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Cooperative Research Projects

Fiscal 1962

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Anthony J. Celebrezze, *Secretary*

Office of Education
Francis Keppel, *Commissioner*

FOREWORD

THE COOPERATIVE RESEARCH BRANCH, an agency of the U.S. Office of Education, was established in 1954 to encourage research in the field of education, and to stimulate the application of research findings to actual classroom practice.

This bulletin, the sixth in a series, includes brief descriptions of research projects initiated under the Cooperative Research Program during fiscal year 1962. Each description contains a statement of the objectives of the study and the procedures used to carry out the research. The names(s) of the investigator(s), the contracting institution and its location, the starting and completion dates, and the amount of Federal funds contributed are also included. Additional information about current projects may be obtained directly from the individuals conducting the research.

Although the Program is still very new, results of research are now coming in which have a direct bearing on improving the quality of education. It is not the purpose of this publication to report these results; however, the introduction to this bulletin includes information on how to obtain final reports of completed research, and appendix E lists all of those projects completed during fiscal year 1962.

RALPH C. M. FLYNT, *Associate Commissioner*
Bureau of Educational Research and Development

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INTRODUCTION

THE COOPERATIVE RESEARCH PROGRAM of the U.S. Office of Education was authorized in 1954 under Public Law 531 by the 83d Congress of the United States. This law enables the Commissioner of Education to "enter into contracts and jointly financed cooperative arrangements with colleges, universities, and State education departments for the conduct of research, surveys, and demonstrations in the field of education." Operation of the Program began in fiscal year 1957 with a $1 million appropriation from Congress. In each succeeding year the Program has grown in scope and size, as shown by the following tables:

APPROPRIATIONS, BY FISCAL YEAR

Fiscal year	Appropriations (millions of dollars)
1957	$1.0
1958	2.3
1959	2.7
1960	3.2
1961	3.4
1962	5.0
1963	6.9
TOTAL	$24.5

PROPOSALS RECEIVED AND SUPPORTED, BY FISCAL YEAR

Fiscal year	Proposals received	Proposals supported	Percent supported
1957	316	108	34
1958	173	50	29
1959	279	86	31
1960	321	82	26
1961	393	97	24
1962	451	113	25

Projects which are supported by the Program vary in size, scope, and duration. For example, projects have ranged in duration from several months to over 5 years, and in cost from less than $1,000 to more than $1 million. A typical project, however, would last 2½ years and be supported with $50,000 of Federal funds. The areas of study have been very diverse, including such subjects as special education, mental retardation, teaching methods and materials, basic learning theory, test construction, school administration, environmental effects on education, and data processing.

The Cooperative Research Program is a cooperative venture whereby both the Federal Government and the cooperating institution or

agency contribute financial support. Since the inception of the Program, over $14 million of non-Federal funds have been contributed toward the support of the research projects. These contributions vary from project to project, with no particular amount of money or percent of the total project cost specified; but as a rule they are made in the form of personnel, time, materials, building facilities, and equipment, and the difference in overhead between the computed cost and that percent which may be supported from Federal funds.

The major portion of program funds in fiscal year 1962 was allocated for basic and applied research projects. However, funds were made available for other types of activities, such as field demonstrations and research development activities, which were initiated in fiscal year 1961 and which continued to grow in fiscal year 1962. A new program in 1962 began with the establishment of a number of curriculum study centers in English, designed to improve instruction at all levels of education. More specifically, these centers will (*a*) define the nature and aims of the English language and reading curriculum; (*b*) develop sequential patterns for teaching reading and language skills, based on research in human growth and development and the teaching-learning process; (*c*) test promising practices and materials in teaching reading and composition; and (*d*) develop curriculum recommendations in language and reading skills with supporting materials usable by schools.

During fiscal year 1962, over 20 proposals for English curriculum study centers were received. Three of the six centers which were approved were initiated during the year at Carnegie Institute of Technology, the University of Nebraska, and Northwestern University. The other three, to be initiated in fiscal year 1963, will be at Hunter College, the University of Oregon, and the University of Minnesota. Although the centers approved this year were limited to the field of English, it is anticipated that funds will become available for curriculum research and development in other content areas in succeeding fiscal years.

Another innovation during fiscal year 1962 was the initiation of a programatic approach to research, demonstration, and curriculum development through Project English and Project Able.

Project English.—Educators have long held that deficiencies in the effective use of English are among the most serious weaknesses in the schools and colleges of the United States. Surveys have indicated, for example, that 70 percent of the colleges and universities are required to offer remedial work in English, that 150,000 students failed college entrance tests in English in 1960, and that there are nearly 4 million students with reading disabilities in the elementary schools alone. Project English was initiated to focus research effort and talent on the improvement of the English curriculum at all levels. In

fiscal year 1962, programs of research planning, basic and applied research, and the establishment of curriculum study centers were undertaken.

Project Able.—The task of identifying and developing the talent of American youth is the basic charge of Project Able. The purpose of this program of research and demonstration is to attack the deplorable condition which allows 70 percent of the talented youth of the country to remain unidentified and dormant. As a result of research conferences and seminars and individual research development contracts, basic and applied research and demonstration projects in this area are now under way with support from the Cooperative Research Program.

As an extramural research branch of the Office of Education, the Cooperative Research Program receives proposals for basic and applied research projects, research development activities, and field demonstrations from colleges, universities, and State education agencies. After careful staff review, each proposal is assigned to one of six areas of research interest: (1) Administration and Personnel; (2) Characteristics of Learners and Test Construction; (3) Curriculum and Instruction; (4) Guidance and Learning Theory; (5) Sociology of Education; and (6) Special Education. The grouping of the project descriptions in this publication corresponds to these six areas of research interest.

After further review by the research coordinator responsible for the area to which the proposal has been assigned, each proposal is sent out for review by Office of Education specialists concerned with the subject matter with which the proposal deals. A study concerning language development programs utilizing a sample of high school students, for example, would be sent to a specialist in the Language Development Section for review. The specialist's comments are attached to the copies of the proposal. The proposals are then ready for review by the Research Advisory Committee of the Cooperative Research Program.

Public Law 531 specifies that the Commissioner of Education must obtain the advice and recommendations of educational research specialists competent to evaluate the proposals as to the soundness of the research design, the possibilities of securing productive results, the adequacy of resources to conduct the proposed project, and the relationship of the project to educational research already completed or in progress. Therefore a Research Advisory Committee was established for the Cooperative Research Program to advise the Commissioner on those proposals which are most worthy of support. Membership on the committee is by invitation of the Commissioner of Education; each of the nine members serves a 3-year term. Members are selected from among outstanding educators, educational research specialists, and behavioral and social scientists who have demonstrated compe-

tence and knowledge in research related to education. The members of the committee are:

ERIC F. GARDNER, chairman, professor of education, Syracuse University
DONALD D. DURELL, professor of education, Boston University
WARREN G. FINDLEY, professor of educational psychology, University of Georgia
EVERETT C. HUGHES, professor of sociology, Brandeis University
JAMES L. JARRETT, president, Western Washington College of Education
DAVID R. KRATHWOHL, professor and research coordinator, Michigan State University
JULIAN C. STANLEY, JR., professor of education, University of Wisconsin
LLOYD TRUMP, associate secretary, National Association of Secondary School Principals, National Education Association
DOROTHY A. WOOD, chairman, Department of Psychology, University of North Carolina.

The Committee reviews and evaluates each proposal in terms of four general criteria: (*a*) the significance of the problem to education; (*b*) the adequacy of the research design; (*c*) the personnel and facilities available at the institution to conduct the research; and (*d*) the economic efficiency of the project, or whether the probable results seem to justify the cost. The proposals rated highest on these criteria are recommended to the Commissioner for approval. Once the Commissioner has approved the proposals, staff members of the Program negotiate contracts with the appropriate university, college, or State department of education.

In most cases, Federal funds for project costs are made in several payments spread over the duration of the project. At the time payments are requested by the institution, the project director must submit a brief report of the progress of the project. Before the last payment is made, a final report of completed research is submitted to the Program and reviewed to insure fulfillment of the terms of the contract.

The results of the projects are made public through the wide dissemination of final reports. These are distributed by the Library of Congress Documents Expediting Project to the university and public libraries throughout the Nation which subscribe to this service. Other libraries may obtain a copy of the report on interlibrary loan from a repository library. Microfilms of final reports are available after completion of the project from the Photoduplication Service of the Library of Congress at approximately $2.25.

In addition to final reports and microfilms, the Office of Education publishes monographs of selected projects. Single copies of the monographs are available without charge, while the supply lasts, from the Publications Distribution Unit, U.S. Office of Education, Washington, D.C., 20202, and multiple copies are sold by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

RESEARCH ON:

I. CURRICULUM AND INSTRUCTION

1474. *Educability in Visualization of Objects in Space*

FINLEY CARPENTER, University of Michigan, Ann Arbor, Mich. March 1962 to March 1964. $45,046.

OBJECTIVES

1. To determine the efficiency of programed instruction in the teaching of spatial relations.
2. To explore the efficiency of the program at various grade levels.
3. To develop educational materials for teaching spatial perception.
4. To evaluate the stability of scores on existing measures in spatial relations when training is given by programed materials.

PROCEDURES

The first phase of the study consists of examining a large sample of spatial relations tests to determine classes of items and identify the kinds of behavior demanded by the items. The next step is to determine what principles seem to characterize each class. Following the isolation of principles, materials will be produced to teach the principles so that a subject will be able to achieve a high degree of success with samples of items not experienced during training. The principles are to be taught by means of programed learning using a tactual kinesthetic form, a filmstrip, a Skinner-type pencil and paper program and a 10-minute film for motivational purposes. Since each program component is designated as having a special aim, each phase of the overall program is to be regarded as a component of an input system. The design of the experiment will make possible an assessment of each input component on output (change in criterion score) both separately and cumulatively. Equivalent forms of spatial relations measurements will be administered to the approximately 500 subjects before and after the program to test for differences.

1487. *Concept Development Within the High School Classroom*

GEORGE HENRY and JOHN BROWN, University of Delaware, Newark, Del.
June 1962 to August 1963. $21,649.

OBJECTIVES

1. To demonstrate and further explore the possibilities of interdiscipline concept development in high school.
2. To test the following hypotheses:
   - *a.* Since no one can learn all about any discipline, key concepts are necessary for understanding how to seek the high-level abstractions which seem to organize the field.
   - *b.* The quality of a pupil's thinking is measured by the strategy that he uses in exploring the conceptual structures of the field.
   - *c.* A pupil's awareness of developing structure and of his own mental operations leads to better conceptualization.
   - *d.* A similar mode of thinking in various subject matters can be identified and may be one of the bases of general education.

PROCEDURES

The sample will consist of 200 eleventh-grade students from each of four schools. In each school there will be four groups: students receiving special training in both mathematics and English, training in mathematics only, in English only, and in neither. The special teaching program will last 6 weeks. Problem solving tests will be administered to all four groups before and after this period. The three groups receiving training will take two additional tests at 2-week intervals during the training period. Data will be analyzed to determine relative achievement.

