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ABSTRACT

The purpose of this study was to determine which of two individualized teaching techniques, personalized or prescriptive, was more effective in favorably changing reading rate, vocabulary, comprehension, and total reading interest scores of students enrolled in reading improvement classes in three Oklahoma community and junior colleges. The personalized method emphasized student goal setting, self-selection of a variety of materials and techniques for accomplishing these goals, and verbal interaction between the students and instructor. The prescriptive approach stressed preestablished learning prescriptions based on diagnostic findings, the use of reading laboratory materials and machines, and minimal verbal interchanges between the students and instructor. Students were randomly assigned to one of the two experimental groups. The findings supported the rationale for the implementation of individualized instructional practices with two-year college students voluntarily enrolled in reading improvement classes. The methods employed brought about significant gains in the investigated reading achievement subskills and in reading interest. There was no significant interaction between the methods of instruction and the investigated variables. (WR)

A STUDY OF PERSONALIZED AND PRESCRIPTIVE INDIVIDUALIZED READING METHODS IN TWO-YEAR COLLEGES

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The expansion of enrollments and numbers of community and junior colleges have made higher education available to students of varying educational promise. The open door admission policy encourages students to embark upon degree programs without regard to previous experience, probable academic success, or level of proficiency in academic skills. The community and junior colleges are observing that an increasingly large portion of their student body are students of low ability. Instructors of reading improvement courses have been given the responsibility of providing high risk students with characteristics which will favor the accomplishment of their career and educational goals.

The diverse enrollment in college reading improvement courses has contributed to a rationale for the development of individualized reading instruction in areas of specific learner needs (Schick, 1964). A trend in college reading programs toward individualization was reported by Smith (1965). This trend, although stating it was more of an ideal than a reality, was reaffirmed by Kersteins in 1965.

Individualized practices in college reading courses have varied widely. A program in which students commence study in materials written at a level of difficulty commensurate with their grade equivalent score as determined by a reading achievement test administered early in the course has been described as an exemplary practice (Barnes et al., 1971). Individualized practices based upon behavioristic learning theory in which learner activity is viewed in terms of new or different responses which are emitted as a result of the control of sequence and reinforcement stimuli are becoming prominent in the literature. Programs in which elements of behavioristic

learning theory including specific behavioral objectives based upon diagnostic test findings, prescribed materials, system approaches, and learner motivation resultant from observing improvement via a record keeping system have been reported (Cranney, 1965; Anderson, 1969; Christ, 1969; Marshbarger, 1971; Williams, 1971). Practices based upon cognitive-field theory have been included in some college reading courses in which self-directed activity in the learning process is emphasized. Practices ranging from some choice among objectives designed to improve reading abilities to a broad choice of materials and activities dependent upon student interests and the establishment of student goals have been reported (Edwards, 1961; Anderson, 1970; Cartwright, 1971; Klausner, 1971).

A number of studies have revealed that courses designed to improve the reading scores of underachieving college students have succeeded in accomplishing this purpose. However, the few studies which have compared methods of instruction have indicated no difference in the scores of the investigated reading variables (Dubois, 1969; Phillips, 1970; Whittaker, 1971; Colvin, 1972). These studies suggested that other characteristics related to academic success might be included in program evaluations.

Developing an interest in reading has been viewed as a significant, though infrequently evaluated, dimension of a student's achievement in reading. Although the love of reading has been stated as being an important component of college success (Maxwell, 1965) and library circulation has been shown to be the junior college institutional characteristic most closely related to the success of transfer students to four-year institutions (Hammes, 1969), reported library usership has been low (Staiger, 1962).

Problem

Interest in the increasing occurrence of individualized reading practices led the researcher to question the overall and comparative reading achievement and reading interest gains of two-year college students instructed by behavioristic and cognitive-field theory based individualized methods. With the problem established, it was determined to measure reading achievement by three component subskills rather than by a global measure of reading achievement and to design an instrument which would measure reading interest among college students.

The purpose of the study was to determine which of two individualized teaching techniques personalized, based upon cognitive-field theory, or prescriptive, based upon behavioristic learning theory, was more effective in favorably changing reading rate, vocabulary, comprehension, and total reading interest scores of students enrolled in reading improvement classes in three Oklahoma community and junior colleges. It was expected that there would be significant gains from pretest to posttest for all four variables regardless of instructional method. It was further expected that the rate of gain made by the students instructed by the personalized method would be greater than the rate of gain attained by the students taught by the prescriptive method.

