selecting the

day and time as long as this choice did not conflict with the workshops at the other sites. Unfortunately, once the workshop dates were established and the program underway, it was discovered that at both the urban and suburban sites, adult education classes were scheduled in conflict with workshop sessions, and it became impossible for many of the teachers of adults who had planned to attend the workshops to remain in the program.

Another problem in maintaining a population of teachers of adults was the apparent conflict in combining junior high school teachers and teachers of adults. While these populations had been selected for combined inservice education because both appeared to lack background training in reading instruction, in practice the two groups proved generally incompatible. Because the largest number of participants in each workshop session were junior high school teachers, the sessions usually were dominated by their concerns and precedures most appropriate for them. The teachers of adults frequently reported that they found the sessions irrelevant to their needs and this most likely contributed to an already high attrition rate among these teachers.

A third problem in maintaining an adult education population was that of defining which teachers actually qualified as teachers of adults. Many of the teachers who considered themselves Adult Basic Education teachers were involved in programs which did not meet federal or state guidelines for Adult Basic Education but did involve teaching adults. For purposes of analyzing the data in this investigation, any teacher who reported teaching adults in any setting in which basic skills such as language, reading, writing, and math were emphasized was considered under the category of Adult Basic Education.

Recommendations

The time required for pre and posttesting sessions in such an investigation needs to be reduced. Completion of the two attitude surveys, the PTO, and the questionnaire required about one hour and was a serious scheduling problem for the Project staff, especially for comparison teachers. Many faculties no longer schedule regular staff meetings at which attendance is required and thus teachers were expected to volunteer to devote an hour to pre and posttest sessions. It is doubtful that pretest comparison teachers would have reappeared for posttesting if a small honorarium had not been offered.

The PTO is of questionable value for teachers of adults as several categories are not appropriate to their teaching situations. For example, the category "Teacher Rapport with Principal" was not filled in by several of these teachers because they did not characterize their immediate superiors as principals. If a measure of morale is desirable for teachers of adults, another instrument needs to be considered.

The Skills Test used in this investigation needs to be revised to reflect more accurately the objectives of the inservice model used in the workshop program. The test was developed to reflect the objectives as set forth before the program began. As the workshop program got underway, a number of changes in focus had to be made as teacher needs were identified and clarified. Thus, the Skills Test as given does not accurately reflect the various emphases which evolved as the workshop program progressed through the school year.

## Diagnostic Teaching Model

The evaluation of this model (described in Chapter Three) occurred on two separate bases - the first from the standpoint of which techniques teachers used, and the second from the Project staff's perceptions of the effectiveness of the model.

At the end of the Project, the teachers were asked to indicate which of the techniques they had used, fully or in part, and whether they felt each technique was valuable or not. Sixty teachers at the three sites of the Project responded. Their evaluation is given in Table 16.

Step one (identifying relevant characteristics of each student) became operational as diagnostic techniques, (Objectives 1 and 10). Each teacher developed an informal Group Reading Inventory and a cloze test, based on reading in his/her own content area. Each one also worked with identifying students' self-direction, as a means of determining which students needed teacher direction and which students could work more independently.

The case study (Objective 10) was introduced as a means of diagnosing the backgrounds and interests of an individual student. It was designed to be a part of each workshop participant's assignments. When it became necessary to identify one objective to be required for credit in DRP 450 and not required for non-credit teachers, the case study objective was selected. The staff's evaluation is that this objective should be required of all teachers, but not in the form here. The most appropriate type of case study would be a mirror of the Diagnostic Teaching Model and a way to demonstrate the integration of reading and content by focusing on one or two students in depth. It is recommended by the Project staff that a case study of this type be included in future inservice programs.

The concept of linguistic differences was introduced to add diagnostic information (see Objective 5 in Chapter One and Chapter Four strand on Linguistic Differences). Videotapes showing language development and culture in the black urban setting of one workshop school and in the rural white setting of another workshop school were used to stimulate a discussion of linguistic differences and how they might affect reading. This concept was hotly debated in the urban school, where most teachers were already familiar with it and concerned about it, although they did not agree on how it should be handled. Teachers in the rural and suburban schools were generally not familiar with the concept, nor did they become very involved with it. The relatively lower percentages for this technique (47% used it; 63% thought it was valuable) demonstrate that it did not make as much impact as the other diagnostic tools.

Step two (specifying teaching goals for each student) and seven (evaluating each student's performance and appropriateness of goals) were approached as parts of long-term planning (Objective 3). Teachers were asked to develop a unit or use one that they had already developed; each unit followed the seven steps in the model. A prime component of each unit was a set of objectives related to reading skills necessary to master the content objectives. Each objective was followed through to step seven, so that the grouping, instructional strategies, materials and evaluation were clearly planned. A serious problem with the Project's planning was an erroneous assumption about inservice teachers' preparation in organization for instruction. Teachers in the workshop were largely unfamiliar with the unit as a way of organizing instruction and thus experienced difficulty in completing Objective 3. The staff concluded that the unit should be the focal point of the organization for instruction procedures.

