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ABSTRACT

Fifty-one research studies are summarized in this report and the supplement to it. These studies concern the effectiveness of various aspects of the school program. The studies are classified by area of inquiry and level of research. Areas of inquiry are study of needs, curriculum development, child study, data processing, organizational projects, pupil placement, staff education, and use of lay personnel. Levels of research are research with equated groups, research with equated groups and an opinionnaire, objective statistical study, objective statistical study and an opinionnaire, and opinionnaire. (KM)

Attachment D

RESEARCH AND TESTING

A REPORT ON CURRENT STUDIES

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August 1965

ORDER OF REPORT

RESEARCH AND TESTING

Study of the effectiveness of procedures used in promoting optimal learning may take many forms. Whether the focus is on method, material, technique or administrative organization, the thoughtful educator questions: Does the impact enhance or disrupt the learning process or has it no effect at all? Traditionally, most schoolmen have been satisfied if a procedure seemed to work. Currently, the very magnitude of the innovations appearing on the educational scene requires careful scrutiny to separate the significant from the trivial. The need for reliable research has assumed new importance.

AREAS OF INQUIRY AND LEVELS OF RESEARCH

The effectiveness of some aspects of the school program can be examined by means of a well developed research design; other aspects of the program cannot reasonably be evaluated objectively, but must depend on judgment or opinion. Research in University City Schools represents the several degrees of sophistication between these extremes.

Forty studies are reported in this summary of which thirty-one were sponsored by the Comprehensive Project; nine were supported as part of the regular school program of evaluation. Many other projects, conducted within a single school or classroom are not included here.

For convenience the studies have been classified by area of inquiry and level of research.

Area of Inquiry

Study of Needs - Identification of education needs of the school system

Curriculum Development - Improvements and innovations in method, material, and technique to help children learn

Child Study - Identification, diagnosis, and prognosis for remediation of children with learning disabilities and for encouragement of optimum performance of children with learning assets

Data Processing - Procedure for collecting and compiling data for the study of children, their needs and their accomplishments

Organizational Projects - Determination of types of school and class organization and scheduling effecting improvement in instruction

Pupil Placement - Procedures in assessing, classifying, and placing students for most effective learning

Staff Education - Study and travel to learn about and to observe significant new educational practices

Use of Lay Personnel - The use of non-certificated personnel to provide teachers more opportunity to plan and to teach.

Level of Research

Research with Equated Groups - Provision for experimental and control groups of students (or others) matched or equated statistically for age, sex, ability, etc. to prevent these factors from influencing the results

Research with Equated Groups and an Opinionnaire - As above, with additional data not otherwise available obtained by questionnaire or other means of inquiry

Objective Statistical Study - Analysis of numerical data such as test scores by means of correlative and distributive studies and the determining of the statistical significance of results

Objective Statistical Study and an Opirionnaire - As above, with additional data not otherwise available obtained by questionnaire or other means of inquiry

Opinionnaire - Questionnaire, interview, tape-recorded interview, or similar means of inquiry.

Classification of Research Studies
in the School District of University City

Project Scope and Title / Level of Research	Area of Inquiry							
	Study of Needs	Curriculum Development	Child Study	Data Processing	Organizational Projects	Pupil Placement	Staff Education	Use of Lay Personnel
A. RESEARCH USING EQUATED GROUPS								
*Inquiry Training		X						
*Kindergarten: i./t./a.-T. V.		X						
*Kindergarten: Piaget-Type Program		X						
*Mathematics: Cuisenaire Rods		X						
*Reading: First Grade i./t./a.		X						
*Reading: Kindergarten i./t./a. and Scott-Foresman		X						
Programmed Instruction in Russian		X						
*Social Studies: American History--American Literature		X						
*Social Studies-Language Arts: Teaching Methods		X						
*Diagnosis and Remediation of Learning Difficulties			X					
*Reading Laboratories: i./t./a.			X					
*Summer School: Senior Composition					X			
*Kindergarten, Primary I, and Primary II Placement						X		
B. RESEARCH USING EQUATED GROUPS AND AN OPINIONNAIRE								
*English Composition Aides: Ninth Grade								X
*English Composition Aides: Junior and Senior High Schools								X
C. OBJECTIVE STATISTICAL SURVEYS								
Mathematics: Ninth Grade Marks		X						
*Mathematics: Step Test Survey		X						

* Throughout this report studies financed by the Comprehensive Project are indicated by an asterisk (*).

Project Scope and Title / Level of Research	Area of Inquiry							
	Study of Needs	Curriculum Development	Child Study	Data Processing	Organizational Projects	Pupil Placement	Staff Education	Use of Lay Personnel
C. OBJECTIVE STATISTICAL SURVEYS (cont'd.)								
Mathematics: Iowa Test Survey		X						
*Reading: K-12 Survey		X						
*Ability, Achievement, Adjustment			X					
*Age-Grade Progress			X					
*Student Record System: K-12				X				
Special Data Collecting				X				
Accelerated Mathematics					X			
*Kindergarten-Primary Placement: Gesell (Tests 1-7)						X		
*Kindergarten-Primary Placement: Gesell (Tests 1-4)						X		
D. OBJECTIVE STATISTICAL STUDY AND AN OPINIONNAIRE								
*Survey of Needs and Priorities	X							
*Science: BSCS Biology		X						
*Science: K-12 Survey		X						
*Children with Learning Problems			X					
*Department Chairmen: Junior High Schools					X			
E. OPINIONNAIRE STUDIES								
*Drop-Out Prone Students			X					
*Team-Teaching: Junior High School					X			
Instructional Materials Preparation: Technifax Workshop							X	
In-Service: Autoharp Workshop							X	
In-Service Mathematics: Cuisenaire							X	
In-Service Mathematics: Dr. Gundlach							X	
*Reading Demonstration Centers							X	
*Traveling Teams							X	
*Teacher Aides								X

Summary of Current Studies

Major studies in preparation, recently completed, and scheduled for 1965-1966 are reported briefly in the following pages. Topics are arranged by level of research and by area of inquiry. Under each topic is given a brief project description, the number and nature of participants, the evaluation procedure, and, for completed studies where applicable, findings and action taken.

