STUDENT ACHIEVEMENT UNDER TWO PLANS OF SECONDARY OFFICE EDUCATION - COOPERATIVE PLAN VERSUS IN-SCHOOL PLAN

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MERLINE TOUCHET BROUSSARD

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This is to certify that the

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ABSTRACT

STUDENT ACHIEVEMENT UNDER TWO PLANS OF SECONDARY OFFICE EDUCATION -- COOPERATIVE PLAN VERSUS IN-SCHOOL PLAN

By

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The purpose of the study was to discover whether the students enrolled in the Cooperative Plan achieved better results than the students enrolled in the In-School Plan in the development of selected production skills and clerical abilities. The selected production skills were shorthand and typewriting; the seven areas of clerical abilities were business vocabulary, checking, coding, filing, directions - oral and written, language, and arithmetic.

Three-hundred students enrolled in the Cooperative Plan and three-hundred students enrolled in the In-School Plan were involved in this study. Both groups attended twenty selected high schools that offered both the Cooperative and the In-School Plans.

Data on the achievement of both Plans were obtained from the administration of a shorthand speed test, a standardized typewriting test, and the standardized Short Tests of Clerical Ability.

Findings

1. There is a significant difference between the achievement of senior office education students under the Cooperative Plan and those under the In-School Plan when achievement is defined as: (a) A total package of skill competencies composed of the basics of shorthand,

typewriting, and common clerical tasks. (b) Any single sub-skill measured separately in isolation from the total skill competencies; namely - business vocabulary, checking, coding, filing, directions - oral and written, language, and arithmetic.

2. If students under one plan of instruction demonstrate greater achievement than those under the other plan of instruction, that achievement will be due to measurable factors of student learning capacity and potential as measured by intelligence quotient, grade point average, and achievement in basic skills.

3. If both groups of students demonstrate achievement gains over the period of a year, it is under the Cooperative Plan that students will show a larger net gain.

Conclusions

The following conclusions were drawn from an analysis of the findings of the study:

1. As a total group, students under the Cooperative Plan attain a higher level of achievement than those students under the In-School Plan.

2. The Cooperative Plan can be recommended not only because it produces larger gains in a total skill, but because it also produces larger gains in each of the sub-skills. However, the gains are not uniform among schools.

3. The factor of the capacity to learn and high achievement in basic skills appears to be a factor in the higher achievement shown by cooperative students.

4. If one uses a finite scoring scale for skill achievement, the Cooperative Plan will not produce a net gain in achievement that is proportionally larger than the net gain from students in the In-School Plan. However, in the practical labor market it does not make any difference where a student starts; it is the terminal performance which is important and therefore the cooperative students do better.

5. A tentative conclusion is that the total standard of performance in office skills for both the cooperative and the in-school student was lower than what leading business educators and many classroom teachers would like to think is desirable. However, there is a lack of data in Louisiana as well as in the United States on the actual terminal performance of large groups of senior office education students. The level of performance is in reality only significant in that it must be such for each student to allow him to obtain and to keep a job.

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THE PROBLEM

Introduction

Today, business education is an integral part of the educational plan in most high schools. According to Barkley, these business education plans have two distinct objectives.[1] The first objective is to provide general or basic business information of educational value to all students. The second objective is to provide vocational preparation for those students interested in the business and office occupations area. One way business educators can accomplish the second objective of vocational preparation is through relevant occupational experiences.[2] In many cases attempts are being made to provide opportunities to obtain these occupational experiences as a part of the regular business education curriculum in the vocational business education programs in most secondary schools.

Various plans of providing occupational experience include: (1) a series of single skill courses, (2) intensive senior in-school laboratories, (3) directed work projects or work experience, and (4) the cooperative plan. The single course plan provides for occupational

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[1] Joseph R. Barkley, "Vocational Business Education in Florida," National Business Education Quarterly, 34:2, (December, 1965), 25.

[2] Occupational experiences are defined as "Training experiences which help the student to learn valuable skills and to become more efficient, thereby giving him a chance to advance to a better job while he is working."

training through such single courses as shorthand, typewriting, office practice, and bookkeeping. Intensive senior in-school laboratories provide individualized experiences related to occupational objectives that have been formulated through an analysis of performance requirements: duties, skills, abilities, and attitudes necessary for employment in the office occupation selected by the student. The directed work projects or experiences provide an occupational pattern for preparatory instruction in which regularly scheduled school activities give students the opportunity to apply theory while developing competencies through projects or experiences related to the objectives in office occupations.

Cooperative education can be defined as an instructional process used in vocational education to aid the student-learner in bridging the gap between school and the world of work. Generally, in the cooperative education plan, students attend classes in the school for the first portion of the day and then work in the business community for laboratory experiences the remainder of the day. Students in cooperative office education perform in the same capacity as other employees in a business firm except that they are in a supervised learning situation as well as in an earning situation. The instruction given to the students in the classroom relates to the occupational experience that they are receiving on the job. The cooperative office education plan is a cooperative venture between the school, administration, the coordinator of the cooperative plan, and the business firm which provides employment and a supervisor for each student employee.

The cooperative education plan trains the student for job competencies. The student is exposed to attitudes, rules of conduct, and interpersonal skills involving relations with fellow workers, supervisors and clients. This plan also aids in building a student's self-identity as a future worker and assists him in knowing his strengths, limitations, aspirations, and personal values. Ultimately, it provides an experience which will prepare the student for occupational flexibility and mobility and assists him in maturing socially and psychologically.

Not all business education leaders, however, advocate the use of the cooperative plan. Some leaders in business education question the value of the cooperative plan. Instead, they believe that training sponsors do not provide the student employee with a variety of activities and experiences on the job; many plans lack training stations which have educational value for students with a wide range of job objectives and abilities; and that students are often placed in jobs for monetary reasons rather than for the educational benefits derived.[3] These disagreements between leaders in business education would appear to justify an evaluation of the cooperative and in-school plans in this research.

Statement of the Problem

The problem associated with this study was whether the cooperative plan in selected high schools in Louisiana was more

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[3]Marguerite Crumley, "Cooperative Part-Time Programs: Weaknesses of the Past and Present," Chapter 18 in Business Education: An Evaluative Inventory, National Business Education Yearbook, No. 6 (Washington, D.C.: National Business Education Association, 1968), pp. 205-216.

effective than the in-school plan. An attempt was made to answer the following questions: (1) are there any differences in the production skills and clerical abilities of students enrolled in the cooperative office education plan versus those enrolled in the in-school office education plan; (2) if differences do exist, how significant are these differences; and (3) to what extent might these differences be attributed to the cooperative office education plan?

Hypotheses to be Tested

The following were the research hypotheses for this study:

1. There will be no significant difference between the achievement of senior office education students under the cooperative plan and those under the in-school plan when achievement is defined as:
   a. A total package of skill competencies composed of the basics of shorthand, typewriting, and common clerical tasks.
   b. Any single sub-skill measured separately in isolation from the total skill competencies; namely - business vocabulary, checking, coding, filing, directions - oral and written, language, and arithmetic.
2. If students under one plan of instruction demonstrate greater achievement than those under the other plan of instruction, that achievement will be due to measurable factors of student learning capacity and potential as measured by intelligence quotient, grade point average, and achievement in basic skills.
3. If both groups of students demonstrate achievement gains over the period of a year, it is under the cooperative plan that students will show a larger net gain.

Purpose of the Study

The purpose of the study was to discover whether the students enrolled in the cooperative plan achieved better results than the students enrolled in the in-school plan in the development of selected production skills and clerical abilities. The selected production skills were shorthand and typewriting; the seven areas of clerical abilities were business vocabulary, checking, coding, filing, directions - oral and written, language, and arithmetic.

The study was an attempt to determine the impact that the cooperative plan had on the acquisition of selected production skills and clerical abilities. For this reason, the study investigated the differences, if any, in the production skills and clerical abilities of students in the cooperative office education plan as compared with students in the in-school office education plan. It was recognized that the outcomes of vocational education were much more than skills and abilities. The total competencies include job adjustment, job intelligence, and career development. However, only the terminal achievement in selected production skills and clerical abilities was investigated.

Outcomes

The results of the study could be used to (1) assist Louisiana schools in revising their office education curricula and in their development of new office education plans, and (2) to assess the effectiveness of the cooperative office education plan.

Need for the Study

The value of the cooperative plan has been justified by the fact that there are some leaders in business education who advocate them as an aid to students in reaching their career objectives. Value might be ascribed because the enrollment in federally aided vocational education classes in secondary schools has been increasing continuously. The percentage change from 1969 to 1970 was +18.6 as illustrated in Table 1.[4]

Table 1

Enrollment in Federally Aided Vocational Office Education Classes in Secondary Schools

Year	Enrollment
1966	790,368
1967	985,398
1968	1,059,656
1969	1,122,198
1970	1,331,257

However, other leaders as well as classroom teachers in business education question the value of these cooperative office plans. Therefore, it becomes necessary to reassess the strengths and weaknesses of these plans. To date, all the research material available pertains only to principles and current practices, advantages and disadvantages, and

[4]U.S., Department of Health, Education, and Welfare, Office of Education, and Unpublished Data, Digest of Educational Statistics 1971, (Washington: U.S. Government Printing Office, 1972), p. 36.

the evaluation of cooperative office education plans. The studies which have been completed were mainly follow-ups of cooperative office education students. No research studies or professional journal articles dealing with the development of production skills and/or clerical abilities were located. Therefore, there was a lack of evidence to justify the value of cooperative versus the in-school plan on the selected production skills of shorthand and typewriting and the clerical abilities of business vocabulary, checking, coding, filing, directions - oral and written, language, and arithmetic.

This study attempted to measure the production skills and the clerical abilities at the beginning of the 1971-72 school session and again at the time of graduation. It compared students enrolled in the in-school office education plan in an effort to determine whether there was objective evidence relating to the impact the cooperative office education plan had on the development of production skills and clerical abilities in comparison to the in-school office education plan. The Louisiana Department of Education acknowledged the need for this study.

Limitations of the Study

The study was limited to selected cooperative and in-school office education plans that met the standards of the state plan, and to selected schools that offered both plans of instruction.

The study was limited to a comparison of the terminal level of selected production skills and clerical abilities of students in both plans and did not include success on the job, attitudes toward office work, or practices and procedures in office education.

No attempt was made to follow-up participants in the study to determine if subsequent performance differences can be attributed to the cooperative office education plan.

Definition of Terms

The following terms are defined according to the way they were used in this study:

Cooperative Office Education Plan. A plan that offers general and specific occupational education. The instruction is correlated; there is a direct relationship between the study in school and the activities of the training job, both of which are based on a career objective. This correlation involves the sequence and the application of learning.[5] Each student employee must work a minimum of fifteen hours per week.

Teacher-Coordinator. The teacher appointed by the school to instruct the students participating in the cooperative office education plan.

Training Sponsor or Supervisor. The employee of the business firm who is delegated the responsibility of supervising a student employee.

In-School Plan. A plan that provides students with knowledge and skills needed for initial employment upon graduation through classroom experiences in single skill courses. The traditional method of instruction is used - sixty-minutes for each class period.

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[5]Ralph E. Mason and Peter G. Haines, Cooperative Occupational Education and Work Experience in the Curriculum (2d ed.; Danville: The Interstate Printers & Publishers, Inc., 1972), p. 14.

Student Employee. A student enrolled in the cooperative office education plan.

Training Station. The position at the cooperating business in which the student employee obtains actual job experience.

Production Skills. This involves performing such tasks as taking dictation and typewriting.

Clerical Ability. The performance of tasks that are common parts of various office jobs. Example: business vocabulary, checking, coding, filing, directions - oral and written, language, and arithmetic.

Office Education. This body of subject matter, or combination of courses and practical experience, is organized into plans of instruction to provide opportunities for students to prepare for or advance in selected office occupations.[6]

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[6]U.S., Department of Health, Education, and Welfare, Office of Education, Vocational Education and Occupations, (Washington: U.S. Government Printing Office, 1969), p. 57.

CHAPTER II

REVIEW OF THE LITERATURE

Cooperative office education is a part-time cooperative plan which is reputed to be one of the best plans in vocational education. It has combined vocational instruction and planned employment experience in its attempt to bridge the gap between school life and occupational competency. One reason for its prominence is that it has consistently yielded high placement records, high employment stability, and high job satisfaction.[1]

On the whole, cooperative office education strives to increase job competencies. Consequently, the success of such a training plan is largely attributed to the attitudes of the participants since the plan is an interdependent combination of specific and related instruction and planned, coordinated office employment experience. The learners have career interest, goals, and a career plan. The teacher is vocationally competent. The employer provides on-the-job experiences based on a training agreement. Thus, harmonious working relations is a requisite for this plan which purports to train part-time employees how to be successful in business.

Many studies have been undertaken to evaluate the impact of the cooperative plan at the secondary school level. The majority of

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[1]Louise J. Keller, "The Teaching and Coordination of Cooperative Office Education," Chapter 13 in Contributions of Research to Improvement of Instruction in Business Education, National Business Education Yearbook, No. 9 (Washington, D.C.: National Business Education Association, 1971), p. 115.

these studies have resulted in comparative analyses of surveys taken in state public schools to explore the differences in success on the job between the cooperative plan and the in-school plan. Other studies have been made to appraise the value of the cooperative plan relative to selected employment factors and to the status and future of cooperative plans in business occupations.

Chapter II reviews the literature most closely related to this study. It is divided into three parts: (1) cooperative versus in-school plans, (2) values, practices and outcomes of cooperative plans, and (3) cooperative plans and employment.

Cooperative Versus In-School Plans

The Beck study.[2] Beck conducted an evaluation of students who participated in the cooperative plan and the students who did not participate in the plan in the public, secondary high schools of four selected counties in Southeastern Pennsylvania in 1968. He concluded that both groups of students, those who had participated in a secondary school cooperative office plan and those who had not, had no differences in rating of success on the job. However, students of varying ability did have different ratings of success on the job. There was no interaction found between cooperative office experience and ability with regard to ratings of success on the job.

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[2]James Flory Beck, "An Evaluation of Secondary School Cooperative Office Work Experience" (unpublished Doctor's dissertation, Temple University, 1971).

The Bledsoe study.[3] Bledsoe investigated the difference between the educational development of students who had participated in the state approved diversified cooperative education plan and that of students who had not participated in the cooperative vocational education plan in selected secondary schools in Indiana. Subjects for the study were full-time secondary school students. Each student was matched within a school and graduating class according to sex, age, achievement as measured by the Pretest Composite Score of the Iowa Tests of Educational Development, and attendance during the school year in which the pretest was administered. Bledsoe concluded that the state approved diversified cooperative education plan afforded participants an opportunity for general educational development.

The Madden study.[4] Madden's study was a follow-up study of the graduates to consider the success of the cooperative office education students as compared to the success of stenographic students. She also compared job satisfaction of the two groups of students.

The findings indicated that both groups were similar in the ability to secure and retain satisfactory full-time employment, but the cooperative office education students were more successful in

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[3]Harry James Bledsoe, "A Comparison of the Educational Development of Diversified Cooperative Educational Students and Non-Diversified Cooperative Education Students in Selected Indiana High Schools" (unpublished Doctor's dissertation, Purdue University, 1968).

[4]Mary J. Madden, "A Comparative Study of Graduates of the Cooperative Office Education Stenographic Curriculum with Graduates of the Regular Stenographic Curriculum from Francis T. Nichols High School, New Orleans, Louisiana, for the years 1960-1963, Inclusive" (unpublished Master's thesis, Catholic University, 1964).

securing an initial job that met their expectations. Both groups were very similar, if not identical, in characteristics such as number of job changes, job stability, reasons for leaving the first job, and job duties. Average earnings and job satisfaction for cooperative office education students were slightly higher than for stenographic students. The differences between the two groups, however, were not statistically significant.

The Driska study.[5] Driska studied the current and recommended practices and procedures in office education at the public secondary school level. The study included both cooperative and in-school plans. State supervisors of business education were asked to report current practices and procedures in office education in their states. Chairmen of business teacher education departments belonging to the National Association of Business Teacher Education schools and teacher educators of office education were asked to recommend practices and procedures in office education for their state. Based on the data he collected, Driska concluded: (1) Cooperative office education plans and block plans are, and should be, the most frequently offered office education plans at the secondary school level. (2) Cooperative office education classes are, and should be, offered at the senior grade level; in-school office education classes are, and should be, offered in the junior and senior levels. (3) Data processing, human relations, and office machines are the areas of office education in which educational materials are most needed; simulated office materials and programmed materials are

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[5]Robert S. Driska, "Office Education on the Secondary School Level: A Critical Analysis" (unpublished Doctor's dissertation, Arizona State University, 1967).

the kinds of materials most needed. (4) Cooperative office education students, are, and should be, selected on the basis of career objectives in office occupations and employability from the standpoint of having fundamental skills and personality traits.

The Hermanstorfer study.[6] The purpose of this study was to compare selected Iowa schools with and without cooperative plans, and the following conclusions were drawn: There was 93.9 percent agreement among superintendents of schools with the cooperative plan that "Work experience is now an accepted need as a part of the educational program for American Youth." Only 78.7 percent of superintendents of schools without such a plan agreed with this statement. In response to the statement, "American Youth, American educational prestige, and American community life all will gain much from good educational work-experience plans," there was 95.9 percent agreement among superintendents of schools with a cooperative plan and only 78.7 percent agreement among superintendents of schools without a cooperative plan.

Hermanstorfer found 90 percent or more agreement among superintendent respondents in 1962 on the following statements: (1) The responsibility of the high school is to provide for each youth the kind of an education he needs to equip him as a citizen, home member, and worker. (2) The primary purpose of the plan is educational and not "providing help" or "earning money." (3) The employer and the school are cooperating to assure maximum learning by the student while on the job.

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[6]Judith Hermanstorfer, "A Comparative Analysis of Surveys Taken in Iowa Public Schools in 1952 and 1962 Relative to the Status and Future of Cooperative Work-Experience Programs in Business Occupations." (unpublished Master's thesis, State College of Iowa, 1963).

Values, Practices, and Outcomes of the Cooperative Plan

The Hodge study.[7] In a doctoral study at Arizona State University, Hodge investigated the goal of cooperative office education in the development of favorable attitudes toward office work. The study utilized the group technique with an experimental group of one-hundred randomly selected participants from a population of two-hundred fifteen female students enrolled in cooperative office education which was paralleled with a group of one-hundred randomly selected participants from a population of five-hundred twenty female students not enrolled in the cooperative office education plan. Cooperative office education was the variable experimental factor with attitudes formed toward office work as the criterion.

The results of Hodge's study indicated support of his null hypothesis that there was no significant difference between attitudes of students enrolled in the cooperative office education plan and students not enrolled in the cooperative office education plan toward office education. According to Hodge, both groups had positive attitudes and any difference could be attributed to chance.

The Schultz study.[8] Schultz conducted a survey to determine the value, outcomes, and experiences accruing to students enrolled in the

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[7] James Leslie Hodge, "Cooperative Office Education and Its Effect on Attitudes Toward Office Employment" (unpublished Doctor's dissertation, Arizona State University, 1968).

[8] Kenneth Shultz, "A Study of Cooperative Office Work-Experience Programs in A Selected Group of Secondary Schools of the State of Pennsylvania for 1957-58" (unpublished Doctor's dissertation, Temple University, 1961).

cooperative plan under school supervision in the state of Pennsylvania, 1957-58. He included a historical background of the plan and reported on the then current practices in the state of Pennsylvania.

Among the conclusions reported were: (1) Participants showed certain value growths, particularly in the area of personal traits. (2) Cooperative training reduced the period of time ordinarily necessary for adjustment to the job situation upon graduation. (3) Although, finally, the trainees seemed to think they made more progress in their school work as a result of participation in the plan, it was evident that their views were not shared by some of their peers and by some of their school principals.

The Shupe study.[9] In 1962 Shupe conducted a study in Michigan in one district to determine the value of the cooperative occupational education plan at the high school level. This study was based on the teacher opinion of the cooperative plan by teachers of two high schools in Michigan. The study indicated that the teachers involved felt quite strongly that the cooperative occupations education plan was a necessary and vital part of the total school program. Ninety-seven percent of the respondents agreed that cooperative education should have a place in the curriculum of the comprehensive high school. Approximately eighty-six percent believed that the cooperative plan should be made available to more students who could benefit from it.

In answer to the question, "If you believe there are values in the cooperative plan, what do you believe is its greatest strength?",

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[9] Richard J. Shupe, "A Question of Values: How High School Teachers View Cooperative Education" (East Lansing: Michigan State University, Department of Secondary Education and Curriculum, College of Education, 1962).

randomly selected responses were: "This plan helps students to bridge the gap between school and work." "Development of responsibility by the youngster." "I believe this plan gives the student an opportunity to apply theory to an actual job situation." "Helps some students remain in school."

The Rowe study[10] and the Ferguson study.[11] In Distributive Education Rowe and Ferguson conducted studies similar to the present study. The two studies were designed to compare the effectiveness of a cooperative vocational plan with an alternative plan type. They investigated a system which omitted the on-the-job training component entirely and replaced it with a block-time plan of school sponsored learning activities called "project training" or "the project method".

The purpose of the Rowe and Ferguson studies was to compare the effectiveness of the traditional cooperative plan in Distributive Education with a block-time school sponsored laboratory approach without training stations or training sponsors from the employment community. The Rowe study was conducted in the State of Arizona; Ferguson studied plans in Michigan. The research design, procedures, and findings were essentially similar. Rowe concluded there were little

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[10]Kenneth L. Rowe, "Development of Selected Marketing Competencies Through Utilization of Two Methods of Teaching in the Secondary School" (unpublished Doctor's dissertation, Michigan State University, 1969).

[11]Edward Ferguson, Jr., "A Comparison of the Effectiveness of the Project and Cooperative Methods of Instruction on Selected Competencies in Distributive Education at the Secondary Level" (East Lansing: Michigan State University, Research & Development Program in Vocational Technical Education Department of Secondary Education and Curriculum, College of Education, 1967).

differences, if any, in the sales comprehension and economic understandings of eleventh and twelfth grade students in the project and cooperative plan. Ferguson concluded that the students in the cooperative plan obtained higher scores on the tests of sales comprehension.

The preceding studies revealed the values, practices, and results of the cooperative plan as stated by students, teachers, administrators, and businessmen associated with the plan. Hodge concluded that there was no significant difference between attitudes of students enrolled in cooperative and in-school plans towards office education; and added that since both groups revealed positive attitudes, any differences could be attributed to chance. On the other hand, Shultz maintained that students enrolled in the cooperative plan showed certain value growths particularly in the area of personal traits and the job adjustment period was reduced. Both Shupe and Martin justified the need for the cooperative plan as a total and vital part of the comprehensive program in that it offers correct techniques in office procedures and develops good business personality. Rowe and Ferguson concluded that there were little differences between the cooperative and the project plan. All of the studies inferred that the values, practices, and outcomes of the cooperative plan did justify its existence in the curriculum and its expansion because the researchers in these studies implied that this was an effective way to provide the student with the opportunities to prepare himself for the business world and to be better equipped to serve in our society.