Instructional Methods

Reading achievement and diagnostic testing occurred during the initial meetings of classes instructed by either the personalized or the prescriptive method as indicated in Figures 1 and 2. Students, regardless of method, were administered diagnostic tests subsequent to the scoring of the reading

Figure 1

Personalized Method

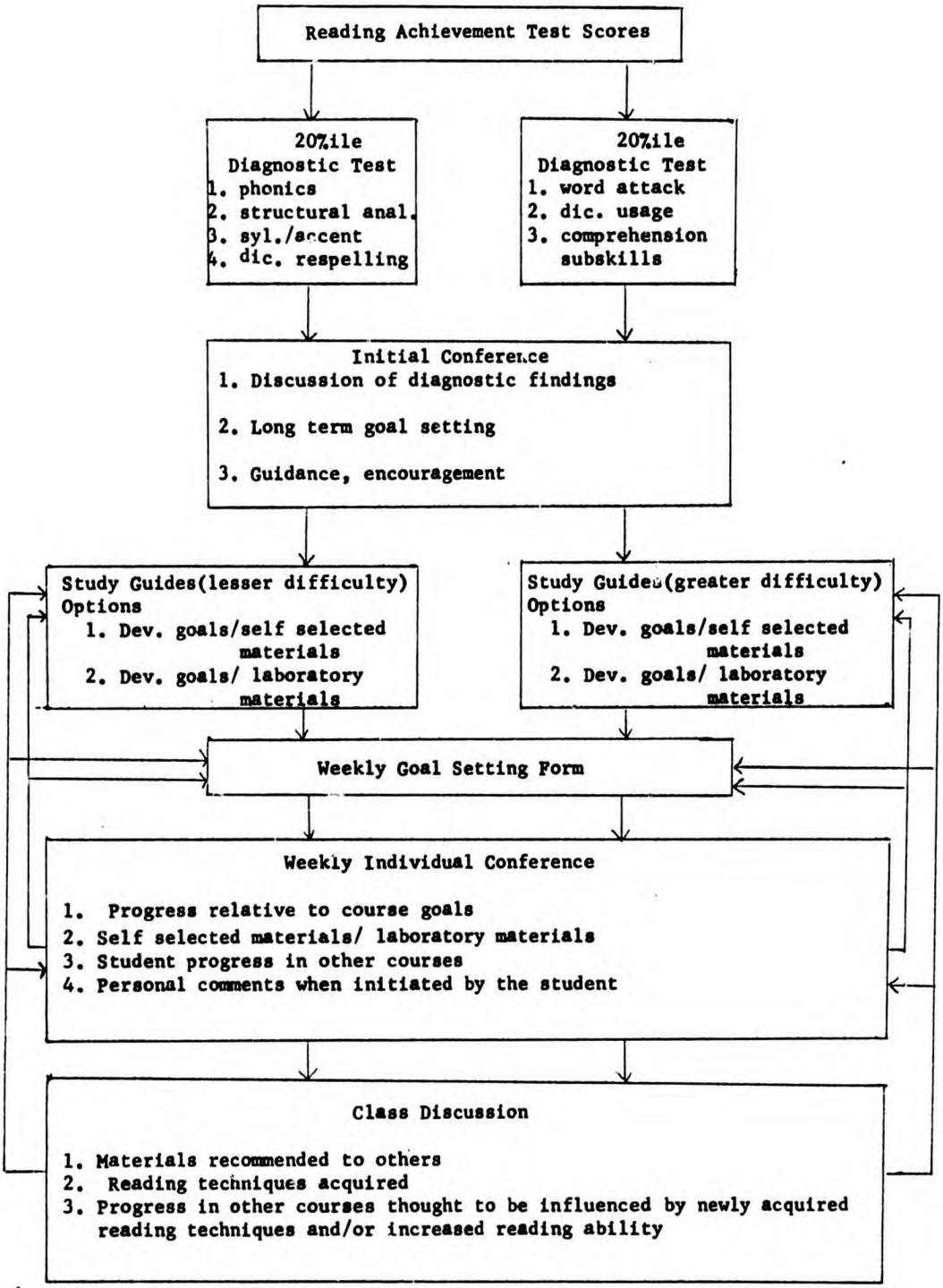
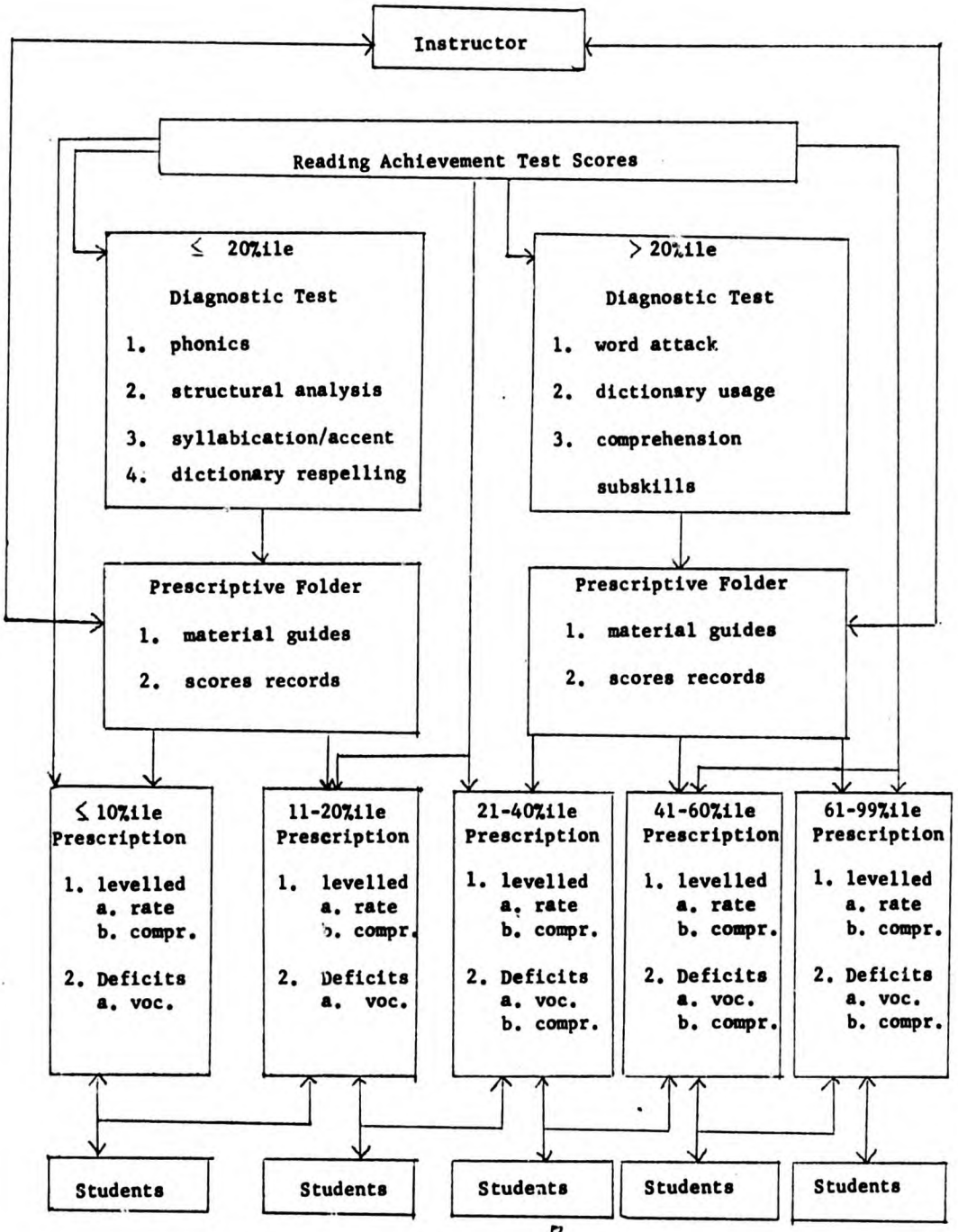