A. RESEARCH USING EQUATED GROUPS

CURRICULUM DEVELOPMENT

*INQUIRY TRAINING

Project	Participants	Evaluation
Teaching children to discover for themselves by questioning	Two groups: 40 experimental and 54 control grade 6 students, 2 teachers, 1 consultant	Group differences, if any, as indicated by pre- and post- taped recordings classified and analyzed (Analysis in preparation)

*KINDERGARTEN: i./t./a.-T. V.

Project	Participants	Evaluation
Teaching kindergarten children to read using i./t./a. instruction by television (Scheduled for 1965-1969)	Two groups: 100 experimental (two schools) and 50 control (one school) kindergarten children	Group differences, if any, in readiness for first grade and reading achievement at the end of grades 1, 2, and 3 as measured by standardized tests

*KINDERGARTEN: PIAGET-TYPE PROGRAM

Project	Participants	Evaluation
Instruction in the development of logical thinking through understanding of concepts of space, time, matter, casuality, and number	Two groups: 50 experimental and 50 control kindergarten children, 10 teachers, 1 consultant	Group differences, if any, in scores obtained on a test of logical thinking (Analysis in preparation)

*Throughout this report studies financed by the Comprehensive Project are indicated by an asterisk (*).

*MATHEMATICS: CUISENAIRE RODS

Project	Participants	Evaluation
Teaching arithmetic with Cuisenaire Rods	Two groups: 57 experimental and 41 control grade 2 students, 1 consultant	Group differences, if any, in scores in arithmetic computations and concepts as measured by standardized tests (Reported in December 1964)

Findings and Action Taken

Students instructed with Cuisenaire materials achieved significantly better than students not receiving this instruction on a standardized test both in arithmetic computation and in concepts, the greater gain being in computation. Findings indicated the effectiveness of Cuisenaire instruction in this particular setting and was introduced in a majority of Primary One rooms in 1964-65. An indirect outcome is the forthcoming guide, CUISENAIRE: Daily Calendar of a Primary One Teacher, by Challie Loomis.

*READING: FIRST GRADE i./t./a.

Project	Participants	Evaluation
Instruction in beginning reading using the initial teaching alphabet	Two groups: 75 experimental students (grade 1 in 1964-65 and 75 control students (grade 1 in 1963-64) taught by the same 3 teachers, 1 principal, 1 consultant	Group differences, if any, in reading comprehension, word reading, word study skills, etc., as measured by three standardized tests (Analysis in preparation)

*READING: KINDERGARTEN i./t./a. AND SCOTT-FORESMAN

Project	Participants	Evaluation
Comparison between two methods of teaching beginning reading in kindergarten	Three groups: 28 experimental children using i./t./a., 26 experimental children using Scott-Foresman, and 30 control kindergarten children, 3 teachers, 1 consultant	Group differences, if any, in readiness for first grade and in reading achievement where measurable as indicated by scores on standardized tests (Analysis in preparation)

PROGRAMMED INSTRUCTION IN RUSSIAN

Project	Participants	Evaluation
Comparison of programmed learning and conventional teaching of Russian (Scheduled for 1965-1966)	Three groups: 30 grade 7 students (1964-65) as pre-experimental group, 15 experimental and 15 control grade 7 students (1965-66)	Group differences, if any, as measured by standardized Russian tests

*SOCIAL STUDIES: AMERICAN HISTORY-AMERICAN LITERATURE

Project	Participants	Evaluation
Comparisons among American History (grade 12) and coordinated American History-American Literature (grade 11) taught in three different instructional organizations	Three groups: 100 experimental grade 11 students in a coordinated teaching program, 100 experimental grade 11 students in a team-teaching program using the "post-hole" concept, 200 control grade 12 students, 4 teachers	Group differences, if any, in scores on standardized tests of American History, listening, and critical thinking (Analysis in preparation)

*SOCIAL STUDIES-LANGUAGE ARTS: TEACHING METHODS

Project	Participants	Evaluation
Effect of team-teaching and departmental organizations on students' achievement in grade 8 (Scheduled for 1965-1966)	Two groups: All teachers and grade 8 students in social studies and language arts in one junior high school as the experimental group, all teachers and grade 8 students in ten same subjects in the other junior high school as the control group	Organizational differences, if any, as measured by students' scores on standardized tests in social studies, reading, and language

CHILD STUDY

*DIAGNOSIS AND REMEDIATION OF LEARNING DIFFICULTIES

Project	Participants	Evaluation
Diagnosis, prescription, and remediation for children with visual and auditory perceptual problems (Scheduled for 1965-1968)	Two groups: 96 1964-65 kindergarten children and 106 1965 entering kindergarten children, 7 psychomotrists, 3 teachers, 3 consultants, 1 principal	Correlation study of 16 diagnostic test variables; reliability study of the prescriptions; and three year follow-up of group differences, if any, in readiness for first grade and reading achievement in grades 2 and 3 as measured by standardized tests

*READING LABORATORIES: i./t./a.

Project	Participants	Evaluation
The effect of intensive reading instruction in daily three hour reading laboratories using i./t./a. and individualized teaching methods with previously unsuccessful readers	Two groups: 40 experimental and 40 control grade 2 and 3 students (in two schools), 1 teacher, 1 consultant	Group differences, if any, in achievement in reading comprehension, word reading, word study skills, etc., as measured by standardized tests and school behavior as indicated by a behavior rating scale (Analysis in preparation)

ORGANIZATIONAL PROJECTS

*SUMMER SCHOOL: SENIOR COMPOSITION

Project	Participants	Evaluation
Comparison of students' achievement in summer school with achievement during the regular school year	Two groups: 8 experimental and 20 control grade 12 students (not repeaters) taught by the same teachers using the same tests, lectures, discussions and assignments	Group differences, if any, in marks on the first two and last two themes, final marks, and scores on a standardized writing test (Reported in December 1964)

Findings and Action Taken

Summer school students achieved as well in terms of scores on a standardized writing test and final mark for the course, and received significantly better marks on the last two themes than students during the regular school year. Summer school students were not penalized by the shorter (16 hours) summer instruction. Several regular courses in other subject areas were provided in the 1965 summer program, the additions possibly being stimulated indirectly by findings from the present study.