Cooperative Plans and Employment

The Panek study.[12] The purpose of the Panek study was to evaluate the cooperative plan from the point of view of the businessman providing the training station. A questionnaire was mailed to 48 businessmen; Panek interviewed the 44 respondents. The findings revealed that businessmen preferred to hire new employees who were experienced and viewed the trainees from the cooperative plan as better prospective employees than those not having training through the cooperative plan. Businessmen did not like to pay trainees the minimum hourly wage. Students accepted into the plan were rated low in the skills of penmanship, spelling, and grammar. Businessmen favored the cooperative plan in that they felt they were contributing to the youth of the community.

The Haines and Coleman studies.[13] These studies measured the effectiveness of the cooperative plan in secondary schools by an assessment of the employment status of former trainees after graduation. These studies indicated that cooperative trainees fared well in the labor market; employment was quickly obtained, and residual unemployment was low. The employers who trained the cooperative trainees were benefiting by securing full-time workers. The trainees represented all levels of

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[12] James Panek, "An Evaluation of the Work-Experience Program at Chico (California) Senior High School" (unpublished Master's thesis, Chico (California) State College, 1967).

[13] Peter G. Haines and Brendan G. Coleman, "How High School Cooperative Trainees Fare in the Labor Market, Phases A and B" (East Lansing: Michigan State University, Educational Research Series, ER16, November, 1963 and ER23, May, 1965).

academic achievement but, as a whole, the trainees were superior to their graduating class. Many trainees remained with the same employer they had while in the cooperative plan. About one-fifth of the trainees entered college. Haines and Coleman concluded that the cooperative plan does provide trained employees.

The Murphy study.[14] The study was conducted to examine selected factors in business education training plans of secondary schools and to determine whether the factors were significant in the success of high school graduates in securing initial employment in office occupations.

Random samples were taken from graduates who, as seniors, were enrolled in an advanced office education class and classified as business majors; participated in a cooperative office plan; or participated in a general office work-experience plan. A sample of one-hundred students in each graduating group was selected in ten high schools in Phoenix.

Murphy concluded that participation in a cooperative plan while in high school enhances the student's self concept which in turn gives him more self-confidence when applying for his first job after graduation. He further concluded that a work-experience mystique apparently does exist with prospective employers which becomes a factor in the success of the cooperative student in securing initial employment after graduation from high school. A work-experience mystique apparently exists also with high school graduates as reflected by their responses to the five alternatives for the statements related to the skills, adaptability, and attitudes of cooperative students.

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[14]Sam Murphy, "Selected Factors in Office Education Programs Relating to the Success of High School Graduates in Securing Initial Employment" (unpublished Doctor's dissertation, Arizona State University, 1972).

The Sharp study.[15] The purpose of the study was to determine the extent to which beginning office workers who participated in either an in-school office work experience, a cooperative plan, or a non-office work-experience plan during high school had adjusted at the end of eight months and one year and eight months to beginning office positions. Among the answers sought to specific questions, the following was most pertinent to this current study.

Is there a relationship between the type of business training in high school and job adjustment?

The purpose of this study was to determine the extent to which a student is helped and the values he receives in preparation for employment after graduation from either an in-school experience plan or a cooperative plan. It was believed that one way of determining the values of the cooperative plan was to appraise the adjustment made by students from both plans to their post high school employment.

The following conclusions were reported: (1) The employers evaluate the beginning cooperative office education employee as being more adjusted than the non-office work-experience employee. (2) There was a relationship between the type of business training in high school and job adjustment. This was shown in the first eight months of full-time employment. The more office experience a student has, the more readily he adjusts to beginning office work.

It was recommended that schools preparing workers for office positions should include office work experience in the curriculum of

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[15]Walter Maynard Sharp, Jr., "An Appraisal of the Values Derived From In-School Office Work Experience, Cooperative Office Practice, and Non-Office Work-Experience Programs as Related to Occupational Adjustment" (unpublished Master's thesis, Ohio State University, 1961).

the business student. The office experience plan should be so arranged to give the student a preview of what to expect in full-time employment. This may be done through a cooperative office work plan or an in-school office work plan.

All of the studies reviewed concerning the cooperative plan and employment suggested that there is a greater tendency for the cooperative graduate to feel secure in obtaining the job than his non-cooperative fellow graduate. Panek observed that businessmen preferred to hire employees who were experienced; Murphy, that the cooperative plan gives the students more self-confidence when applying for their first job after graduation; Sharp, that the cooperative plan employees are more adjusted to office work than the in-school plan employees; and Haines and Coleman, that the trainees fared well in the labor market. These studies indicated that the cooperative plan provided trained employees.

Summary

A comprehensive search failed to reveal any literature which specifically revealed information as to whether there were any differences in the production skills and the clerical abilities of students enrolled in the in-school plan as compared to students enrolled in the cooperative plan. Granted, however, is the fact that cooperative students have the advantage of being hired before the applicants of in-school plan because employers believe that they will have more productive employees if they hire cooperative students instead of in-school students. Moreover, studies also indicated that cooperative plans are an effective manner of providing students with the opportunities to prepare themselves for the business world and to be better equipped to

serve in our society. It seems fair to conclude from the studies reviewed that the cooperative plan provides trained employees.

CHAPTER III

METHODS AND PROCEDURES

This chapter describes the methods and procedures used in the present study. To simplify these descriptions, the chapter is divided into three sections.

The first section explains the population and the selection of the two sample groups and discusses the instruments used in gathering the data. The second section explains the administration of the tests. The third section discusses the method used in processing the data.

Population and Sample

The sample for this study consisted of twenty selected Louisiana high schools out of a total population of eighty-two schools, all of which offered both the Cooperative and the In-School Plan. These twenty secondary schools were drawn by lot from the eighty-two to yield a random selection. To provide a valid sample, six hundred students were selected to participate in this study: three hundred were enrolled in the Cooperative Plan and three hundred in the In-School Plan. A Louisiana map showing the location of the twenty randomly selected schools that participated in this study is found in the Appendix on page 87.

A letter explaining the purpose of this study was mailed to the principal and Cooperative Office Education Coordinator of each selected school. This letter explained the need for the study, students to be tested, and the manner in which these students should be selected. A

copy of this letter is found in the Appendix on page 88. Two weeks later, the coordinators who had not responded to the first request to participate in the study were contacted by telephone. This resulted in a one hundred percent favorable response for the study.

Randomization of Student Choice

Each participating coordinator was requested to select at random fifteen students enrolled in the Cooperative Plan and fifteen other students enrolled in the In-School Plan. The method of random selection was determined by the coordinator doing the testing in conference with the investigator.

Development of Production Tests

In selecting test material for the pretest and the post-test, several alternatives were considered. The Gregg Division of McGraw-Hill Book Company, parent organization holding copyrights on Gregg shorthand, was contacted to determine whether it could provide standardized shorthand test materials appropriate for this study. However, the Gregg Division indicated there were no standardized tests nor any special material designed for testing purposes other than a series of letters published in their house organ, The Business Teacher. The Gregg-prepared materials were not used because The Business Teacher is a free publication sent to all business teachers who generally use the letters for testing. It was therefore possible that a student participating in the study could have been exposed to these letters in his previous shorthand experience.

The alternative chosen for this research on the Shorthand section was the composing of a letter with a 1.5 syllabic intensity control by the researcher.[1] This letter, which contained 240 words, was to be dictated at the rate of eighty words per minute. The student was to be allowed fifteen minutes for a typewritten transcription. The test, however, was designed for shorthand speed, not for transcription ability. To grade these tests the average score was converted to 100 percent. Example: 240 ÷ 100 = .42 off per error. Only incorrect words were considered as errors. A copy of the Shorthand Test can be found in the Appendix on page 90.

The standardized Typewriting Test prepared by the Science Research Associates, Incorporated was also used. Science Research Associates determined the reliability and validity of the typewriting skill test by administering it to experienced and inexperienced office applicants throughout the United States. This standardized typewriting test consisted of a business letter, approximately two hundred twenty-five words long, to be copied as often as possible in a ten-minute period. It was scored according to the International Typewriting Contest Rules, which convert the number of total strokes into the conventional score of net words per minute (also called the International Speed Score). Scoring also provided an Accuracy Ratio to indicate the proportion of words typed without error. The test was short, easy to administer, and simple to score. It yielded results that were closely related to those obtained on tabular materials, handwritten drafts, and similar assignments.

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[1]The letter was reviewed and approved by a panel of shorthand teachers.

Development of Clerical Ability Tests

The standardized Science Research Associates Short Tests of Clerical Ability is a battery of seven short instruments, each designed to measure an aptitude or ability important to the successful performance of tasks, common parts of various office jobs. Science Research Associates determined the reliability and validity of the Short Tests of Clerical Ability by administering them to employed female office workers in the Chicago area. All types of office classifications were represented -- secretaries, stenographers, general clerks, filing clerks, statistical and accounting clerks, clerk typists, and order-billing clerks.

The tests incorporate certain realistic aspects of the job tasks as they are performed in the typical office. The battery included:

Business Vocabulary. This five-minute test was designed to measure general verbal ability, as well as knowledge of common business terms and office procedures. It consisted of thirty incomplete statements, each followed by five alternatives. The selection of the correct response required the examinee to know office procedures, the meaning of business terms, and/or the meaning of words in the general English Vocabulary.

Checking. The examinee had to check the accuracy of a list of eighty names and numbers against a "correct list" in this five-minute test. An item could be "wrong" because of an error in either the name or the number. Simulating the checking task to a typical office situation, the items in the two lists were out of alignment by one to four positions, and required a short vertical and longer horizontal eye movement.

Coding. The proper code to be associated with a list of adjectives and a list of objects, singly and in combination, was checked by the examinee in this five-minute test. It was to measure the ability to memorize rote material rapidly and to code information accurately. One-hundred five adjectives and objects were listed on the test.

Filing. The fifty-four items in this five-minute test required the examinee to indicate the proper placement of new material into an "existing file." The test measured ability to alphabetize rapidly, as well as knowledge of standard filing practices.

Directions - Oral and Written. This test was designed to measure the ability to take useful notes, to memorize from oral instructions, and to follow written directions. The sixty-four items in this five-minute test were based on information read previously to the examinees by the test administrator. These "oral instructions," which required about seven minutes to read, contained information of the type a new employee might receive in an orientation meeting. The examinee was permitted to take whatever notes he desired while the instructions were being read, and to use these notes when answering the test items.

Language. The examinee was required to indicate the number of errors appearing in each of the twenty sentences on the five-minute test. The errors could have been in grammar, punctuation, capitalization, or spelling. The examinee's attention was not directed to any word or part of the sentence which might be in error. Since some sentences contained no errors, the examinee had to know proper spelling and usage in addition to being able to detect such errors when reading printed or typewritten material.

Arithmetic. This test was divided into two parts. Part I, with a testing time of three minutes, measured the examinee's ability to solve twenty-eight simple addition, subtraction, multiplication, and division problems rapidly and accurately. Part II, with a time limit of six minutes, consisted of sixteen business arithmetic problems. Solution of the problems required the handling of percentages, decimals, and fractions, in addition to the simple computations.

All of the clerical ability tests were scored by using the plastic scoring stencils provided for the Short Tests of Clerical Ability. The correct responses to each item were printed on the stencils. Scoring was determined by counting the number of responses which appeared in these "correct" positions and recording the raw score.

As a means of predicting and interpreting the scores on selected production skills and clerical abilities, a study was made of the academic ability of a cross-section of the selected sample of participants. The following information was obtained from ten percent of the participants, thirty cooperative students and thirty in-school students: intelligence quotient, grade point average at the beginning of their senior year, and the scores attained on the achievement tests in English, reading, spelling and number computation. The intelligence quotient for each student was derived by averaging the scores attained on the Otis Quick-Scoring Mental Ability Test: Beta Test, Form FM administered to students in the sixth and eighth grades, and the Otis-Lennon Mental Ability Test: Gamma Test, Form J given to students at the tenth grade level. The achievement test scores were attained by averaging the percentile rank achieved by each student on the Stanford Achievement

Test, High School Basic Battery, Form W administered at the tenth grade level; and Form X, at the eleventh grade level.

If the cross-section sample showed that the cooperative students were better academic students, then it might be assumed that this group would achieve higher results when tested in selected production skills and clerical abilities. Thus, if this ten percent sample was a true cross-section of the whole, academic ability would definitely become a factor in analyzing and comparing scores achieved by the cooperative and in-school groups.

Administration of Tests

Testing room. Each coordinator agreed to adhere to the researcher's request that the testing rooms had good lighting, and the furnishings provided each examinee with adequate writing space.[2] During testing sessions every effort was made to avoid unnecessary noise and interruption. This was especially important since the tests were short and timed.

Timing. To assure valid results, it was extremely important that the exact time limits for the tests be observed. Sufficient time was allowed before each test to permit the examinee to read the instructions and to work the examples for the test. The tests were administered during the regular class periods.

Distribution of Production and Clerical Ability Tests. The Shorthand Test composed by the researcher and the Science Research

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[2]The researcher was able to review test administration procedures in a series of meetings with a majority of the cooperating teachers.

Associates Typing Skills Test and the Short Tests of Clerical Ability were mailed to the twenty schools that had agreed to participate in the study. Each test was packed in groups of fifteen and was labeled for the two respective groups of students -- Cooperative Students and In-School Students. Specific instructions were sent to each Cooperative Office Education Coordinator who administered the tests. A copy of these instructions is found in the Appendix on pages 92 through 94.

Approximately two weeks after the packages had been mailed, a follow-up letter was sent to the coordinators who had not returned the completed answer sheets of the tests. A copy of this letter is found in the Appendix on page 95. After another two weeks, the coordinators who had not responded were contacted by telephone, the result of which was that all materials were received by the researcher.

Instructions to the examinee. The coordinator was particularly careful to note that each person taking the tests understood exactly what he was to do and how he should mark his answers. The participant was informed that he was going to take some selected production and clerical ability tests. It was explained that the scores on these tests would aid in determining whether there was a difference between the terminal clerical abilities of students enrolled in the cooperative office education plan and of students enrolled in the in-school plan in high schools in the State of Louisiana. Therefore, it was essential that the participant understood his role in this study.

Post-Testing Procedures. In May a post-test was given to each group. The coordinator was advised not to correct any of the tests. Instead, he was instructed to return the tests to the researcher with

the identifying sheet for each respective group. A copy of the letter mailed with the tests is found in the Appendix on page 96.

Analysis of Data

An analysis of the data involved a series of steps: (1) all tests were scored, (2) the raw data was compiled, and (3) tables of results for each plan within each school were constructed.[3]

Multiresponse two-way classification, with replication in both pre- and post-testing, was employed in this study. The two factors considered were the types of plans, cooperative and in-school; and the scores of the pretests and the post-tests.

Since the multivariate analysis of variance is considered to be a competent statistical tool, it was used to determine if the mean scores of the experimental group and the control group differed significantly in September and again in May. According to Traverse, the analysis of variance is a technique used for testing the null hypothesis and provides an estimate of the probability that a particular difference could have occurred as a result of variation produced by sampling.[4] Since the samples in this study consisted of two similar groups, equal in number; and as randomization of the parent population was possible; and because there were several responses, not independent

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[3]Because of the voluminous nature of the tables, they are not included in the Appendix. They would, however, be available for examination upon request to the researcher.

[4]Robert M. W. Traverse, An Introduction to Educational Research (New York: The Macmillan Company, 1958), p. 388.

of each other, a multivariate analysis of variance seemed the most appropriate statistical technique.

In order to compare differences in levels of achievement and to determine whether the differences were significant, certain statistical procedures were followed. The facilities of the University of Southwestern Louisiana Computer Center were used to perform multivariate analysis of variance and covariance. Program BMDX69, Multivariate Analysis of Variance and Covariance, programmed by the Health Science Computing Facility, UCLA, was used. This program was selected because it involves a number of statistical techniques that are useful in interpreting these kinds of data.

Program BMDX69 could take into consideration the possible effect that two different stenographic programs might have had on the performance of students in selected production skills and clerical abilities. Therefore, this procedure was used for analyzing the two selected production skills, shorthand and typewriting, in addition to the clerical abilities in business vocabulary, checking, coding, filing, directions - oral and written, language, and arithmetic. The same program and procedure was used in striving to determine the academic ability of a cross-section of the selected sample of participants.

CHAPTER IV

FINDINGS

This portion of the study contains the results of the comparison of cooperative office education students and in-school office education students on selected production skills and clerical abilities. The following list constitutes the areas from which findings are reported in this chapter in order of their presentation:

1. Comparative analysis of the academic ability of students in the two plans.
2. Comparative analyses of terminal level of selected production skills: shorthand and typewriting.
3. Comparative analyses of terminal level clerical abilities.
4. The rate of student performance and competence in the cooperative plan if the training experiences do not permit the same varied practices as can be obtained in the school classroom.

Comparative Analysis of the Academic Ability of Students in the Two Plans

The study of the academic ability of a cross-section of the selected sample of participants revealed the following information: The average intelligence quotient was 103 for the Cooperative students and 101 for the In-School students. The grade point average was 2.686 for the Cooperative students and 2.384 for the In-School students. The Achievement Tests Scores revealed the average means for each group. The English mean was 59.63 for the Cooperative group and 40.87 for the

In-School group; the reading mean was 45.47 for the Cooperative group and 26.07 for the In-School group; the spelling mean was 56.00 for the Cooperative group and 43.17 for the In-School group; the number computation mean was 43.33 for the Cooperative group and 31.47 for the In-School group.

These results indicate that there was a significant difference at the .005 level of significance between the academic ability (as defined by the responses) of the students in the Cooperative and In-School Plans. The range between the intelligence quotient and the grade point average of both groups was similar; this indicates that both groups did have similar capacities and performance abilities. On the other hand, the achievement test results portrayed a different view. The Cooperative students showed a higher level of achievement. Therefore, the hypothesis that if students under one plan of instruction demonstrate greater achievement than those under the other plan of instruction, that achievement will be due to measurable factors of student learning capacity and potential as measured by intelligence quotient, grade point average, and achievement in basic skills was accepted.

Comparative Analyses of Terminal Level of Selected Production Skills: Shorthand and Typewriting

This section of the study presents the results of the analyses of the two groups in relation to shorthand and typewriting achievement at the end of two semesters of instruction. The results of the shorthand achievement will be presented, followed by the typewriting results.

Shorthand

Based on the possible score of 100, the average mean on the pretest of the students enrolled in the Cooperative Plan was 84.97, and the average mean of the post-test was 88.20. The difference of +3.2 indicated an improvement in shorthand speed at the end of the school session. In the In-School Plan, the average mean on the pretest was 75.84; on the post-test, 80.40 - a difference of +4.6.

The data collected on this test indicated that the students enrolled in the In-School Plan showed a greater increase in shorthand speed than the students enrolled in the Cooperative Plan. The In-School Plan students showed an increase of +1.4 more than the Cooperative Plan students. It should be noted that the Cooperative students rated higher on the pretest and therefore had less to gain than the In-School students.

Figure 1 shows that the students enrolled in the Cooperative Plan in nine of the twenty selected schools accomplished a higher level of achievement than the students enrolled in the In-School Plan in those respective schools. Cooperative students in some schools projected better results in shorthand speed than in other schools. Figure 1 also indicates that Cooperative students in two schools and the In-School students in one school did not improve upon reaching the terminal level of instruction. Nor did some schools show any great difference in the achievement of the students enrolled in either plan.

It can be seen from Figure 1 that nine schools indicated a higher level of achievement in the Cooperative Plan; eight schools indicated a higher level of achievement in the In-School Plan; and three schools indicated the same level of achievement in both Plans. The scores can be found in the Appendix on page 124.

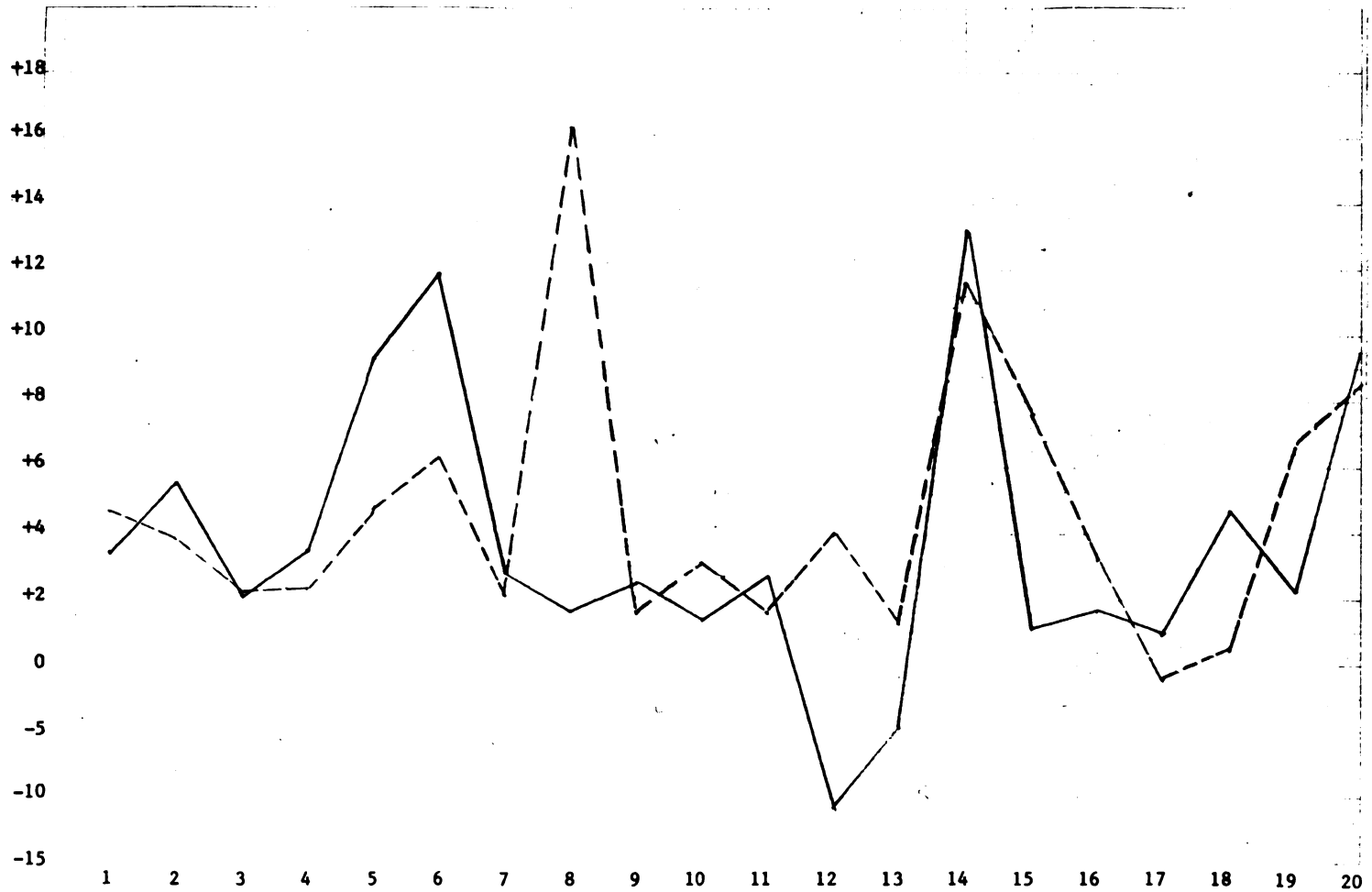

Figure 1

Differences in Shorthand Achievement Between the Cooperative and In-School Plans in the Twenty Selected Schools

Cooperative Plan _____ In-School Plan _ _ _ _ _

The differences in achievement between the two plans in the nine schools where the Cooperative Plan had better results are shown in Table 2.

