
RESEARCH RESULTS: TEACHER CHANGE IN CONTENT AREA READING

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As described in the preceding paper by Laine, the Content Area Reading Program (CARP) has been operating through a statewide network of instructors in Pennsylvania. Because we have advocated long-term involvement as the most effective inservice education effort, we welcomed the opportunity to work with the Hollidaysburg (Pennsylvania) Area School District for a three year period (1979-82) under Title IVc funding.

The first year of training involved 25 teachers, Grades 4-10, who taught various content area subjects. Several reading specialists were included in the group. Each month two three-hour workshops were conducted. The first workshop (dubbed the "theory" workshop by the participants) was presented by one of the authors concerning two or more of the topics included in the CARP curriculum. The second workshop of the month provided work time for the teachers to apply the workshop content to their own classrooms. The reading supervisor conducted the "application" workshops with the help of the reading specialists. She also worked with the content teachers in their classrooms, helping them to apply content area reading strategies. Laine, then as a graduate student, attended both types of workshops for teachers as well as conducted the workshops for administrators, providing the coordination among inservice efforts for the various school personnel. An optional summer workshop for teachers followed, conducted by the reading supervisor to provide additional time for materials development. A dissemination book was prepared consisting of samples of the work created by the teachers involved in the first year of training.

During the second year we again delivered the CARP curriculum to different content area teachers. The reading supervisor provided the main linkage between the "theory" and "application" workshops. The content teachers and reading specialists who participated during the first year attended some of the "application" workshops to do further materials development and serve as resources to the second-year teachers. The reading supervisor again helped the content area teachers apply what they were learning in the workshops in their classrooms.

Due to a cutback in Title IVc funding, the design for the third year had to be modified. Science and social studies teachers at the high school participated with both the "theory" and "application" workshops being conducted by the reading supervisor. The reading specialists assisted, serving as resource personnel to the content teachers. While cutbacks in funding

usually do not have positive effects, in this instance we believe it may have since responsibility for the inservice education in content area reading now belongs completely to the school district. The CARP curriculum is still being implemented, but university personnel have been phased out.

The project has also included a research effort which is described in the next section.

Project Evaluation

Initial comparisons involved the first-year workshop teachers and all other teachers in the school district, Grades 4-10. All teachers were tested at the beginning and end of the school year with two measures of attitude toward teaching reading in the content areas as well as a criterion-referenced test of knowledge of reading skills. The instruments, which are described in more detail elsewhere (Dupuis & Askov, 1977), are briefly summarized.

The first attitude instrument, the *Statements Survey*, is a twenty-item Likert scale that yields a direct measure of teacher attitude toward incorporating reading instruction in the content areas and has an estimated reliability (coefficient alpha) of .85.

A second instrument, the *Situations Survey*, is a less direct measure of teacher attitude toward content area reading instruction. This instrument, which utilizes the semantic differential technique, consists of twelve items with five sets of bipolar adjectives (such as *practical-impractical*) to be rated for each item. Each item consists of a classroom situation that a content area teacher might face and a possible diagnostic-prescriptive plan the teacher might follow in the situation

described. This instrument has an estimated reliability (coefficient alpha) of .94.

Two questions using the semantic differential format and included as part of the *Situations Survey* yield two additional scores used in assessing the effects of the inservice program. The first of these scores, the Feasibility score (estimated reliability, coefficient alpha, of .86), is obtained from teacher ratings of the bipolar adjectives *feasible-not feasible* after each of the twelve items on the *Situations Survey*. This score was considered a third dimension of attitude in analyzing results.

The other score obtained from this instrument is a self-report measure consisting of teacher ratings of the bipolar adjectives *skilled-not skilled* after each of the twelve items on the *Situations Survey*. This Perceived Skill score (estimated test-result reliability of .93) was designed to measure a teacher's confidence in implementing the stated diagnostic-prescriptive plan.

To measure the cognitive aspects of the program, a knowledge-level criterion-referenced instrument was developed based on the specified required written objectives each inservice participant was expected to complete. The thirty-four item *Knowledge of Reading Skills Test* has an estimated reliability (KR-20) of .76.