PUPIL PLACEMENT

*KINDERGARTEN, PRIMARY I, AND PRIMARY II PLACEMENT

Project	Participants	Evaluation
Placement of children in the first three school years based on level and quality of their development (Scheduled for 1965-1967)	Two or more groups: 50 experimental and 50-100 control (engaged in other projects) kindergarten children	Group differences, if any, in readiness for first grade and in reading achievement at the end of grades 1 and 2 as measured by standardized tests

B. RESEARCH USING EQUATED GROUPS AND AN OPINIONNAIRE

USE OF LAY PERSONNEL

*ENGLISH COMPOSITION AIDES: NINTH GRADE

Project	Participants	Evaluation
Providing more time for teachers to plan and teach; and improvement in students' writing.	Two groups: 50 experimental and 50 control grade 9 students, 12 teachers, 4 composition aides	Group differences, if any, in marks received by students on their first two and last two compositions (Analysis in preparation)

*ENGLISH COMPOSITION AIDES: JUNIOR AND SENIOR HIGH SCHOOLS

Project	Participants	Evaluation
Providing more time for teachers to plan and teach, and improvement in students' writing	12 aides, 14 teachers, 1,100 students	Evaluation of questionnaire replies from participating teachers and aides, and from 400 grade 9-12 students chosen at random (To be reported in September 1965)

Findings and Action Taken

The project benefited students by providing time for teachers to analyze students' themes more thoroughly, to plan and clarify assignments, and to do more adequate class preparation and planning. As a result students did much more writing this year than last year according to the students, grades 9-12, and their teachers, and showed very much improvement in writing over the previous year, the teachers observed. Ninth grade students expressed greater interest in writing than before. The project did not provide for additional teacher-student conferences or conferences between the students and the aide. Teachers, aides, and students favored continuation of the aide project.

The results in rough form have been made available to the administration for discussion and possible implementation of the project in part or as a whole by the Board of Education for the 1965-1966 school year.

C. OBJECTIVE STATISTICAL SURVEYS

CURRICULUM DEVELOPMENT

MATHEMATICS: NINTH GRADE MARKS

Project	Participants	Evaluation
The relationships between students' potential for success in mathematics and final marks	All ninth grade Brittany and Hanley students in algebra, modified algebra, general mathematics, and geometry	Correlations of final marks with students' potential as measured by standardized tests of ability and achievement, and distribution charts of these data by computer processing (Reported in June 1965)

Findings and Action Taken

Final marks correlated reasonably well with ability but they were much lower than expectation, "A" becoming a "B" etc., for an above average student population. There were very few failures. The large number of students testing at or above the 99 percentile nationally generally received "B" or "C" marks.

The findings will be considered by secondary school principals during the summer of 1965 as a first step towards correcting this problem.

*MATHEMATICS: STEP TEST SURVEY

Project	Participants	Evaluation
The impact of new mathematic programs on students' achievement in mathematics between October 1963 and May 1966 (Scheduled for 1965-1966)	Two groups: 5000 pretest scores and 5000 posttest scores of students in grades 4-12	Differences, if any, between pretest and posttest scores at the end of three school years

MATHEMATICS: ICWA TEST SURVEY

Project	Participants	Evaluation
The impact of new mathematic programs on students' achievement in mathematics between October 1963 and October 1965 (Scheduled for 1965-1966)	Two groups: 2400 pretest scores and 2400 posttest scores of students in grades 3-6	Differences, if any, between pretest and posttest scores at the end of two school years

*READING: K-12 SURVEY

Project	Participants	Evaluation
Compilation of reading materials used including basic readers and workbooks, supplementary readers and workbooks, and other reading material separately for low, middle, and high groups; type of room; number of pupils in each room and number of years pupils have been in school	130 teachers, 4 resource teachers, 10 principals	Tabulation and interpretation of results (Analysis in preparation)

CHILD STUDY

*ABILITY, ACHIEVEMENT, ADJUSTMENT

Project	Participants	Evaluation
Survey of normal, high, and low achievers, in terms of potential and the relationship of under achievement to school adjustment (Scheduled for 1965-1966)	625 grade 4 students	Differences, if any, among normal, high, and low achievers in behavio ratings, referral to Special Services, and other indications of difficult adjustment

*AGE-GRADE PROGRESS

Project	Participants	Evaluation
Survey of the number of normal age, overage, and underage students; when and by whom re-classified; and the effect of ungrading the primary years in 1958-1959 on students now in grades 5-8 (Scheduled for 1965-1966)	8200 students in kindergarten through grade 12	Tabulation of age-grade status, number of students reclassified by University City Schools and elsewhere, and the number of students who required 3, 4, and 5 years to complete the primary unit

DATA PROCESSING

*STUDENT RECORD SYSTEM: K-12

Project	Participants	Evaluation
Objective test data for all system-wide testing coded by student's name, identification number, sex, birthdate, and schools attended. K-6 data also includes class size and teacher's identification number; grades 7-12 carries the student's cumulative grade average	8200 students, 430 teachers and counselors, 13 principals	Data punched in IBM cards and available for computer processing, are collected annually and processed as needed

Findings and Action Taken

This depository of data is the major source of data for 15 of the 38 studies (excluding the two relative to data processing) discussed in this report. Four studies depend exclusively on this source, eleven require some special data in addition to this major source. Computer processing of data has been used in 3 studies now completed and is being used in 10 studies in progress. Eight additional research projects are scheduled for computer analysis in 1965-1966.

SPECIAL DATA COLLECTING

Project	Participants	Evaluation
Data for specific research projects not included in the Student Record System collected as required	Students or staff involved	Permanently stored in IBM punch cards (collected as needed)

Findings and Action Taken

Seven studies have required special data collection exclusively; eleven studies, previously mentioned, require special data as well as the major data obtained from the student record system. Computer processing was used in a number of these special studies as indicated previously.