Figure 2

PRESCRIPTIVE METHOD



achievement pretest. The students who scored at or below the twentieth percentile in total reading on the Nelson-Denny Reading Test were administered a researcher developed word analysis survey which measured student abilities in phonics, structural analysis, syllabication, accent, and dictionary respelling subskills. Students who scored above the twentieth percentile in total reading were administered a diagnostic pretest measuring word attack, dictionary usage, and comprehension subskills which accompanied a published material contained in the reading laboratories. The criterion of accuracy for the subtests of both diagnostic assessments was designated by the researcher as eighty per cent and scores of less than eighty per cent were considered to be deficit areas.

Students who were instructed by the personalized method were told individually about their low scoring areas on the reading achievement and diagnostic tests and course objectives were jointly decided by the instructor and students as shown in Figure 1. Study guides in rate, vocabulary, and comprehension were provided. Students who scored at or below the twentieth percentile as measured by the reading achievement pretest were provided with study guides of lesser difficulty than students who achieved above that criterion. The study guides delineated techniques that the students could use in developing their reading abilities while using self-selected newspapers, magazines, books, and/or textbooks. An option was additionally provided for developing reading subskills in reading laboratory materials. Each student was provided with a weekly goal setting form on which he recorded the activities he planned to accomplish during the week and the sources from which he intended to read. A minimum of one individual conference per week served as an opportunity to discuss self-selected readings, student progress toward weekly goals, application of reading and study skill techniques in other classes,

self-identified vocabulary terms, and/or the student's personal concerns. Approximately fifteen minutes per week were allotted for class discussion of student read self-selected materials, reading techniques acquired, and progress in other courses which were believed to have been influenced by newly acquired reading techniques.