Then many other objectives should be developed as part of the unit and related to it. The LAP and the learning center were received as interesting and potentially useful techniques. However, both take a lot of planning and they seem more valuable to those teachers who saw them in the context of the unit planning.

Step three (grouping by interest, need, ability, etc.) was evaluated also by the development of a set of grouping plans (Objective 2). Each teacher developed two grouping plans, one based on reading skill data from the informal inventory or cloze, and one based on other data, usually content-oriented.

At step four (selecting instructional strategy and management procedure for each group) teachers were encouraged to use non-print media (85% reported using it), comprehension questioning strategies at different levels (92% reported using it), skill exercises in vocabulary and study skills, and reading and study guides to aid comprehension (85% or more reported using each of the skill exercises). These exercises formed the body of the assignments for Objectives 6, 7, and 8.

Step five concerned selection of materials. The concept of readability was studied and applied to the teachers' own texts. Ninety percent used readability formulas in selecting materials during this year and in planning for next year. Eighty percent of the teachers used alternative reading materials at different levels (Objectives 4 and 9).

Step six (trying out of strategies and materials with each group) presented a problem for the teachers this year. They tried out many of the techniques the Project introduced but there was not enough time to use them in the proper order or with sufficient organization this year. A follow-up study has been planned for next year in which the teachers

will systematically implement the materials they developed this year.

Step seven (evaluation of students' performance) was an integral part of each instructional plan. Evaluation ranged from standard tests (multiple choice, true-false, essay), to creative writing and videotapes, projects and papers, and artistic responses to reading. Some teachers encouraged students to develop test items and practice exercises for other students to use. Although a variety of forms of evaluation were used, the Project staff felt that more emphasis on evaluation would be useful. Therefore, one component of next years's follow-up will be the study of additional evaluation techniques.

It is reasonable to ask whether these reported percentages represent actual use or an exaggeration by the teachers. There is no absolute proof that the techniques were used. However, Project Staff members, in each school at least one day a week, reported observing teachers using the plans. Staff responded to questions on implementation and reviewed student papers and assignments afterwards. Teachers' logbooks reflected the use of many techniques; they enclosed dittos, lesson plans, tests, student papers, and other evidence that they had in fact implemented the techniques singly or in sequence. The directors are satisfied that the majority of teachers had conscientiously attempted to implement their plans. This problem with implementation represents another goal of the follow-up study - a systematic and recorded attempt to verify the usefulness of the techniques and the entire Diagnostic Teaching Model.

The prediction that teachers would have difficulty implementing the model was borne out by the work of the sixty teachers who evaluated the Content Area Reading Project. However, their evaluation is positive: the model provides a reasonable framework within which a teacher can

synthesize the teaching of content material and reading skills. An important part of the proposed 1977-78 follow-up study is the systematic use of the Diagnostic Teaching Model and the materials developed during the Project. This will provide an evaluation of the model and also enable teachers to assess students' change in reading skill and content levels after systematic reading and content instruction.

## The Inservice Model

The inservice model described in Chapter Two has worked well in the current Project. Teachers and administrators at all three sites emphasized the value of the Project staff members working in the schools with teachers on an individual basis. While the workshops were evaluated positively for offering well-planned instruction in needed areas, teachers feel that they would not have been able to implement the ideas nor would they have developed as much confidence in their own ability to teach reading if they had not had the encouragement and assistance of Project staff members between workshops. The teachers were not as concerned as Project staff, quite naturally, that they had not fully implemented their new teaching plans. The general feeling was that they had gained enough to be able to put them into operation at a later time. The proposed 1977-78 follow-up will explore this in part, to see whether in fact the teachers are able to implement these suggestions.

Several changes in the supervision segments of the model are suggested for future use. Foremost, the directors and other Project staff agree that the directors should be more involved with teachers between workshops, observing in classrooms and assisting teachers. Both directors personally prefer this involvement over the "visiting expert" role which they unintentionally assumed by not visiting schools between workshops.

This would require a significantly greater time investment for them in future work.

The modeling by Project staff of both techniques and materials which were being described as desirable in the workshops was evaluated positively. Project teaching strategy was planned to follow the Diagnostic Teaching Model, and to use the strategies discussed in the workshops. For instance, to model grouping patterns, teachers were grouped in five different ways during workshops. Media was used frequently and integrated into instruction (for example, a videotape was designed to introduce teachers to the use of videotapes in the classroom, see Chapter Four section on Media). The instruction on constructing LAPs was presented as a LAP for teachers to complete.

Some aspects of the model were not visible to teachers, however, in workshop activities and should be more carefully incorporated in the future. The most often cited problem was diagnosis and individualization of requirements. The Project erroneously assumed a higher entry level in several areas than was evident in workshop participants. Diagnosis of entry level should become a more highly sophisticated process and one which results in differentiated sets of objectives for teachers.