Table 2

Student Achievement in Shorthand in Schools Indicating Better Results in the Cooperative Plan

School	Cooperative	In-School	Difference
II	+ 5.5	+ 3.9	+1.6
IV	+ 3.5	+ 2.3	+1.2
V	+ 9.3	+ 4.6	+4.7
VI	+11.9	+ 6.3	+5.6
XI	+ 2.7	+ 1.6	+1.1
XIV	+13.2	+11.6	+1.6
XVII	+ 1.0	- 1.0	+2.0
XVIII	+ 4.7	+ .5	+4.2
XX	+ 9.5	+ 8.5	+1.0

The significant differences in achievement between the two plans in the eight schools where the In-School Plan attained better results are shown in Table 3.

Table 3

Student Achievement in Shorthand in Schools Indicating Better Results in the In-School Plan

School	In-School	Cooperative	Difference
I	+ 4.7	+ 3.4	+ 1.3
VIII	+16.3	+ 1.7	+14.6
X	+ 3.1	+ 1.4	+ 1.7
XII	+ 4.0	-10.8	+14.8
XIII	+ 1.3	- 4.7	+ 6.0
XV	+ 7.6	+ 1.2	+ 6.4
XVI	+ 3.3	+ 1.7	+ 1.6
XIX	+ 6.6	+ 2.3	+ 4.3

The data in Tables 2 and 3 point out that there is very little difference in shorthand achievement in the schools where the Cooperative Plan accomplished better results than the In-School Plan, with the exception of two schools where the level of achievement at the end of the school session was much higher in the In-School Plan.

Typewriting

The Typewriting Skill Test, administered to the students enrolled in the Cooperative and In-School Plans, was scored on the maximum that can be attained by the individual typist within a timed limit. Cooperative students averaged a mean of 30.20 on the pretest and 32.98 on the post-test. The difference of +2.8 indicated an improvement in typewriting skills for this group.

In comparison, the In-School students averaged a mean of 29.27 on the pretest and 30.65 on the post-test. The difference of +1.4 also indicated an increase in the typewriting skills, although this increase was half that of the Cooperative Plan.

Data in Figure 2 reveals that the students enrolled in the Cooperative Plan in eight of the twenty selected schools accomplished a higher level of achievement in typewriting skills than the students enrolled in the In-School Plan in those respective schools. To illustrate, students enrolled in the Cooperative Plan in some schools produced better results in typewriting skills than cooperative students in other schools.

One point that cannot be overlooked is that the students enrolled in both plans in three schools did not indicate elevated scores in typewriting skills. In four schools it was noted that there was not a great difference in the achievement of the students enrolled in the two plans upon reaching the terminal level of instruction. However, the Cooperative Plan in eight schools did show a gain in the typewriting skills whereas only five In-School Plans showed an increase in this skill. The scores can be found in the Appendix on page 126.

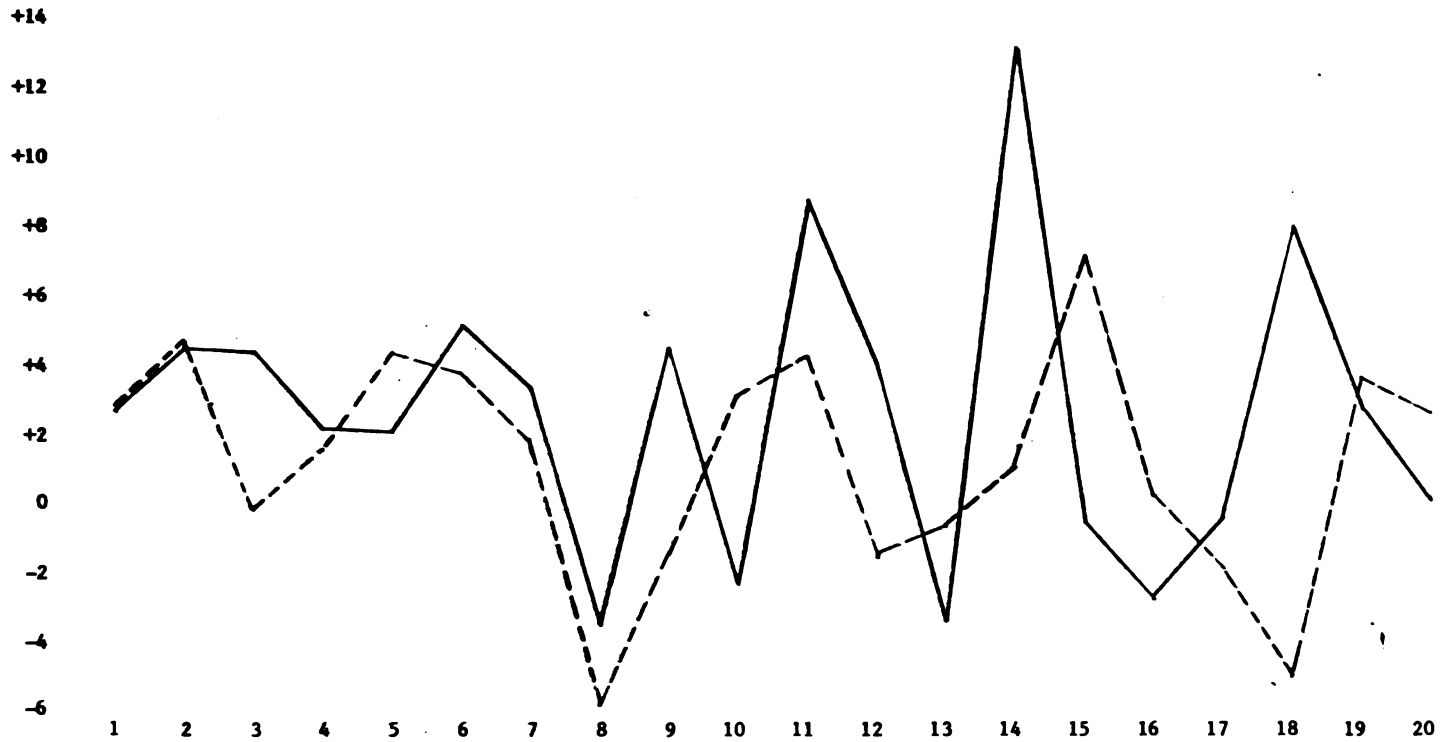

Figure 2

Differences in Typewriting Achievement Between the Cooperative and In-School Plans in the Twenty Selected Schools

Cooperative Plan _____ In-School Plan _ _ _ _ _ _

The differences in achievement of the typewriting skills between the two plans in the eight schools where the Cooperative Plan's performance was better are presented in Table 4.

Table 4

Student Achievement in Typewriting in Schools Indicating Better Results in the Cooperative Plan

School	Cooperative	In-School	Difference
III	+ 4.5	0	+ 4.5
VI	+ 5.3	+3.9	+ 1.4
VII	+ 3.5	+1.9	+ 1.6
IX	+ 4.6	-1.3	+ 5.9
XI	+ 8.9	+4.4	+ 4.5
XII	+ 4.2	-1.4	+ 5.6
XIV	+13.3	+1.2	+12.1
XVIII	+ 8.1	-4.8	+12.9

The students in the In-School Plan in one school rated much higher than the students in the Cooperative Plan. The difference in the means of these two plans was +7.6. However, in some schools students in the Cooperative Plan rated higher than those in the In-School Plan. The differences in the means of these two plans was respectively +5.9, +12.1, and +12.9.

The differences in achievement between the two plans in the five schools where the In-School Plan indicated better results are presented in Table 5.

Table 5

Student Achievement in Typewriting in Schools Indicating Better Results in the In-School Plan

School	In-School	Cooperative	Difference
V	+4.5	+2.2	+2.3
X	+3.3	-2.1	+5.4
XV	+7.3	- .3	+7.6
XVI	+ .4	-2.6	+3.0
XX	+2.8	+ .3	+2.5

Comparative Analyses of Terminal Level Clerical Abilities

The standardized Science Research Associates Short Tests of Clerical Ability, a battery of seven short instruments, were administered to students enrolled in Cooperative and In-School Plans in the twenty randomly selected schools.

Business Vocabulary

Based on a possible score of 30, the average mean of Cooperative students was 14.35 on the pretest and 18.26 on the post-test. Thus, the difference of +3.9 indicated an improvement in business vocabulary for this group at the end of the school session. The average mean of the

pretest administered to the In-School students was 14.87; of the post-test, 15.14. The difference of +.3 indicated a slight improvement at the end of the school session. On the whole, students of the Cooperative Plan, according to the average means, gained +3.6 more than the In-School Plan in business vocabulary skills.

From Figure 3 on page 45 it can be seen that students enrolled in the Cooperative Plan in six schools accomplished a higher level of achievement in business vocabulary than the students enrolled in the In-School Plan in those respective schools. The scores can be found in the Appendix on page 128.

Table 6 indicates the differences in achievement between the two plans in the six schools showing better results in the Cooperative Plan.

Table 6

Student Achievement in Business Vocabulary in Schools Indicating Better Results in the Cooperative Plan

School	Cooperative	In-School	Difference
II	+7.1	+3.9	+3.2
IV	+9.7	+2.3	+7.4
IX	+4.7	+1.9	+2.8
XI	+6.9	+3.3	+3.6
XIV	+3.9	+ .9	+3.0
XIX	+9.1	+1.7	+7.4

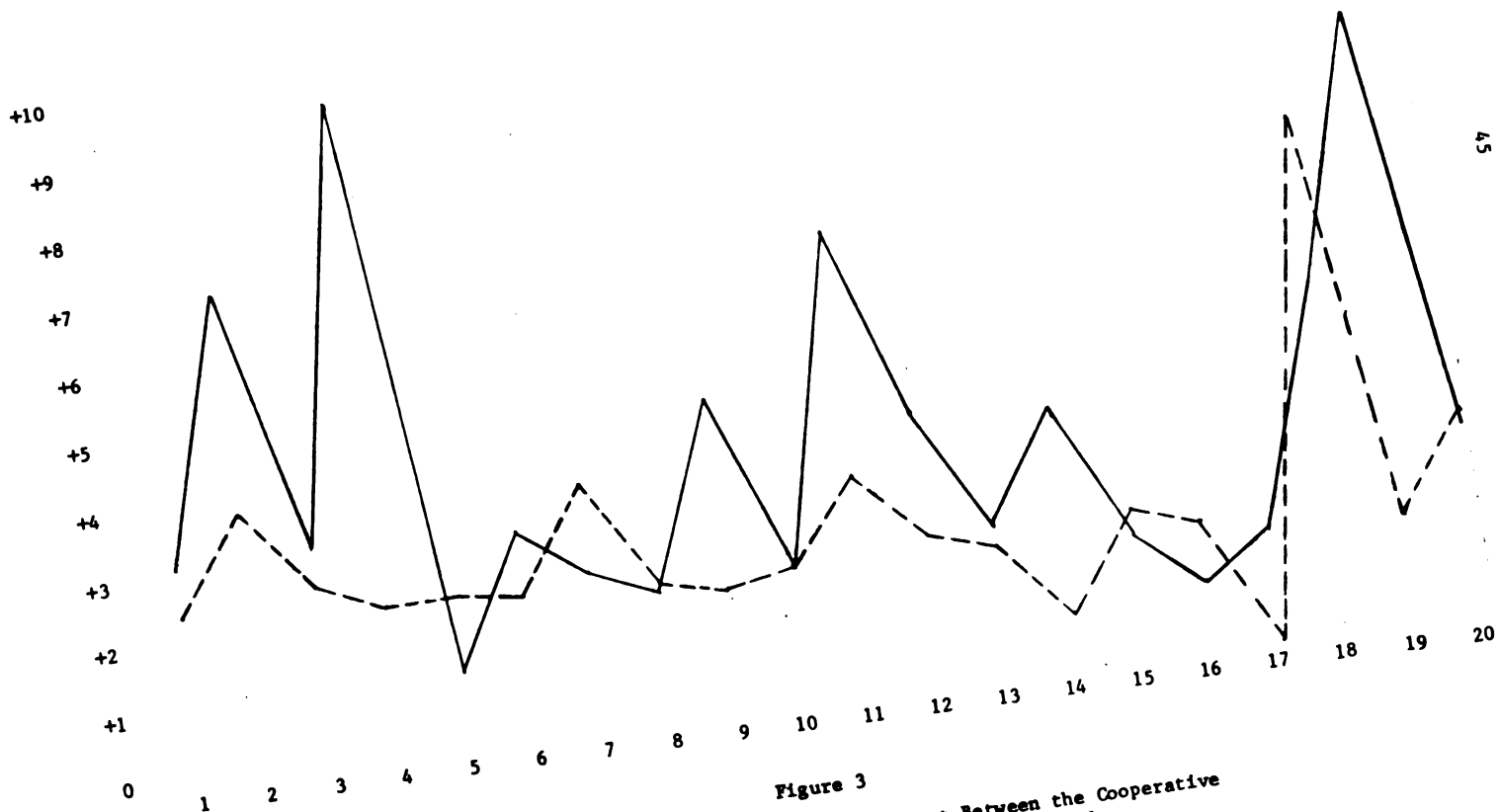

Figure 3

Differences in Business Vocabulary Achievement Between the Cooperative and In-School Plans in the Twenty Selected Schools

Cooperative Plan ————

In-School Plan – – – – –

In three schools students enrolled in the In-School Plan attained better results in business vocabulary achievement than the students enrolled in the Cooperative Plan in those respective schools. The differences in achievement between the two plans in these schools are shown in Table 7.

Table 7

Student Achievement in Business Vocabulary in Schools Indicating Better Results in the In-School Plan

School	In-School	Cooperative	Difference
V	+2.3	+1.2	+1.1
VII	+3.7	+2.4	+1.3
XVIII	+7.7	+5.2	+2.5

Tables 6 and 7 show that there is a greater difference in achievement in the schools where the Cooperative Plan accomplished better results in business vocabulary than the In-School Plan than in the schools where the In-School Plan accomplished better results than the Cooperative Plan. In ten schools it was observed that there was little difference in business vocabulary achievement improvement for the students enrolled in the two plans. Yet, students enrolled in both plans in one school did not indicate an improvement upon reaching the terminal level of instruction.

Checking

The highest possible score for this test was 80. The Cooperative students averaged 32.36 on the pretest and 38.63 on the post-test, registering a difference of +6.3 to indicate an improvement in checking ability at the end of the school session. The In-School students averaged 31.44 on the pretest and 36.39 on the post-test - a difference of +5.0, indicating an improvement in checking ability at the end of the school session. Thus, the increase of the students enrolled in the Cooperative Plan, according to the average means, was +1.3 more than the students enrolled in the In-School Plan.

The data in Figure 4 on page 48 reveal that the Cooperative Plan students in only seven schools showed an increase in checking ability. The scores can be found in the Appendix on page 130.

The differences in achievement in checking ability between the two plans in the seven schools where the Cooperative Plan accomplished better results are presented in Table 8.

Table 8

Student Achievement in Checking in Schools Indicating Better Results in the Cooperative Plan

School	Cooperative	In-School	Difference
II	+13.3	+7.3	+ 6.0
III	+ 4.5	-3.6	+ 8.1
IV	+19.5	+3.7	+15.8
VI	+ 8.9	+5.5	+ 3.4
XI	+20.7	+2.4	+18.3
XIII	+10.7	+6.4	+ 4.3
XIX	+18.8	+4.5	+14.3

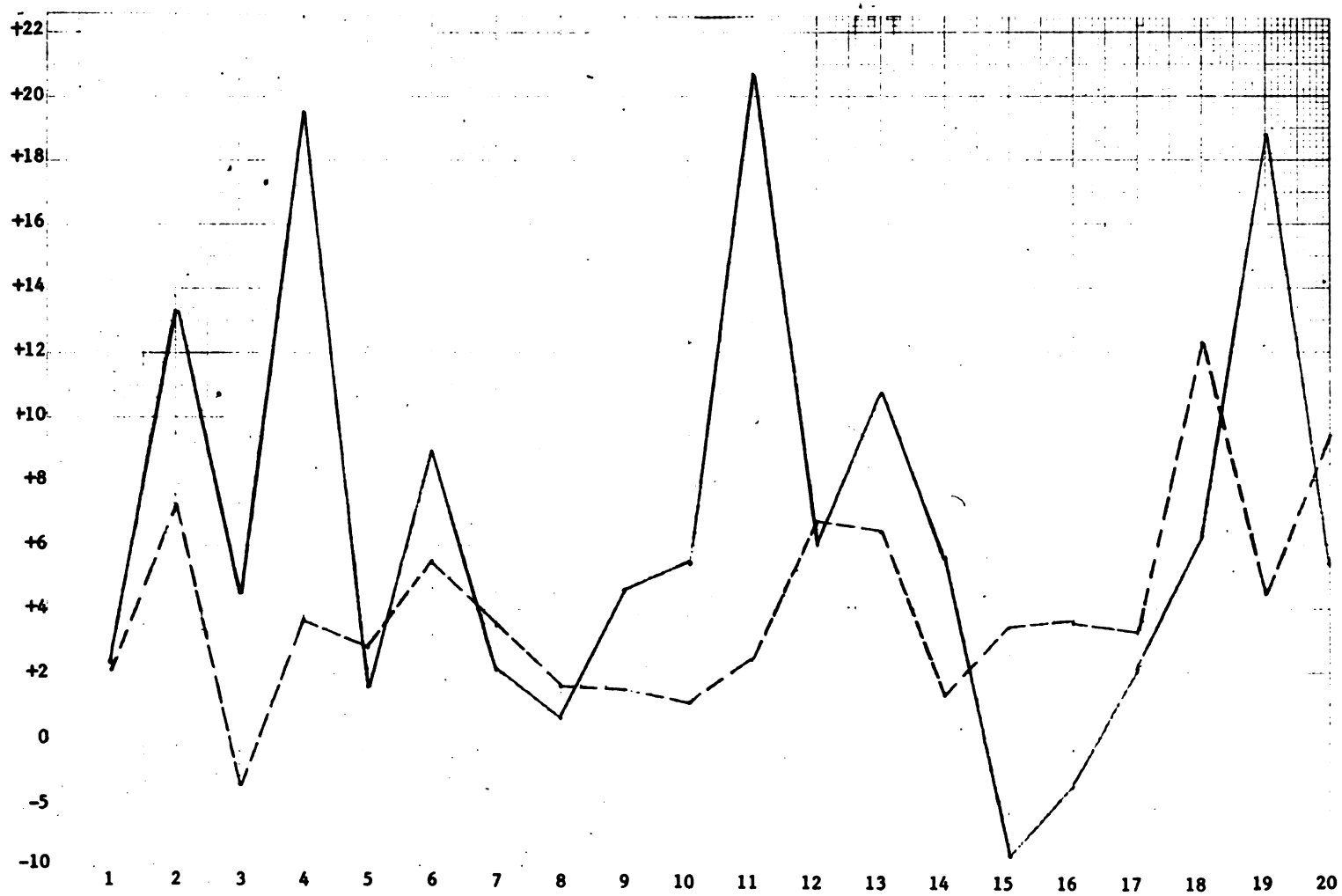

Figure 4

Differences in Checking Achievement Between the Cooperative and In-School Plans in the Twenty Selected Schools

Cooperative Plan _____ **In-School Plan** _ _ _ _ _

The In-School Plan students in eight schools achieved better results in checking ability than students in the Cooperative Plan. The differences in achievement between the two plans in these eight schools where the In-School Plan students attained better results are shown in Table 9.

Table 9

Student Achievement in Checking in Schools Indicating Better Results in the In-School Plan

School	In-School	Cooperative	Difference
V	+ 2.8	+1.6	+ 1.2
VII	+ 3.5	+2.1	+ 1.4
VIII	+ 1.6	+ .6	+ 1.0
XV	+ 3.4	-9.1	+12.5
XVI	+ 3.6	-3.9	+ 7.5
XVII	+ 3.3	+2.1	+ 1.2
XVIII	+12.3	+6.3	+ 6.0
XX	+ 9.4	+5.4	+ 4.0

The data in Tables 8 and 9 reveal that there was a greater improvement in checking ability in the schools where the Cooperative Plan accomplished better results than in the schools where the In-School Plan accomplished the better results. In five schools, however, it was noted that there was not a great difference in the achievement of the students enrolled in the two plans. Also, the Cooperative students in two schools and the In-School students in one school did not indicate an improvement upon reaching the terminal level of instruction.

Coding

The coding score was based on a possible 105. The average mean of the pretest administered to the Cooperative students was 72.57; of the post-test, 78.02. This group improved in coding ability by the end of the school session. The average mean of the pretest administered to the In-School students was 67.73; of the post-test, 74.93. Noteworthy here is that the difference was +7.2, which suggests a greater improvement in the In-School Plan students, by +1.7 over the Cooperative students. The scores can be found in the Appendix on page 132.

Only seven schools in the In-School Plan showed an increase in coding ability; while there were nine schools in the Cooperative Plan showing increases. The data are indicated in Figure 5 on page 51.

The differences in achievement between the two plans in the nine schools where students in the Cooperative Plan performed better are presented in Table 10.