1497. *Meanings Expressed in the High School Classroom and Student Learning*

ARNO A. BELLACK and JOEL R. DAVITZ, Teachers College, Columbia University, New York, N.Y.
February 1962 to June 1963. $39,107.

OBJECTIVES

1. To relate the language used in the classroom to the quantity and quality of students' learning.
2. To test the following hypotheses:
   - *a.* Students tend to learn the logical-substantive meanings expressed by the teacher and by themselves in the classroom (substantive meaning refers to the subject of a statement, such as "capital"; logical meaning refers to the response demanded by a statement, such as a definition or description).
   - *b.* There is a positive relationship between the congruence of the meanings expressed by the teacher and the students and the amount of subsequent learning shown by the students.

c. There is a positive relationship between the nature of the teacher's emotional meanings expressed in the classroom and the attitudes toward the subject matter acquired by students.
d. There is a relationship between the nature and intensity of the emotional meanings expressed by the teacher and the amount of logical-substantive learning shown by the students.

PROCEDURES

The subjects will be 12th-grade students and teachers in classes in problems of democracy or similar courses. The main study will use about 60 classes or a total of 1,800 subjects. Data will be collected by a pretest of knowledge of the subject, attitude toward it, and general ability, by recordings of experimental sessions, and by a posttest of knowledge and attitude. The experimental sessions will consist of five regular class periods of problems of democracy in which a special unit in economics will be taught.

1517. *Identification of Sources of Educational Research Materials*

ALLEN KENT and JESSICA MELTON, Center for Documentation and Communication Research, School of Library Science, Western Reserve University, Cleveland, Ohio. January 1962 to September 1962. $6,273.

OBJECTIVES

1. To establish criteria for selection of educational research materials for inclusion in the retrieval system.
2. To identify sources of educational research materials and determine the volume of materials available from these sources.
3. To develop procedures for acquiring source materials and estimating their cost.
4. To obtain screening procedures used in selecting manuscripts for journals containing significant amounts of educational research material.

PROCEDURES

Center staff members will prepare a tentative operational definition of educational research, based on the experience gained to date in selecting a representative sample of materials for the retrieval program. The tentative definition and criteria for selection of materials will be discussed extensively with a committee consisting of educational researchers, including representatives from Western Reserve University and from the U.S. Office of Education. The sources of educational research material will be identified through scanning of such publications as bibliographies, indexes, publishers' announce-

ments, government announcements, library catalogs, etc. In addition, direct contact will be established with schools active in educational research, foundations, and government agencies providing financial support for educational research, publishers of periodicals, monographs, and books, and individual consultants. An attempt will be made through these identification procedures to prepare a realistic estimate of the volume of materials and the density of occurrence of pertinent materials for the various types of sources. Procedures will be established for the acquisition of source materials identified as pertinent to the educational field, and detailed records will be maintained of methods used for acquiring materials. Wherever possible, the Center will obtain the manuscript screening procedures used by those journals which publish a significant amount of educational research material in the hope that this information will aid in the development and establishment of more definite criteria for the selection of material to be included in an educational research information system.

1523. *Effects of Frequency of Writing and Intensity of Teacher Evaluation Upon High School Students' Performance in Written Composition*

DWIGHT L. BURTON, Department of English Education, Florida State University, Tallahassee, Fla. February 1962 to January 1963. $11,776.

OBJECTIVES

1. To discover any significant difference in composition achievement related to differences in frequency of writing, intensity of teacher evaluation, and level of pupil ability.
2. To test for interaction between any pair of these factors and among all three of them.

PROCEDURES

The sample will consist of about 100 tenth-grade students from each of two schools. In each school there will be four groups. One will write frequently (short themes at least once a week or one or two sentences a day) with moderate teacher evaluation (teacher grades only an occasional paper or grades only with respect to a particular error). The second group will write infrequently (themes of 250–500 words every 3 to 6 weeks) with moderate teacher evaluation. The third group will write frequently with intensive teacher evaluation (marking of all errors and extensive comments on each paper). The fourth group will write infrequently with intensive teacher evaluation. Only two teachers will be involved, and they

will be matched as closely as possible on ability, background, and attitude. Early in the first semester and late in the second, students will be given the Sequential Test of Educational Progress (STEP), Writing and Essay Tests, to measure achievement in writing ability.

1524. *The Correlation of Awareness of Structural Relationships in English and Ability in Written Composition*

ROY CECIL O'DONNELL, English Department, Mount Olive Junior College, Mount Olive, N.C. February 1962 to January 1963. $2,845.

OBJECTIVES

To determine the correlations between ability in written composition and (*a*) awareness of syntactic relationships of words in sentences, and (*b*) ability to verbalize knowledge of rules and terminology of conventional English grammar.

PROCEDURES

The sample will be the freshman classes entering Mount Olive Junior College in September 1961 and 1962, a total of about 225 students. Each subject will be given four tests: (1) the STEP Essay Test, Form 1A; (2) the Iowa Grammar Information Test, Form A; (3) the Test of Recognition of Structural Relationships in English; and (4) the SCAT, Form 1A. Data will be analyzed by total population, sex, and levels of aptitude for the relationship between knowledge of grammar, structural understanding, and composition ability.

1528. *Comparative Effectiveness of Composition Skills Learning Activities in the Secondary School*

WILLIAM MCCOLLY, Department of English, University of Wisconsin, Madison, Wis. February 1962 to September 1963. $26,715.

OBJECTIVES

1. To determine the most productive experiences in English composition learning.
2. To measure the comparative values of the writing act itself, drill on usage and mechanics, self-instruction, group discussion, theme correction and criticism, and immediate tutorial feedback.
3. To determine the relative values of these approaches for the different grade levels in the secondary school.

PROCEDURES

Students in grades 7 through 12 of the University of Wisconsin High School, individually matched but randomly assigned to

classes, will form groups of either one control and one experimental class or one control and two experimental classes—three grades with one kind of group and three grades with the other. The groups with one experimental class will be given curriculums whose only independent variable is writing frequency. The groups with two experimental classes will be given curriculums whose variables are both writing frequency and amount of nonwriting activities (e.g. drill, self-instruction, discussion, and theme correction). The second experimental class in each of these groups will receive additional weekly laboratory instruction with immediate tutorial feedback. At the end of the year all subjects will be retested for writing ability.

1529. *Teaching Neuromuscular Relaxation*

ARTHUR H. STEINHAUS, Department of Physiology, George Williams College, Chicago, Ill. April 1962 to January 1964. $16,071.

OBJECTIVES

1. To determine whether or not the methods for attaining neuromuscular relaxation which have proved fruitful in the one-to-one relationship of the clinic can be successfully adapted to the teacher-class relationship of the classroom and gymnasium.
2. To investigate whether neuromuscular relaxation can be taught successfully by an appropriately trained person who possesses no special personality traits and is without the benefit of the physician's "status halo."

PROCEDURES

The project is divided into two programs. Several experimental and control groups of about 10 students each will be drawn from the student body of George Williams College. The other group, which will follow approximately the same training procedures, will be composed of unselected subjects who join training groups. Heart rate, blood pressure, respiratory curves, and neuromuscular action potentials of normal college students will be observed as objective measures of relaxation before, during, and after class instruction in standardized training programs adapted from the clinic. From similar observations made on various student and nonstudent groups of all ages taught by ordinary teachers trained in the methods of teaching relaxation, the study will determine whether the teaching of relaxation is reasonably independent of special personality traits of the teacher and, therefore, is really a teachable skill.

1534. *Programed Materials in High School Correspondence Courses*

DOUGLAS SJOGREN, Department of Educational Psychology and Measurements, University of Nebraska, Lincoln, Nebr. February 1962 to May 1964. $21,726.

OBJECTIVES

To compare high school correspondence course students who take a programed course with those who take a course with supplementary programed materials and with those who take the type of correspondence course currently in use, in order to determine the significant differences in achievement, time used to complete the course, and dropout rate.

PROCEDURES

Three methods will be used in administering the University of Nebraska's correspondence courses in first semester algebra and ninth-grade English. One method will use a course built around a commercial programed text. The second will use, as a supplement to the present course, short programs aimed at teaching an understanding of the basic concepts of each assignment. The third method will use the regular correspondence course now offered by the school without any programed supplements. The sample will consist of those pupils who register for the courses in a 6-month period, expected to total about 250 in each course. Pretests of mental ability and knowledge of the course material will be given at the time of enrollment, to be compared with the results of a standardized test in the subject area at the end of the course.

1568. *A Comparison of Simulation, Case Studies, and Problem Papers in Teaching Decision-Making*

JAMES A. ROBINSON and RICHARD C. SNYDER, Department of Political Science, Northwestern University, Evanston, Ill. May 1962 to January 1964. $34,018.

OBJECTIVES

To compare the advantages of simulation as a teaching technique with the more traditional supplementary techniques of the problem paper and the case method.

The following hypotheses will be tested, using three dependent variables (understanding of basic principles of the course, mastery of

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discrete factual data, and appreciation of the perspective of the participants in "real world" political decisions):

1. Students who are high on need for power, achievement, and affiliation perform better in simulation sections than in either case or problem sections.
2. Students who are high on need for power perform better in case sections than in problem sections.
3. Students who are high on need for achievement perform better on the first variable, with no difference on the second, and less well on the third.
4. Students high on need for affiliation are differentially affected on either of the first two variables but will perform better on the third.
5. Students who are low on need for power, achievement, and affiliation perform better on the three variables in either case or problem sections than in simulation.
6. Students who are low on need for power, achievement, and affiliation do as well on the three variables regardless of whether they are in case or problem sections.

The same determinations will be made comparing high and low groups on intelligence.

PROCEDURES

This research will be carried out in three undergraduate political science courses at Northwestern and will employ the internation simulation technique developed at Northwestern as the principal experimental instrument. Decisional units in the simulation will consist of two or more decision-makers, with a total of five, six, or seven units. The investigators will gather individual data on intelligence, sex, need for power, achievement, and affiliation.

Three intermediate effects (explicitness, validation, and interest) and three ultimate effects (principles learning, fact mastery, and development of insight) will be measured through the media of final examinations, interviews, and questionnaires to determine whether the first three are mechanisms by which a teaching device will produce differences in learning.

1641. *Computer Grading of Physics Laboratory Reports*

HOWARD E. CARR, Department of Physics, Auburn University, Auburn, Ala., May 1962 to September 1962. $2,491.

OBJECTIVES

1. To use a computer to form a partial grading program that will be useful in handling the physics laboratory reports of large numbers of students.

2. To expand a partial grading program into a complete one that effectively grades the laboratory report.

PROCEDURES

A test group of laboratory reports from a single experiment for two laboratory sections in a third-quarter beginning physics course will be processed on an IBM 1620. The two sections will have the same lecturer and section instructor as the other sections of the course, which will be graded conventionally. Comparisons will be made of the costs, time involved, and the grades given by the two systems. The same procedure will be repeated a few months later, attempting this time to develop a program which will completely grade the papers for all sections. The same comparisons will be made.