Students instructed by the prescriptive method were provided with a prescriptive folder containing reading laboratory materials guides and scores records. See Figure 2. Assigned reading laboratory materials at reading levels commensurate with their total reading score assessed on the reading achievement pretest and specific deficit areas as indicated by either diagnostic test were indicated in each prescriptive folder. The students were told to use the prescriptive folders to guide them in the sequential use of prescribed mate ials. They were told to self score each activity immediately following its completion. Provisions were made for completing an activity a second time if the student responses did not meet an accuracy level of eighty per cent. Students were allowed to advance to materials of greater difficulty when their scores on a number of activities met given criteria established by the researcher. Prescriptive folders were submitted to each instructor on the final class meeting of each week. They were returned to the students with written comments on the first class meeting of the following week. Subsequent to instruction in the use of laboratory materials and machines early in the course instructors sat at their desks and did not initiate discussions with the students.

The core materials were common to both instructional programs. In addition to the core materials, daily copies each of a state and nationally prominent newspaper were sent to the laboratories where the personalized approach was implemented. Instructors were trained in using the experimental

treatments. Tape recordings of one class meeting per week were evaluated by the researcher and served as a basis for consultation in weekly telephone communications with each instructor.

In summary, the personalized method emphasized student goal setting, self-selection of a variety of materials and techniques for accomplishing these goals, and verbal interaction among students and instructor. Conversely, the prescriptive approach stressed preestablished learning prescriptions based upon diagnostic findings, the use of reading laboratory materials and machines, and minimal verbal interchanges among the students and instructor.

Design

Students from three Oklahoma two-year colleges: El Reno Junior College, Oscar Rose Junior College, and Seminole Junior College were represented in the study. Ramdom selection of classes to each experimental method resulted in four morning classes serving as the experimental sections instructed by the prescriptive method. One morning, one afternoon, and two evening classes were treated by the personalized method. Each experimental treatment consisted of students enrolled in suburban and rural institutions. The reading improvement classes were three-hour, elective, credit bearing courses which met during the spring semester of 1974. The study included sixty-two students who voluntarily enrolled in the course, were native speakers of English, and who were between the ages of seventeen and thirty years of age. Thirty-four students were instructed by the personalized method and twenty-eight students were included in the prescriptive group.

The Nelson-Denny Reading Test was utilized for measuring rate, vocabulary, and comprehension. Forms C and D of this instrument were administered by the participating instructors at pretest and posttest respectively. Reading interest scores were attained through use of the researcher developed Collegiate

Reading Interest Scale which was rated by a panel of judges as being an overall valid measure of reading interest and attained a .98 test-retest reliability coefficient (Henderson, 1974). The reading interest scale was administered by a collaborator at each institution to avoid confounding which might arise from a student attempting to influence the judgment of his instructor.

Four 2 x 2 (treatment by psychometric measure) analyses of variance were calculated (Winer, 1971). An unweighted-means solution was selected because of the unequal sample size represented in the instructional groups. An alpha level of .05 was established for testing the significance of overall and comparative gain.

Results

Means and standard deviations for the reading rate, vocabulary, comprehension, and reading interest variables are summarized in Table 1. The homogeneity of variance assumption was satisfied for the three assessed components of reading achievement and for the reading interest data.

Rate

The analysis of reading rate data yielded a significant F-ratio for the treatment main effect as indicated in Table 2. The increase in scores, regardless of instructional method, from 190.13 to 278.84 was significant at the $p < .00000000014$ level. The rate of increase may be observed in Figure 3. There was not a significant interaction between methods and trials. Similar pretest and posttest mean scores for the personalized and the prescriptive groups are shown in Figure 4.

Table 1

Means and Standard Deviations of the Four Measures by Instructional Method

		Pretest	Posttest	Total
Rate				
Personalized (N=34)	Mean	188.76	274.53	231.65
	S.D.	64.85	109.99	
Prescriptive (N=28)	Mean	191.50	283.14	237.32
	S.D.	41.48	100.63	
	Total	190.13	278.84	
Vocabulary				
Personalized (N=34)	Mean	23.56	27.44	25.50
	S.D.	16.55	16.61	
Prescriptive (N=28)	Mean	25.79	27.68	26.74
	S.D.	11.49	11.66	
	Total	24.68	27.56	
Comprehension				
Personalized (N=34)	Mean	28.29	32.47	30.38
	S.D.	12.13	11.30	
Prescriptive (N=28)	Mean	28.64	36.93	32.79
	S.D.	12.73	11.12	
	Total	28.47	34.70	
Reading Interest				
Personalized (N=34)	Mean	57.91	69.74	63.83
	S.D.	16.45	19.02	
Prescriptive (N=28)	Mean	64.25	72.36	68.31
	S.D.	18.86	19.26	
	Total	61.08	71.05	