ORGANIZATIONAL PROJECTS

ACCELERATED MATHEMATICS

Project	Participants	Evaluation
Selected students in an accelerated mathematics program in grade 7 to permit an additional year of mathematics in high school	140 students in grade 7	Number of students and final marks in grade 12 mathematics; identification by computer processing of predictors of continuation in higher mathematics through calculus (Reported in "RESEARCH AND TESTING," February 16, 1965)

Findings and Action Taken

Final marks in grade 6 arithmetic and reading and non-language I.Q. obtained in grade 4 were the best of several predictors of continuing mathematics through grade 12. Of the 102 students qualified to take algebra in grade 8, 50 students pursued five years of mathematics through analytical geometry and calculus.

A mathematics steering committee will use the results in 1965-1966 as part of a study to improve the sequential mathematics program in grades 7-12.

PUPIL PLACEMENT

*KINDERGARTEN-PRIMARY PLACEMENT: GESELL (TESTS 1-7)

Project	Participants	Evaluation
School placement of children based on the level and quality of development as measured by a standardized test, a behavior rating scale and teachers' ratings	160 entering kindergarten children in two elementary schools	Intercorrelations of scores on the developmental test (sub-tests 1-7), the behavior rating scale, and teachers' ratings, and correlations with scores on a standardized test of readiness for first grade (Analysis in preparation)

*KINDERGARTEN-PRIMARY PLACEMENT: GESELL (TESTS 1-4)

Project	Participants	Evaluation
Similar to Kindergarten-Primary Placement: Gesell (Tests 1-7) but using a short form of the developmental test	160 entering kindergarten children in two elementary schools not included in Gesell long form study	Same statistical treatment as Gesell long form plus correlation study of results obtained in the long (tests 1-7) and short (tests 1-4) scoring of the developmental test (Analysis in preparation)

D. OBJECTIVE STATISTICAL STUDY AND AN OPINIONNAIRE

STUDY OF NEEDS

*SURVEY OF NEEDS AND PRIORITIES

Project	Participants	Evaluation
Identification of the needs of the educational program in University City in a conference of 50 teachers and administrators, extended by suggestions from the entire staff; analysis of judgements of a random selection of staff and citizens concerning priorities among the 26 described needs identified.	99 teachers and 33 citizens	Statistical analysis to determine priorities by the forced choice technique. Commonality of agreement of teachers and citizens, and the consistency of choice within each group. (Reported in "THE IMPACT OF NEW IDEAS" September 1, 1964).

Findings and Action Taken

The identification of priorities by teachers and representative citizens showed relatively close agreement for the two groups of raters and community of agreement within each group. Three of the five top needs--problem learners, reading, and concern for the individual--were selected by both teachers and citizens. Three of the last five needs--communication with the community, foreign language institutes abroad, and health--were selected by both groups. The low priorities, while important, presented problems of less concern to either teachers or citizens.

CURRICULUM DEVELOPMENT

*SCIENCE: BSCS BIOLOGY

Project	Participants	Evaluation
New approach to teaching biology	Students in 8 biology sections, 2 teachers	Teachers' weekly logs, anecdotal records, and recommendations (Reported in March, 1964).

Findings and Action Taken

The Biological Sciences Curriculum Study (BSCS) program offers a rich and extended program of study. However, it places more responsibility on the teacher, requiring more time to plan, schedule, prepare, supervise, and counsel students and more student time as well. The course was extended from 8 sections and two teachers in 1963-1964 to 16 sections and 4 teachers in 1965-1966.

*SCIENCE: K-12 SURVEY

Project	Participants	Evaluation
Allotment of time to science, objectives, preferred teaching mthods, ways of keeping up with science, use of experiments, and ease or difficulty in teaching science	128 elementary school teachers, 20 secondary school science teachers	Analysis of replies to questionnaires including statistical treatment of some items using the forced choice technique to determine person-to-person correlations and the reliability of the concensus (Reported in September 1964)

Findings and Action Taken

Need for some revision of the elementary school science curriculum, an elementary science resource person on the staff, and extension of secondary school science programs were indicated by the survey findings. Released time for program planning was provided the K-12 science committee who worked with an elementary science specialist one day; a team of teachers visited The Earth Science Curriculum Program in the Dallas, Texas area; the Biological Sciences Curriculum Study (BSCS) program was enlarged; and the Physical Science Study Committee (PSSC) and the Chemical Educational Materials Study (CHEM) programs were introduced at senior high school.

CHILD STUDY

*CHILDREN WITH LEARNING PROBLEMS

Project	Participants	Evaluation
Relative impact of three ways to assist teachers to help children with learning problems: (1) consultation for teachers with a regularly scheduled psychologist, (2) Twelve inservice meetings for teachers conducted by a child development specialist and (3) teachers conferences with a social worker during case work with children	Mental Health Consultant: 30 teachers conferred about 108 children with the consultant in 3 elementary schools Inservice meetings: teachers attended 1-12 sessions Social Case Work: 388 children, 70 teachers in 10 elementary schools	Mental Health Consultant: Analysis of questionnaire replies of teachers on use and helpfulness of the service All three programs: Changes, if any, in attitudes of teachers resulting from participation in any of the three programs singly or in combination as indicated by the statistical significance of differences between pre- and postratings (Analysis in preparation)

ORGANIZATIONAL PROJECTS

*DEPARTMENT CHAIRMEN: JUNIOR HIGH SCHOOLS

Project	Participants	Evaluation
Survey of responsibilities, time required during school and beyond, curriculum improvements affected in English, Social Studies, and Mathematics	20 junior and senior high school department chairmen	Classification and analysis of responsibilities (Reported in May, 1964)

Findings and Action Taken

Four department chairmen with released time spent nearly twice the time both at school and out-of-school as department chairmen without released time. Major activities "which would not have been possible without released time": (1) curriculum development and improvement, (2) examine, inventory, and order new books and materials, (3) orientation of new personnel, and (4) planning and providing leadership in department meetings. The Board of Education, in 1964-1965, assumed the financial cost for 1/5 released time for four department chairmen in departments in which teachers had a strong current need for resource assistance.