1648. *Use of Radiophonic Teaching in Fundamental Education*

WILLIAM G. RHOADS, and ANSON C. PIPER, The Roper Opinion Research Center, Williams College, Williamstown, Mass. May 1962 to May 1963. $76,395.

OBJECTIVES

1. To identify some psychological and attitudinal factors which are associated with participation, achievement, and satisfaction in radio-school programs in Honduras and El Salvador on the part of students, monitors, and administrators.
2. To identify some social and cultural factors which influence responses to education by radio.
3. To evaluate the radio-school program in terms of participant achievement, satisfaction, and practical retention and application of acquired skills and knowledge.

PROCEDURES

The sample for the research will be 25 to 30 radio-school communities in these two Central American states chosen to be representative on such variables as age of the radio station, its facilities, type of community economy, and degree of isolation of the community. The communities and their radio-school programs will be analyzed and described in detail by professional observers who will have previously compiled all relevant library and documentary material. Intensive interviews with representative samples of radio-school personnel, graduates, active students, and dropouts will be conducted. Information will be collected and correlated on effectiveness of the radio school, attitudes toward it, and variable factors within the community.

1676. *Arithmetical Abstractions: The Movement Toward Conceptual Maturity under Differing Systems of Instruction*

WILLIAM A. BROWNELL, School of Education, University of California, Berkeley, Calif. March 1962 to March 1963. $21,704.

OBJECTIVES

1. To investigate differences among the selected systems of instruction in the rate at which they encourage children to move quickly and completely toward mature arithmetical concepts and understandings.
2. To determine differences among the various programs in the extent to which children tend to rely on "thing imagery" for concrete aids, once these aids have been abandoned in actual instruction.
3. To investigate differences in the degree to which the programs develop purely mechanical skills in computation as contrasted with understanding of the rational principles underlying such operations.
4. To determine the merits and defects of each program in terms of the promotion of functional abstract ideas.
5. To investigate the possibility of devising an eclectic program which draws upon the special advantages of differing systems of instruction.
6. To determine the extent to which children of varying ability levels profit differentially from the programs in their advancement toward functional abstract ideas.
7. To study any relationship between achievement test scores and extent of abstractness.
8. To investigate any consistent advantage for pupils taught by one or another of the programs under investigation.

PROCEDURES

Schools in England and Scotland will be identified in which children have been taught arithmetic for 3 years consistently by one or another of several unlike programs. Interviewers trained by the principal investigator will visit and remain in each selected school until all of a predetermined number of subjects have been interviewed and data with respect to school achievement, especially in arithmetic, and general scholastic ability have been collected for each child. Pertinent data, such as time allotment for arithmetic year by year, will be recorded for each participating school. Interviewers will employ a series of printed arithmetical tasks which represent outcomes expected at the end of the third year of schooling both in British and

in American schools. Their purpose will be to ascertain the mental processes employed by interviewees, deriving this information both from children's oral reports of their processes and from answers to supplementary questions they will put to the children.

1738. *Teacher and Student Roles in Adult Education*

HENRY L. LENNARD, New School for Social Research, New York, N.Y.
June 1962 to June 1963. $82,133.

OBJECTIVES

1. To define the role expectations and role strains of adult education teachers and students and their effects upon teacher-student interaction and upon the process of education.
2. To identify the major dimensions along which role conceptions vary.
3. To identify the extent of similarity and dissimilarity of role conceptions for a sample of teachers.
4. To develop indicators of strain in the teacher-student expectational system, and study ways in which strain in this system is reduced.
5. To identify factors affecting teachers' role conceptions and those affecting the structure of adult students' role conceptions.

PROCEDURES

The first part of the research will consist of a series of exploratory, unstructured interviews which will be conducted with teachers and students in adult education centers in New York City to observe classroom interactions. In the second phase about 180 teachers and 1,800 students will be selected from three adult education centers in large cities and three centers located in small cities. With each institution half of the teachers selected will have less than 1½ years experience in such settings and the other will have more than 5 years experience. Data will be collected by means of interviews with teachers, questionnaires administered to students, observation of classroom behavior, available records on students and teachers, and data on characteristics of the adult education centers.

1826. *A Study to Identify the Content of Linguistically Based Grammar Instruction of a Junior High School*

RUBY KELLEY, Long Lots Junior High School, Westport, Connecticut
State Department of Education, Hartford, Conn. June 1962 to June 1963. $10,879.

OBJECTIVES

1. To translate scholarship in the field of English language study into concepts which can be used in the teaching of composition and language.
2. To determine what grammatical structures of the spoken and written language are used by students of the same grade level and of similar ability.
3. To investigate which of these grammatical constructions the student needs to study intensively in order to develop the concepts of language which he will need to insure his continued language growth.
4. To find what information can be extracted from modern language scholarship and applied to effect competency in language use and in the understanding of the powerful force of language in society.

PROCEDURES

The first step will be to determine the high-frequency language constructions used by the junior high school students (grades 7–9) in speech and composition through the careful examination of tape recorded classroom discussions and samples of written compositions. The recordings will be analyzed to discover the extent of the language facility of the students by classifying their choices of syntactic structures and determining the extent to which each has been mastered or misused. Step two will be an attempt to determine which areas of English grammar are pertinent to the identified problems. Step three will be to extract from modern language scholarship the necessary information that can be reasonably focused upon the problem under consideration.

E–004. *Synthesis of Research on the Teaching and Learning of Composition, with Suggestions for Future Research*

RICHARD BRADDOCK, Graduate School, State University of Iowa, Iowa City, Iowa. April 1962 to March 1963. $13,345.

OBJECTIVES

1. To bridge the gap between the amount of research being done in the area of English composition and the amount of this research that becomes useful to the English composition teacher.
2. To conduct a comprehensive review of published and unpublished research on the teaching and learning of composition.
3. To summarize what is known and what is not known about the teaching and learning of composition.

4. To indicate weaknesses of previous research and to suggest problems and techniques for further research.

PROCEDURES

A committee was appointed to plan the project and take preliminary action. The committee drew up a list of over a thousand studies for review by means of summaries and bibliographies, professional journals, and queries to graduate schools. The list will next be reduced to a manageable number according to a list of questions embodying rigorous criteria of evaluation, with the committee of eight and some 20 faculty members of universities around the Nation performing the evaluation. Further work will consist of a series of reviews and suggestions by persons throughout the country who have conducted research in composition. Finally, the information will be assembled and summarized by the project director.

E–005. *The Contribution of Structural Linguistics to the Teaching of Reading, Writing, and Grammar in the Elementary School*

RUTH G. STRICKLAND, School of Education, Indiana University, Bloomington, Ind. April 1962 to September 1963. $23,013.

OBJECTIVES

1. To find a way to draw from the scattered mass of research material dealing with the English language that portion which will be helpful to elementary teachers.
2. To discover and evaluate, through intensive combing of the literature and through consultation with linguistic scholars and elementary school specialists, what efforts in this direction have been made by others.
3. To delineate, on the basis of these findings, some areas of needed research.
4. To propose actual studies which must be carried on in elementary school classrooms to test the values of the findings and hypotheses presented.

PROCEDURES

The project will include the following steps: (1) survey of the literature dealing with descriptive or structural linguistics in order to select 10 or more specialists whose work should be analyzed; (2) consultation with linguistic and elementary education authorities to select the materials of greatest pertinence and value and to set up criteria and plans for the study of these materials; (3) analysis of the findings of the selected materials of these linguists and students of child de-

velopment to discover what appears of value for elementary education; (4) selection from among this mass of findings of what seems applicable to the teaching of various facets of the English language arts program in the elementary school; (5) consultation with a selected group of curriculum consultants and elementary school supervisors to check on theoretical applicability to the elementary school curriculum of the results of this study; (6) expansion and refinement of material in the light of this conference; (7) proposal of areas, problems, and materials for classroom experimentation and evaluation; (8) a second conference with the selected group of linguistic scholars and elementary education specialists (item 2) to check on interpretation of the findings and to put these findings in proper perspective.

F–007. *Research Development Conference To Determine Research Needs for the Improvement of the Teaching of English*

ERWIN R. STEINBERG, Carnegie Institute of Technology, Pittsburgh, Pa., May 1962 to October 1962. $18,443.

OBJECTIVES

1. To isolate the most pressing research problems in the teaching of English at all levels.
2. To assign priorities to these research problems.
3. To describe both applicable research procedures and necessary criteria.

PROCEDURES

The conference will bring together for a 3-day meeting scholars of the English language, writing, reading and literature, specialists in the teaching of English, psychologists, school administrators, and members of the various responsible educational organizations concerned. There will be approximately 50 such people invited. A final report of the conference proceedings will be prepared and made available to members of the English, education, and research fields.

G–004. *An Independent Evaluation of the 1962 Summer Institute Program of the Commission on English of the College Entrance Examination Board, with Recommendations for Future Institutes*

JOHN C. GERBER, Department of English, State University of Iowa, Iowa City, Iowa. June 1962 to June 1963. $69,988.

OBJECTIVES

1. To evaluate the work of the 1962 summer institutes to be sponsored jointly by the Commission on English of the College Entrance Examination Board and 20 cooperating universities.
2. To evaluate the overall objectives of the institute program and such means toward these ends as location of institutes, length, size, staff, organization, participants, curriculum, materials, tests, and physical arrangements.
3. To evaluate the relative effectiveness of each institute.
4. To determine the effect of the institutes upon the work of participating teachers once they are back in their own schools.

PROCEDURES

The first step will be a meeting of the principal investigator of this project, evaluators, who will visit the institutes, and consultants on the institute program and evaluative methodology, to prepare for the institute visits. This will be followed by two individual visits to each institute, each visit lasting 5 days. Reports will be made to the principal investigator, who will then make a preliminary evaluation and plan followup visits to 60 selected high schools in which institute participants teach. Reports from the second series of visits will again be evaluated by the principal investigator, and suggestions will be made by the visitors before a final evaluation and recommendations are made.

H–001. *A Curriculum Study Center in English: An Articulated Program in Composition*

PAUL A. OLSON and FRANK RICE, Department of English, University of Nebraska, Lincoln, Nebr. May 1962 to April 1967. $249,472.

OBJECTIVES

1. To create a systematic program in composition which will lead the student, step by step, to a competent knowledge of the nature, and a mastery of the resources, of prose discourse.
2. To do research and produce materials in the following specific areas:
   - *a.* Composition and the usable portions of the classical rhetorical discipline.
   - *b.* Composition and the possibility of a new rhetoric.
   - *c.* Composition and its relationship to structural and transformational grammar.
   - *d.* Composition and close reading.
   - *e.* Construction of criteria and tests for the measurement of excellence in composition.

f. Analysis of the levels of student maturity at which basic composition habits or patterns of decision are formed.

g. Construction of criteria for the correction of themes in such areas as syntax, logic, and persuasive strategy.