Table 2

ANALYSIS OF VARIANCE COMPARING INSTRUCTIONAL METHODS USING PRETEST AND POSTTEST READING RATE SCORES

Source of Variation	SS	df	MS	F
Between Subjects		61		
Method (Personalized vs. Prescr.)	1006.438	1	100.438	.096
Error	624,879.245	60	10,414.654	
Within Subjects		62		
Pretest - Posttest	245,893.031	1	245,893.031	60.00**
Method x Pretest - Posttest	269.219	1	269.219	.065
Error	245,893.031	60	4098.217	

** $p < .00000000014$

Figure 3
Mean Gains in Reading Rate
for All Students

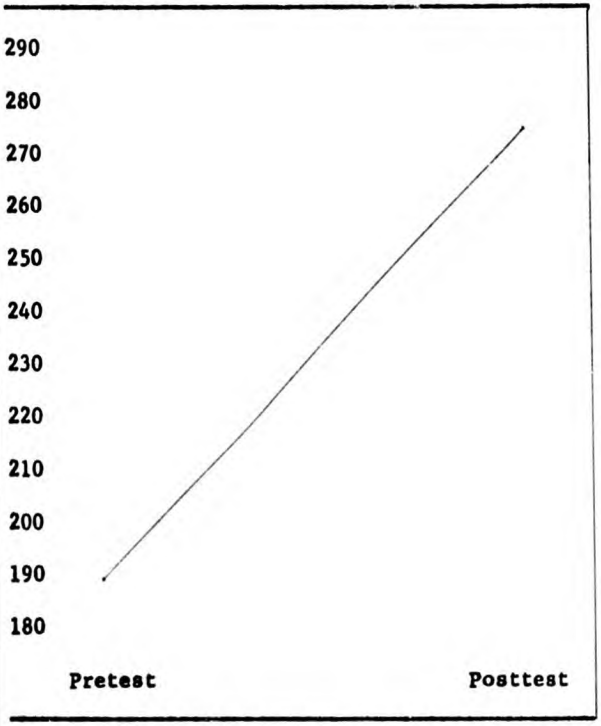
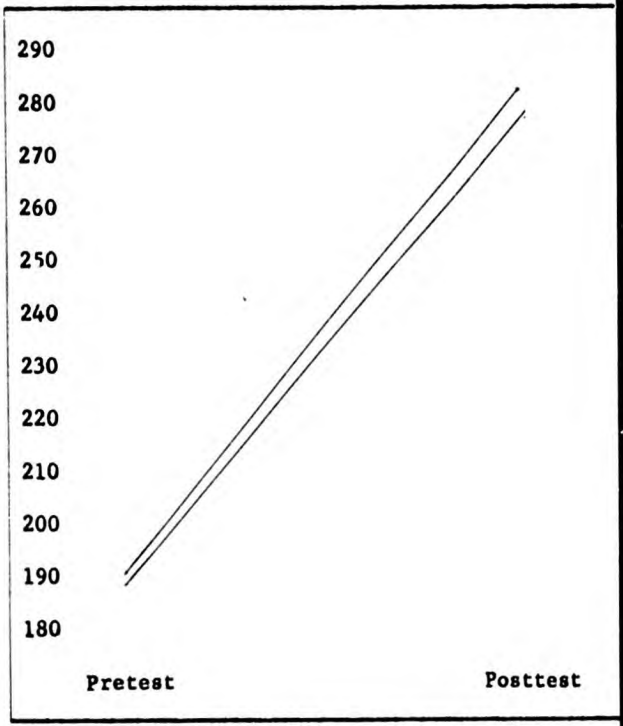


Figure 4
Mean Gains in Reading Rate
by Instructional Method



Vocabulary

Results of the analysis of variance for vocabulary gain scores are shown in Table 3. The increase between the mean of 24.68 at pretest and the posttest mean of 27.56 regardless of instructional method was significant at the $p < .012$ level. This rate of gain is represented in Figure 5. A significant interaction between methods and trials was not found. The greater rate of mean gain of the personalized subjects (+3.88) over the prescriptive subjects (+1.89) as indicated in Figure 6 did not meet the set significance level established for the study.

Comprehension

Analysis of the comprehension data resulted in a significant F-ratio for the treatment main effect. A significance level of $p < .00000019$ was computed for the gain in reading comprehension pretest mean of 28.47 and mean of 34.70 at posttest regardless of instructional method as shown in Figure 7. The nonsignificant interaction between methods and trials is represented in Figure 8. The greater rate of gain of the prescriptive subjects (+8.29) as compared to that of the personalized subjects (+4.19) did not meet the required .05 level of significance.