Table 10

Student Achievement in Coding in Schools Indicating Better Results in the Cooperative Plan

School	Cooperative	In-School	Difference
II	+13.1	+ 8.4	+ 4.7
III	+ 7.9	+ 4.9	+ 3.0
IV	+11.6	+ 8.7	+ 2.9
IX	+ 9.3	- .3	+ 9.6
XI	+13.2	+ .7	+12.5
XIII	+15.1	+11.0	+ 4.1
XIV	+ 6.2	+ .7	+ 5.5
XVII	+ 4.6	- 1.3	+ 5.9
XIX	+15.8	+ 4.9	+10.9

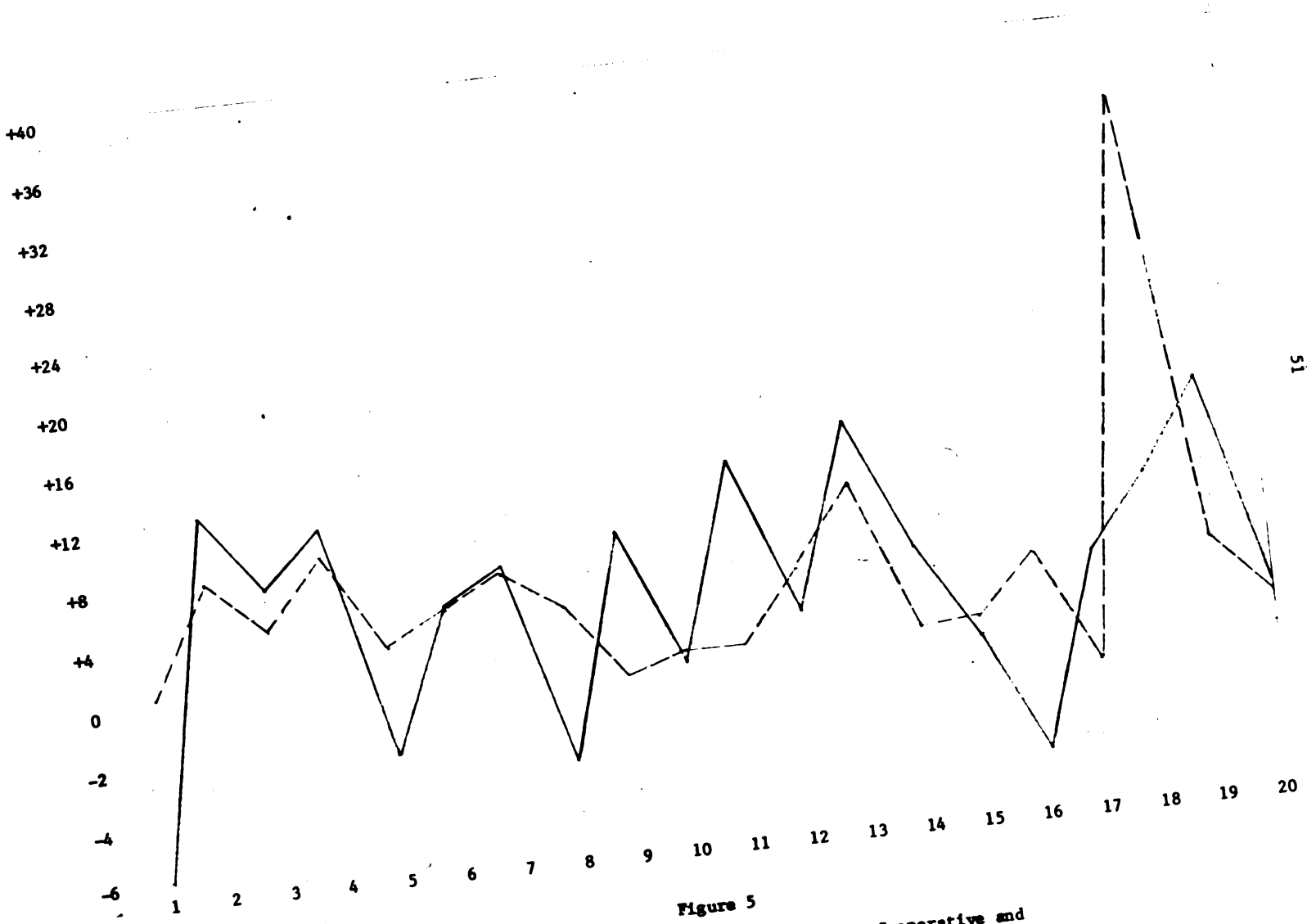

Figure 5

Differences in Coding Achievement Between the Cooperative and In-School Plans in the Twenty Selected Schools

Cooperative Plan ————— In-School Plan – – – – –

Differences in achievement between the two plans in the seven schools where the In-School students achieved better results are indicated in Table 11.

Table 11

Student Achievement in Coding in Schools Indicating Better Results in the In-School Plan

School	In-School	Cooperative	Difference
I	+ 1.5	-5.7	+ 7.2
V	+ 3.1	-2.1	+ 5.2
VIII	+ 4.5	-2.9	+ 7.4
XII	+ 5.8	+2.9	+ 2.9
XV	+ 1.1	-1.0	+ 2.1
XVI	+ 5.4	-4.1	+ 9.5
XVIII	+35.6	+9.9	+25.7

Tables 10 and 11 reveal that in all but one case there is a larger improvement factor in the schools where the Cooperative Plan students accomplished better results than the In-School Plan students. In the one school, the students enrolled in the In-School Plan achieved higher results than the students enrolled in the Cooperative Plan. In four schools it was observed that there was little difference in coding achievement improvement for the students enrolled in the two plans.

Filing

Based on a possible score of 54, the average mean of the pretest administered to the Cooperative students was 16.70; and of the post-test was 22.45, indicating an improvement of +5.7 at the end of the school session. For the In-School students the average mean of the pretest was 15.32; of the post-test, 18.99 - an improvement of +3.7 in this plan. According to the average means, the increase in the achievement of the students in the Cooperative Plan was +2.0 better than the students in the In-School Plan. The scores can be found in the Appendix on page 134.

The information in Figure 6 on page 54 reveals that in ten schools students in the Cooperative Plan showed a greater increase in filing achievement than students in the In-School Plan. Table 12 indicates the differences in achievement between the two plans in these ten schools.

Table 12

Student Achievement in Filing in Schools Indicating Better Results in the Cooperative Plan

School	Cooperative	In-School	Difference
II	+14.5	+4.1	+10.4
III	+ 9.4	+4.3	+ 5.1
IV	+13.7	+3.7	+10.0
VI	+10.1	+3.8	+ 6.3
VII	+14.5	+5.3	+ 9.2
X	+ 5.5	+2.2	+ 3.3
XI	+10.7	+4.1	+ 6.6
XIII	+ 7.1	+5.1	+ 2.0
XVIII	+ 7.7	+1.4	+ 6.3
XIX	+11.5	+5.1	+ 6.4

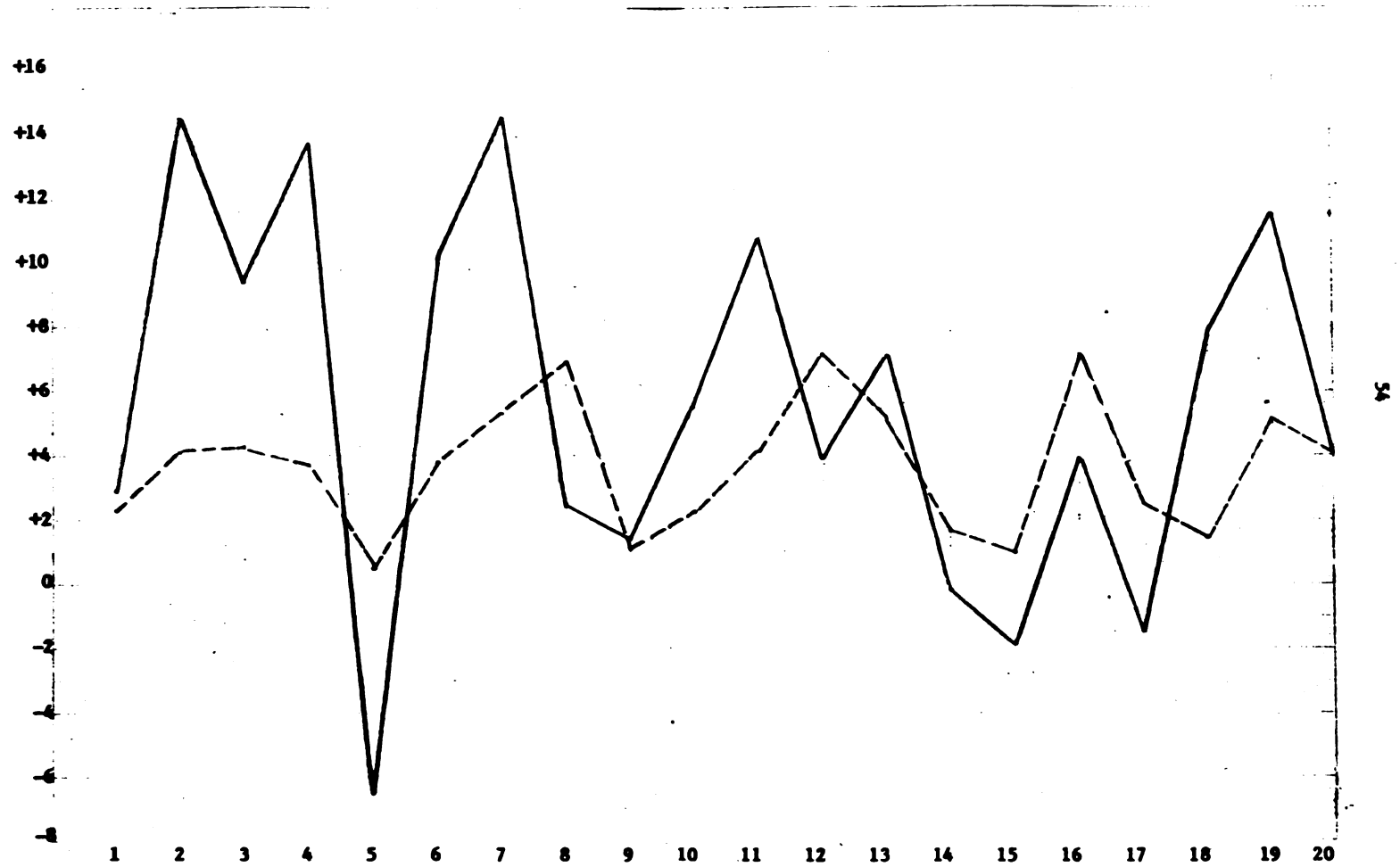

Figure 6

Differences in Filing Achievement Between the Cooperative and In-School Plans in the Twenty Selected Schools

Cooperative Plan _____ **In-School Plan** _ _ _ _ _

The data also reveal that the students in the In-School Plan in seven schools attained greater improvement in filing achievement than the students enrolled in the Cooperative Plan in those respective schools. The differences in filing achievement between the two plans in these schools are presented in Table 13.

Table 13

Student Achievement in Filing in Schools Indicating Better Results in the In-School Plan

School	In-School	Cooperative	Difference
V	+ .5	-6.5	+7.0
VIII	+6.9	+2.5	+4.4
XII	+7.2	+3.9	+3.3
XIV	+1.6	- .2	+1.8
XV	+1.0	-1.9	+2.9
XVI	+7.1	+3.9	+3.2
XVII	+2.5	+ .5	+2.0

The figures in Tables 12 and 13 give evidence that there is a greater improvement factor in the schools where the Cooperative Plan accomplished better results than the In-School Plan than in the schools where the In-School Plan accomplished better results than the Cooperative Plan. Yet, students enrolled in the Cooperative Plan in three schools have not indicated an improvement upon reaching the terminal level of instruction. Also, in three other schools there was little change in the achievement levels of the students enrolled in the two plans.

Directions - Oral and Written

The highest possible score on this test was 64. The Cooperative students averaged 18.47 on the pretest and 24.04 on the post-test, thus improving +5.6 at the end of the school session. In comparison, the In-School students averaged 17.31 on the pretest and 21.03 on the post-test, an improvement of +3.7 for this group. The increase in the achievement of the students enrolled in the Cooperative Plan, according to the average means, was +1.9 more than the students enrolled in the In-School Plan.

The data in Figure 7 indicate that in twelve schools students in the Cooperative Plan showed a greater increase in directions - oral and written than students in the In-School Plan. The scores can be found in the Appendix on page 136. Table 14 lists the differences in achievement between the two plans in these schools.

Table 14

Student Achievement in Directions - Oral and Written in Schools Indicating Better Results in the Cooperative Plan

School	Cooperative	In-School	Difference
I	+ 7.0	+ 5.9	+1.1
II	+11.5	+ 6.9	+4.6
IV	+12.1	+ 5.4	+6.7
V	+ 5.1	+ 2.7	+2.4
VI	+ 6.3	+ 3.1	+3.2
VII	+12.4	+ 4.0	+8.4
X	+ 4.5	+ 1.5	+3.0

Table 14 (continued)

School	Cooperative	In-School	Difference
XI	+ 7.9	+ 4.9	+3.0
XII	+ 5.3	- 2.1	+7.4
XVIII	+19.7	+12.9	+6.8
XIX	+10.9	+ 4.7	+6.2
XX	+ 3.1	+ .4	+2.7

In comparison, however, the students enrolled in the In-School Plan in seven schools attained greater improvement than the students enrolled in the Cooperative Plan in those respective schools. These differences in achievement in oral and written directions between the two plans are shown in Table 15.

Table 15

Student Achievement in Directions - Oral and Written in Schools Indicating Better Results in the In-School Plan

School	In-School	Cooperative	Difference
III	+5.3	+1.1	+4.2
IX	+2.1	0	+2.1
XIII	+6.1	+1.3	+4.8
XIV	+ .5	- .1	+ .6
XV	+2.2	+ .5	+1.7
XVI	+3.9	+1.5	+2.4
XVII	+ .5	-2.5	+3.0

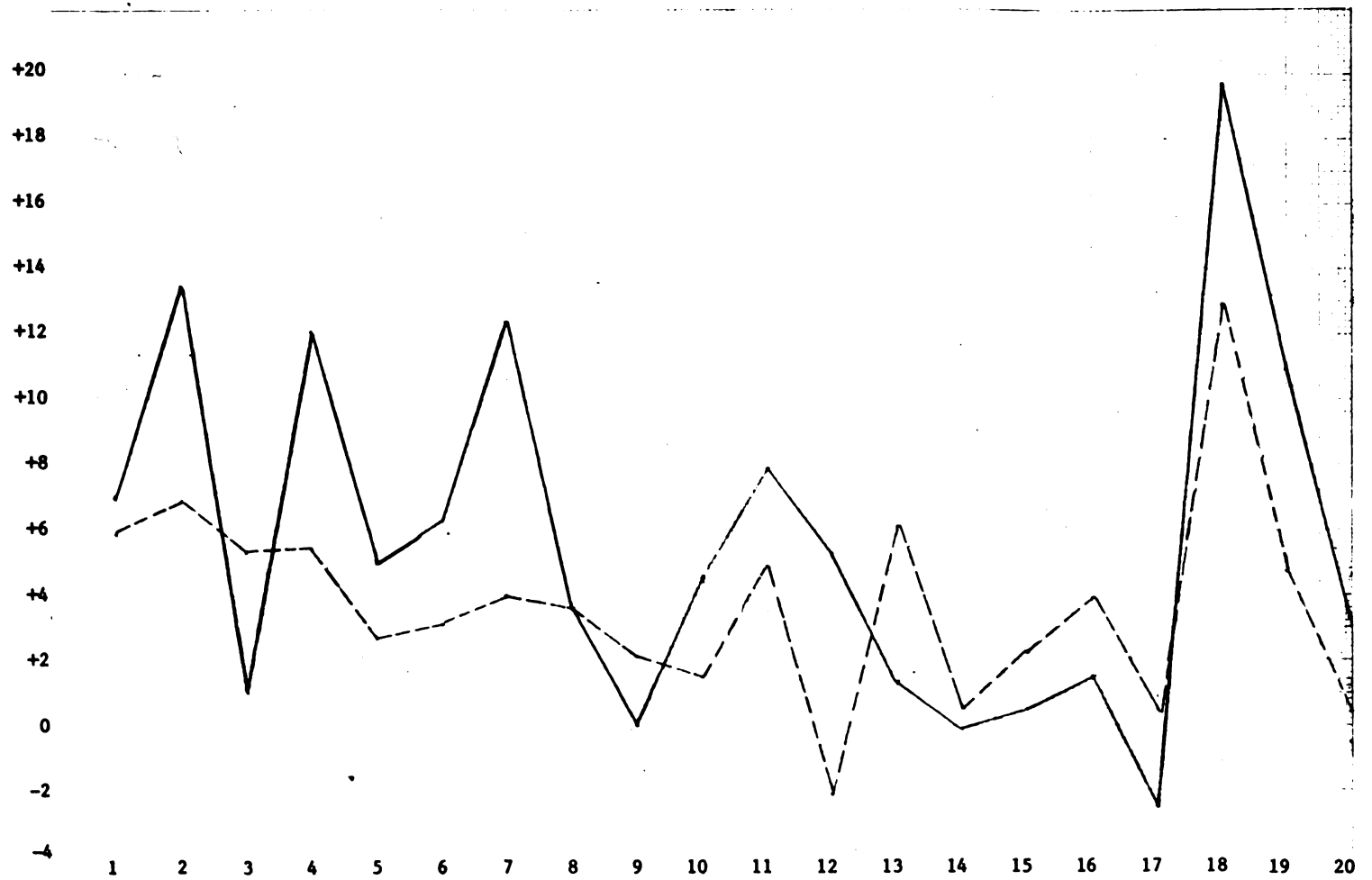

Figure 7

Differences in Directions - Oral and Written Achievement Between the Cooperative and In-School Plans in the Twenty Selected Schools

Cooperative Plan _____ **In-School Plan** _ _ _ _ _

Tables 14 and 15 indicate that there is a greater improvement factor in the schools where the Cooperative Plan accomplished better results than the In-School Plan in comparison to schools where the In-School Plan accomplished better results than the Cooperative Plan. In one school the increase in the achievement levels of the students enrolled in the two plans was identical.

Language

On a maximum score of 20, the Cooperative students averaged 5.92 on the pretest and 8.37 on the post-test. The difference was +2.5, indicating an improvement in language at the end of the school session. The average mean of the pretest administered to the In-School students was 6.08, and the average mean of the post-test was 6.67. The difference of +.6 indicated an improvement in language in this plan. However, according to the average means, students in the Cooperative Plan improved +1.9 more than the students enrolled in the In-School Plan by the end of the school session.

Figure 8 on page 60 gives evidence that in ten schools the Cooperative Plan students showed a greater increase in language achievement than students in the In-School Plan, while the In-School Plan students showed a greater increase in only three schools. The differences in language achievement improvement between the two plans in the ten schools where the Cooperative Plan achieved better results are presented in Table 16 on page 61. The scores can be found in the Appendix on page 138.

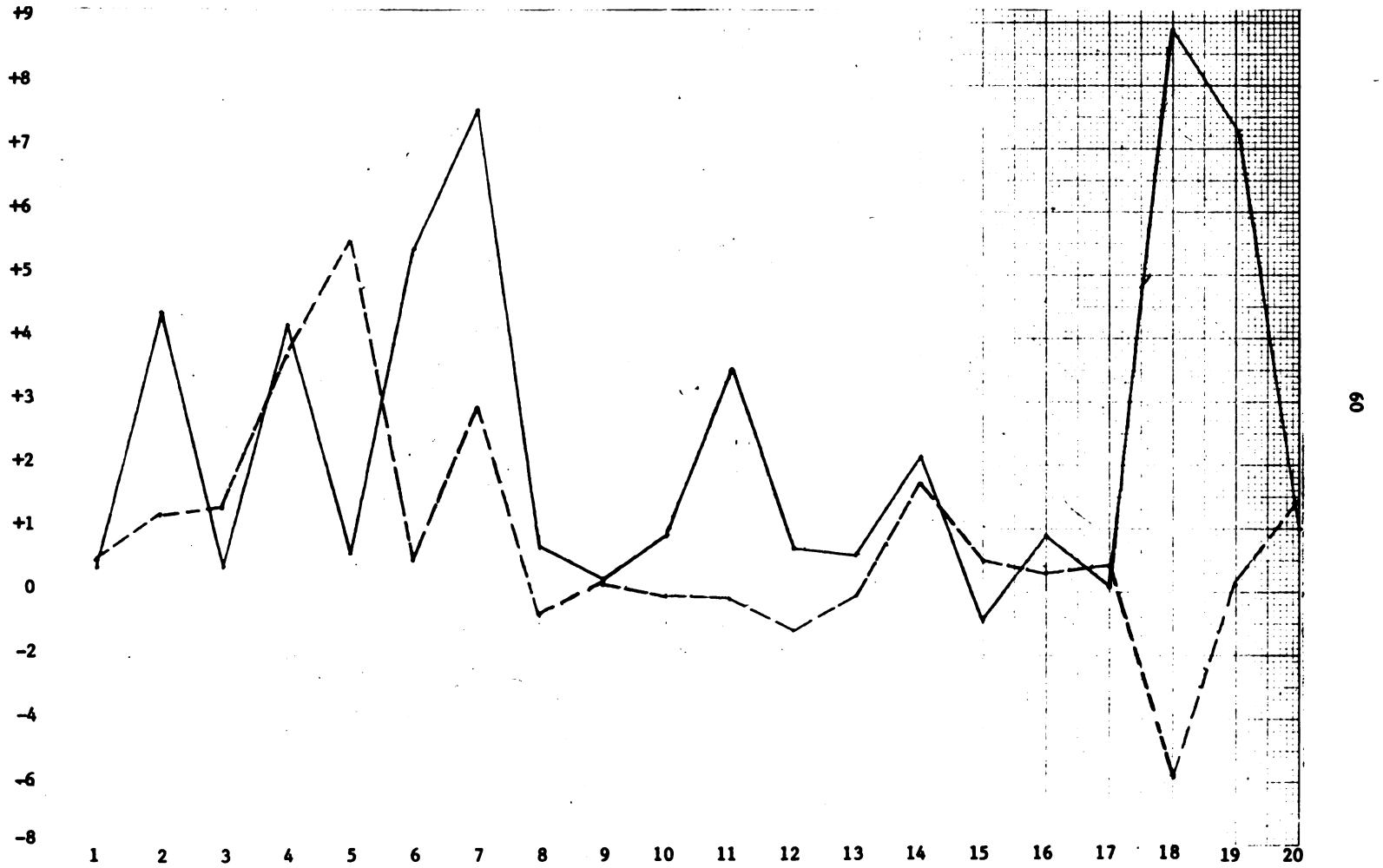

Figure 8

Differences in Language Achievement Between the Cooperative and In-School Plans in the Twenty Selected Schools

Cooperative Plan _____ **In-School Plan** _ _ _ _ _

Table 16

Student Achievement in Language in Schools Indicating Better Results in the Cooperative Plan

School	Cooperative	In-School	Difference
II	+4.4	+1.2	+ 3.2
VI	+5.4	+ .5	+ 4.9
VII	+7.6	+2.9	+ 4.7
VIII	+ .7	- .7	+ 1.4
X	+ .9	- .1	+ 1.0
XI	+3.5	- .2	+ 3.7
XII	+ .7	-1.4	+ 2.1
XIII	+ .6	- .1	+ .7
XVIII	+8.9	-5.8	+14.7
XIX	+7.3	+ .1	+ 7.2

Table 17 shows the differences in achievement between the two plans in the three schools where the In-School Plan students showed a greater improvement in language than the Cooperative Plan students at the end of two semesters of instruction.

Table 17

Student Achievement in Language in Schools Indicating Better Results in the In-School Plan

School	In-School	Cooperative	Difference
III	+1.3	+.4	+ .9
V	+5.5	+.6	+4.9
XV	+ .5	-.9	+1.4

The information in Tables 16 and 17 indicated that there was little difference in the improvement factors in the schools where the Cooperative Plan accomplished better results in language than the In-School Plan, with the exception of one school. In this particular school the students enrolled in the Cooperative Plan achieved greater improvement than the students enrolled in the In-School Plan. Yet, students enrolled in the Cooperative Plan in one school and students enrolled in the In-School Plan in six schools indicated no improvement upon reaching the terminal level of instruction.