E. OPINIONNAIRE STUDIES

CHILD STUDY

*DROP-OUT PRONE STUDENTS

Project	Participants	Evaluation
Individualization of instruction for potential drop-outs using programmed learning in English and mathematics	5 grade 9 students, 1 teacher, 1 consultant	Achievement on a standardized test in mathematics, and teacher-made tests in English and mathematics; and tape recorded evaluation by the teacher and the consultant (Data to be collected).

ORGANIZATIONAL PROJECTS

*TEAM-TEACHING: JUNIOR HIGH SCHOOL

Project	Participants	Evaluation
Teachers' opinions of team-teaching, contrast with the single teacher classroom, effect on pupils, problems	13 junior high school teachers	Analysis of tape-recorded comments in response to an 8 item questionnaire interview (Reported in February, 1964).

Findings and Action Taken

Teachers strongly favored the team-teaching organization, speaking enthusiastically of the added teachers' functions and responsibilities and the value of opportunities for large and small group instruction. Major problems included time for team preparation, need for improved building facilities, and increased in-service training and leadership in the new venture. Team-teaching was extended to eighth grade in one junior high school and team-teachers of both grades will meet with the new principal and the assistant principal in August 1965 to prepare for an expanded team-teaching program for 1965-1966.

STAFF EDUCATION

INSTRUCTIONAL MATERIALS PREPARATION: TECHNIFAX WORKSHOP

Project	Participants	Evaluation
Instruction in the preparation of transparencies for use with an overhead projector	7 teachers, 1 technician	Evaluation of questionnaire responses (Reported in January 1965).

Findings

Teachers reported the workshop provided very helpful instruction in the preparation of materials, the operation of the photo-printer, and the development of transparencies. Problems encountered were unavailability of materials in University City schools, and the time and expense of making transparencies.

IN-SERVICE: AUTOHARP WORKSHOP

Project	Participants	Evaluation
Teaching children to play the autoharp	15 teachers, 1 leader	Evaluation of questionnaire responses (Reported in January, 1965).

Findings

Teachers felt the materials presented were very helpful. Problems in the use of the autoharp in the classroom included lack of practice time for children, need for more instruments, and the difficulty in reading music speedily.

IN-SERVICE MATHEMATICS: CUISENAIRE

Project	Participants	Evaluation
Instruction using Cuisenaire Rods	2 leaders, 15 participating teachers	Evaluation of questionnaire responses (Report in October 1964)

Findings and Action Taken

Teachers reported that the theory and materials presented would be useful to them in the classroom. They felt that Cuisenaire Rods were helpful to good, average, and poor students alike. Interest in this technique was indicated by one teacher who prepared a guide, CUISENAIRE: Daily Calander of a Primary One Teacher, by Challie Loomis, to be made available September 1, 1965.

IN-SERVICE MATHEMATICS: DR. GUNDLACH

Project	Participants	Evaluation
Newer ways in teaching mathematics	1 leader, 9 participating teachers	Evaluation of questionnaire responses (Reported in October 1964).

Findings

Participants felt the workshop was helpful and stimulating. Mixed reaction concerning whether such a meeting should focus on elementary, junior high, and senior high school levels were stated. Teachers unanimously agreed that a questionnaire follow-up as in this instance should be made routinely in order to provide more appropriate meetings in the future.

*READING DEMONSTRATION CENTERS

Project	Participants	Evaluation
Demonstrations in the use of i/t/a, Ginn Basal Series, American Book Basal Series, Pupil-Team Learning Technique, Joplin Plan, Programmed Reading, Taped Phonics Program In Listening Stations, Individualized Library Program, Audio-Visual Perception Materials, Language Arts Block Program, SRA Materials, Controlled Reader	12 demonstration teachers and the students in their classes, teacher visitors	Evaluation of responses to questionnaires indicating teachers' reactions to the program observed (Analysis in Preparation)

*TRAVELING TEAMS

Project	Participants	Evaluation
Observations of innovations and promising practices in school systems throughout United States	87 teachers and administrators	Recommendations of practices which should be introduced or extended in University City schools, the impact on local schools to be evaluated by a team of judges in May 1966

*TEACHER AIDES

Project	Participants	Evaluation
Providing more time and assistance for improved planning and program development, increased indiviualization of instruction, and organizational flexibility	7 aides, 39 teachers, 3 principals	Analysis of aides' logs, and responses of aides, teachers, and principals to questionnaires (Reported in June, 1965)

Findings and Action Taken

A detailed analysis of replies to nearly 700 questions included in the fifty questionnaires completed by principals, teachers, and teacher aides and an examination of logs kept by the aides gave evidence of the value of the Teacher Aide Project in improving instruction. The aides supplied a real service to their schools. The teachers used this service wisely in planning and program development, in individualizing instruction, and in using the newly found organizational flexibility effectively. Principals and department heads provided the leadership to make the project work well in each of the four experimental schools. Despite the limited service in two of the four schools, the Teacher Aide Project made a real contribution to the education of children both individually and in groups.

The results have been made available to the administration for discussion and possible implementation of the project in part or as a whole by the Board of Education for the 1965-1966 school year.