Reading Interest

A significant F-ratio for the treatment main effect was yielded from the analysis of reading interest data as shown in Table 5. The increase in mean scores, regardless of instructional method, from 61.08 at pretest to 71.05 at posttest was significant at the $p < .000000084$ level. See Figure 9. The mean gain of 11.83 reported by the personalized subjects as compared to the mean gain of 8.11 reported by the prescriptive subjects resulted in a nonsignificant interaction as shown in Figure 10.

Table 3

ANALYSIS OF VARIANCE COMPARING INSTRUCTIONAL METHODS USING PRETEST AND POSTTEST VOCABULARY SCORES

Source of Variation	SS	df	MS	F
Between Subjects		61		
Method (Person. vs. Prescr.)	47.656	1	47.656	.12
Error	23,085.49	60	384.75	
Within Subjects		62		
Pretest - Posttest	260	1	260	6.72**
Method x Pretest-Posttest	30.63	1	30.63	.79
Error	2,323.12	60	38.71	

** $p < .012$

Figure 5
Mean Gain in Vocabulary
for All Students

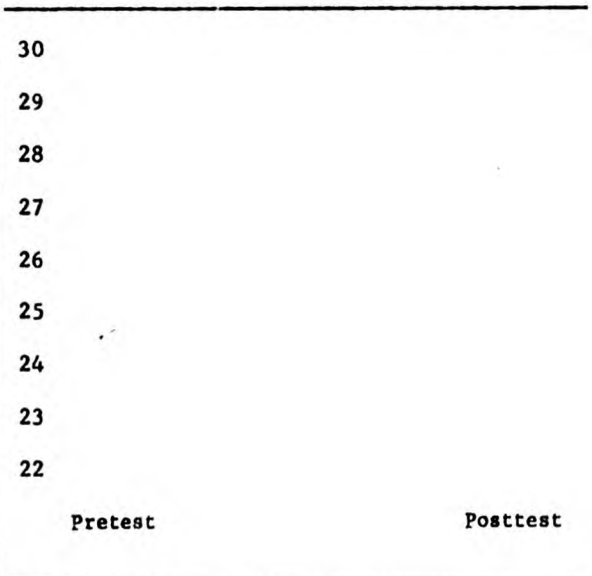


Figure 6
Mean Gain in Vocabulary
by Instructional Method

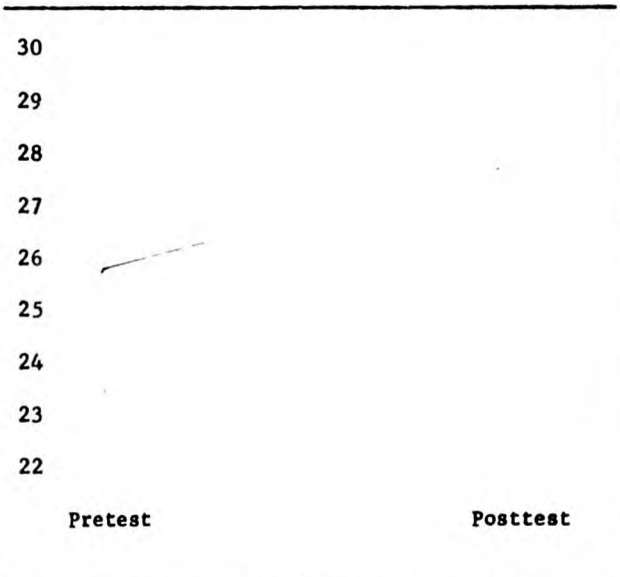


Table 4

ANALYSIS OF VARIANCE COMPARING INSTRUCTIONAL METHODS USING PRETEST AND POSTTEST COMPREHENSION SCORES

Source of Variation	SS	df	MS	F
Between Subjects		61		
Method (Person. vs. Prescr.)	180.75	1	180.75	.83
Error	13,065.488	60	217.758	
Within Subjects		62		
Pretest - Posttest	1,214.844	1	1,214.844	34.705**
Method x Pretest-Posttest	130.063	1	132.063	3.772*
Error	2,100.329	60	35.005	