PROCEDURES

Five school systems in Nebraska, selected to represent a kind of paradigm of the types of educational situations in which materials successfully developed might be used, will have a number of experimental classrooms. Programs and materials to be used in these classrooms will be specially designed by the Center. The present curriculums will be judged on such factors as soundness of linguistic, rhetorical, and literary scholarship on which they are based and the soundness and efficiency of the curricular sequences as they relate both to subject matter considerations and to learning theory considerations. The experimental curriculum materials will be evaluated in terms of the same criteria plus extensive records and quarterly reports by the teachers involved.

H–003. *Curriculum Study Center in English and Related Fields*

JEAN H. HAGSTRUM, Department of English, and ELDRIDGE T. MCSWAIN and STEPHEN DUNNING, School of Education, Northwestern University, Evanston, Ill. April 1962 to March 1967. $250,000.

OBJECTIVES

1. To create an improved sequential curriculum for the teaching of English composition in grades 7 through 14, and to test the developed materials.
2. To relate composition to the various levels of intellectual endowment and define aims appropriate to each level.

PROCEDURES

First the research already done in the teaching of English composition will be reviewed, to determine what is being done, how, and why. Then the aims of composition will be defined prior to the development of manageable teaching units in language and writing. The cooperation of many high schools and junior high schools in Illinois will permit the trial of new curricular materials with large and diversified bodies of students. A policy committee of faculty members will be concerned with the substantive side of the program and will plan the research to be undertaken. An advisory council will represent all participating schools and provide a means of communication among them. A directorial staff consisting of faculty members of Northwestern will plan the seminars, field work, and meetings of the advisory council.

H–015. *The Development of a Sequential and Cumulative Program in English for Able College-Bound Students in the Senior High School, Grades 10–12*

ERWIN R. STEINBERG and ROBERT C. SLACK, Carnegie Institute of Technology, Pittsburgh, Pa. April 1962 to March 1966. $219,995.

OBJECTIVES

1. To develop a composition program for grades 10–12 which will lead to the maturation of writing skills in clearly defined, sequential steps.
2. To develop a reading program for grades 10–12, which, like the program in composition, will develop sequentially the reading skills essential to excellent work in college.
3. To develop in final form materials such as reading lists of syllabuses for composition, teachers' manuals for both reading and composition, and teaching materials, such as transparencies for an overhead projector, for the entire sequence of three courses.
4. To demonstrate the utility of these reading and writing programs by installing them in five senior high schools of diverse types and sizes in the Greater Pittsburgh area.
5. To evaluate the reading and writing programs through tests given in the cooperating schools.

PROCEDURES

The project includes a series of summer planning sessions for course development, test development, and revision. During the academic year following each institute, the courses developed in the summer will be tried, tested, and retried. Teachers from five cooperating high schools and four staff members from the Carnegie Institute of Technology will plan the entire sequence of three courses in general terms, make detailed plans for the tenth-grade course, and develop preliminary evaluating instruments for the tenth-grade course during the first summer. This material will be tried out in at least seven classes during the following academic year; two of these classes will be taught by the Carnegie Institute of Technology staff members. The eleventh- and twelfth-grade courses and evaluation instruments will be developed during the second summer, taught during the second academic year, and revised during the two succeeding summers and one additional academic year.

RESEARCH ON:

II. CHARACTERISTICS OF LEARNERS

1459. *Effects of Cognitive Set and the Variety of Relevant Experience on Concept Formation in Children*

HAROLD D. CARTER, University of California, Berkeley, Calif. May 1962 to April 1963. $10,887.

OBJECTIVES

To test the following hypotheses:

1. The superiority of concept learning of intentional set over unintentional set should be greater for children about 10 years of age than for those about 5 years of age.
2. The intentional concept formation of older children should be facilitated by exposure to a large variety of examples, while for younger children a small variety should be more beneficial.
3. Regardless of set, a small variety of examples should be more beneficial than a large variety for younger children. For older children a small variety should be superior only when set is unintentional.

PROCEDURES

One laboratory task and one curriculum-relevant task of concept formation are to be employed in the study of 5- and 10-year-old children. An independent group design will randomly assign children within an age level to one of four treatments, each of which will be comprised of combinations of large and small variety and intentional and incidental set.

1511. *Personal and Social Variables Differentiating Children With High and Low Curiosity*

WALLACE H. MAW, University of Delaware, Newark, Delaware, and ETHEL W. MAW, Bryn Mawr College, Bryn Mawr, Pa. March 1962 to August 1963. $37,817.

OBJECTIVES

1. To examine selected aspects of personal and social adjustment and of home environments of high- and low-curiosity children in order to identify differences between them.
2. To compare the high-curiosity with the low-curiosity children on the basis of self-adjustment and self-development, social adjustment and responsibility, and their parents' childrearing attitudes and practices.

PROCEDURES

A preliminary study will be conducted in six classrooms to select tests, questionnaires, and other instruments. These will then be administered to 24 fifth-grade classes. Children with high and low curiosity will be selected by teacher judgment, self-judgment, and a battery of instruments already developed by the investigator. Some instruments will be administered only to children in the high and low curiosity groups who have been matched on the basis of age, sex, and intelligence; the parents of the children in these groups will be interviewed. Both parametrics and nonparametric methods of analysis will be employed, in addition to correlation analysis.

1566. *A Comparison Between Two Kinds of Secondary Mathematics Courses With Respect to Intellectual Changes*

MAX BEBERMAN, University of Illinois Committee on School Mathematics, University of Illinois, Urbana, Ill. February 1962 to November 1963. $47,393.

OBJECTIVES

1. To find how the nature and extent of intellectual growth, apart from subject-matter competence, are influenced by the manner in which a ninth-grade algebra course is organized and presented to the pupil.
2. To clarify the meaning of the term "mathematical aptitude" and to determine its dimensions in terms of the intellectual abilities accompanying success in two ninth-grade algebra courses.
3. To identify the intellectual characteristics predictive of such success.
4. To investigate the possibility of sex differences in mathematical ability.

PROCEDURES

The sample will consist of two groups of 200 eighth- and ninth-grade students beginning their study of algebra, one group taking the University of Illinois Committee on School Mathematics course and the other taking a standard course. Three kinds of tests will be used: structure of intellect tests, standardized tests of algebraic aptitude and achievement, and criterion tests for the UICSM pupils. The criterion tests will be administered throughout the school year, the other two kinds at the beginning and end of the year. Comparisons will be made of sex differences and pre- and post-instruction factor structures. The usefulness of the experimental tests in predicting the criterion tests will also be determined.

1570. *Male Student Success in the Collegiate Early Admission Experiment.*

JAMES W. MILLER, College of Education, University of Hawaii, Honolulu, Hawaii. March 1962 to December 1962. $7,350.

OBJECTIVES

1. To explore the long-range effects of academic acceleration of male students of high academic abilities who were permitted to enter college before they had graduated from high school.
2. To determine whether accelerated students differ significantly from nonaccelerated students on 11 antecedent variables and on performance on 11 variables of undergraduate academic performance.
3. To determine whether the incidence of entrance into graduate school is higher among accelerated students than among non-accelerated students.
4. To see whether accelerated students differ significantly from non-accelerated students on 18 variables on postgraduate activities.

PROCEDURES

Subjects for the study are 213 accelerated superior male students who were admitted to Columbia, Chicago, Oberlin, Wisconsin, and Yale in 1951. The subgroups (students considered by school) will be matched on 11 antecedent variables. The students will be measured in terms of success criteria set at four different levels (undergraduate and graduate performance, socioeconomic status after graduation, and professional and intellectual activities), academic performance, and socioeconomic status. The discriminant function will be used to identify some of the characteristics of the student who can handle academic acceleration successfully on these criteria.

1571. *Written Language Development of Intermediate-Grade Children*

EDWIN HILL, School of Education, University of Pittsburgh, Pittsburgh, Pa. January 1962 to June 1963. $30,001.

OBJECTIVES

1. To determine the characteristic nature of the language development growth continuum by sex, grade level, chronological age, geographic distribution (Northeast, South, West, and North Central), and residence classification (urban, suburban, and rural) in terms of sentence length, sentence structure, sentence complexity, and use of all parts of speech.
2. To analyze the interrelationships among the selected aspects of written compositions.
3. To reveal any intercorrelations existing among these selected aspects of written composition.

PROCEDURES

Specimens of the written composition of intermediate-grade (four, five, and six) children will be gathered from selected urban, suburban, and rural schools in the four geographic regions. Each school "set" will consist of 3 types of residence classification, and at least 100 specimens will be gathered from each grade level in each school of the selected school "sets." Each school "set" should produce approximately 900 sample specimens. From the 4 geographic regions of the United States, a total of approximately 14,400 specimens of composition will be collected. The procedure for the gathering of data will be uniform in all of the selected school districts, with instructions, explanations, and motivational devices for stimulating the writing activity standardized. Prior to tabulation and analysis, all specimens gathered will be grouped according to grade level, chronological age, sex, residence classification, and region. A sample of each specimen will be analyzed in terms of sentence length, sentence type, sentence structure and complexity, and use of all parts of speech.

1574. *Thinking in Elementary School*

HILDA TABA, Division of Education, San Francisco State College, San Francisco, Calif. June 1962 to January 1964, $70,411.

OBJECTIVES

1. To determine the categories by which to describe realistically the cognitive processes under classroom conditions.

2. To secure tentative data regarding the possible level of attainment and the role of such variables as ability, age, and cultural background in determining this attainment level.
3. To test the hypothesis t..at, under the cumulative impact of continued training, there is an acceleration in the attainment of productive thinking.

PROCEDURES

Fifteen to 20 elementary schools that follow a curriculum designed to develop thinking and that contain a pupil population of 375 to 500 will be selected to sample grade levels, socioeconomic variables, and ability and achievement. Tests of ability, achievement, and thinking, tape recordings of classroom discussions, student products, diaries of instructional procedures, and data on socioeconomic status will be secured in each classroom. These data will be analyzed both quantitatively and qualitatively to provide some conception of the level of cognitive processes, the influence of such factors as ability, achievement level, and social background on the level and nature of thinking, and the relationships between the time of exposure to training and the level and quality of thinking that students attain.

1575. *Stimulus Synthesis in Normal and Retarded Subjects*

C. B. ELAM, Texas Christian University, Fort Worth, Texas. March 1962 to February 1964. $57,741.

OBJECTIVES

To study the differences between age groups and between normal and retarded children and adults in synthesizing the multiple, and often conflicting, stimulus cues in the formation of a percept.

PROCEDURES

This project is divided into four studies. For study 1, normal adults and children will be presented with a series of single pictures, each of which is an absolute stimulus, to which they will respond by wagering. In the second study, normal and retarded children will respond manually to the absolute stimulus of two pictures presented simultaneously. For studies 3 and 4, the stimuli will be relative and the presentation will again be two pictures shown simultaneously. In study 3, normal adults and children will be asked to respond by wagering, while in study 4, normal and retarded children will respond manually.

1592. *Relationship Between Self-Concepts of Negro Elementary School Children and Their Academic Achievement, Intelligence, Interests, and Manifest Anxiety*

COMRADGE L. HENTON, Department of Psychology, Southern University, Baton Rouge, La. May 1962 to April 1964. $17,569.