Arithmetic

Based on 44 possible points, the average mean of the pretest administered to the Cooperative students was 20.98 and of the post-test was 23.67. The difference was +2.7 for this group, indicating an improvement at the terminal point of instruction. In comparison, the average mean of the pretest administered to the In-School students was 20.21 and of the post-test was 22.74. The difference for this group was +2.5, also indicating an improvement in this plan. According to the average means, the increase in the achievement of the students enrolled in the Cooperative Plan was +.2 greater than for the students enrolled in the In-School Plan.

Figure 9 on page 63 reveals, however, that in only five schools did Cooperative Plan students show a greater increase in improvement in arithmetic than the In-School Plan students in those respective schools. The scores can be found in the Appendix on page 140.

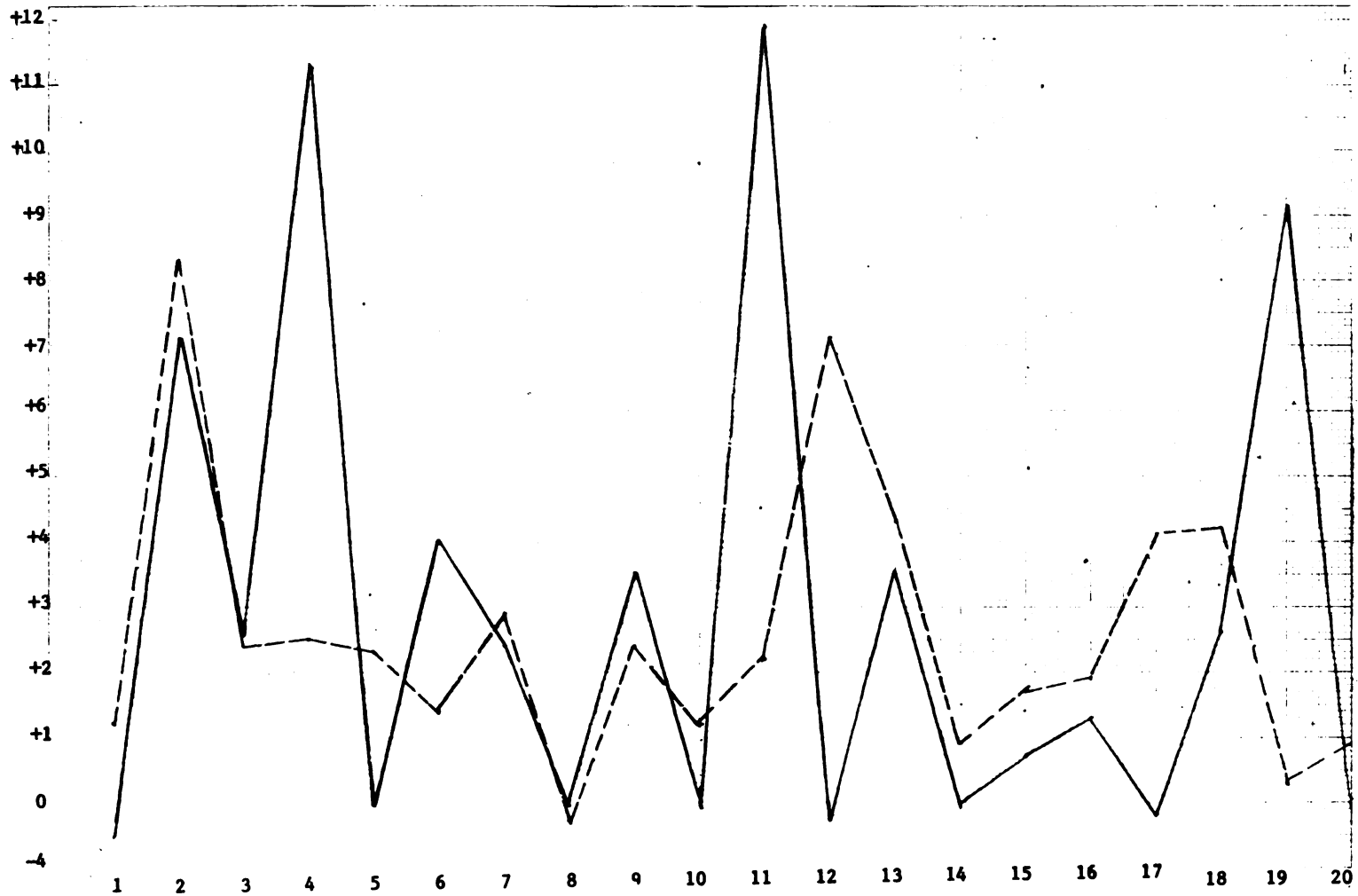

Figure 9

Differences in Arithmetic Achievement Between the Cooperative and In-School Plans in the Twenty Selected Schools

Cooperative Plan _____ In-School Plan _ _ _ _ _

Table 18 shows the differences in achievement between the two plans in the five schools where the students in the Cooperative Plan indicated better results than the students enrolled in the In-School Plan.

Table 18

Student Achievement in Arithmetic in Schools Indicating Better Results in the Cooperative Plan

School	Cooperative	In-School	Difference
IV	+11.3	+2.5	+8.8
VI	+ 4.0	+1.4	+2.6
IX	+ 3.5	+2.4	+1.1
XI	+11.9	+2.2	+9.7
XIX	+ 9.1	+ .3	+8.8

Students enrolled in the In-School Plan in eleven schools showed greater improvement than the students enrolled in the Cooperative Plan in those respective schools. Table 19 shows the differences in achievement between the two plans in these eleven schools.

Table 19

Student Achievement in Arithmetic in Schools Indicating Better Results in the In-School Plan

School	In-School	Cooperative	Difference
I	+1.2	-2.1	+3.3
II	+8.3	+7.1	+1.2

Table 19 (continued)

School	In-School	Cooperative	Difference
V	+2.3	- .3	+2.6
X	+1.2	- .7	+1.9
XII	+7.1	-1.1	+8.2
XIV	+ .9	- .5	+1.4
XV	+1.7	+ .7	+1.0
XVI	+1.9	+1.3	+ .6
XVII	+4.1	- .7	+4.8
XVIII	+4.2	+2.6	+1.6
XX	+ .9	- .4	+1.3

Tables 18 and 19 disclose that there is very little difference in the levels of improvement in the schools where the Cooperative Plan accomplished better results than the In-School Plan in comparison to schools where the In-School Plan accomplished better results than the Cooperative Plan. In four schools the improvement factor of the students enrolled in the two plans had only a slight variation.

Based on the data in this study, it was found that there is a significant difference between the Cooperative Plan and the In-School Plan as reflected in the results of the testing of selected production skills and of selected clerical abilities. Therefore, the hypothesis that there is no significant difference between the achievement of senior office education students under the cooperative plan and those under the in-school plan when achievement is defined as: (a) a total

package of skill competencies composed of the basics of shorthand, typewriting, and common clerical tasks - and (b) any single sub-skill measured separately in isolation from the total skill competencies; namely - business vocabulary, checking, coding, filing, directions - oral and written, language, and arithmetic was rejected.

The Rate of Student Performance and Competence in the Cooperative Plan if the Training Experiences Do Not Permit the Same Varied Practices as Can Be Obtained in the School Classroom

Cooperative students attained a higher terminal level of achievement in the selected production skills, namely shorthand and typewriting; and in the selected clerical abilities of business vocabulary, checking, coding, filing, directions - oral and written, language, and arithmetic. Therefore, the hypothesis that if both groups of students demonstrate achievement gains over the period of a year, it is under the cooperative plan that students will show a larger net gain was accepted.

Summary

A Multivariate Analysis of Variance was used to test the three hypotheses because all of the schools in the sample met the standards of the state plan. This analysis of variance was performed on the data obtained from the pretests given at the beginning of the 1971-72 school session and the post-tests at the end of that school session. The same procedure was used to determine the academic ability of a cross-section of the selected sample of participants.

The results of the academic ability of a cross-section of the selected sample of participants revealed that there was a significant

difference at the .005 level of significance between the academic ability of the students in the Cooperative and In-School Plans. The range between the intelligence quotient and the grade point average of both groups were similar, but the achievement tests results portrayed a different view. The Cooperative students achieved better results. Table 20 shows this significant difference at the .005 level of significance and can be found in the Appendix on page 97.

The differences between the means of the pretests and post-tests were used in determining whether there were differences between students in the Cooperative and In-School Plans in the selected production skills and the selected clerical abilities. The results indicated that there was a significant interaction between plans, schools, and tests. The differences in post-test mean scores minus pretest mean scores in most schools were relatively higher in the Cooperative Office Education Plan than in the In-School Office Education Plan. In some schools, however, the In-School Plan did score higher on both tests, and a few schools projected no differences between the two groups.

Based on all of the findings in this study, there is a significant difference between the plans, in the tests, and among the schools.

Table 21 shows the statistically significant interaction between plans, tests, and schools at the .0005 level of significance in the selected production skills - shorthand and typewriting. Table 21 can be found in the Appendix on page 98.

Table 22 shows a highly significant interaction between plans, tests, and schools at the .0005 level of significance in the selected clerical abilities - business vocabulary, checking, coding, filing,

directions - oral and written, language, and arithmetic. Table 22 can be found in the Appendix on page 99.

The study of the selected production and clerical abilities revealed that the probability of observing an F value as large as, or larger than, 0.9909 and 6.9105 respectively by chance alone was less than .0005. Therefore, there was a statistically significant interaction between plans, tests, and schools. In other words, the differences between pre and post-tests in the two responses and the seven responses, respectively, vary over the two plans in the twenty selected schools.

CHAPTER V

SUMMARY, CONCLUSIONS, RECOMMENDATIONS AND IMPLICATIONS

This study was conducted to determine the effect that Cooperative Office Education Plans have on the development of selected production skills and clerical abilities, if any, in comparison to In-School Office Education Plans.

Hypotheses to be Tested

The hypotheses tested in the study were:

1. There will be no significant difference between the achievement of senior office education students under the cooperative plan and those under the in-school plan when achievement is defined as:
    a. A total package of skill competencies composed of the basics of shorthand, typewriting, and common clerical tasks.
    b. Any single sub-skill measured separately in isolation from the total skill competencies; namely - business vocabulary, checking, coding, filing, directions - oral and written, language, and arithmetic.
2. If students under one plan of instruction demonstrate greater achievement than those under the other plan of instruction, that achievement will be due to measurable factors of student learning capacity and potential as measured by intelligence quotient, grade point average, and achievement in basic skills.

3. If both groups of students demonstrate achievement gains over the period of a year, it is under the cooperative plan that students will show a larger net gain.

Purpose of the Study

The purpose of the study was to discover whether students enrolled in the cooperative plan achieved better results than students enrolled in the in-school plan in the development of selected production skills and clerical abilities. The selected production skills were shorthand and typewriting; the seven areas of clerical abilities were business vocabulary, checking, coding, filing, directions - oral and written, language, and arithmetic.

The study determined the impact that the cooperative plan had on the acquisition of selected production skills and clerical abilities. For this reason, the study investigated the differences, if any, in the production skills and clerical abilities of students in the cooperative office education plan as compared with students in the in-school office education plan. Furthermore, if differences did exist, the study attempted to determine the extent of the differences and the degree to which these differences might be attributed to the cooperative office education plan.

Limitations of the Study

The study was limited to students enrolled in twenty selected Louisiana high schools in the Cooperative Office Education Plan and in the In-School Office Education Plan during the 1971-72 school session. The study was further limited to a comparison of the terminal level of

selected production skills and clerical abilities of students enrolled in the cooperative office education plan with the terminal level of selected production skills and clerical abilities of students enrolled in the in-school office education plan in high school. As a basis for the comparison, an analysis of the academic abilities of both plans was also included. No attempt was made to measure factors such as personality, job adjustment, and job satisfaction. Measurement of production skills and clerical abilities in this study was limited to a pretest and post-test in a one-year school session.

Summary of the Procedures

Definition of the Population

The study sample consisted of three-hundred Cooperative Office Education students and three-hundred In-School Office Education students in twenty Louisiana high schools out of a total population of eighty-two schools, all of which offered both the Cooperative and the In-School Plan.

It was assumed that, because the twenty schools that were randomly selected had both plans in their curriculum, this would provide an adequate sample for the series of examinations. The students chosen to participate in this study were randomly selected by their coordinators.

Collection of the Data

The data pertaining to student performance levels were collected using a pretest and a post-test. The pretest was administered at the beginning of the school year; the same test was administered at the end

of that school year. The thirty-six weeks between the two tests was sufficient time to guard against students remembering specifics from one test to the next.

The two skill areas tested were shorthand and typewriting. A standardized typewriting production test was administered, and a letter was dictated at the rate of eighty words per minute for three minutes. Fifteen minutes were allotted for transcription; any letter style was acceptable.

Standardized clerical ability tests were administered in the areas of business vocabulary, checking, coding, directions - oral and written, filing, language, and arithmetic.

As a means of predicting and interpreting the scores on selected production skills and clerical abilities, a study was made of the academic ability of a cross-section of the selected sample of participants. The following information was obtained from ten percent of the participants, thirty cooperative students and thirty in-school students: intelligence quotient, grade point average at the beginning of their senior year, and the scores attained on the achievement tests in English, reading, spelling, and number computation. The intelligence quotient for each student was derived by averaging the scores attained on the Otis Quick-Scoring Mental Ability Test: Beta Test, Form FM administered to students in the sixth and eighth grades, and the Otis-Lennon Mental Ability Test: Gamma Test, Form J given to students at the tenth grade level. The achievement test scores were attained by averaging the percentile rank achieved by each student on the Stanford Achievement Test, High School Basic Battery, Form W administered at the tenth grade level: and Form X, at the eleventh grade level.

Findings

Terminal Performance of the Two Groups

On the basis of the data in this study it was found that:

1. There is a significant difference in the intelligence quotient, grade point average, and achievement tests of the students in favor of the cooperative students. Cooperative students show a higher intelligence quotient, grade point average, and achievement test results than the in-school students. The academic ability of a cross-section of the selected sample of participants revealed that the average intelligence quotient was 103 for the cooperative students and 101 for the in-school students. The grade point average was 2.686 for the cooperative students and 2.384 for the in-school students. The achievement test scores revealed the average means for each group. The English mean was 59.63 for the cooperative group and 40.87 for the in-school group; the reading mean was 45.47 for the cooperative group and 26.07 for the in-school group; the spelling mean was 56.00 for the cooperative group and 43.17 for the in-school group; the number computation mean was 43.33 for the cooperative group and 31.47 for the in-school group.

2. Cooperative students reached a higher level of terminal achievement in shorthand than did the in-school students. However, the in-school students evidenced a larger net gain than did the cooperative students. Based on the possible score of 100, the average mean on the pretest of the students enrolled in the Cooperative Plan was 84.97, and the average mean of the post-test was 88.20. The difference of +3.2 indicated an improvement in shorthand speed at the end of the school

session. In the In-School Plan, the average mean on the pretest was 75.84; on the post-test, 80.40 - a difference of +4.6

3. Cooperative students reached a higher level of terminal achievement in typewriting, and evidenced a larger net gain than did the in-school students. The Typewriting Skill Test, administered to the students enrolled in the Cooperative and In-School Plans, was scored on the maximum that can be attained by the individual typist within a timed limit. Cooperative students averaged a mean of 30.20 on the pretest and 32.98 on the post-test. The difference of +2.8 indicated an improvement in typewriting skills for this group. In comparison, the in-school students averaged a mean of 29.27 on the pretest and 30.65 on the post-test. Their difference of +1.4 also indicated an increase in the typewriting skills, although this increase was half that of the Cooperative Plan students.

4. Cooperative students reached a higher level of terminal achievement in business vocabulary and evidenced a larger net gain than did the in-school students. Based on a possible score of 30, the average mean of the cooperative students was 14.35 on the pretest and on the post-test it was 18.26. Thus, the difference of +3.9 indicated an improvement in business vocabulary for this group at the end of the school session. The average mean of the pretest administered to the in-school students was 14.87; of the post-test, 15.14. The difference of +.3 indicated a slight improvement at the end of the school session. Students in the Cooperative Plan, according to the average means, gained +3.6 more than the students enrolled in the In-School Plan in business vocabulary.

5. Cooperative students reached a higher level of terminal achievement in checking, and evidenced a larger net gain than did the in-school students. The highest possible score for this test was 80. The cooperative students averaged 32.36 on the pretest and 38.63 on the post-test, registering a difference of +6.3 to indicate an improvement in their checking ability at the end of the school session. The in-school students averaged 31.44 on the pretest and 36.39 on the post-test - a difference of +5.0, indicating an improvement in their checking ability at the end of the school session. The increase of the students enrolled in the Cooperative Plan, according to the average means was +1.3 more than the students enrolled in the In-School Plan.

6. Cooperative students reached a higher level of terminal achievement in coding than did the in-school students. However, the in-school students evidenced a larger net gain than did the cooperative students. The coding score was based on a possible 105. The average mean of the pretest administered to the cooperative students was 72.57; of the post-test, 78.02. The average mean of the pretest administered to the in-school students was 67.73; of the post-test, 74.93. The difference of +7.2 suggests an improvement in the In-School Plan of +1.7 over the Cooperative Plan.

7. Cooperative students reached a higher level of terminal achievement in filing, and evidenced a larger net gain than did the in-school students. Based on a possible score of 54, the average mean of the pretest administered to the cooperative students was 16.70; and of the post-test was 22.45, indicating an improvement of +5.7 at the end of the school session. For the in-school students the average mean of the pretest was 15.32; of the post-test, 18.99 - an improvement of

+3.7 in this plan. According to the average means, the increase in the achievement of the students in the Cooperative Plan was +2.0 better than the students in the In-School Plan.

8. Cooperative students reached a higher level of terminal achievement in directions - oral and written, and evidenced a larger net gain than did the in-school students. The highest possible score on this test was 64. The cooperative students averaged 18.47 on the pretest and 24.04 on the post-test. The in-school students averaged 17.31 on the pretest and 21.03 on the post-test. According to the average means, the increase in the achievement of the students in the Cooperative Plan was +1.9 more than the students in the In-School Plan.

9. Cooperative students reached a higher level of terminal achievement in language, and evidenced a larger net gain than did the in-school students. On a maximum score of 20, the cooperative students averaged 5.92 on the pretest and 8.37 on the post-test. The in-school students averaged 6.08 on the pretest and 6.67 on the post-test. Cooperative students improved +1.9 more than the in-school students.

10. Cooperative students reached a higher level of terminal achievement in arithmetic, and evidenced a larger net gain than did the in-school students. Based on 44 possible points, the average mean of the pretest administered to the cooperative students was 20.98 and of the post-test was 23.67. The average mean of the pretest administered to the in-school students was 20.21 and of the post-test was 22.74. The cooperative students improved +.2 more than the students enrolled in the In-School Plan.

Summary of Findings

1. The total number of cooperative students show higher mean scores of achievement when all skill and ability scores are combined.

2. Cooperative students, as a whole, are superior in terms of vocational capacity, performance, and achievement in comparison to in-school students.

3. The achievement scores of cooperative and in-school students vary considerably between schools and plans.

Conclusions

From an analysis of the findings of the study pertaining to the differences at the end of two semesters of instruction between the terminal level of selected production skills, shorthand and typewriting, and the clerical and academic abilities of students enrolled in cooperative office education plans and students enrolled in in-school plans in twenty selected high schools in the State of Louisiana, the following conclusions were drawn:

1. As a total group, students under the cooperative plan attain a higher level of achievement than those students under the in-school plan. Therefore, the cooperative plan of instruction can be recommended to the public schools of Louisiana. However, this over-all gain of students is not consistent among schools. In some schools, the cooperative plan evidenced a larger net gain; in other schools, the in-school plan evidenced a larger net gain. While it was not measured in this study, it appears that there are selected causal factors operating in a given school in a particular community which might preclude the use of the cooperative plan and which might reinforce the use of the in-school

plan. These factors appear to be: (a) Size and location of community, e.g., small schools in small rural isolated communities probably can offer a greater variety of related experiences in school than can the very small businesses of that community. (b) The recommendation of the use of the cooperative plan is legitimate only where the school administration assures itself that the plan is being operated efficiently and in accordance with the basic principles of the cooperative plan of instruction. (c) The cooperative plan is not necessarily a better plan in any community, in any school, or for any particular student if the primary outcomes for that student are non-skill instruction. This study did not measure whether or not the cooperative plan could provide such learning outcomes as the ability to be supervised, requirement of poise and confidence, the solidification of the career goal, and the motivation to succeed for students who have a failure syndrome. (d) It is the researcher's personal viewpoint based on professional services in Louisiana, but not based on the data of this study that some form of limited cooperative experience may be valuable for the black student who has concerns and anxieties about working in the white labor market.

2. The cooperative plan can be recommended not only because it produces larger gains in a total skill, but because it also produces larger gains in each of the sub-skills. Again, however, the gains are not uniform among schools.

3. On the basis of the data in this study it is not known whether it is the job experience or the correlated instruction in school or the combination of both which is producing these gains.

4. The factor of the capacity to learn and high achievement in basic skills appears to be a factor in the higher achievement shown by

cooperative students. It cannot be determined from this study whether the selection of better students for cooperative office education is the reason for the demonstrable higher achievement of cooperative students.

5. If one uses a finite scoring scale for skill achievement, the cooperative plan will not produce a net gain in achievement that is proportionally larger than the net gain from students in the in-school plan. However, in the practical labor market it does not make any difference where a student starts; it is the terminal performance which is important and therefore the cooperative students do better.

6. Students enrolled in the cooperative plan should be skilled in shorthand and typewriting and knowledgeable in business vocabulary, checking, coding, filing, directions - oral and written, language, and arithmetic.

7. A tentative conclusion is that the total standard of performance in office skills for both the cooperative and the in-school student was lower than what leading business educators and many classroom teachers would like to think is desirable. However, there is a lack of data in Louisiana as well as in the United States on the actual terminal performance of large groups of senior office education students. On the other hand, the level of performance is in reality only significant in that it must be such for each student to allow him to obtain a job and to keep a job.

Recommendations

The following recommendations are made from the findings and conclusions of the research and the thoughts of the researcher as a result of conducting this study.

1. Research should be carried on regarding both Cooperative Office Education and In-School Office Education Plans to determine, if possible, the most effective manner to prepare the future employee through:

   a. Studies in which a student employee is tested at different points in his occupational experience to determine his rate of achievement in selected production skills and clerical abilities.

   b. Studies in which a student in a model office situation is tested at different intervals throughout a respective school session.

2. Studies are needed which determine the results between school systems that emphasize the In-School Plan and those that emphasize the Cooperative Plan in preparing the student for the world of work.

3. Studies should be conducted to determine how Cooperative Plans compare to In-School Plans in terms of cost, time, results, types of students, content, and activities.

Implications

The following implications are stated on the basis of data and the experience of the researcher in Louisiana schools as a teacher-coordinator.