** $p < .00000019$

* $p < .056$

Figure 7
Mean Gain in Comprehension
for All Students

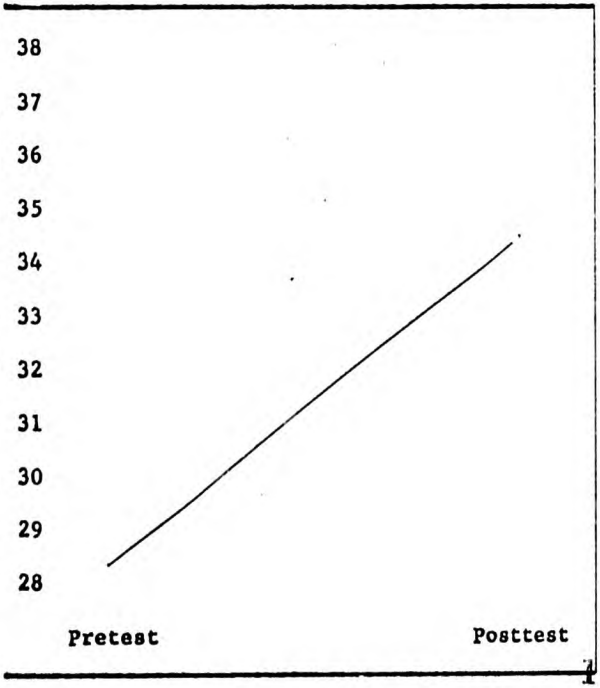


Figure 8
Mean Gain in Comprehension
by Instructional Method

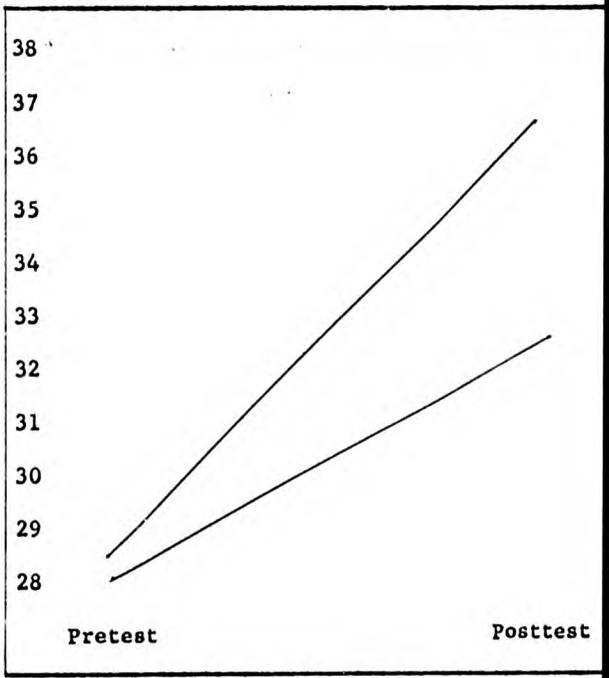


Table 5

ANALYSIS OF VARIANCE COMPARING INSTRUCTIONAL METHODS USING PRETEST AND POSTTEST READING INTEREST SCORES

Source of Variation	SS	df	MS	F
Between Subjects		61		
Method (Person. vs. Prescr.)	627.188	1	627.188	1.059
Error	35,509.223	60	591.82	
Within Subjects		62		
Pretest - Posttest	3,106.188	1	3,106.188	37.190**
Method x Pretest-Posttest	108.156	1	108.156	1.295
Error	5,011.308	60	83.521	

** $p < .000000084$
* $p < .26$

Figure 9
Mean Gain in Reading Interest
for All Subjects

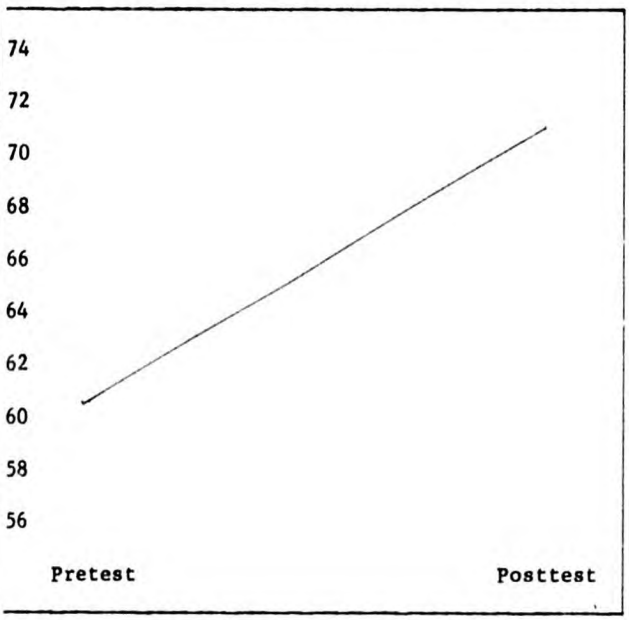
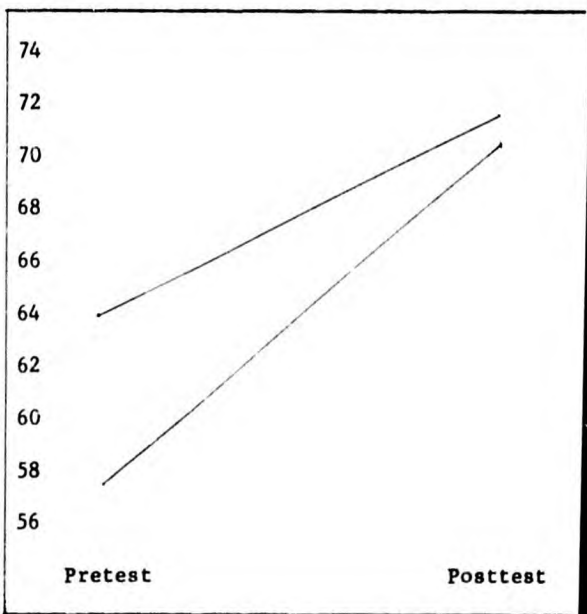