OBJECTIVES

1. To determine the self-concepts of fourth- and sixth-grade Negro children and to compare these self-concepts by sex.
2. To measure academic achievement, intelligence, interests, and manifest anxiety of the students in the two groups.
3. To determine any relationships between the self-concepts of fourth- and sixth-grade children and their academic achievement, intelligence, interests, and manifest anxiety.

PROCEDURES

Three elementary schools will be selected at random from approximately 25 Negro elementary schools of East Baton Rouge Parish, La. An additional school, the Southern University Laboratory School, will be included since its clientele differ in regard to socioeconomic status from others. Two samples of approximately 150 children each will be selected at random from the fourth and sixth grades. Data on academic achievement, interests, mental ability, self-concepts, manifest anxiety and socioeconomic status will be collected on each subject. Statistical comparisons of self-concepts will be made on fourth graders compared to sixth graders, fourth-grade boys compared to fourth-grade girls, sixth-grade girls, and fourth- and sixth-grade boys compared to fourth- and sixth-grade girls. Intraracial comparisons will be made on the basis of socioeconomic stratification. The data will be further analyzed to determine the real relationship between the self-concepts of fourth and sixth graders and their academic achievement, mental abilities, interests, and manifest anxiety.

1632. *Construction of Educational Theory Models*

ELIZABETH S. MACCIA, Bureau of Educational Research, GEORGE S. MACCIA AND ROBERT E. JEWETT, Department of Education, Ohio State University, Columbus, Ohio. April 1962 to June 1963. $49,721.

OBJECTIVES

To delineate models which have potential use in generating educational theory.

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PROCEDURES

The study will have an interdisciplinary phase, so that models may be delineated, and a concomitant educational disciplinary phase, to insure the emergence of models which can be used to generate educational theory. The interdisciplinary phase will include two preliminary stages, one to identify three disciplines to explore for models and the other to identfy an investigator in each of these disciplines. Theory will be located in the disciplines, and then formed into models. An educational disciplinary stage will translate models into educational ideas which will be subjected to a preliminary check of relevance and fruitfulness.

1636. *Improving Academic Achievement Through Students' Self-Concept Enhancement*

WILBUR R. BROEKOVER, DON E. HAMACHEK, and JEAN LEPERE, College of Education, Michigan State University, East Lansing, Mich. April 1962 to September 1964. $73,752.

OBJECTIVES

To enhance the self-concept of ability of low achieving junior high school students and subsequently increase their achievement through:

1. Modification of images and expectations held by parents.
2. Direct contact with an "expert" who communicates basic information to enhance self-concept of ability.
3. Interaction with a counselor who holds positive and high expectations for the students.

PROCEDURES

The project includes three experiments, each taking place in a different junior high school to avoid contamination. Experiment A will involve working with the parents of low achieving students to encourage them to hold positive expectations for their children. Parents will be extensively counseled and advised to demonstrate more interest, pleasure, confidence and willingness to help the students in their academic activities. Experiment B will involve introducing an experimenter who is identified as an expert in the analysis of student abilities. The experimenter will give evidence to a group of low achieving students that they are able to achieve at a higher level. Experiment C will involve intensive counseling with individual low achieving students who perceive their parents as having low expectations for them and who have a low self-concept of ability.

In all three experiments there will be an experimental and a control group of roughly equal size (about 25 to 40, depending on the

experiment). Experiments A and B will in addition have a second control group in which parents or students will have contact with the experimenter but no attempt will be made to change self-concepts. Self-concept of ability, perception of significant others, and achievement data will be obtained at the beginning and at the end of the experiment and 1 year after testing to determine change and persistence of change.

1672. *Student Dishonesty and Its Control*

ALLEN H. BARTON, Bureau of Applied Social Research, Columbia University, New York, N.Y. June 1962 to December 1963. $35,974.

OBJECTIVES

1. To get a comprehensive picture of student dishonesty in terms of types, methods, and frequency of dishonest behavior.
2. To determine the relative importance of factors producing dishonesty such as student predisposition and environmental stresses and opportunities.
3. To discover what measures have been taken to combat student dishonesty and evaluate their effectiveness.

PROCEDURES

Information will be collected in three phases. First a questionnaire will be mailed to both the dean and the student body president of approximately 1,150 accredited 4-year colleges and universities. This will yield information on control measures and estimates of rates of dishonesty. A second questionnaire will be administered to random samples of 50 students in each of 50 colleges selected as representative of the universe of institutions receiving the first questionnaire. This sample will provide information on different forms of dishonesty, pressures toward it, and measures for controlling it. A final set of questionnaires will be administered to approximately 400 students in each of 10 schools chosen from the 50 used in the second step. This will give information on the dynamics of the process of control and make possible an evaluation of the effectiveness of different arrangements for control.

1680. *Critical Thinking Readiness in Grades 1–12*

ROBERT H. ENNIS, Cornell University, Ithica, New York. May 1962 to September 1964. $32,497.

OBJECTIVES

1. To measure a student's capacity for various degrees of mastery of deducing and assumption-finding with relation to the

variables of chronological age, verbal and nonverbal mental age, grade in school, socioeconomic level, reading ability, sex, and knowledge of deduction.

2. To develop an instrument which will satisfactorily measure ability in aspects of critical thinking.

PROCEDURES

The first step will be to construct an instrument which will measure a student's mastery of the aspects of critical thinking under study. For each aspect 180 items will be prepared, of which about 90 will be selected—about 6 items for each grade level plus 18 others to allow for unusually high mastery in the 12th grade and unusually low mastery in the first grade. Step 2 is the preparation of the readiness equations, or measurements of a student's potential for learning critical thinking. There will be 16 experimental classes (one at each grade level plus four others for cross validation) selected as being roughly typical of the U.S. in IQ and socioeconomic level. Each will be measured on the variables assumed relevant, taught intensively for about 2 weeks, and given the criterion test about 2 months later.

1684. *Transfer Through Minimal or Maximal Cueing of Mediated Responses*

MERLIN C. WITTROCK AND EVAN R. KEISLER, School of Education, University of California, Los Angeles, Calif. June 1962 to February 1964. $37,580.

OBJECTIVES

To test the following hypothesis: In problem solving, students who have been given minimal cues (stimuli which have previously evoked mediating responses, which in turn control overt responses) will be better able to transfer this ability to new situations than will those who have been given either prompts (stimuli which evoke overt responses directly) or no cues.

PROCEDURES

The model will be simple: limited to the first order of mediating responses. The subjects will be young children to whom this simple model applies. In the first of the two parts of this study, an artificial subject will be taught to the child. This will consist of ten sets of associations, each set involving five nonsense terms. All groups, including the control group, will be taught the same associations to the same criterion by means of programed instruction methods over a period of several weeks. The experiment, to be conducted only after all subjects have been given this same prior experience, involves four

experimental groups: discovery, minimal cueing, maximal cueing, and prompting. Each group is to be taught to solve a class of problems. The learning criteria will include the time taken to learn as well as the amount of transfer to new problems. In the second part of the study, the same experimental procedure will be used with materials drawn from school subjects.

1863. *Silent Speech During Silent Reading*

FRANK J. MCGUIGAN, Department of Psychology, Hollins College, Hollins, Va. June 1962 to June 1963. $7,475.

OBJECTIVES

1. To obtain electromyographic measures of, and to audibly record, silent speech as a function of chronological age, objective measures of reading level, and intelligence.
2. To study the effect of varying stimulus conditions such as difficulty of reading material and various distractions.

PROCEDURES

Ten subjects, selected at random from among 19 age levels ranging from preschool to graduate students, will be studied. Extremely sensitive electromyographic measures, capable of recording silent speech even where there are no apparent lip movements, will be employed. The subjects will silently read material of varying difficulty, presented in some cases by machine. Silent speech will be measured during a period of relaxation and during the reading periods. There will be repeated measures of the same subject with difficulty of material counterbalanced. Data will be gathered on age, reading level, and IQ, and the results of the silent reading measurements will be compared across these variables.

E–2. *A Study of Non-Intellectual Factors in Superior, Average and Slow High School Students*

ELIZABETH M. DREWS, College of Education, Michigan State University, East Lansing, Mich. December 1960 to June 1961. $8,050.

OBJECTIVES

1. To select students in four profile types (high-achieving studious, creative intellectual, rebel, social leader) and to examine the qualities which distinguish them from one another.
2. To examine the relationship between creativity and other relevant variables such as dogmatism, values, and attitudes toward self.

3. To discover how these students perceive the school climate and how they would choose to have it.

PROCEDURES

From previous research, information will be sought on the original grouping sample now in grade 11, including both gifted and average students, and on identified gifted students in grades 10 and 12 for whom some preliminary data is already available. The data will include earlier test results, tests of creativity, a measure of dogmatism and rigidity, and a measure of values, as well as a questionnaire to establish family background and a thorough survey of interests and attitudes in the areas of present interests in school and out, future plans and aspirations, attitudes toward self and future, and perception of school climate and its potential role.

RESEARCH ON:

III. Special Education

1533. *Personal, Sociocivic, and Vocational Success of Mentally Retarded Male Youths After Training*

John R. Peck, University of Texas, Austin, Texas. February 1962 to January 1964. $60,536.

Objectives

1. To assess quantitatively the effectiveness of predictor variables in determining the personal, sociocivic, and vocational success of young mentally retarded males.
2. To identify indicators that have significant predictive value in determining various kinds of success among mentally retarded youth.
3. To relate the criteria of "success" to training objectives and methods characteristic of several different programs.
4. To interpret the findings and communicate them in a manner designed to maximize the successful rehabilitation of mentally retarded youths.

Procedures

Subjects for the study are 25 graduates from each of four types of training programs and a control sample of 25 young untrained mentally retarded males. Structured interviews will be conducted with the subjects, subjects' parents and subjects' supervisors. The selection of the potential criterion dimensions of "success" of mentally retarded youths is based on the judgment of a jury of qualified persons. In addition to several tests measuring personality variables, certain measures of intellectual functioning, perceptual-motor skills and family status are to be included in order to determine whether or not some "factor variables" can be derived to explain and/or predict criteria of success. The data will be computer-analyzed to (1) determine the relative weight of each potential predictor variable and criterion measure, (2) test for differences among the four experimental groups, and (3) compare the experimental with the control samples for both predictor variables and criterion measures.

1538. *A Predictive Screening Test for Children With Articulatory Speech Defects*

CHARLES VAN RIPER, Speech and Hearing Clinic, Western Michigan University, Kalamazoo, Mich. February 1962 to June 1966. $20,360.

OBJECTIVES

1. To make it possible to distinguish between children with articulatory defects who will "outgrow" the defects and children who will not be able to overcome their speech difficulties without therapy.
2. To design and test a predictive instrument for screening children with articulatory defects.