APPENDIX A

UNIVERSITY CITY SYSTEM-WIDE TESTING PROGRAM

Generally for all Students
1965 - 1966

Level or Grade	Type	Test	Students Included[c]	Time of Yea.
Pre-Kdg.	Development	Gesell Developmental Examination[b]	All	S
Kdg.	Readiness	Metropolitan Readiness Test	All	S
1	Intelligence	California Test of Mental Maturity	All	F
3	Achievement	Iowa Tests of Basic Skills	All	S
4	Intelligence	California Test of Mental Maturity	All	F
4	Achievement	Iowa Tests of Basic Skills	All	S
5	Achievement	Iowa Tests of Basic Skills	All	S
6	Achievement	Iowa Tests of Basic Skills	All	S
7	Intelligence	Hermon-Nelson Mental Ability	All	F
7	Aptitude	California Algebra Aptitude Test	Accel.	S
8	Achievement	Cooperative Algebra Test	Accel.	S
8	Aptitude	California Algebra Aptitude Test	Regular	S
8	Aptitude	Differential Apti tude Test	All	F
9	Intelligence	Hermon-Nelson Mental Ability	All	S
9	Achievement	California Achievement Tests (Reading, Language, Mathematics)	All	S
9	Achievement	Cooperative Algebra Test	Eligible	S
9	Achievement	Cooperative Geometry Test	Eligible	S
10	Intelligence	Hermon-Nelson Mental Ability	New Pupils	F
12	Intelligence	Ohio Psychological Test	All	F
		TESTS AVAILABLE UPON APPLICATION		
8	Interest	Kuder Preference Record	Applicants	F W
9	Interest	Kuder Preference Record	Applicants	F W
11	Interest	Strong Vocational Interest Test	Applicants	F W
11	Intell.-Achieve.	National Merit Scholarship Exam.	Applicants	S
11	Apt.-Achieve.	College Entrance Examinations	Applicants	S
12	Interest	Strong Vocational Interest Test	Applicants	S
12	Apt.-Achieve.	College Entrance Examinations	Applicants	W

Notes:

a S-Spring, F-Fall, W-Winter
b Six schools only.
c Accel. - Accelerated Mathematics, Regular - Regular Mathematics

Approximately 18,000 tests were given in the system-wide testing program in 1964-1965.

APPENDIX B

EXPERIMENTAL TESTING IN CURRENT RESEARCH

ACHIEVEMENT TESTS	Level or grade	Number of Tests given
Audio-Lingual Materials (ALM) Russian Achievement Test	7	20
Babbs-Merrill Arithmetic Achievement Tests	2	200
California Achievement Tests: Reading and Language	8	720
Every Pupil Scholarship Test in American History	11,12	800
Gates Advanced Reading Test	1	155
Gates Primary Reading Test	1-3	485
Modern Language Association (MLA) Russian Achievement Test	7	20
Stanford Achievement Test: Reading, Primary I	1	485
Stanford Achievement Test: Reading, Primary II	1	155
Sequential Tests of Educational Development: Mathematics	4-12	5,000
Sequential Tests of Educational Development: Social Studies	8	720
Sequential Tests of Educational Development: Writing	12	28
Behavior, Development and Maturity Scales		
Aggression-Moodiness-Learning Behavior Rating Scale (A-M-L)	K-6	12,780
Gesell Developmental Examination	K,1	890
Maturity Rating (based on first observations)	K	1,600
Intelligence, Listening, and Logical Thinking Tests		
Brown-Carlsen Listening Comprehension Test	11,12	800
Piaget Tests	K	100
Stanford-Binet Scale	K	100
SRA Primary Mental Abilities Test	K	200
Watson-Glaser Critical Thinking Appraisal	11,12	800

Perception Tests	Level or grade	Number of Tests given
Beery Developmental Form Sequence Test	K	120
California Test of Mental Maturity: Sub-tests 4. Rights and Lefts, and 5. Manipulation of Areas	7	20
Developmental Test of Visual Perception, Frostig	K	120
Illinois Test of Psycholinguistic Abilities	K	120
Wepman Auditory Discrimination Test	K	120
Total Experimental Testing		26,558

APPENDIX C

COMPUTER PROCESSING AND SOURCE OF DATA IN CURRENT RESEARCH

Analyses of the current research studies listed below, were designed for computer processing. The studies are classified by level of research. Sources of data are indicated in the columns at the right.

Research Study	Student Record System	Special Data Collecting
A. RESEARCH USING EQUATED GROUPS		
Curriculum Development		
*Kindergarten: i/t/a - T.V.	X	X
*Kindergarten: Piaget-Type Program		X
*Reading: First grade i/t/a	X	X
*Reading: Kindergarten i/t/a and Scott-Foresman	X	X
*Social Studies: American History-American Literature		X
*Social Studies-Language Arts: Teaching Methods	X	X
Child Study		
*Diagnosis and Remediation of Learning Difficulties	X	X
*Reading Laboratories: i/t/a	X	X
Pupil Placement		
*Kindergarten, Primary I, and Primary II Placement	X	X

*Throughout this report studies financed by the Comprehensive Project are indicated by an asterisk (*).

Research Study	Student Record System	Special Data Collecting
B. RESEARCH USING EQUATED GROUPS AND AN OPINIONNAIRE		
Use of Lay Personnel		
*English Composition Aides: Ninth grade		X
C. OBJECTIVE STATISTICAL SURVEYS		
Curriculum Development		
Mathematics: Ninth grade Marks	X	X
Mathematics: STEP Test Survey	X	
Mathematics: Iowa Test Survey	X	
Child Study		
*Ability, Achievement, Adjustment	X	
*Age-grade Progress	X	
Organizational Projects		
Accelerated Mathematics	X	X
Pupil Placement		
*Kindergarten-Primary Placement: Gesell (Tests 1-7)	X	X
*Kindergarten-Primary Placement: Gesell (Tests 1-4)	X	X
D. OBJECTIVE STATISTICAL SURVEY AND AN OPINIONNAIRE		
Child Study		
*Children with Learning Problems		X

RESEARCH AND TESTING

SUPPLEMENT TO THE AUGUST 1965 REPORT ON CURRENT STUDIES

James M. Dunlap
Coordinator
Research and Testing

SCHOOL DISTRICT OF UNIVERSITY CITY
University City, Missouri

July 1966

ORDER OF REPORT

*Throughout this report studies financed by the Comprehensive Project are indicated by an asterisk (*).

SUMMARY OF CURRENT STUDIES

Data for eight of the studies described in the August 1965 Report and three additional evaluations have been processed, analyzed, and interpreted. The findings and action taken are summarized here. Other research projects are in various stages of processing and new studies are being designed. These will be reported as the findings become available.

In this supplement, frequent reference is made to the level of significance. The figure given for the level of significance indicates the possibility, in percent, that a result is due to chance. The .05 level of significance indicates only a 5% possibility that an obtained figure was due to chance. This is an acceptable level statistically. The .01 level of significance (1%) is a most acceptable indication that a result was not due to chance. The smaller the percentage, the greater is the confidence which can be placed in the findings.