1. Students who enroll in a cooperative plan have a career goal and they strive to fulfill the objectives that will lead them to this goal; therefore, they strive to exercise to their fullest potentials the knowledge and skills that will enable them to become vocationally competent.

2. In some communities the cooperative students seldom have the opportunity to practice the skills of dictation and transcription at their respective training stations. Either dictation is not given or the transcribing unit is used.

3. Some cooperative students are not confronted with numerous typewriting tasks at their training stations, whereas others are required to do a large amount of typewriting tasks.

4. Student employees are presumed to be exposed to more business terms and office procedures than students who have only classroom exposure.

5. Student employees may have more opportunities to check the accuracy of listed names and numbers against a "correct list" than students who are in a classroom situation.

6. It appears that student employees are not frequently required to check a proper code associated with a list of adjectives and a list of objects, singly and in combination. Nor are they often required to memorize rote material rapidly and to code information. Students in the classroom might be required to do more memorizing than students in training stations.

7. Student employees probably have more opportunities to file written correspondence in comparison to students who remain in the classroom. It was evident that some students in the In-School Plan had Filing Practice Sets as part of their classwork.

8. Student employees are exposed to receiving more oral and written directions and are more aware of these directions as part of the job at their training station.

9. Student employees are frequently assigned the responsibility of allowing only error-free communication material to leave the training

station, but the results of the language test indicated that a minimum amount of written communication is exercised or that spelling, punctuation, and sentence structure are not being taught in the cooperative related class.

10. In a number of schools, the increments in the achievement in any of the skills and clerical abilities was slight or even null. It could be argued that the taxpayer's money and student's time was being misused. However, this study did not measure the other factors involved in these classes such as personal grooming, personality, human relations, initiative, trustworthiness, dependability, and loyalty. These factors are of the utmost importance in a cooperative plan. In some communities, it is essential for a teacher-coordinator to devote more time to the personal need of students than to production skills and clerical abilities.

11. The cooperative students in the more industrialized sections of the state seemed to indicate a greater increase in the achievement of selected production skills and clerical abilities than the cooperative students in the non-industrial areas. Although no hypothesis was originally stated, the data began to uncover this and it could have generated a new hypothesis.

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APPENDIX

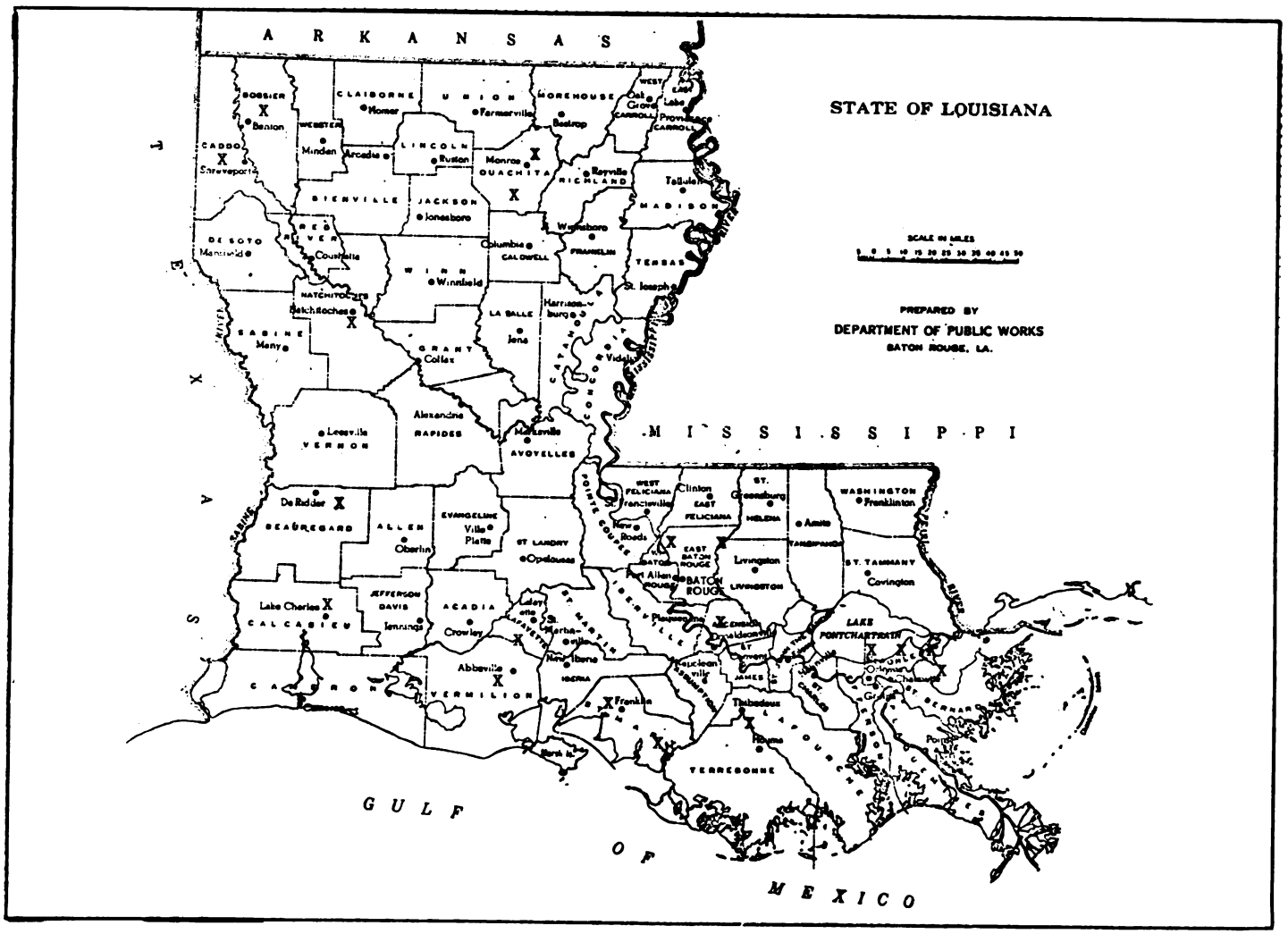

Figure 10

Locations of the Twenty Randomly Selected Schools
That Participated in This Study

ABBEVILLE HIGH SCHOOL

CECIL J. PICARD
PRINCIPAL
PHONE 893-1874

1305 SENIOR HIGH DRIVE
ABBEVILLE, LOUISIANA 70510

J. Y. MULA
ASS'T. PRINCIPAL
PHONE 893-1883

Mr. Frank M. Lampkin, Principal
Bossier High School
Coleman Street
Bossier City, LA 71010

Dear Mr. Lampkin

I am a doctoral candidate at Michigan State University and I am presently working towards earning a PhD Degree in Business Education.

I have twelve years of teaching experience in the field of Business Education in the state of Louisiana. I was granted a sabbatical leave last year in order to complete my course work, and this year I have returned to my home state to resume teaching as well as write and gather data for my dissertation entitled TWO PLANS OF HIGH SCHOOL STENOGRAPHIC INSTRUCTION IN THE STATE OF LOUISIANA.

Through random sampling your school has been selected as one of the schools that will be included in this study. Mr. Ferguson is cooperating with me in this study because it is felt that there is a definite need to determine whether there is a significant difference in the skills and clerical ability areas between students enrolled in a non-cooperative program and students enrolled in a Cooperative Office Education program. With these results we will know the areas of strengths and weaknesses. We can use this information to strengthen our Business Education program in Louisiana because we have more and more students who want immediate employment upon graduating from high school. The labor market is getting tighter each day; therefore, we must prepare students to achieve the highest level of productivity and competence in order to meet the present demands of labor. We feel that the State Department as well as all business education teachers and principals should be vitally interested in this study. All can profit from it.

We are hopeful that you and Mr. Melvin H. Haire, the COE Coordinator, will cooperate in this study. We request the aid of Mr. Haire in administering these tests to fifteen COE students and to fifteen students who are in the non-cooperative program. These students are to be selected at random, and the same group that will be pre-tested must be post-tested. Students in a non-cooperative program are enrolled in the business courses offered -- Typewriting, Shorthand I and II, Bookkeeping, Clerical Practice, Data Processing, etc. -- but do not enroll in the COE Program.

Mr. Frank M. Lampkin, Principal
Page 2

It is requested that Mr. Haire test the students that he is presently teaching. The pre-testing will be in September and the post-testing will be in May.

If you or the COE Coordinator do not wish to participate in this study, please inform me immediately; but Mr. Ferguson and I feel that both of you will be cooperative.

If you wish to call me, my office telephone number at the Abbeville High School is 318 893-0944 and my home telephone number is 318 893-1660.

Please fill in and return the enclosed self-addressed postal card today. Thank you for your cooperation.

Sincerely

Mrs. Merline T. Broussard
COE Coordinator

Andrew H. Ferguson, State Director
Business & Office Education
State Department of Education

Enclosure: Postal card

cc: Mr. Melvin H. Haire

____ I will	____ I will not
participate in the study entitled TWO PLANS OF HIGH SCHOOL STENOGRAPHIC INSTRUCTION IN THE STATE OF LOUISIANA.	
_____	_____
Frank M. Lampkin, Principal Bossier High School	Melvin H. Haire COE Coordinator
Please check, sign, and mail this postal card today. Thank you for your cooperation.	

SHORTHAND TEST

DIRECTIONS: This letter is to be dictated at the rate of 80 wpm for a 3 minute period of time. The transcription time is 15 minutes. Any letter style is acceptable.

Gentlemen

When I was at the Apparel Mart in Dallas, Texas, on August 24, I purchased merchandise / from your sales representative. I received a shipment today, but it is not the merchandise that I / requested.

I am enclosing a copy of the customer's invoice indicating the merchandise I purchased / from your firm on August 24 and the duplicate invoice of the goods I received today. You can readily (1) see that the articles I ordered from your sales representative and the articles you mailed to me are / totally different.

I believe that you mailed the merchandise I ordered to one of your other customers / and mailed to me the merchandise he ordered.

In the meantime, please send me a shipping label so that I may / return the merchandise to you. Place a tracer on my order immediately or, if you wish, refill my (2) order and ship it right away. If I should receive a second shipment of my original order, I / will return it to you at once.

Please take action today because I need this merchandise for the coming season. / If I do not receive it shortly, I will not be able to sell these goods because this is seasonal merchandise. /

I expect immediate action from your firm. Thank you for your cooperation and interest.

Sincerely (3)

STATE OF LOUISIANA
DEPARTMENT OF EDUCATION
WILLIAM J. DODD
STATE SUPERINTENDENT
BATON ROUGE 70804

Dear COE Coordinator

Thank you for participating in the study entitled Two Plans of High School Stenographic Instruction in the State of Louisiana.

I am enclosing the Typewriting Skill Test, the Shorthand Skill Test, and the Clerical Ability Tests. Each test is in groups of fifteen and labeled for the two groups of students that will be tested -- Cooperative Office Education Students and Regular Stenographic Program Students.

Please return these tests to me with the identifying sheet for each respective group. Do not correct any of these tests.

The directions for each test are also enclosed. Please return all tests to me in the enclosed self-addressed and stamped box. Please use the enclosed tape to seal for security measures.

Thank you for your cooperation.

Sincerely

(Mrs.) Merline T. Broussard
COE Coordinator
Abbeville High School

ADMINISTRATION OF THE TYPEWRITING TEST

All necessary information is on the front page of the test booklet. While the typists read directions and type the practice paragraphs, make certain that all are following the instructions correctly. Two points should be watched carefully:

1. The entire first section of the directions - beginning with "The SRA Typing Skills measures..." through typing the practice exercises"—must be typed at least once for warm-up and practice.

2. The test letter must be kept folded under throughout the preliminary period until the worksheet is to be detached from the booklet. DO NOT ALLOW ANY READING OF THE TEST LETTER BEFORE THE TEST.

Allow as much time as is needed for warm-up and reading the instructions. However, a period of seven to ten minutes is usually sufficient. It is important that each person know exactly what to do. If there are any questions about the operation of the typewriter, answer them, but do not set the machine correctly for the test. Moreover, do NOT answer questions relevant to the nature of the test. After everyone is ready to begin, say:

> "Are you ready? Be sure to follow the directions you have read. Work carefully and accurately. You will have EXACTLY TEN MINUTES. Ready? Begin."

Time the test carefully. Deviation of even one minute can increase a score by 10 percent or more. The score on an incorrectly timed test is worthless. If a stopwatch is not available, record the starting time in minutes and seconds. The addition of ten minutes to the starting time will give the stopping time; write it down and keep it in sight continuously. At the end of exactly ten minutes, call time and collect all papers immediately.

ADMINISTRATION OF CLERICAL ABILITY TESTS

Materials

The examinees should have two sharp, hard lead-pencils. It is desirable to distribute and collect the tests singly as they are administered.

Timing

If the test results are to be valid, it is extremely important that the exact time limits for the tests are observed. Sufficient time should be allowed before each test to permit the examinees to read the instructions and work the examples for the test.

The time limits for the tests are as follows:

Business Vocabulary	5 minutes
Checking	5 minutes
Coding	5 minutes
Filing	5 minutes
Directions, Oral & Written	5 minutes
Language	5 minutes
Arithmetic, Part I	3 minutes
Arithmetic, Part II	6 minutes

INSTRUCTIONS FOR ADMINISTERING THE TESTS OF -- BUSINESS VOCABULARY, CHECKING, CODING, FILING, LANGUAGE

"This test is called _____. Fill in your name along the left-hand side."

Then say:

"Now read the instructions for the test that are printed on the front and do the practice problems. DO NOT TURN THE SHEET OVER UNTIL I TELL YOU TO DO SO."

Allow enough time for the examinees to read the instructions and do the practice problems -- about 2 minutes.

"Ready? Turn the test sheet over and begin."

Start the timer or stop watch. After exactly five minutes, say:

"Stop. Pass the test papers forward."

Collect the test papers and distribute the next test.

INSTRUCTIONS FOR ADMINISTERING THE ARITHMETIC TEST

At the end of exactly three minutes the test administrator should say:

"Stop working on Part I. Begin working on Part II."

Then after exactly six minutes:

"Stop. Pass the test papers forward."

INSTRUCTIONS FOR ADMINISTERING DIRECTIONS, ORAL AND WRITTEN

After the test booklets are distributed and the examinees have filled in the identifying information along the left-hand side, say:

"Read the instructions for this test that are printed on the front." (about 1 to 1½ minutes)

Then:

"Turn the test booklets over so that the blank page is before you. You should take your notes on this page."

Then begin reading the special "Oral Directions to be Read by the Examiner." These instructions lead into the test itself. Note that no questions are answered about the test. Part of the test is understanding the printed instructions. After telling the examinees to begin the test, start the timer or stop watch. In exactly five minutes, say:

"Stop. Pass your test booklets forward."

THANK YOU FOR YOUR COOPERATION.

ABBEVILLE HIGH SCHOOL

CECIL J. PICARD
PRINCIPAL
PHONE 893-1874

1305 SENIOR HIGH DRIVE
ABBEVILLE, LOUISIANA 70510

J. Y. MULA
ASS'T. PRINCIPAL
PHONE 893-1883

Mrs. Adelene Lee, COE Coordinator
DeRidder High School
P. O. Drawer 589
DeRidder, LA 70634

Dear Mrs. Lee

Thank you for participating in the study entitled Two Plans of High School Stenographic Instruction in the State of Louisiana.

Please return the tests for the two groups of students that were tested -- Cooperative Office Education Students and the students enrolled in the Non-Cooperative Program.

Return these tests to me with the identifying sheet for each respective group. Do not correct any of these tests, but do return them in the self-addressed and stamped box that was sent to you.

Please return this material as soon as possible. Thank you for your cooperation.

Sincerely

Mrs. Merline T. Broussard
COE Coordinator

ABBEVILLE HIGH SCHOOL

CECIL J. PICARD
PRINCIPAL
PHONE 893-1874

1305 SENIOR HIGH DRIVE
ABBEVILLE, LOUISIANA 70510

J. Y. MULA
ASS'T. PRINCIPAL
PHONE 893-1883

Dear COE Coordinator

The time for post-testing has arrived and I want to thank you for participating in the study entitled Two Plans of High School Stenographic Instruction in the State of Louisiana.

I am enclosing the same number of Typewriting Skill Tests and Clerical Ability Tests that you used in the pretesting. Each test is in groups and labeled for the two groups of students that will be tested -- Cooperative Office Education Students and Regular Stenographic Program Students.

Please return these tests to me with the identifying sheet for each respective group. Do not correct any of these tests.

The directions for each test are also enclosed. Please return all tests to me in the enclosed self-addressed and stamped box. Please use the enclosed tape to seal for security measures.

Thank you for your cooperation and I am looking forward to seeing you so that I may personally thank you.

Sincerely

Merline T. Brousard
COE Coordinator

Table 20

Multivariate Analysis of Variance - Academic Ability

Source	Log (Generalized Variance)	U-Statistic	Degrees of Freedom			Approximate F-Statistic	Degrees of Freedom	
I	49.29308	0.686419	6	1	58	4.0354*	6	53.00
R(I)	48.91681							

*4.0354 is larger than the critical value from the F-table. Therefore, there is a significant difference at the .005 level of significance between the academic ability (as defined by the responses) of the students enrolled in the Cooperative Office Education Plan and the students enrolled in the In-School Office Education Plan.

Table 21

Multivariate Analysis of Variance - Shorthand and Typewriting

Source	Log (Generalized Variance)	U-Statistic	Degrees of Freedom	Approximate F-Statistic	Degrees of Freedom
P	23.71919	0.918142	2 1 1120	49.8830	2 1119.00
T	23.66208	0.972107	2 1 1120	16.0542	2 1119.00
S	24.27043	0.529066	2 19 1120	22.0748	38 2238.00
PT	23.63681	0.996983	2 1 1120	1.6930	2 1119.00
PS	23.92235	0.749343	2 19 1120	9.1409	38 2238.00
TS	23.67787	0.956875	2 19 1120	1.3125	38 2238.00
PTS	23.66716	0.967180	2 19 1120	0.9909	38 2238.00
R(PTS)	23.63379				

P = Plan T = Test S = School PT = Plan x Test = Interaction

PS= Plan x School = Interaction TS= Test x School = Interaction

PTS= Plan x Test x School = Interaction R(PTS)= Students with Plan x Test x School = Interaction

Table 22

Multivariate Analysis of Variance - Clerical Ability Tests

Source	Log (Generalized Variance)	U-Statistic	Degrees of Freedom	Approximate F-Statistic	Degrees of Freedom
P	74.45178	0.929759	7 1 1120	12.0229	7 1114.00
T	74.60553	0.797257	7 1 1120	40.4700	7 1114.00
S	75.62700	0.287065	7 19 1120	11.5223	133 7371.89
PT	74.45903	0.923044	7 1 1120	13.2680	7 1114.00
PS	75.42010	0.353047	7 19 1120	9.4586	133 7371.89
TS	75.15944	0.458183	7 19 1120	6.9489	133 7371.89
PTS	75.15536	0.460053	7 19 1120	6.9105*	133 7371.89
R(PTS)	74.37895				

P = Plan T = Test S = School PT = Plan x Test = Interaction

PS= Plan x School = Interaction TS= Test x School = Interaction
PTS= Plan x Test x School = Interaction R(PTS)= Students within Plan x Test x School = Interaction

*This indicates a very high significant interaction between plans, tests, and schools at the .0005 level of significance.

Table 23

Academic Ability of Thirty Randomly Selected Students Enrolled in the Cooperative Plan

Student Number	I.Q.	G.P.A.	Achievement Tests - Scores			
			English	Reading	Spelling	Number Computation
1	119	3.609	74	89	86	94
2	122	3.350	48	56	46	36
3	85	1.610	18	16	42	23
4	102	3.066	92	40	76	46
5	100	2.766	54	26	66	52
6	87	1.785	44	20	42	30
7	95	2.530	44	32	64	34
8	103	2.300	62	20	72	20
9	94	3.292	40	16	20	22
10	109	3.052	66	52	40	48
11	109	2.400	92	60	44	52
12	96	3.000	56	68	58	56
13	113	2.878	52	44	56	40
14	92	2.263	21	22	18	38
15	83	2.333	36	40	48	26
16	103	3.000	62	28	40	68
17	95	2.666	70	62	76	46
18	97	2.789	52	44	76	24
19	90	2.684	32	38	50	30
20	103	2.500	58	60	66	56

Table 23 (continued)

Student Number	I.Q.	G.P.A.	Achievement Tests - Scores			
			English	Reading	Spelling	Number Computation
21	99	2.333	54	44	40	52
22	114	3.157	84	76	72	38
23	123	3.150	88	78	54	60
24	101	2.200	46	62	52	48
25	117	3.050	78	48	50	54
26	103	2.073	94	48	72	26
27	100	2.133	74	30	82	52
28	116	3.000	86	70	52	56
29	105	2.900	62	42	56	46
30	102	2.714	50	33	64	34
Average:	103	2.686	59.63	45.47	56.00	43.33

Table 24

Academic Ability of Thirty Randomly Selected Students Enrolled in the In-School Plan

Student Number	I.Q.	G.P.A.	Achievement Tests - Scores			
			English	Reading	Spelling	Number Computation
1	96	1.560	2	1	8	6
2	109	2.250	89	52	50	77
3	97	2.850	60	28	58	40
4	97	1.894	32	8	50	72
5	104	2.611	48	28	6	44
6	103	2.800	6	8	6	11
7	84	1.200	16	20	42	8
8	102	2.736	40	11	64	14
9	111	3.222	60	38	72	36
10	107	3.300	32	23	42	36
11	107	3.100	74	48	36	18
12	83	.925	2	5	6	4
13	96	2.105	10	4	62	16
14	100	3.153	62	66	80	36
15	105	2.000	56	20	24	28
16	96	2.902	40	28	78	36
17	102	2.238	52	20	50	36
18	91	1.761	28	34	20	14
19	109	2.487	40	28	4	44
20	89	1.142	11	2	24	10

Table 24 (continued)

Student Number	I.Q.	G.P.A.	Achievement Tests - Scores			
			English	Reading	Spelling	Number Computation
21	97	2.523	36	23	58	28
22	96	2.000	16	2	28	44
23	102	2.400	44	10	36	60
24	104	2.200	56	48	36	16
25	98	2.850	44	28	78	24
26	103	2.750	32	23	24	6
27	116	2.800	70	56	89	44
28	95	2.564	32	28	68	32
29	114	2.368	74	44	76	44
30	104	2.842	62	48	50	60
Average:	101	2.384	40.87	26.07	43.17	31.47

Table 25

Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in School I

	Cooperative Plan			In-School Plan		
Test	Pre	Post	Difference	Pre	Post	Difference
Shorthand	89.39999	92.79999	+3.4	88.86665	93.53333	+4.7
Typewriting	37.26666	40.06667	+2.8	30.06667	33.06667	+3.0
Business Vocabulary	12.73333	15.93333	+3.2	13.13333	15.60000	+2.5
Checking	35.26666	37.66666	+2.4	34.73332	36.79999	+2.1
Coding	78.59999	72.86665	-5.7	75.59999	77.13333	+1.5
Filing	18.13333	21.06667	+2.9	17.79999	20.13333	+2.3
Directions	17.46666	24.46666	+7.0	16.33333	22.20000	+5.9
Language	5.06667	5.46667	+ .4	5.33333	5.86667	+ .5
Arithmetic	21.66666	19.59999	-2.1	21.39999	22.59999	+1.2