PROCEDURES

First-grade children in schools which are not receiving speech therapy services will be screened by standardized procedures to locate those children with articulatory defects. Approximately 150 of these children will then be given the new test battery and will be retested after an interval of 1 year and again after an interval of 2 years. Item analysis will be made after each retest to find factors discriminating between the children who no longer have any defective speech sounds and those who still have them. The new predictive screening test will then be administered to approximately 150 other first-grade children, and retests of speech ability will measure the predictive efficiency of the test.

1607. *Efficacy of Speech Therapy with Educable Mentally Retarded Children*

MORVIN A. WIRTZ and FRANK WILSON, Special District for the Education and Training of Handicapped Children of St. Louis County, Missouri, Missouri State Department of Education, Jefferson City, Mo. April 1962 to October 1964. $39,916.

OBJECTIVES

1. To establish the incidence and type of speech problems in a given school age population of educable mentally retarded children.
2. To examine the relationship between the severity of mental retardation and of articulation problems.
3. To analyze articulatory development and the type of articulatory problem considering the variables of Mental Age, Chronological Age, and Intelligence Quotient.

4. To determine whether or not there is a statistically significant difference between the extent of progress made by the experimental group of children receiving therapy and the control group receiving no therapy and also, whether there is a relationship between the degree of improvement and IQ.

PROCEDURES

Approximately 1,500 educable mentally retarded students will be the population from which the subjects of the experiment will be drawn. The subjects will be divided into two categories: those with articulatory deviations and those with normal speech. They will be further grouped according to age and IQ. The first phase of the study will consist of an attempt to describe thoroughly the articulation of mentally retarded children, with an attempt to explore possible relationships between the degree of retardation and the degree of abnormal articulation. This first phase will also include an analysis of the articulation development of the educable mentally retarded child as it relates to the development of speech in the normal child. In the second phase of the study there will be a consideration of the development of articulation in a population of mentally retarded children varying in degrees of retardation. For this phase there will be an experimental group which will receive speech therapy, a minimum of two 1-hour sessions per week and a control group which will receive no therapy. Every 6 months further articulation tests will be administered to the two groups to determine the effect of therapy and maturation on speech. The data will be analyzed for source and extent of change in articulatory precision.

1633. *Evaluation of High School Mathematics Programed Texts When Used with Deaf Students*

HARRY BORNSTEIN, Gallaudet College, Washington, D.C., April 1962 to March 1964. $24,119.

OBJECTIVES

1. To compare learning achievement based upon the use of programed texts with achievement based on conventional lectures in the same subject matter.
2. To determine the relationship between language ability and achievement under both programed and lecture treatments, the relationship between emotional dependence and achievement under both systems, and the interrelationships between amount of achievement, speed of learning, and amount of help requested of the instructor.

PROCEDURES

The subjects are the approximately 185 students admitted to Gallaudet College in 1962. The students will be tested for English reading comprehension, emotional maturity, and algebra and plane geometry achievement. Students will be separated into three levels of mathematics achievement, then each level will be grouped into two classes matched on initial achievement and English comprehension. In each level an instructor will use the usual lecture method with one class and the programed texts with the other. Data will be analyzed for significant differences between the experimental and control groups and on such predictor variables as reading comprehension, emotional dependence, and student opinions about the use of the programed text.

E–3. *Survey of the Psychological Literature in the Area of Creativity with a View Toward Needed Research*

MORRIS I. STEIN, Research Center for Human Relations, New York University, New York, N.Y. September 1961 to August 1962. $8,193.

OBJECTIVES

1. To undertake a systematic review of the literature on creativity in an effort to highlight the major lines of existing approaches in the field and to integrate existing knowledge.
2. To project possible approaches for new research endeavors.

PROCEDURES

The literature on creativity will be surveyed and evaluated in relation to criterion problems, cognitive factors, and personality factors. New approaches to research in the field of creativity will then be developed.

E–006. *Construction of a Theory of Self-Actualization: Development and Utilization of Talent*

JOHN R. P. FRENCH, Department of Psychology, University of Michigan, Ann Arbor, Michigan. May 1962 to November 1962. $12,800.

OBJECTIVES

1. To develop further a theory of the cause and consequences of self-actualization as related to the utilization of talent.

2. To fit the theory to such existing data as can be found.
3. To design and to develop the methods for one or more research projects to test the theory.

PROCEDURES

These objectives will be attained by means of discussions by the research team alone and with consultants, by a search of relevant literature, by devising and pretesting measuring instruments, by locating possible sites for research in private companies and other organizations, and by preparing theoretical articles and research proposals. Data from the pretests of instruments will be computer analyzed.

F–006. *A Conference on Research in the Education of Gifted Children*

JAMES J. GALLAGHER, School of Education, University of Illinois, Urbana, Ill. May 1962 to January 1963. $9,942.

OBJECTIVES

1. To produce some consensus of ideas on future needs and trends in research on the education of gifted children.
2. To provide possible examples of research programs or sequences which would indicate directions for further investigation.
3. To provide the individual contributor with an opportunity to broaden his own research ideas by cross-fertilization with other productive specialists.

PROCEDURES

Approximately 12 participants will be selected on the basis of active and proven quality research work in the area of gifted children, availability, and ability to contribute and interact with others in a conference setting. Participants will prepare themselves for the meeting by familiarizing themselves with existing literature and ongoing research. Although the conference will be unstructured, topics might include a consideration of theoretical models and their usefulness in planning research on gifted children and a consideration of the problems of measurement of such characteristics as underachievement, creativity, and problem solving.

G–1. *Development of Designs for Research on Mental Retardation*

R. KENNETH WILCOX, Rehabilitation Counseling and Training, University of Wisconsin, Madison, Wis. July 1961 to October 1961. $19,510.

OBJECTIVES

1. To give approximately 12 leaders in the field of mental retardation the opportunity of working together in order to exchange ideas, to generate new ideas, and to identify research problems.
2. To develop tentative designs for research on selected problems, all of which should contribute to an increase in the quantity of high-quality research leading to practical solutions of major problems in the field of mental retardation.

PROCEDURES

A seminar will be held at the University of Wisconsin with about 12 participants, a chairman, and several observers. The participants will bring to the seminar working notes which will serve as a basis for group discussions and the preparation of tentative research designs. The participants will (1) review critically significant research in the field of mental retardation, (2) identify research problems which should be given high priority, develop tenative designs for research on selected problems, (3) prepare a seminar report for dissemination, and (4) prepare a critical evaluation of seminar procedures for use in conducting similar seminars in the future.

RESEARCH ON:

IV. Counseling and Guidance

1493. *Application of Multidimensional and Scale Analysis to Interest Measurement*

Lawrence H. Stewart, Walter Stellwagen, and Royce R. Ronning, School of Education, University of California, Berkeley, Calif. February 1962 to June 1963. $31,055.

Objectives

1. To develop a number of scales of educational-vocational interests by using a fractionation technique.
2. To study selected properties of the scales.
3. To compare scales developed by the fractionation technique with scales developed by using the law of comparative judgment.

Procedures

An experimental instrument utilizing a fractionation procedure will be constructed. This instrument, the Strong Vocational Interest Blank (SVIB) and the Kuder Preference Record (KPR) will be administered to a group of college students. The experimental instrument and a modified instrument utilizing paired-comparison scaling will be administered to another group of students. On the basis of the resulting data, the instrument will be assessed for reliability, replicability of results (cross-validation), and similarity of results to those obtained by more conventional scaling procedures. The factor structure of interests will be assessed as manifested within homogeneous item categories, and comparisons will be made between such item categories. The relationships between the SVIB and KPR will be examined.

1537. *Vocational Development in Adolescence*

John O. Crites, State University of Iowa, Iowa City, Iowa. January 1962 to December 1964, $45,968.

OBJECTIVES

1. To determine whether or not there are changes in vocational behavior with age.
2. To identify the vocational behaviors related to indecision and realism in occupational choice.
3. To determine the dimensions of vocational maturity.
4. To study the correlates of vocational maturity.

PROCEDURES

A random sample of 500 male subjects at each of the age levels between the years of 12 and 18, the period during which vocational choices are typically made, will be selected. Initially the samples will be studied cross sectionally within and between age levels. Subsequently, "core" samples, consisting of all subjects who remain in the study for its duration, will be followed up longitudinally over a 3-year period. With both the cross sectional and longitudinal samples, it will be possible to assess the differential effects of sampling fluctuations and general maturational processes upon vocational development. Urban-rural and male-female comparisons will also be made.

1551. *Performance Measures of Physicians*

PHILIP B. PRICE and CALVIN W. TAYLOR, University of Utah, Salt Lake City, Utah. February 1962 to August 1963. $38,983.

OBJECTIVES

To develop criterion measures of the on-the-job performance of physicians, which are to be used in a subsequent study designed to determine to what degree the performance of physicians can be predicted by their performance in medical and premedical school.

PROCEDURES

Approximately 40 to 75 measures of on-the-job performance of graduates of the University of Utah College of Medicine and other physicians practicing in the Utah area will be obtained by means of interviews and mail questionnaires. The psychometric properties of these criterion measures, such as reliability, intercorrelation, and factorial composition, will be studied. Physicians will be divided into groups according to type of practice, with several criterion measures being common to all groups, to allow for cross-group comparisons. For each group of physicians the various criteria will be intercorrelated and factor analyzed. Thus information will be obtained about the number of independent dimensions of success in each group. Each factor will then be treated as a separate index of success.

1577. *Vocational Education as Perceived by Different Segments of the Population*

RALPH H. C. WENRICH, School of Education, University of Michigan, Ann Arbor, Michigan. March 1962 to August 1963. $24,026.

OBJECTIVES

1. To define the perceptions of vocational education current within groups of labor-union officials, employment managers, students, and school administrators.
2. To establish the validity of this information.
3. To test the usefulness of a measuring device known as the Semantic Differential for predicting behavior with regard to vocations.

PROCEDURES

Groups of labor-union officials, employment managers, students, and school administrators will be selected in a single, medium-sized industrial city in Michigan. The Semantic Differential instrument and standard opinion questionnaire will be administered to all groups. Data thus obtained will be analyzed and the results validated against available behavioral criteria such as employment practices in the case of management, facilities and budget for vocational education in the case of school administrators, and enrollment in vocational courses for youth of appropriate ages.

F–1. *Survey of the Status of Research in Guidance and Counseling*

WILLIAM B. KING, Department of Guidance and Counseling, College of Education, University of Georgia, Athens, Ga. January 1961 to February 1961. $7,153.

OBJECTIVES

To review current, and to suggest new, models of research in individual and group counseling used in socioeducational and vocational guidance at the secondary level.

PROCEDURES

A 3-day conference was held on January 25, 26, and 27, 1961, at the University of Georgia, at which the following papers were presented:

a. Some Observations on Research in Counselor Preparation.
b. Research on Instruments Used by Counselors in Vocational Guidance.
c. Research on Instruments Used by Counselors in Socioeducational Guidance.
d. A Two-Dimensional Diagnostic Classification Plan.
e. Implications of Research on Group Procedures for the Secondary Schools.

The results of this conference will be published and made available to interested persons.