RESEARCH USING EQUATED GROUPS

*DEVELOPMENTAL DIFFERENCES
formerly called
*DIAGNOSIS AND REMEDIATION OF LEARNING DIFFICULTIES

See August 1965 Report, page 9

Project	Participants	Evaluation
Assessment of children's motor, auditory, and visual perceptions and level of functioning; programming to challenge the above average and average, and to strengthen those below age norms	Two groups: 96 1964-65 kindergarten children and 109 1965 entering kindergarten children, 7 psychometrists, 3 teachers, 3 consultants, 1 principal	Correlation study of 16 diagnostic test variables; reliability study of the prescriptions; and three year follow-up of group differences, if any, in readiness for first grade and reading achievement in grades 2 and 3 as measured by standardized tests

Preliminary Findings and Action Taken

A battery of four perception tests totaling sixteen subtests was given to 109 kindergarten children before and after training. The results from the nine subtests of the Illinois Tests of Psycholinguistic Abilities are reported at this time. Data were analyzed on the basis of the standard deviations (S.D.) for age on each subtest reported in the Examiner's Manual. By definition a child's score at plus 1.00 S.D. or greater was considered significantly above average (asset); at minus 1.00 S.D. or greater significantly below average (deficiency); between plus and minus .99 S.D. within the normal range.

On the nine subtests of the pretest, the group averaged 1.86 assets and 1.04 deficiencies per child, nearly twice as many assets as deficiencies. These figures were approximately the same both for boys and girls. Nine months later, posttest results indicated 2.56 assets and .75 deficiencies per child. The increase in the number of assets (.70) and the decrease in the number of deficiencies (.28), total .98, showed that each of the 109 children, on the average, acquired one additional asset or eliminated one deficiency.

*Throughout this report studies financed by the Comprehensive Project are indicated by an asterisk (*).

On the whole, girls showed about twice as much improvement as boys (1.30 and .64 respectively). Younger girls (4-9 to 5-1 at the time of the pretest) made the greatest gain (1.72), younger boys (4-9 to 5-1) had the only loss (-.63). Middle boys and girls (5-2 to 5-6) and older boys and girls (5-3 to 6-0) also made substantial gains.

Provisions for assessment and programming of entering kindergarteners in the same school with the same teachers is to be replicated a second year. The procedure is also being used with severely deprived prekindergarten children in the summer of 1966. Other applications of the program are being considered.

FRENCH LANGUAGE ACHIEVEMENT

The Effect of Early Language Instruction on Subsequent Achievement

Project	Participants	Evaluation
The effect of instruction in conversational French in grades 4, 5, and 6 on achievement at the end of grade 7	Two matched groups: 52 experimental and 52 control seventh grade French language students, 6 teachers, 4 principals, 5 consultants	Group differences, if any, in scores on a standardized test of common concepts in French

Findings

At the end of grade 7, the experimental group which received instruction in conversational French for three years in elementary school surpassed the control group which received no elementary school instruction at the .005 level of significance. That the difference did not result from chance was indicated by very small differences between the two groups in age, sex, and mental ability, which differences were not statistically significant. The study showed that early instruction in French increased achievement substantially at the end of grade 7. Further research is planned to determine if the experimental students will maintain their advantage at the end of grades 8 and 9.

*INQUIRY TRAINING

See August 1965 Report, page 6

Project	Participants	Evaluation
Teaching children to discover for themselves by questioning	Two equated groups: 40 experimental and 54 control grade 6 students, 2 teachers, 1 consultant	Group differences, if any, as indicated by pre- and post- taped recordings classified and analyzed

Findings

Using Suchman's technique, the experimental students viewed a one-minute film depicting a physical phenomenon, followed by a 45 minute question and discussion period to discover, if possible, the theory to explain the activity they had seen. The series of eight films continued for eight weeks. The control group had no formal inquiry training. Both groups were pre- and posttested using two additional stimulus films.

Differences favoring the experimental group were significant for the number of questions asked at the .01 level, and for the total number of comments at the .05 level. Differences in the number of theories or explanations suggested, the major aim of inquiry training, were not significant.

Projects involving inquiry training are being conducted at various grade levels throughout the school system.

*KINDERGARTEN: PIAGET-TYPE PROGRAM

See August 1965 Report, page 6

Project	Participants	Evaluation
Instruction in the development of logical thinking through understanding of concepts of space, time, matter, causality, and number	Two groups: 50 experimental and 50 control kindergarten children, 10 teachers, 1 consultant	Group differences, if any, in scores obtained on a test of logical thinking

Findings and Action Taken

Differences in skill in logical thinking as measured by pre- and post-Piaget tests generally showed greater gains for the experimental group than for the control group. The results favored the experimental group at the .05 level of significance on the Composite score, and at the .01 level of significance on the Conservation of Length and the Seriation sub-tests. No significant differences were found on the Conservation of Matter and the Conservation of Surface sub-tests.

The consultant who designed the instruments, Dr. Celia B. Stendler, concluded that the tests were appropriate for the middle group of children but were inadequate measures for the most and the least mature children. New activities and new research approaches are being designed.

Piaget-type programs were introduced in all kindergartens in the district in 1965-1966.

*READING: FIRST GRADE i.t.a.
See August 1965 Report, page 7

Project	Participants	Evaluation
Instruction in beginning reading using the initial teaching alphabet	Two groups: 75 experimental students (grade 1 in 1964-65) and 75 control students (grade 1 in 1963-64) taught by the same 3 teachers, 1 principal, 1 consultant	Group differences, if any, in reading comprehension, word reading, word study skills, etc., as measured by three standardized tests

Findings and Action Taken

Differences in achievement as measured by standardized tests including word reading, paragraph meaning, and word study skills favored the experimental group at the .01 level of significance. The evidence indicates the effectiveness of the initial teaching alphabet when used experimentally in beginning reading with typical University City first year primary children. Currently the study is being replicated with 11 experimental and 16 control classes. On the basis of results from this first research, the Reading Committee has recommended adoption of i.t.a. in all primary I classrooms in 1966-1967.