Figure 10
Mean Gains in Reading Interest
by Instructional Method



Grade Equivalents

Grade equivalent scores were interpolated from the reading achievement mean scores of experimental groups to determine relationships among the scores of students included in the study and those in the norming population. Comparatively greater mean scores in vocabulary were earned at pretest than in reading rate and comprehension as may be observed in Table 4. Grade equivalents in excess of three years greater in vocabulary than in reading rate and comprehension were measured at pretest. Conversely, mean gain scores expressed in grade equivalents were greater in both reading rate and comprehension than in vocabulary.

Table 4

Reading Achievement Mean Scores Expressed in Grade Equivalents

	Reading Rate		
Group	Pretest	Posttest	Gain
Personalized	8.8	13.7	4 years, nine months
Prescriptive	9.0	14.1	5 years, 1 month
All students	8.9	13.9	5 years
	Vocabulary		
Group	Pretest	Posttest	Gain
Personalized	12.2	13.0	8 months
Prescriptive	12.9	13.0	1 month
All students	12.5	13.0	5 months
	Comprehension		
Group	Pretest	Posttest	Gain
Personalized	9.3	10.8	1 year, 5 months
Prescriptive	9.3	12.1	2 years, 8 months
All students	9.3	11.5	2 years, 2 months

Discussion

The findings of this study lend support to the rationale for the implementation of individualized instructional practices with two-year college students voluntarily enrolled in reading improvement classes. The methods employed did bring about significant gains in the investigated reading achievement subskills and in reading interest. Comparisons with normative data indicated increments in grade equivalents of one-and-one-half years to over five years in the initially lower scoring reading subskills, comprehension and reading rate, during the one semester course. The statistically significant though less dramatic gain in vocabulary may have been due to the initially higher scores in this subskill as determined by the comparison of grade equivalents in the measured components of reading achievement at pretest.

Although there was an inability to detect a significant interaction between methods and the investigated variables, the tendencies toward significance of the prescriptive group over the personalized group in reading comprehension ($p < .056$) and of the personalized group over the prescriptive group in reading interest ($p < .26$) must be noted. It is recommended that further investigations be directed toward answering whether the rate of increase of reading comprehension is greater when the prescriptive method is employed and whether there is a greater rate of gain in reading interest among students instructed by the personalized method. Because of the magnitude of the teacher variable within methodological studies, it is suggested that at least fifteen instructors be represented within each instructional group. It is further recommended that some consideration be given to the instructional hour in designing future research of this nature. Random sampling of eight classes to the instructional treatments resulted in four morning classes being instructed by the prescriptive method. One morning, one afternoon, and two evening classes were represented in the personalized group. This diversity between instructional

hours within instructional groups may have had some bearing on the comparative findings between instructional groups.

There was no evidence resulting from this analysis that either method is significantly superior to the other. However, it is indicated that the two-year college students instructed by the personalized method were capable of making beneficial decisions regarding their reading improvement program when they were provided with an information concerning their reading behaviors and an opportunity to discuss alternatives with their instructors. Gains in reading achievement and reading interest resulting from decisions thus made were, within the established significance level, as great as those resulting from a prescribed course of instruction designed for learners with specific achievement characteristics. Whether this element of self-determination and frequent verbal interaction with the instructor and other students will be of consequence in student accomplishment of career and educational goals is, at present, a matter of speculation.

Consideration of broad institutional goals as well as refinement and further testing of the experimental treatments should be made before either method is adopted as educational practice. The prescriptive method involves less student-instructor interaction and , consequently, class sizes might be much larger than with groups instructed by the personalized method. However, if it is less effective in developing reading interest among students than the personalized method, as suggested by a tendency for a significant interaction, it may not be judged as a wise curricular choice. Conversely, the frequent student-instructor verbal interaction in the personalized method necessitates smaller class sizes. If this method yields greater reading interest but smaller gains in reading comprehension, as suggested by the tendencies for significance between the methods and these variables, modifications should be made within the program to ensure that gain in comprehension is commensurate with that yielded from the use of other instructional techniques before any widespread adoption should be considered.

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