Another major concern in this inservice model is its competency-based format. Generally the teachers responded well to the format, although very few had worked within its constraints before. There was a period of adjustment to the idea of competencies which should have been built into the time frame. The mastery model, and recycling until mastery was achieved, were difficult concepts for Projects teachers to understand. The syndrome of "hand it in and forget it" dies hard. So the first few assignments returned for revision were met with amazement, hostility, indifference and combinations of the three. Most teachers reached the point,

near the Project's end, of appreciating this process and achieved satisfaction from finally "doing things right." Much of the growth noted by Project staff in individual teachers' confidence and ability seemed to come from this realization that they could try some new things, work through several incomplete attempts, and finally produce a product they could be proud of. The in-school Project staff made its most valuable contribution in this process.

As a result, the staff feel that competency-based instruction of inservice teachers can work. Further research should attempt to eliminate some of the nagging problems with it. Teachers need instruction in the competency-based process. The objectives must be very clear, including a variety of ways to demonstrate mastery of them. The current Project had some trouble with objectives not clearly stated and those with too restrictive demands for mastery. Competencies need to be individualized to accomodate various levels and needs. The staff especially recommends more opportunities for teachers to write and speak to open-ended questions revealing their understanding of basic concepts. If the course is to be graded, as is necessary not only for college credit but also for inservice credit for permanent certification, the grading should be on a satisfactory/unsatisfactory basis. Including the excellent or "A" grade, as this Project did, introduced a kind of competition and grade-consciousness which detracted from the mastery process.

The examples provided with objectives nd guidelines for satisfying them need to be clear but flexible. Staff members need to be able to judge adequacy of teachers' work and the appropriate flexibility in requirements. This seems to require both prior work with teachers in supervisory positions and a deep understanding of instructional procedures and reading.

Such people may not always be available, and the lack of one or more of these background components could jeopardize the success of the model.

Teacher response to the workshops, in both formative and summative evaluations, showed clearly the horns of the dilemma found in inservice education. Teachers resented the workload of the Project, even though they found the concepts and techniques valuable and useful. Thei suggestions strongly favored having all assignments completed during workshop sessions. However, the long-term planning and searching required for many objectives found in the Project simply could not be completed in three hours' time, every two weeks. Although many teachers wanted six hours of graduate credit for the Project's activities, they did not expect to work as hard as they would have for six hours of on-campus work. Thus, they resented the Project's insistence that their work be of the same rigor as the identical course offered on campus.

Several more specific recommendations relate to the workload and teacher satisfaction. Project staff agree that workshops should have been during the school day rather than after hours. Teachers were tired during workshops, always held after a full day of work. If this recommendation were carried through, teacher support money would be used to pay substitutes rather than as honoraria for teachers.

If, on the other hand, teacher honoraria are continued, the staff recommends that they be given for work completed rather than for mere attendance at workshops. Preferably, a combination could be worked out, with some reward for attendance but a greater percentage of the honorarium given when teachers complete specific objectives or groups of objectives during the year.

Additionally, Project staff recommend that long-term workshops like

these always give credit, inservice or university, rather than providing the totally no-credit option. Most of the no-credit teachers did not have enough commitment to stick with the Project until they could see dividends, nor did they complete all the objectives.

Administrative support of this kind of project is essential. The co-directors are investigating potential differences between schools based on the principal's attitude. All of the schools were overtly supportive of the Project, both at the central administrative level and in the principal's office. However, Project staff noted differences in attitude on their weekly visits over a year's time. More detailed information on this is expected in the near future.

Specific recommendations for the teachers of adults at whom this Project was aimed center on two areas: the time frame and their entry levels. The time problems have been covered earlier in this chapter. It became clear to Project staff quite early that the present organization and size of Adult Education programs makes it highly unlikely that a workshop group of 15 or 20 teachers can be gathered at a single time and place for this long a period of time. The instability of Adult Education funding and staffing also makes a long-term commitment unlikely. The staff recommends a new plan for inservice education of teachers of adults, aimed at small groups (six to eight) for a short set of [illegible]sed workshops (three to five), using videotape and other media to p[illegible]ic instruction. A proposal dealing with this problem is under discussion at this time.

The second problem for teachers of adults is that they have the same lack of training in reading as their junior high school counterparts, but they are expected to do serious teaching of basic reading skills. The content of adult educators' reading courses needs to contain more instruction

in basic reading techniques for non-readers or beginning readers. Thus the proposal mentioned above will recommend many of the same objectives as found in this Project but it will also include a significant amount of work on beginning reading.

Two areas of follow-up study are planned for the current Project:

1. to assess the extent to which teacher behaviors change next year because of their work during the Project.

2. to assess student achievement in reading in the classes of volunteer workshop teachers.

Some of these volunteers, all of whom are from the junior high groups, will also be serving as change agents in their schools, working with one or two other teachers to assist them in working with reading skills in their classrooms. These follow-up activities have been received positively by the administrators involved, but there is no financial support available. Also, the number of teachers who will volunteer to go on with this study is not complete at this time. The Project directors are determined that the positive results of this Project should not be lost because of a lack of financial support. They plan to work with as many teachers as will volunteer for the 1977-78 school year.

Significant change often cannot be achieved within a fiscal year, and what a project of this nature requires to achieve its ends of preparing teachers to cope effectively with reading instruction in the classroom is strong commitment from teachers and administrators and financial support to facilitate this ongoing change process.