*READING LABORATORIES: i.t.a.
Primary One and Two
See August 1965 Report, page 9

Project	Participants	Evaluation
The effect of intensive reading instruction in daily three hour reading laboratories using i.t.a. and individualized teaching methods with previously unsuccessful readers	Two groups: 40 experimental and 40 control grade 2 and 3 students (in two schools), 1 teacher, 1 consultant	Group differences, if any, in achievement in reading comprehension, word reading, word study skills, etc., as measured by standardized tests

Findings and Action Taken

In a test of Paragraph Meaning, a difference of 0.4 grade equivalent points favored the experimental group at the .05 level of significance. Tests of Word Reading, Word Study Skills, Word Recognition, and Paragraph Reading gave no significant differences between the experimental and control groups. Part correlations of the experimental/control variable with the five reading tests (holding constant any differences in age, sex, ability, and previous reading achievement) also were not significant except for Paragraph Meaning with showed a .025 significance. The discrepancy between Paragraph Meaning (significant) and Paragraph Reading (not significant) possibly may be explained by the nature of the tests as Paragraph Meaning provided no picture cues to the correct answer while Paragraph Reading was answered by marking an appropriate picture. The evidence seems to indicate the effectiveness of i.t.a. in increasing children's understanding of word symbols in context (but not necessarily in isolation) as measured by standardized tests.

The program was discontinued as administrative judgment favored a team-teaching organization to provide the same advantages to children as a specialized teacher.

*SOCIAL STUDIES-LANGUAGE ARTS: TEACHING METHODS
See August 1965 Report, page 8

Project	Participants	Evaluation
The effect of organizational treatment on students' achievement in social studies and language arts	Two groups: 197 experimental eighth grade students (team-teaching block) and 262 eighth grade control students (departmental organization), 10 teachers, 1 principal, 3 consultants	Group differences, if any, in social studies, reading, and language arts achievement on three standardized tests as determined by the significance of part correlations and mean differences

Findings

Differences in social studies and reading achievement as measured by standardized tests favored the experimental group at the .05 level of significance, in language arts at the .02 level of significance. These findings were substantiated further by part correlations which held constant any differences in age, sex, intelligence, and past achievement in reading, vocabulary, language, and work-study skills between the experimental and control groups. The part correlations of the experimental/control variable with social studies and language arts achievement were significant at the .05 level, with reading achievement at the .02 level. The data appear to indicate that the team-teaching block permits teachers to use their particular skills to better advantage with flexible lengths of periods, group sizes, and time for individual attention to pupils without any sacrifice in student achievement.

RESEARCH USING EQUATED GROUPS AND AN OPINIONNAIRE

*ENGLISH COMPOSITION AIDES: NINTH GRADE

See August 1965 Report, page 11

Project	Participants	Evaluation
Providing more time for teachers to plan and teach; and improvement in students' writing	Two groups: 50 experimental and 50 control grade 9 students, 12 teachers, 4 composition aides	Group differences, if any, in marks received by students on their first two and last two compositions

Findings and Action Taken

Narrative and expository compositions were written in October 1964 and in May 1965 by students selected by chance. The compositions were scored independently by two impartial readers using the procedure developed by Paul Diederich of ETS. The total of four hundred compositions were shuffled in an attempt to conceal the identity of the group and the order in which the themes were written. A statistical analysis of scores revealed no significant differences in writing skill between the experimental and control groups.

The program is being continued following the initial design with reassessment planned.

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* OBJECTIVE STATISTICAL SURVEY *
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*READING: K-12 SURVEY
See August 1965 Report, page 13

Project	Participants	Evaluation
Compilation of reading materials used including basic readers and workbooks, supplementary readers and workbooks, and other reading material separately for low, middle, and high groups; type of room; number of pupils in each room and number of years pupils have been in school	130 teachers, 4 resource teachers, 10 principals	Tabulation and interpretation of results

Findings

Compared to the 1963 findings, this survey indicated a trend towards "gradedness" and less vertical use of reading textbooks, but an auspicious increase in the use of multilevel materials such as SRA laboratories, supplementary readers, and the electronic Controlled Reader. Many newer publications were introduced, notably i.t.a., during the two year study.

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*   *
* OBJECTIVE STATISTICAL STUDY   *
*   AND AN OPINIONNAIRE   *
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*INQUIRY INTO CHANGE
A SURVEY OF PRESENT PRACTICES AND BELIEFS

Supplement to
"Envisioning a New Kind of School"

Project	Participants	Evaluation
Anonymous survey to assess how near the local faculties are toward reaching newer goals in education and the extent of agreement or disagreement with those goals	Nearly all local teachers, administrators, coordinators, social workers and other specialists; secretaries and aides; and 19 visiting consultants	Computation of mean ratings for each group of participants and composite ratings

Findings and Action Taken

The survey included twenty-seven pairs of statements, each pair ranging from a typical school practice to a newer educational goal. On a five point scale, the composite ratings of all 27 pairs of statements by all participants combined were: 1) How near we are to the newer goals - 2.9 (slightly less than half way), and 2) The extent of agreement or disagreement with the newer goals - 4.5 (between agree and strongly agree). The survey is being used in faculty discussions and committee studies as a guide to "Envisioning a New Kind of School."

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* OPINIONNAIRE STUDY *
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*TRAVELING TEAMS

See August 1965 Report, page 25

Project	Participants	Evaluation
Visits to schools throughout the United States since 1962-1963 to study and evaluate innovative practices	Administrators, coordinators, and approximately one-third of elementary and secondary school teachers	Written reports of visits, recommendations of practices to introduce locally, follow-up of subsequent action taken

Findings and Action Taken

Members of Traveling Teams made 140 recommendations with respect to the preparation of children to enter school, innovations in teaching content, personalized instruction for students, the learning process, organization, and scheduling. Of these 140 practices, 46 percent have been introduced in the University City schools since 1962-1963 and 25 percent which had been used previously have been increased in scope. Together, these new and expanded practices represent acceptance of 71 percent of the recommendations made. Only 21 percent of the recommended practices were not adapted and 8 percent remained unchanged. Areas in which the largest number of innovations were introduced or expanded were in the subject fields of reading, English, and mathematics, and in the practices of scheduling and personalized teaching.

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