Table 26

Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in School II

	Cooperative Plan			In-School Plan		
Test	Pre	Post	Difference	Pre	Post	Difference
Shorthand	89.79999	95.33333	+ 5.5	73.79999	77.73332	+3.9
Typewriting	32.26666	36.86665	+ 4.6	26.33333	31.13333	+4.8
Business Vocabulary	13.66667	20.79999	+ 7.1	11.00000	14.86667	+3.9
Checking	33.39999	46.66666	+13.3	32.20000	39.53333	+7.3
Coding	75.59999	88.66666	+13.1	75.20000	83.59999	+8.4
Filing	15.20000	29.66666	+14.5	15.13333	19.26666	+4.1
Directions	16.53333	28.06667	+11.5	14.06667	20.93332	+6.9
Language	8.60000	13.00000	+ 4.4	5.66667	6.86667	+1.2
Arithmetic	21.73332	28.79999	+ 7.1	20.06667	28.33333	+8.3

Table 27

Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in School III

	Cooperative Plan			In-School Plan		
Test	Pre	Post	Difference	Pre	Post	Difference
Shorthand	96.06667	98.20000	+2.1	89.66666	91.86665	+2.2
Typewriting	28.13333	32.66666	+4.5	30.13333	30.13333	0
Business Vocabulary	15.00000	18.26666	+3.3	11.00000	13.66667	+2.7
Checking	39.20000	43.66666	+4.5	36.79999	33.20000	-3.6
Coding	73.86665	81.73332	+7.9	67.46666	72.33333	+4.9
Filing	19.53333	28.93332	+9.4	12.73333	17.06667	+4.3
Directions	26.00000	27.06667	+1.1	18.73332	24.06667	+5.3
Language	7.20000	7.60000	+ .4	6.06667	7.40000	+1.3
Arithmetic	22.66666	25.26666	+2.6	19.46666	21.86665	+2.4

Table 28

Means and Differences attained on Pre and Post-Tests in Both Plans of Instruction in School IV

	Cooperative Plan			In-School Plan		
Test	Pre	Post	Difference	Pre	Post	Difference
Shorthand	86.39999	89.93332	+ 3.5	85.53333	87.79999	+2.3
Typewriting	35.93332	38.20000	+ 2.3	33.53333	35.26666	+1.7
Business Vocabulary	14.26667	24.00000	+ 9.7	13.60000	15.93333	+2.3
Checking	35.59999	55.13333	+19.5	33.53333	37.26666	+3.7
Coding	77.00000	88.59999	+11.6	71.53333	80.20000	+8.7
Filing	17.39999	31.13333	+13.7	18.13333	21.79999	+3.7
Directions	21.00000	33.13333	+12.1	19.73332	25.13333	+5.4
Language	5.40000	9.60000	+ 4.2	6.46667	10.20000	+3.7
Arithmetic	21.06667	32.33333	+11.3	23.26666	25.73332	+2.5

Table 29

Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in School V

	Cooperative Plan			In-School Plan		
Test	Pre	Post	Difference	Pre	Post	Difference
Shorthand	66.46666	75.73332	+9.3	74.13333	78.73332	+4.6
Typewriting	30.79999	33.00000	+2.2	23.59999	28.06667	+4.5
Business Vocabulary	12.26667	13.46667	+1.2	7.93333	10.26667	+2.3
Checking	22.13333	23.73332	+1.6	25.26666	28.00000	+2.8
Coding	76.20000	74.06667	-2.1	61.06667	64.13333	+3.1
Filing	13.60000	7.33333	-6.5	6.80000	7.33333	+ .5
Directions	10.60000	15.73333	+5.1	12.93333	15.60000	+2.7
Language	4.86667	5.46667	+ .6	4.93333	10.40000	+5.5
Arithmetic	18.66666	18.33333	- .3	12.53333	14.80000	+2.3

Table 30

Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in School VI

	Cooperative Plan			In-School Plan		
Test	Pre	Post	Difference	Pre	Post	Difference
Shorthand	78.39999	90.26666	+11.9	68.20000	74.53333	+6.3
Typewriting	29.73332	35.00000	+ 5.3	27.53333	31.39999	+3.9
Business Vocabulary	12.40000	15.53333	+ 3.1	11.80000	14.00000	+2.2
Checking	22.59999	31.46666	+ 8.9	31.33333	36.86665	+5.5
Coding	69.00000	74.39999	+ 5.4	72.39999	75.59999	+5.2
Filing	9.53333	19.66666	+10.1	12.66667	16.46666	+3.8
Directions	8.73333	15.00000	+ 6.3	14.00000	17.06667	+3.1
Language	4.33333	9.73333	+ 5.4	5.46667	5.93333	+ .5
Arithmetic	12.66667	16.66666	+ 4.0	17.13333	18.53333	+1.4

Table 31

Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in School VII

	Cooperative Plan			In-School Plan		
Test	Pre	Post	Difference	Pre	Post	Difference
Shorthand	93.13333	95.93332	+ 2.8	85.66666	87.73332	+2.1
Typewriting	29.00000	32.46666	+ 3.5	28.46666	30.33333	+1.9
Business Vocabulary	15.40000	17.79999	+ 2.4	13.40000	17.13333	+3.7
Checking	39.39999	41.53333	+ 2.1	33.59999	37.13333	+3.5
Coding	74.00000	81.93332	+ 7.9	68.93332	76.53333	+7.6
Filing	23.06667	37.53333	+14.5	17.79999	23.13333	+5.3
Directions	21.73332	34.13333	+12.4	17.06667	21.06667	+4.0
Language	5.60000	13.20000	+ 7.6	5.53333	8.46667	+2.9
Arithmetic	22.79999	25.20000	+ 2.4	20.33333	23.26666	+2.9

Table 32

Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in School VIII

	Cooperative Plan			In-School Plan		
Test	Pre	Post	Difference	Pre	Post	Difference
Shorthand	59.53333	61.20000	+1.7	57.66666	74.00000	+16.3
Typewriting	31.59999	28.26666	-3.3	34.53333	28.79999	- 5.7
Business Vocabulary	13.40000	15.40000	+2.0	13.40000	15.46667	+ 2.1
Checking	30.93332	31.53333	+ .6	34.06667	35.66666	+ 1.6
Coding	74.20000	71.26666	-2.9	69.20000	73.73332	+ 4.5
Filing	10.53333	13.00000	+2.5	10.46667	17.39999	+ 6.9
Directions	14.66667	18.26666	+3.6	14.06667	17.66666	+ 3.6
Language	7.80000	8.53333	+ .7	6.60000	5.93333	- .7
Arithmetic	19.33333	18.79999	- .5	21.13333	19.59999	- 1.5

Table 33

Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in School IX

	Cooperative Plan			In-School Plan		
Test	Pre	Post	Difference	Pre	Post	Difference
Shorthand	93.66666	96.20000	+2.5	83.33333	85.00000	+1.7
Typewriting	26.79999	31.39999	+4.6	28.46666	27.20000	-1.3
Business Vocabulary	12.40000	17.13333	+4.7	9.86667	11.80000	+1.9
Checking	29.86665	34.46666	+4.6	27.73332	29.26666	+1.5
Coding	64.33333	73.66666	+9.3	68.66666	68.39999	- .3
Filing	13.06667	14.46667	+1.4	12.26667	13.33333	+1.1
Directions	17.26666	17.26666	0	14.73333	16.79999	+2.1
Language	5.73333	5.93333	+ .2	5.20000	5.33333	+ .1
Arithmetic	19.59999	23.13333	+3.5	18.00000	20.39999	+2.4

Table 34

Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in School X

	Cooperative Plan			In-School Plan		
Test	Pre	Post	Difference	Pre	Post	Difference
Shorthand	92.39999	93.79999	+1.4	72.66666	75.79999	+3.1
Typewriting	35.86665	33.73332	-2.1	25.73332	29.00000	+3.3
Business Vocabulary	17.39999	19.46666	+2.1	17.39999	19.46666	+2.1
Checking	34.26666	39.73332	+5.5	36.00000	37.13333	+1.1
Coding	78.73332	79.06667	+ .3	72.73332	73.39999	+ .7
Filing	20.06667	25.59999	+5.5	15.33333	17.53333	+2.2
Directions	21.00000	25.46666	+4.5	15.93333	17.39999	+1.5
Language	5.46667	6.40000	+ .9	5.66677	5.53333	- .1
Arithmetic	23.66666	23.00000	- .7	20.13333	21.33333	+1.2

Table 35

Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in School XI

	Cooperative Plan			In-School Plan		
Test	Pre	Post	Difference	Pre	Post	Difference
Shorthand	95.06667	97.33333	+ 2.7	73.93332	75.53333	+1.6
Typewriting	17.46666	26.33333	+ 8.9	24.13333	28.53333	+4.4
Business Vocabulary	16.66666	23.59999	+ 6.9	11.06667	14.33333	+3.3
Checking	33.33333	54.00000	+20.7	35.06667	37.46666	+2.4
Coding	71.59999	84.79999	+13.2	74.39999	75.06667	+ .7
Filing	19.66666	30.33333	+10.7	15.26667	19.39999	+4.1
Directions	19.13333	27.00000	+ 7.9	14.40000	19.26666	+4.9
Language	5.86667	9.33333	+ 3.5	5.66667	5.46667	- .2
Arithmetic	21.66666	33.59999	+11.9	20.00000	22.20000	+2.2

Table 36

Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in School XII

	Cooperative Plan			In-School Plan		
Test	Pre	Post	Difference	Pre	Post	Difference
Shorthand	56.13333	45.33333	-10.8	63.93332	67.93332	+4.0
Typewriting	28.26666	32.46666	+ 4.2	32.86665	31.46666	-1.4
Business Vocabulary	14.20000	18.33333	+ 4.1	13.66667	16.00000	+2.3
Checking	36.26666	42.39999	+ 6.1	29.66666	36.33333	+6.7
Coding	76.06667	79.00000	+ 2.9	69.26666	75.06667	+5.8
Filing	21.46666	25.33333	+ 3.9	22.33333	29.53333	+7.2
Directions	22.79999	28.13333	+ 5.3	22.33333	20.26666	-2.1
Language	5.86667	6.53333	+ .7	7.26667	5.86667	-1.4
Arithmetic	22.86665	21.73332	- 1.1	18.20000	25.26666	+7.1

Table 37

Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in School XIII

	Cooperative Plan			In-School Plan		
Test	Pre	Post	Difference	Pre	Post	Difference
Shorthand	92.79999	88.13333	- 4.7	89.93332	91.20000	+ 1.3
Typewriting	32.66666	29.46666	- 3.2	31.53333	31.06667	- .5
Business Vocabulary	16.93332	19.26666	+ 2.3	11.53333	13.53333	+ 2.0
Checking	37.33333	48.00000	+10.7	35.39999	41.79999	+ 6.4
Coding	76.66666	91.79999	+15.1	70.26666	81.26666	+11.0
Filing	20.73332	27.79999	+ 7.1	15.40000	20.46666	+ 5.1
Directions	23.20000	24.46666	+ 1.3	22.20000	28.33333	+ 6.1
Language	6.40000	7.00000	+ .6	5.86667	5.73333	- .1
Arithmetic	24.93332	28.46666	+ 3.5	20.33333	24.66666	+ 4.3

Table 38

Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in School XIV

	Cooperative Plan			In-School Plan		
Test	Pre	Post	Difference	Pre	Post	Difference
Shorthand	61.33333	74.53333	+13.2	37.66666	49.26666	+11.6
Typewriting	17.26666	30.59999	+13.3	34.46666	35.66666	+ 1.2
Business Vocabulary	14.53333	18.46666	+ 3.9	15.40000	16.26666	+ .9
Checking	34.06667	39.66666	+ 5.6	37.46666	38.73332	+ 1.3
Coding	71.73332	77.93332	+ 6.2	77.46666	78.13333	+ .7
Filing	17.06667	16.86665	- .2	16.00000	17.59999	+ 1.6
Directions	19.66666	19.53333	- .1	23.33333	23.86665	+ .5
Language	4.93333	7.00000	+ 2.1	4.86667	6.53333	+ 1.7
Arithmetic	21.00000	21.46660	- .5	20.93332	21.79999	+ .9

Table 39

Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in School XV

	Cooperative Plan			In-School Plan		
Test	Pre	Post	Difference	Pre	Post	Difference
Shorthand	88.93332	90.13333	+1.2	45.79999	53.39999	+7.6
Typewriting	22.59999	22.33333	- .3	22.59999	29.86665	+7.3
Business Vocabulary	12.06667	14.00000	+1.9	14.06667	16.33333	+2.3
Checking	38.13333	29.06667	-9.1	34.20000	37.59999	+3.4
Coding	76.53333	75.53332	-1.0	71.13333	72.20000	+1.1
Filing	20.33333	18.46666	-1.9	18.00000	19.00000	+1.0
Directions	20.13333	20.66666	+ .5	21.79999	24.00000	+2.2
Language	6.53333	5.66667	- .9	5.66667	6.20000	+ .5
Arithmetic	21.46666	22.13333	+ .7	22.59999	24.26666	+1.7

Table 40

Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in School XVI

	Cooperative Plan			In-School Plan		
Test	Pre	Post	Difference	Pre	Post	Difference
Shorthand	96.66666	98.39999	+1.7	82.06667	85.33333	+3.3
Typewriting	34.46666	31.86665	-2.6	33.66666	34.06667	+ .4
Business Vocabulary	14.46667	15.53333	+1.1	11.53333	13.53333	+2.0
Checking	30.93332	27.00000	-3.9	26.86665	30.46666	+3.6
Coding	72.20000	68.06667	-4.1	69.86665	75.26666	+5.4
Filing	16.93332	20.86665	+3.9	13.26667	20.39999	+7.1
Directions	20.06667	21.59999	+1.5	16.26666	20.20000	+3.9
Language	4.73333	5.60000	+ .9	6.73333	7.00000	+ .3
Arithmetic	20.66666	22.00000	+1.3	21.06667	22.93332	+1.9

Table 41

Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in School XVII

	Cooperative Plan			In-School Plan		
Test	Pre	Post	Difference	Pre	Post	Difference
Shorthand	95.00000	96.00000	+1.0	94.39999	93.39999	-1.0
Typewriting	31.00000	30.79999	- .2	29.73332	28.00000	-1.7
Business Vocabulary	13.73333	15.53333	+1.8	15.53333	15.60000	+ .1
Checking	29.20000	31.26666	+2.1	35.26666	38.59999	+3.3
Coding	67.26666	71.86665	+4.6	65.73332	64.39999	-1.3
Filing	16.33333	16.79999	+ .5	15.53333	18.06667	+2.5
Directions	19.26666	16.79999	-2.5	17.13333	17.59999	+ .5
Language	5.73333	5.86667	+ .1	5.53333	5.93333	+ .4
Arithmetic	24.20000	23.53333	- .7	22.59999	26.73332	+4.1

Table 42

Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in School XVIII

	Cooperative Plan			In-School Plan		
Test	Pre	Post	Difference	Pre	Post	Difference
Shorthand	89.59999	94.33333	+ 4.7	87.00000	87.53333	+ .5
Typewriting	30.33333	38.39999	+ 8.1	34.79999	30.00000	- 4.8
Business Vocabulary	16.53333	21.73332	+ 5.2	8.66667	16.39999	+ 7.7
Checking	30.26666	36.53333	+ 6.3	28.39999	40.66666	+12.3
Coding	65.73332	75.66666	+ 9.9	46.39999	82.00000	+35.6
Filing	9.40000	17.13333	+ 7.7	21.20000	22.59999	+ 1.4
Directions	12.86667	32.59999	+19.7	18.00000	30.86665	+12.9
Language	7.20000	16.13333	+ 8.9	11.46667	5.66667	- 5.8
Arithmetic	17.33333	19.93332	+ 2.6	18.59999	22.79999	+ 4.2

Table 43

Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in School XIX

	Cooperative Plan			In-School Plan		
Test	Pre	Post	Difference	Pre	Post	Difference
Shorthand	93.20000	95.46666	+ 2.3	73.46666	80.06667	+6.6
Typewriting	35.66666	38.53333	+ 2.9	21.06667	25.00000	+3.9
Business Vocabulary	14.26667	23.39999	+ 9.1	11.86667	13.60000	+1.7
Checking	19.86665	38.66666	+18.8	35.26666	39.79999	+4.5
Coding	56.79999	72.59999	+15.8	72.00000	76.86665	+4.9
Filing	11.53333	23.00000	+11.5	14.20000	19.33333	+5.1
Directions	20.73332	31.66666	+10.9	15.13333	19.86665	+4.7
Language	5.00000	12.26667	+ 7.3	5.86667	6.00000	+ .1
Arithmetic	20.13333	29.26666	+ 9.1	21.79999	22.06667	+ .3

Table 44

Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in School XX

	Cooperative Plan			In-School Plan		
Test	Pre	Post	Difference	Pre	Post	Difference
Shorthand	85.39999	94.93332	+9.5	89.06667	97.59999	+8.5
Typewriting	36.86665	37.20000	+ .3	32.20000	35.00000	+2.8
Business Vocabulary	14.66667	17.59999	+2.9	15.60000	18.66666	+3.1
Checking	35.06667	40.46666	+5.4	26.13333	35.53333	+9.4
Coding	75.20000	76.86665	+1.7	72.26666	73.20000	+ .9
Filing	20.39999	24.13333	+3.7	16.13333	20.00000	+3.9
Directions	16.59999	19.66666	+3.1	18.06667	18.46666	+ .4
Language	6.00000	7.00000	+1.0	5.73333	7.13333	+1.4
Arithmetic	21.06667	20.66666	- .4	24.59999	25.53333	+ .9

Table 45

Shorthand Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in the Twenty Selected Schools

	Possible Score = 100					
	Cooperative Plan			In-School Plan		
School	Pre	Post	Difference	Pre	Post	Difference
I	89.39999	92.79999	+ 3.4	88.86665	93.53333	+ 4.7
II	89.79999	95.33333	+ 5.5	73.79999	77.73332	+ 3.9
III	96.06667	98.20000	+ 2.1	89.66666	91.86665	+ 2.2
IV	86.39999	89.93332	+ 3.5	85.53333	87.79999	+ 2.3
V	66.46666	75.73332	+ 9.3	74.13333	78.73332	+ 4.6
VI	78.39999	90.26666	+11.9	68.20000	74.53333	+ 6.3
VII	93.13333	95.93332	+ 2.8	85.66666	87.73332	+ 2.1
VIII	59.53333	61.20000	+ 1.7	57.66666	74.00000	+16.3
IX	93.66666	96.20000	+ 2.5	83.33333	85.00000	+ 1.7
X	92.39999	93.79999	+ 1.4	72.66666	75.79999	+ 3.1

Table 45 (continued)

	Possible Score = 100					
	Cooperative Plan			In-School Plan		
School	Pre	Post	Difference	Pre	Post	Difference
XI	95.06667	97.33333	+ 2.7	73.93332	75.53333	+ 1.6
XII	56.13333	45.33333	-10.8	63.93332	67.93332	+ 4.0
XIII	92.79999	88.13333	- 4.7	89.93332	91.20000	+ 1.3
XIV	61.33333	74.53333	+13.2	37.66666	49.26666	+11.6
XV	88.93332	90.13333	+ 1.2	45.79999	53.39999	+ 7.6
XVI	96.66666	98.39999	+ 1.7	82.06667	85.33333	+ 3.3
XVII	95.00000	96.00000	+ 1.0	94.39999	93.39999	- 1.0
XVIII	89.59999	94.33333	+ 4.7	87.00000	87.53333	+ .5
XIX	93.20000	95.46666	+ 2.3	73.46666	80.06667	+ 6.6
XX	85.39999	94.93332	+ 9.5	89.06667	97.59999	+ 8.5
Average	84.96999	88.20000	+ 3.2	75.84000	80.39999	+ 4.6

Table 46

Typewriting Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in the Twenty Selected Schools

	Cooperative Plan			In-School Plan		
School	Pre	Post	Difference	Pre	Post	Difference
I	37.26666	40.06667	+ 2.8	30.06667	33.06667	+3.0
II	32.26666	36.86665	+ 4.6	26.33333	31.13333	+4.8
III	28.13333	32.66666	+ 4.5	30.13333	30.13333	0
IV	35.93332	38.20000	+ 2.3	33.53333	35.26666	+1.7
V	30.79999	33.00000	+ 2.2	23.59999	28.06667	+4.5
VI	29.73332	35.00000	+ 5.3	27.53333	31.39999	+3.9
VII	29.00000	32.46666	+ 3.5	28.46666	30.33333	+1.9
VIII	31.59999	28.26666	- 3.3	34.53333	28.79999	-5.7
IX	26.79999	31.39999	+ 4.6	28.46666	27.20000	-1.3
X	35.86665	33.73332	- 2.1	25.73332	29.00000	+3.3

Table 46 (continued)

School	Cooperative Plan			In-School Plan		
	Pre	Post	Difference	Pre	Post	Difference
XI	17.46666	26.33333	+ 8.9	24.13333	28.53333	+4.4
XII	28.26666	32.46666	+ 4.2	32.86665	31.46666	-1.4
XIII	32.66666	29.46666	- 3.2	31.53333	31.06667	- .5
XIV	17.26666	30.59999	+13.3	34.46666	35.66666	+1.2
XV	22.59999	22.33333	- .3	22.59999	29.86665	+7.3
XVI	34.46666	31.86665	- 2.6	33.66666	34.06667	+ .4
XVII	31.00000	30.79999	- .2	29.73332	28.00000	-1.7
XVIII	30.33333	38.39999	+ 8.1	34.79999	30.00000	-4.8
XIX	35.66666	38.53333	+ 2.9	21.06667	25.00000	+3.9
XX	36.86665	37.20000	+ .3	32.20000	35.00000	+2.8
Average	30.20000	32.98332	+ 2.8	29.27333	30.65332	+1.4

Table 47

Business Vocabulary Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in the Twenty Selected Schools

	Possible Score = 30					
	Cooperative Plan			In-School Plan		
School	Pre	Post	Difference	Pre	Post	Difference
I	12.73333	15.93333	+3.2	13.13333	15.60000	+2.5
II	13.66667	20.79999	+7.1	11.00000	14.86667	+3.9
III	15.00000	18.26666	+3.3	11.00000	13.66667	+2.7
IV	14.26667	24.00000	+9.7	13.60000	15.93333	+2.3
V	12.26667	13.46667	+1.2	7.93333	10.26667	+2.3
VI	12.40000	15.53333	+3.1	11.80000	14.00000	+2.2
VII	15.40000	17.79999	+2.4	13.40000	17.13333	+3.7
VIII	13.40000	15.40000	+2.0	13.40000	15.46667	+2.1
IX	12.40000	17.13333	+4.7	9.86667	11.80000	+1.9
X	17.39999	19.46666	+2.1	17.39999	19.46666	+2.1