RESEARCH ON:

V. SOCIOLOGY OF EDUCATION

1353. *Critical Factors in Adolescence: Intra-family Relationships and Differential School Adjustment*

FRED SHANLEY, Youth Studies Center, University of Southern California, Los Angeles, Calif. April 1962 to September 1963. $58,940.

OBJECTIVES

1. To study differential patterns of intra-family relationships with regard to the effect these patterns may have upon school adjustment and the achievement problems of boys.
2. To relate specific kinds of disorganizational influences within the family (e.g., inconsistencies between parental orders, actions, and punishment) to classroom behavior.
3. To determine the extent to which differential patterns of intra-family relationships are present in boys defined as aggressive, underachieving, or well adjusted in the school setting.

PROCEDURES

Approximately 180 male subjects will be selected from the ninth, tenth and eleventh grades. The 60 in each grade level will be equally divided into three groups classified as "aggressive," "passive underachievers," and "well adjusted." Aggressives will be nominated by school officials on the basis of discrepancies between IQ scores and academic records, and well-adjusted subjects will be chosen on the basis of peer popularity, teacher rating, and academic record. Interviews will be conducted first with each member of the subject's family individually and later with the entire family as a group. This will yield information on both individual perceptions and on family decision making and power structure. A three-dimensional analysis of the data will relate family characteristics to school behavior.

1455. *Impact of a High-Demand College in a Large University on Working Class Youth*

SALLY W. CASSIDY, Monteith College, Wayne State University, Detroit, Mich. February 1962 to July 1964. $135,017.

OBJECTIVES

1. To study the relationship between the various styles of student college life (i.e., the ways of showing commitments and interests in the college community, the "student roles") and the student's opportunities for relationships with other members of the college community.
2. To determine the ways in which the faculty serves the students as a resource for innovation.
3. To investigate the changes in the student's definitions of himself, and his future role commitments resulting from his attendance at this college.

PROCEDURES

The first part of the study will be done through participant observation. A trained observer will live in direct contact with the Monteith College students in order to get a more complete picture than is attainable through tests. He will be presented to the students as a researcher and will observe as much of their lives and of the general atmosphere as possible, keeping an extensive daily record of his observations. The second part of the project will consist of a longitudinal study of the class which entered Monteith in 1959 (originally 314 students). At the time of entrance these students were examined by means of interviews, questionnaires, and instruments measuring cognitive functioning, academic aptitude, and occupational images. Critical thinking and occupational images will be measured again in the spring of 1963, at which time specially developed measures of self-conceptions and life styles will also be administered. Followup studies will be made of students who were invited to attend Monteith but refused, and of students who began with the class under study but later dropped out.

1479. *Elementary Summer Schooling of Migrant Children*

SIMON MARCSON, Rutgers University, New Brunswick, N.J. January 1962 to June 1964. $43,005.

OBJECTIVES

1. To determine whether or not two aspects of a special educational program for migrant children (standard academic plus nonacademic skills) are functionally interrelated so that the effectiveness of the academic program depends upon the effectiveness of the acculturation process.
2. To determine whether or not the structural components of social relationships among migrant families counter academic

achievement and the learning of values, goals, and patterns of conduct that are taught in the summer program.

PROCEDURES

Two methods of collecting data will be used: observation of the school program and systematic interviews. These interviews will be conducted with State and local educators and with migrant children, teachers in the migrant school program, and parents of the children. Insofar as possible, achievement tests will be administered to all the children in the interview sample. The observational data will be analyzed to provide the basis for a delineation of the on-going educational process in the classroom. In addition, they will provide a partial basis for analysis of the subcultural patterns and problems of migrant children and their families. The interview material will be analyzed qualitatively to determine the educational processes involved in the migrant child's school experiences. These materials will also be analyzed quantitatively for such data as age composition, grade distribution, attendance records, and disciplinary problems.

1527. *An Assessment of the All-Day Neighborhood School Program for Culturally Deprived Children*

ADELE FRANKLIN, All-Day Neighborhood Schools, New York City Board of Education, New York State Department of Education. March 1962 to December 1964. $81,162.

OBJECTIVES

1. To determine the effect of a comprehensive school program (designed to give more meaning and structure to the underprivileged child's school experience, to compensate for the inadequacies in his other life experiences, and to provide desirable activities for him after regular school hours) on the child's academic achievement, feeling toward self, and emotional stability.
2. To examine the effect of the program on teachers, both in their orientation to the curriculum and to the children.
3. To examine the effect of the program in developing good parent and community relations.

PROCEDURES

Approximately 300 third- and fourth-grade children enrolled in the program will be matched with a control group on the basis of age, race, socioeconomic background, and intelligence. The groups studied will be evaluated in terms of academic achievement, emotional stability, and feelings toward self. Classroom teachers will be inter-

viewed and observed and will anonymously fill out questionnaires. The resulting data, indicating attitudes of teachers toward children and of children toward teachers, and evidence of curriculum changes suited to the particular children in school, will be evaluated and analyzed in terms of factors such as age, sex, and amount of teaching experience. Parents will be asked to complete an unsigned questionnaire and will be interviewed to determine interest and attitude toward the child and the school, attendance and participation in P.T.A. meetings, activities for community betterment in cooperation with the school or with community agencies, and volunteer help given in the school.

1530. *The Role of Colleges and Universities in the Education of the Aged*

ANDREW HENDRICKSON, Center for Adult Education, Ohio State University, Columbus, Ohio. February 1962 to January 1964. $54,932.

OBJECTIVES

1. To discover the educational needs of older persons, particularly those needs which may appropriately be met by a college or university.
2. To determine which of these needs may best be served by activities (1) on a campus, (2) in a neighborhood center, or (3) over radio or TV.
3. To identify in the older population persons who can act as resources in teaching classes or in organizing and administering programs for the aging.

PROCEDURES

The investigator will construct a sample of approximately 2,200 elderly persons in Columbus, Ohio, with stratification based on sex, marital status, and education. This information will be obtained from data gathered in the 1960 census. Interviews will be conducted to gain information on personal data, present leisure-time activities, problems which may be susceptible to solution through education, and activities in which the individual would like to participate. The data will be analyzed for trends and for statistically significant differences between subgroups based on factors such as sex, marital status, employment, age, educational attainment, and economic status. Data will also be scrutinized to identify educational talent which could be used in college-sponsored programs.

1635. *Mental Abilities of Children in Different Social and Cultural Groups*

GERALD S. LESSER, Hunter College, City University of New York, New York, N.Y. May 1962 to August 1963. $55,163.

OBJECTIVES

1. To determine whether significant differences exist among groups of children from different social classes and ethnic backgrounds in each of five mental abilities: space conceptualization, verbal ability, number facility, reasoning ability, and science aptitude.
2. To determine whether significant differences exist among these groups in the pattern of configuration of test scores in these diverse areas of mental ability.
3. To see whether significant interactions exist between the variables of social class and ethnic group in determining the the level of each mental ability and the nature of the patterns among them.

PROCEDURES

The Hunter College Aptitude Scales will be administered to about 500 kindergarten children, approximately 100 from each of five different groups (Puerto Rican, Negro, Chinese, Jewish, and Italian), each composed of about one-half middle class and one-half lower class children. The 50 children in each of the 10 subgroups will be divided equally between boys and girls. The criteria of father's occupation, source of income, type of house, and neighborhood area will be used to determine social class placement. Ethnic group identification will be checked by direct interview with parents, as far as possible. Five different applications of an analysis of variance design will be made, one for each mental ability studied.

1646. *Changes in Critical Thinking, Attitudes, and Values Associated with College Attendance*

PAUL L. DRESSEL and IRVIN J. LEHMANN, School of Education, Michigan State University, East Lansing, Mich. April 1962 to June 1963. $23,201.

OBJECTIVES

1. To determine whether or not subjects who experience 4 years of college differ significantly in stereotyped beliefs, dogmatism, traditional values, and critical thinking ability at the beginning and end of 4 years of college.
2. To determine the role of academic aptitude, sex, and amount of college education, in relation to the extent of change in critical thinking ability, attitudes, and values.

PROCEDURES

This is an extension of Cooperative Research project #372, and will in part duplicate the methods used in the earlier study. The same battery of tests was administered to students at the beginning of their freshman year (fall of 1958) and near the end of their senior year (spring of 1962). Students of that class who withdrew during their freshman year or after, and during or immediately after their sophomore year will take the test again in the spring of 1962. Analysis of variance and covariance will be made for significant differences between the several groups and classifications.

1683. *Education and Marginality in the Communal Society of the Hutterites*

JOHN A. HOSTETLER, Department of Sociology, Pennsylvania State University, University Park, Pa. June 1962 to September 1965. $74,829.

OBJECTIVES

1. To determine the conditions and methods by which moral values are transmitted to children in a communal society, especially through the school system.
2. To investigate the conditions under which the collectively-oriented person deviates from the teachings of this communal society.

PROCEDURES

The investigation will be conducted in the 60 Hutterite colonies of Alberta, Canada—the Hutterites being a people who live collectively without private property in agricultural areas in the Northwestern United States and in the prairie provinces of Canada. The major steps are: (1) a formulation of the original charter or code of values of the Hutterites in order to make explicit the moral postulates of Hutterite life regarding core beliefs about education; (2) a study of methods of character education in Hutterite colonies which will focus on the curriculum and the methods used for transmitting the charter values to the younger generation; (3) a study of deviation which involves interviewing persons who have left the colonies; and (4) inductive generalizations based on empirical findings and observations. The methods of obtaining information will consist of participant observation, the collection of test data, and the interviewing of colony members, both inside and outside the colony. Psychological methods of testing will be used in the Hutterite schools where applicable to determine aptitude, achievement, and knowledge of the outside world.

RESEARCH ON:

VI. Administration and Personnel

1495. *Economic Impact of State Support Models on Educational Finance*

Leroy J. Peterson, University of Wisconsin, Madison, Wis. February 1962 to August 1963. $86,900.

Objectives

1. To reveal trends in educational support patterns and potential guides for changing these patterns.
2. To identify relationships of governmental and educational need, financial ability, and effort as reflected in public revenues and expenditures.
3. To determine the effect of representative patterns of State support on local school districts with varying characteristics.
4. To detect trends and forecast the economic impact of each such support pattern in the years ahead.
5. To demonstrate the effect on local school districts and local tax efforts of varying existing patterns of State support.
6. To provide a foundation for the further identification of factors critical to the relationship of State and Federal assistance in financing education.

Procedures

The first step will be to review research related to public school expenditure theory and financial support programs to identify illustrative models of State support. School districts will be categorized (e.g., large central city, established suburb) and examples of each category identified in each of the support-model States. Data on these variables will be compared to determine the results of the various support patterns on the various district types. Information for the past 20 years pertinent to governmental and educational need, financial ability, local effort, and revenue sources will be collected for Wisconsin and other States in which the information is available. From this data trends will be identified and projected and a prediction made as to the future effect of support models on districts.

1503. *Student and First-Year Teachers: Attitudes Toward Self and Others*

BENJAMIN WRIGHT, University of Chicago, Chicago, Ill. March 1962 to March 1966. $81,675.