Results and Discussion

Analyses of variance were performed on the difference scores between the pretests and posttests for both groups (workshop teachers vs. other teachers). These results are presented in Tables 1 and 2.

Table 1

PRE- AND POSTTEST OBSERVED MEAN SCORES

	Experimental		Comparison	
	Pretest	Posttest	Pretest	Posttest
Knowledge of Reading (Multiple Choice)	16.69 (N=16)	21.44	13.15 (N=73)	13.41
Statements Survey (Likert)	90.35 (N=17)	96.00	82.67 (N=73)	80.93
Situations Survey: (Semantic Differential)				
Reaction to Situations	378.69	409.31	352.31	352.75
Feasibility	68.88	79.88	67.73	68.17
Perceived Skill	68.38	78.25	63.53	62.38
Total	516.94 (N=16)	567.44	483.58 (N=64)	483.30

Table 2

ANALYSIS OF VARIANCE, TREATMENT \times TIME

	<u>df</u>	<u>MS</u>	<u>F</u>
Knowledge of Reading:			
Treatment	1	264.54	19.62***
Error	87	13.48	
Statements Survey:			
Treatment	1	752.39	9.55**
Error	88	78.82	
Situations Survey:			
Reaction to Situations			
Treatment	1	11664.00	5.83*
Error	78	2000.00	
Feasibility			
Treatment	1	1428.05	21.32***
Error	78	66.97	
Perceived Skill			
Treatment	1	1557.60	8.83**
Error	78	176.30	
Total			
Treatment	1	34321.00	10.379**
Error	78	3307.00	

*P- .05

**P- .01

***P- .001

As can be seen, the teachers involved in the workshops gained significantly in their attitudes toward content area reading instruction and in their knowledge of reading skills and techniques. The comparison group remained essentially similar on both administrations.

It must also be noted that the first year workshop teachers scored higher on the pretest for all measures except the Situations Feasibility and Perceived Skill scores. In other words, they seemed to have felt more positive toward content area reading instruction and appeared to know more about it. However, they felt no more certain about the feasibility of actual implementation in their classrooms nor more confident in their own abilities to do so. Since they volunteered for participation in the workshops, while the comparison group did not volunteer even for testing, it is not surprising that their initial scores were

higher. Differences between the two groups on the pretests were not found in the original CARP data (Dupuis and Askov, 1977), probably because the comparison group consisted of volunteers (for testing only) rather than a whole school faculty as was the case in Hollidaysburg.

As a further check on the validity of inservice training for the first year teachers, we observed their classes during the spring of the second year of the project. We believed that by then the teachers had had adequate time to implement content area reading strategies. We were satisfied that CARP objectives were being implemented in the classrooms observed.

Conclusions

Long-term involvement in inservice training in content area reading does improve not only knowledge of reading skills but

also attitudes toward content area reading. The Feasibility and Perceived Skill scores of the *Situations Survey* are particularly interesting indices of confidence that is gained through inservice training.

The role of the reading supervisor was particularly critical as she provided the main linkage between the "theory" workshops delivered by a university professor and the "application" workshops in which the teachers actually created materials incorporating content area reading strategies. Her classroom visits also enabled her to help teachers apply theory in their instruction.

The reading specialists became indispensable team members. Initially content area teachers were reluctant to ask them for help. However, through the workshops the reading specialists grew in their role as resource teachers. In spite of the Title I reading program in Hollidaysburg being primarily a "pull-out" program to provide special reading services to disabled readers, the reading specialists have now become resource personnel in assisting content teachers. Ultimately, we hope that all content teachers who have been trained will become resources to other teachers.

Teacher change is a long-term process requiring coordinated effort on the part of administrators, supervisors, specialists, and classroom teachers. The question that remains, however, is whether teacher change through inservice education has an impact on student achievement. That question is addressed in the next paper.

REFERENCES

- Dupuis, M. M., & Askov, E. N. *The Content Area Reading Project: An Inservice Education Program for Junior High School Teachers and Teachers of Adults* (Final Report, Project 09-6905). University Park, Pennsylvania: Pennsylvania State University, 1977.