Table 47 (continued)

	Possible Score = 30					
	Cooperative Plan			In-School Plan		
School	Pre	Post	Difference	Pre	Post	Difference
XI	16.66666	23.59999	+6.9	11.06667	14.33333	+3.3
XII	14.20000	18.33333	+4.1	13.66667	16.00000	+2.3
XIII	16.93332	19.26666	+2.3	11.53333	13.53333	+2.0
XIV	14.53333	18.46666	+3.9	15.40000	16.26666	+ .9
XV	12.06667	14.00000	+1.9	14.06667	16.33333	+2.3
XVI	14.46667	15.53333	+1.1	11.53333	13.53333	+2.0
XVII	13.73333	15.53333	+1.8	15.53333	15.60000	+ .1
XVIII	16.53333	21.73332	+5.2	8.66667	16.39999	+7.7
XIX	14.26667	23.39999	+9.1	11.86667	13.60000	+1.7
XX	14.66667	17.59999	+2.9	15.60000	18.66666	+3.1
Average	14.35000	18.26332	+3.9	14.87000	15.14000	+ .3

Table 48

Checking Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in the Twenty Selected Schools

	Possible Score = 80					
	Cooperative Plan			In-School Plan		
School	Pre	Post	Difference	Pre	Post	Difference
I	35.26666	37.66666	+ 2.4	34.73332	36.79999	+ 2.1
II	33.39999	46.66666	+13.3	32.20000	39.53333	+ 7.3
III	39.20000	43.66666	+ 4.5	36.79999	33.20000	- 3.6
IV	35.59999	55.13333	+19.5	33.53333	37.26666	+ 3.7
V	22.13333	23.73332	+ 1.6	25.26666	28.00000	+ 2.8
VI	22.59999	31.46666	+ 8.9	31.33333	36.86665	+ 5.5
VII	39.39999	41.53333	+ 2.1	33.59999	37.13333	+ 3.5
VIII	30.93332	31.53333	+ .6	34.06667	35.66666	+ 1.6
IX	29.86665	34.46666	+ 4.6	27.73332	29.26666	+ 1.5
X	34.26666	39.73332	+ 5.5	36.00000	37.13333	+ 1.1

Table 48 (continued)

	Possible Score = 80					
	Cooperative Plan			In-School Plan		
School	Pre	Post	Difference	Pre	Post	Difference
XI	33.33333	54.00000	+20.7	35.06667	37.46666	+ 2.4
XII	36.26666	42.39999	+ 6.1	29.66666	36.33333	+ 6.7
XIII	37.33333	48.00000	+10.7	35.39999	41.79999	+ 6.4
XIV	34.06667	39.66666	+ 5.6	37.46666	38.73332	+ 1.3
XV	38.13333	29.06667	- 9.1	34.20000	37.59999	+ 3.4
XVI	30.93332	27.00000	- 3.9	26.86665	30.46666	+ 3.6
XVII	29.20000	31.26666	+ 2.1	35.26666	38.59999	+ 3.3
XVIII	30.26666	36.53333	+ 6.3	28.39999	40.66666	+12.3
XIX	19.86665	38.66666	+18.8	35.26666	39.79999	+ 4.5
XX	35.06667	40.46666	+ 5.4	26.13333	35.53333	+ 9.4
Average	32.35666	38.63333	+ 6.3	31.44333	36.39333	+ 5.0

Table 49

Coding Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in the Twenty Selected Schools

	Possible Score = 105					
	Cooperative Plan			In-School Plan		
School	Pre	Post	Difference	Pre	Post	Difference
I	78.59999	72.86665	- 5.7	75.59999	77.13333	+ 1.5
II	75.59999	88.66666	+13.1	75.20000	83.59999	+ 8.4
III	73.86665	81.73332	+ 7.9	67.46666	72.33333	+ 4.9
IV	77.00000	88.59999	+11.6	71.53333	80.20000	+ 8.7
V	76.20000	74.06667	- 2.1	61.06667	64.13333	+ 3.1
VI	69.00000	74.39999	+ 5.4	72.39999	75.59999	+ 5.2
VII	74.00000	81.93332	+ 7.9	68.93332	76.53333	+ 7.6
VIII	74.20000	71.26666	- 2.9	69.20000	73.73332	+ 4.5
IX	64.33333	73.66666	+ 9.3	68.66666	68.39999	- .3
X	78.73332	79.06667	+ .3	72.73332	73.39999	+ .7

Table 49 (continued)

	Possible Score = 105					
	Cooperative Plan			In-School Plan		
School	Pre	Post	Difference	Pre	Post	Difference
XI	71.59999	84.79999	+13.2	74.39999	75.06667	+ .7
XII	76.06667	79.00000	+ 2.9	69.26666	75.06667	+ 5.8
XIII	76.66666	91.79999	+15.1	70.26666	81.26666	+11.0
XIV	71.73332	77.93332	+ 6.2	77.46666	78.13333	+ .7
XV	76.53333	75.53332	- 1.0	71.13333	72.20000	+ 1.1
XVI	72.20000	68.06667	- 4.1	69.86665	75.26666	+ 5.4
XVII	67.26666	71.86665	+ 4.6	65.73332	64.39999	- 1.3
XVIII	65.73332	75.66666	+ 9.9	46.39999	82.00000	+35.6
XIX	56.79999	72.59999	+15.8	72.00000	76.86665	+ 4.9
XX	75.20000	76.86665	+ 1.7	72.26666	73.20000	+ .9
Average	72.56667	78.01999	+ 5.5	67.73332	74.92667	+ 7.2

Table 50

Filing Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in the Twenty Selected Schools

	Possible Score = 54					
	Cooperative Plan			In-School Plan		
School	Pre	Post	Difference	Pre	Post	Difference
I	18.13333	21.06667	+ 2.9	17.79999	20.13333	+2.3
II	15.20000	29.66666	+14.5	15.13333	19.26666	+4.1
III	19.53333	28.93332	+ 9.4	12.73333	17.06667	+4.3
IV	17.39999	31.13333	+13.7	18.13333	21.79999	+3.7
V	13.60000	7.33333	- 6.5	6.80000	7.33333	+ .5
VI	9.53333	19.66666	+10.1	12.66667	16.46666	+3.8
VII	23.06667	37.53333	+14.5	17.79999	23.13333	+5.3
VIII	10.53333	13.00000	+ 2.5	10.46667	17.39999	+6.9
IX	13.06667	14.46667	+ 1.4	12.26667	13.33333	+1.1
X	20.06667	25.59999	+ 5.5	15.33333	17.53333	+2.2

Table 50 (continued)

	Possible Score = 54					
	Cooperative Plan			In-School Plan		
School	Pre	Post	Difference	Pre	Post	Difference
XI	19.66666	30.33333	+10.7	15.26667	19.39999	+4.1
XII	21.46666	25.33333	+ 3.9	22.33333	29.53333	+7.2
XIII	20.73332	27.79999	+ 7.1	15.40000	20.46666	+5.1
XIV	17.06667	16.86665	- .2	16.00000	17.59999	+1.6
XV	20.33333	18.46666	- 1.9	18.00000	19.00000	+1.0
XVI	16.93332	20.86665	+ 3.9	13.26667	20.39999	+7.1
XVII	16.33333	16.79999	+ .5	15.53333	18.06667	+2.5
XVIII	9.40000	17.13333	+ 7.7	21.20000	22.59999	+1.4
XIX	11.53333	23.00000	+11.5	14.20000	19.33333	+5.1
XX	20.39999	24.13333	+ 3.7	16.13333	20.00000	+3.9
Average	16.70000	22.44666	+ 5.7	15.32333	18.99333	+3.7

Table 51

Directions - Oral and Written - Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in the Twenty Selected Schools

	Possible Score = 64					
	Cooperative Plan			In-School Plan		
School	Pre	Post	Difference	Pre	Post	Difference
I	17.46666	24.46666	+ 7.0	16.33333	22.20000	+ 5.9
II	16.53333	28.06667	+11.5	14.06667	20.93332	+ 6.9
III	26.00000	27.06667	+ 1.1	18.73332	24.06667	+ 5.3
IV	21.00000	33.13333	+12.1	19.73332	25.13333	+ 5.4
V	10.60000	15.73333	+ 5.1	12.93333	15.60000	+ 2.7
VI	8.73333	15.00000	+ 6.3	14.00000	17.06667	+ 3.1
VII	21.73332	34.13333	+12.4	17.06667	21.06667	+ 4.0
VIII	14.66667	18.26666	+ 3.6	14.06667	17.66666	+ 3.6
IX	17.26666	17.26666	0	14.73333	16.79999	+ 2.1
X	21.00000	25.46666	+ 4.5	15.93333	17.39999	+ 1.5

Table 51 (continued)

	Possible Score = 64					
	Cooperative Plan			In-School Plan		
School	Pre	Post	Difference	Pre	Post	Difference
XI	19.13333	27.00000	+ 7.9	14.40000	19.26666	+ 4.9
XII	22.79999	28.13333	+ 5.3	22.33333	20.26666	- 2.1
XIII	23.20000	24.46666	+ 1.3	22.20000	28.33333	+ 6.1
XIV	19.66666	19.53333	- .1	23.33333	23.86665	+ .5
XV	20.13333	20.66666	+ .5	21.79999	24.00000	+ 2.2
XVI	20.06667	21.59999	+ 1.5	16.26666	20.20000	+ 3.9
XVII	19.26666	16.79999	- 2.5	17.13333	17.59999	+ .5
XVIII	12.86667	32.59999	+19.7	18.00000	30.86665	+12.9
XIX	20.73332	31.66666	+10.9	15.13333	19.86665	+ 4.7
XX	16.59999	19.66666	+ 3.1	18.06667	18.46666	+ .4
Average	18.47333	24.03665	+ 5.6	17.31332	21.03333	+ 3.7

Table 52

Language Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in the Twenty Selected Schools

	Possible Score = 20					
	Cooperative Plan			In-School Plan		
School	Pre	Post	Difference	Pre	Post	Difference
I	5.06667	5.46667	+ .4	5.33333	5.8667	+ .5
II	8.60000	13.00000	+4.4	5.66667	6.86667	+1.2
III	7.20000	7.60000	+4.2	6.06667	7.40000	+1.3
IV	5.40000	9.60000	+4.2	6.46667	10.20000	+3.7
V	4.86667	5.46667	+ .6	4.93333	10.40000	+5.5
VI	4.33333	9.73333	+5.4	5.46667	5.93333	+ .5
VII	5.60000	13.20000	+7.6	5.53333	8.46667	+2.9
VIII	7.80000	8.53333	+ .7	6.60000	5.93333	- .7
IX	5.73333	5.93333	+ .2	5.20000	5.33333	+ .1
X	5.46667	6.40000	+ .9	5.66667	5.53333	- .1

Table 52 (continued)

	Possible Score = 20					
	Cooperative Plan			In-School Plan		
School	Pre	Post	Difference	Pre	Post	Difference
XI	5.86667	9.33333	+3.5	5.66667	5.46667	- .2
XII	5.86667	6.53333	+ .7	7.26667	5.86667	-1.4
XIII	6.40000	7.00000	+ .6	5.86667	5.73333	- .1
XIV	4.93333	7.00000	+2.1	4.86667	6.53333	+1.7
XV	6.53333	5.66667	- .9	5.66667	6.20000	+ .5
XVI	4.73333	5.60000	+ .9	6.73333	7.00000	+ .3
XVII	5.73333	5.86667	+ .1	5.53333	5.93333	+ .4
XVIII	7.20000	16.13333	+8.9	11.46667	5.66667	-5.8
XIX	5.00000	12.26667	+7.3	5.86667	6.00000	+ .1
XX	6.00000	7.00000	+1.0	5.73333	7.13333	+1.4
Average	5.91667	8.36667	+2.5	6.08000	6.67333	+ .6

Table 53

Arithmetic Means and Differences Attained on Pre and Post-Tests in Both Plans of Instruction in the Twenty Selected Schools

	Possible Score = 44					
	Cooperative Plan			In-School Plan		
School	Pre	Post	Difference	Pre	Post	Difference
I	21.66666	19.59999	- 2.1	21.39999	22.59999	+1.2
II	21.73332	28.79999	+ 7.1	20.06667	28.33333	+8.3
III	22.66666	25.26666	+ 2.6	19.46666	21.86665	+2.4
IV	21.06667	32.33333	+11.3	23.26666	25.73332	+2.5
V	18.66666	18.33333	- .3	12.53333	14.80000	+2.3
VI	12.66667	16.66666	+ 4.0	17.13333	18.53333	+1.4
VII	22.79999	25.20000	+ 2.4	20.33333	23.26666	+2.9
VIII	19.33333	18.79999	- .5	21.13333	19.59999	-1.5
IX	19.59999	23.13333	+ 3.5	18.00000	20.39999	+2.4
X	23.66666	23.00000	- .7	20.13333	21.33333	+1.2

Table 53 (continued)

	Possible Score = 44					
	Cooperative Plan			In-School Plan		
School	Pre	Post	Difference	Pre	Post	Difference
XI	21.66666	33.59999	+11.9	20.00000	22.20000	+2.2
XII	22.86665	21.73332	- 1.1	18.20000	25.26666	+7.1
XIII	24.93332	28.46666	+ 3.5	20.33333	24.66666	+4.3
XIV	21.00000	21.46660	- .5	20.93332	21.79999	+ .9
XV	21.46666	22.13333	+ .7	22.59999	24.26666	+1.7
XVI	20.66666	22.00000	+ 1.3	21.06667	22.93332	+1.9
XVII	24.20000	23.53333	- .7	22.59999	26.73332	+4.1
XVIII	17.33333	19.93332	+ 2.6	18.59999	22.79999	+4.2
XIX	20.13333	29.26666	+ 9.1	21.79999	22.06667	+ .3
XX	21.06667	20.66666	- .4	24.59999	25.53333	+ .9
Average	20.98332	23.67332	+ 2.7	20.20999	22.73666	+2.5

Table 54

Differences in Shorthand Scores Attained on Pre and Post-Tests in Both Plans of Instruction in the Twenty Selected Schools

School	Cooperative Plan	In-School Plan
I	+ 3.4	+ 4.7
II	+ 5.5	+ 3.9
III	+ 2.1	+ 2.2
IV	+ 3.5	+ 2.3
V	+ 9.3	+ 4.6
VI	+11.9	+ 6.3
VII	+ 2.8	+ 2.1
VIII	+ 1.7	+16.3
IX	+ 2.5	+ 1.7
X	+ 1.4	+ 3.1
XI	+ 2.7	+ 1.6
XII	-10.8	+ 4.0
XIII	- 4.7	+ 1.3
XIV	+13.2	+11.6
XV	+ 1.2	+ 7.6
XVI	+ 1.7	+ 3.3
XVII	+ 1.0	- 1.0
XVIII	+ 4.7	+ .5
XIX	+ 2.3	+ 6.6
XX	+ 9.5	+ 8.5

Table 55

Differences in Typewriting Scores Attained on Pre and Post-Tests in Both Plans of Instruction in the Twenty Selected Schools

School	Cooperative Plan	In-School Plan
I	+ 2.8	+3.0
II	+ 4.6	+4.8
III	+ 4.5	0
IV	+ 2.3	+1.7
V	+ 2.2	+4.5
VI	+ 5.3	+3.9
VII	+ 3.5	+1.9
VIII	- 3.3	-5.7
IX	+ 4.6	-1.3
X	- 2.1	+3.3
XI	+ 8.9	+4.4
XII	+ 4.2	-1.4
XIII	- 3.2	- .5
XIV	+13.3	+1.2
XV	- .3	+7.3
XVI	- 2.6	+ .4
XVII	- .2	-1.7
XVIII	+ 8.1	-4.8
XIX	+ 2.9	+3.9
XX	+ .3	+2.8

Table 56

Differences in Business Vocabulary Scores Attained on Pre and Post-Tests in Both Plans of Instruction in the Twenty Selected Schools

School	Cooperative Plan	In-School Plan
I	+3.2	+2.5
II	+7.1	+3.9
III	+3.3	+2.7
IV	+9.7	+2.3
V	+1.2	+2.3
VI	+3.1	+2.2
VII	+2.4	+3.7
VIII	+2.0	+2.1
IX	+4.7	+1.9
X	+2.1	+2.1
XI	+6.9	+3.3
XII	+4.1	+2.3
XIII	+2.3	+2.0
XIV	+3.9	+ .9
XV	+1.9	+2.3
XVI	+1.1	+2.0
XVII	+1.8	+ .1
XVIII	+5.2	+7.7
XIX	+9.1	+1.7
XX	+2.9	+3.1

Table 57

Differences in Checking Scores Attained on Pre and Post-Tests in Both Plans of Instruction in the Twenty Selected Schools

School	Cooperative Plan	In-School Plan
I	+ 2.4	+ 2.1
II	+13.3	+ 7.3
III	+ 4.5	- 3.6
IV	+19.5	+ 3.7
V	+ 1.6	+ 2.8
VI	+ 8.9	+ 5.5
VII	+ 2.1	+ 3.5
VIII	+ .6	+ 1.6
IX	+ 4.6	+ 1.5
X	+ 5.5	+ 1.1
XI	+20.7	+ 2.4
XII	+ 6.1	+ 6.7
XIII	+10.7	+ 6.4
XIV	+ 5.6	+ 1.3
XV	- 9.1	+ 3.4
XVI	- 3.9	+ 3.6
XVII	+ 2.1	+ 3.3
XVIII	+ 6.3	+12.3
XIX	+18.8	+ 4.5
XX	+ 5.4	+ 9.4

Table 58

Differences in Coding Scores Attained on Pre and Post-Tests in Both Plans of Instruction in the Twenty Selected Schools

School	Cooperative Plan	In-School Plan
I	- 5.7	+ 1.5
II	+13.1	+ 8.4
III	+ 7.9	+ 4.9
IV	+11.6	+ 8.7
V	- 2.1	+ 3.1
VI	+ 5.4	+ 5.2
VII	+ 7.9	+ 7.6
VIII	- 2.9	+ 4.5
IX	+ 9.3	- .3
X	+ .3	+ .7
XI	+13.2	+ .7
XII	+ 2.9	+ 5.8
XIII	+15.1	+11.0
XIV	+ 6.2	+ .7
XV	- 1.0	+ 1.1
XVI	- 4.1	+ 5.4
XVII	+ 4.6	- 1.3
XVIII	+ 9.9	+35.6
XIX	+15.8	+ 4.9
XX	+ 1.7	+ .9

Table 59

Differences in Filing Scores Attained on Pre and Post-Tests in Both Plans of Instruction in the Twenty Selected Schools

School	Cooperative Plan	In-School Plan
I	+ 2.9	+2.3
II	+14.5	+4.1
III	+ 9.4	+4.3
IV	+13.7	+3.7
V	- 6.5	+ .5
VI	+10.1	+3.8
VII	+14.5	+5.3
VIII	+ 2.5	+6.9
IX	+ 1.4	+1.1
X	+ 5.5	+2.2
XI	+10.7	+4.1
XII	+ 3.9	+7.2
XIII	+ 7.1	+5.1
XIV	- .2	+1.6
XV	- 1.9	+1.0
XVI	+ 3.9	+7.1
XVII	+ .5	+2.5
XVIII	+ 7.7	+1.4
XIX	+11.5	+5.1
XX	+ 3.7	+3.9

Table 60

Differences in Directions - Oral and Written - Scores Attained on Pre and Post-Tests in Both Plans of Instruction in the Twenty Selected Schools

School	Cooperative Plan	In-School Plan
I	+ 7.0	+ 5.9
II	+11.5	+ 6.9
III	+ 1.1	+ 5.3
IV	+12.1	+ 5.4
V	+ 5.1	+ 2.7
VI	+ 6.3	+ 3.1
VII	+12.4	+ 4.0
VIII	+ 3.6	+ 3.6
IX	0	+ 2.1
X	+ 4.5	+ 1.5
XI	+ 7.9	+ 4.9
XII	+ 5.3	- 2.1
XIII	+ 1.3	+ 6.1
XIV	- .1	+ .5
XV	+ .5	+ 2.2
XVI	+ 1.5	+ 3.9
XVII	- 2.5	+ .5
XVIII	+19.7	+12.9
XIX	+10.9	+ 4.7
XX	+ 3.1	+ .4

Table 61

Differences in Language Scores Attained on Pre and Post-Tests in Both Plans of Instruction in the Twenty Selected Schools

School	Cooperative Plan	In-School Plan
I	+ .4	+ .5
II	+4.4	+1.2
III	+ .4	+1.3
IV	+4.2	+3.7
V	+ .6	+5.5
VI	+5.4	+ .5
VII	+7.6	+2.9
VIII	+ .7	- .7
IX	+ .2	+ .1
X	+ .9	- .1
XI	+3.5	- .2
XII	+ .7	-1.4
XIII	+ .6	- .1
XIV	+2.1	+1.7
XV	- .9	+ .5
XVI	+ .9	+ .3
XVII	+ .1	+ .4
XVIII	+8.9	-5.8
XIX	+7.3	+ .1
XX	+1.0	+1.4

Table 62

Differences in Arithmetic Scores Attained on Pre and Post-Tests in Both Plans of Instruction in the Twenty Selected Schools

School	Cooperative Plan	In-School Plan
I	- 2.1	+2.1
II	+ 7.1	+8.3
III	+ 2.6	+2.4
IV	+11.3	+2.5
V	- .3	+2.3
VI	+ 4.0	+1.4
VII	+ 2.4	+2.9
VIII	- .5	-1.5
IX	+ 3.5	+2.4
X	- .7	+1.2
XI	+11.9	+2.2
XII	- 1.1	+7.1
XIII	+ 3.5	+4.3
XIV	- .5	+ .9
XV	+ .7	+1.7
XVI	+ 1.3	+1.9
XVII	- .7	+4.1
XVIII	+ 2.6	+4.2
XIX	+ 9.1	+ .3
XX	- .4	+ .9

Table 63

Cooperative Students in the Twenty Selected Schools Indicated a High Level of Achievement in the Marked Selected Tests at the End of the 1971-72 School Session

	Schools																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Shorthand						X								X						
Typewriting											X			X					X	
Business Vocabulary		X		X					X		X			X					X	
Checking		X	X	X		X					X		X						X	
Coding		X	X	X					X		X		X	X			X		X	
Filing		X	X	X		X	X			X	X		X					X	X	
Directions Oral & Written	X	X		X	X	X	X			X	X	X						X	X	X
Language		X				X	X	X		X	X	X						X	X	
Arithmetic				X		X			X		X								X	

Table 64

In-School Students in the Twenty Selected Schools Indicated a High Level of Achievement in the Marked Selected Tests at the End of the 1971-72 School Session

	Schools																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Shorthand								X												
Typewriting															X					
Business Vocabulary					X		X											X		
Checking					X		X	X							X	X	X	X		X
Coding	X				X			X				X			X	X		X		
Filing					X			X				X		X	X	X	X			
Directions Oral & Written			X						X				X	X	X	X	X			
Language			x		x										x					
Arithmetic	X	X			X					X		X		X	X	X	X	X		X