OBJECTIVES

1. To determine the extent to which personal attitudes toward self are related to personal attitudes toward parental images, particularly that of the mother.
2. To investigate whether professional attitudes toward self are related to both personal and professional attitudes toward teacher images.
3. To see whether or not attitudes toward parental and teacher images change significantly during practice teaching or during the first year of experience.
4. To determine whether attitudes toward self become more idealistic during practice teaching but more realistic during the first year of teaching experience.
5. To examine whether or not attitudes toward teaching roles become more realistic in both periods.

PROCEDURES

Subjects for this study will be approximately 600 women enrolled in elementary teacher training in teachers colleges, liberal arts colleges, and universities. A connotative scale of bipolar descriptive word pairs and a denotative scale of teacher qualities and behavior will be administered before and after practice teaching and after the first year of teaching to determine changes in the subject's concept of herself, herself as a teacher, the good teacher, the young teacher, the old teacher, the parental images of mother and father and the image of her best-liked teacher. A short personal information and social status scaling instrument will be administered to obtain the background variables of age, status, and cultural background.

1605. *The Use of a Computer to Plan School Bus Routes*

ROSCOE A. BOYER, University of Mississippi, University, Miss. June 1962 to May 1964. $33,844.

OBJECTIVES

1. To determine whether, given a specific number of school bus stops, varying numbers of pupils at each point, and school buses with given load capacities, it is possible to compute the

number of different combinations of pickup points so that the total number of students on the route will equal the capacity of any particular bus.

2. To develop criteria such as student miles and cumulative time spent enroute, by which school bus routes may be evaluated, and to suggest procedures which will enable computer centers to design optimal or near-optimal school bus routes according to a given criterion.

PROCEDURES

The investigators will review mathematical techniques relating to the combination of numbers of varying magnitudes and make a comprehensive study of the criteria that could be used to evaluate school bus routes. Selected school superintendents and transportation officers will be interviewed to elicit information from which to derive a list of factors, variables, and situations that should be considered in designing school bus routes and will be asked to rank all the factors emerging from the interviews. Each factor that might be considered in designing the school bus route will be assigned a weight, thus enabling the "aggregate cost" of any route to be computed. The next step involves the development of a computer program that will yield optimal and near-optimal routes according to the criteria specified. Some of the possible criteria will be student miles, bus miles, operating costs, and bus size. For each set of optimal and near-optimal routes according to each criteria, the "aggregate cost" will be computed. The final step involves evaluation of the computer program by designing a school bus routing service for one comprehensive school district.

E–1. *The Job Performance of School Administrators: A Research Development Project*

DANIEL E. GRIFFITH, Teachers College, Columbia University, New York, N.Y., October 1960 to June 1961. $9,200.

OBJECTIVES

1. To investigate the implications of the findings of a research project entitled "Development of Criteria of Success in School Administration" for further research in this field of educational administration.
2. To arrive at a set of hypothetical research proposals based upon the final report of the earlier project.

PROCEDURES

First, consultants will read and criticize the final report of the project. At least one 3-day seminar will be held to discuss recommendations. Second, through a logical-deductive approach, the findings and implications of the project will be studied and hypothetical proposals developed. In both of these approaches two members of the project's staff will work with the principal investigator.

F–2. *Research Seminars on Educational Administration*

STEPHEN P. HENCLEY, College of Education, Ohio State University, Columbus, Ohio, April 1961 to April 1962. $7,500.

OBJECTIVES

1. To exchange ideas about the status of research in educational administration.
2. To generate ideas concerning the direction that such research should take.

PROCEDURES

Three 4-day conferences were held—from April 9 to 13, May 7 to 11, and August 27 to 31, 1961—at the University of North Carolina, the University of Chicago, and the University of California at Berkeley. Approximately 40 conferees were invited to attend each conference, at which approximately 25 papers were presented. A report of the conferences, including the recommendations which were made, will be published and made available to interested persons.

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APPENDIX A

Investigators and Institutions Engaged in Cooperative Research Projects Contracted During Fiscal Year 1962

Investigator	*Institution*	*Page*
Barton, Allen H.	Columbia University	29
Beberman, Max	University of Illinois	23
Bellack, Arno A.	Columbia University (Teachers College)	6
Bornstein, Harry	Gallaudet College	35
Boyer, Roscoe A.	University of Mississippi	49
Braddock, Richard	State University of Iowa	16
Brookover, Wilbur B.	Michigan State University	28
Brown, John	University of Delaware	6
Brownell, William	University of California (Berkeley)	14
Burton, Dwight L.	Florida State University	8
Carpenter, Finley	University of Michigan	5
Carr, Howard E.	Auburn University	12
Carter, Harold D.	University of California (Berkeley)	22
Cassidy, Sally Whelan	Wayne State University (Monteith College)	42
Crites, John O.	State University of Iowa	39
Davits, Joel R.	Columbia University (Teachers College)	6
Dressell, Paul L.	Michigan State University	46
Drews, Elizabeth M.	Michigan State University	31
Dunning, Stephen	Northwestern University	20
Elam, C. B.	Texas Christian University	26
Ennis, Robert H.	Cornell University (New York State College of Agriculture)	29
Franklin, Adele	New York State Department of Education	44
French, John R. P.	University of Michigan	36
Gallagher, James J.	University of Illinois	37
Gerber, John C.	State University of Iowa	18
Griffith, Daniel E.	Columbia State University (Teachers College)	50
Hagstrum, Jean H.	Northwestern University	20
Hamachek, Don E.	Michigan State University	28
Henley, Stephen P.	Ohio State University	51
Hendrickson, Andrew	Ohio State University	45
Henry, George	University of Delaware	6
Henton, Comradge L.	Southern University	27
Hill, Edwin H.	University of Pittsburgh	25
Hostetler, John A.	Pennsylvania State University	47
Jewett, Robert E.	Ohio State University	27
Keisler, Evan R.	University of California (Los Angeles)	30
Kelley, Ruby	Connecticut State Department of Education	15
Kent, Allen	Western Reserve University	7
King, William B.	University of Georgia	41

APPENDIX B

Locations in Which Research Projects Were Initiated During Fiscal Year 1962

APPENDIX C

Numerical List of Projects Initiated During Fiscal Year 1962

APPENDIX D

Research Projects Indexed by Subject

APPENDIX E

Research Projects Completed During Fiscal Year 1962

No.	*Title*	*Investigator*
018	A Study of the Structure of Attitudes of Parents of Educable Mentally Retarded Children and a Study of Change in attitude structure.	W. M. Cruickshank.
048	Career Development in the Public School Teaching Profession with Special Reference to Changing Motivations, Pressures, Satisfactions, and Dissatisfactions.	R. G. Kuhlen.
098	Varieties of Giftedness in the Classroom: Studies of Cognitive and Psychosociological Functioning in Adolescents.	J. W. Getzels, P. W. Jackson.
142	An Application of Reinforcement Principles to Classroom Teaching: The Teaching of Phonemically and Orthographically Analyzed Spelling Materials by an Automatic Mechanical Teaching Device.	D. Porter.
157	How Mentally Handicapped Children Learn Under Classroom Conditions.	F. A. Mullen.
170	Terminology and Concepts in Appraising the Mentally Retarded.	I. Lorge.
175	Parent Attitudes in Rearing Mentally Retarded Children.	E. P. Willenberg, N. S. Leichman.
192	A Comparative Study of Day Class vs. Institutionalized Educable Retardates.	M. C. Reynolds, C. L. Stunkard.
214	Dimensions of Administrative Performance.	D. E. Griffiths, J. Hemphill
245	Evolution of American Educational Theory.	W. H. Cowley, C. J. Brauner.
263	Perception of Symbols in Skill Learning by Mentally Retarded, Gifted, and Normal Children.	T. E. Harris, V. E. Herrick, G. L. Rarick.
273	Guidance and Elementary School Climate.	M. B. Miller.
275	The Indian Research Study, Sections I–II.	M. V. Zintz.
307	Providing Education for Migrant Children.	T. Albers, A. Potts.
324	Language Ability in the Middle Grades of the Elementary School.	W. Loban.
385	Vocational Education in Public Schools as Related to Social, Economic, and Technical Trends.	J. K. Coster, N. J. Nelson, F. J. Woerdehoff.

No.	Title	Investigator
408	A Preliminary Exploration of Factors Associated with School Holding Power for Educable Mentally Retarded Adolescents.	C. J. Baer, et al.
412	The Occupational Aspiration Scale: Theory, Structure and Correlates.	A. O. Haller, I. W. Miller.
428	Teachability Grouping: A Research Study of the Rationale, Methods and Results of "Teacher-Facilitive" Grouping.	H. A. Thelen, et al.
444	Measured Needs of Teachers and Their Behavior in the Classroom.	R. M. W. Travers, et al.
451	The Influence of Teachers and Peers on Aspirations of Youth.	A. Zander, T. Curtis, H. Rosenfeld.
469	Evaluation of Laboratory Human Relations for Classroom Teachers.	N. D. Bowers, R. S. Soar.
470	Studies of the Effects of Systematic Variations of Certain Conditions of Reinforcement.	K. A. Blake, E. T. Donlon.
473	A Study of the Relationship Between Observed Classroom Behaviors of Elementary Student Teachers, Predictors of Those Behaviors, and Ratings by Supervisors.	R. E. Wilk, et al.
477	Conversational English for Non-English Speaking Children.	J. G. Cooper.
526	Low School Status as a Predisposing Factor in Subcultural Delinquency.	J. Toby.
538	The Substrata-Factor Theory: Substrata Factor Differences Underlying Reading Ability in Known-Groups.	J. A. Holmes, H. Singer.
550	Contract Correcting: The Use of Lay Readers in the High School Composition Program.	E. H. Sauer.
578	Responses of Bright, Normal, and Retarded Children to Learning Tasks.	N. A. Carrier, K. D. Orton, L. F. Malpass.
589	A Study of the Community and Institutional School Classes for Trainable Mentally Retarded Children.	L. F. Cain, S. Levine.
614	Effects of Special Training on the Achievement and Adjustment of Gifted Children.	N. D. Hampton.
649	Public Speech and Hearing Services.	M. D. Steer, et al.
664	A Study of the Etiology and Development of the Creative Personality.	J. E. Drevdahl.
672	Classroom Adjustment of the Underchosen Child Through Changes in Teachers' Attitudes and Behavior.	G. R. Boyd.
674	Determining an Effective Educational Program for Children of Migratory Workers in Wisconsin.	D. R. Thomas.
677	Procedures for Identifying Persons with Potential for Public School Administrative Positions.	E. L. Morphet, W. C. Schutz.

No.	Title	Investigator
685	Institutionalization and Psychoeducational Development of Deaf Children.	S. P. Quigley, et al.
691	Investigations of the Characteristics of Programed Learning Sequences.	R. Glaser, J. I. Taber, L. E. Homme.
701	Prediction and Understanding of the Effect of Children's Interests on School Performance.	R. B. Cattell, et al.
702	Effects of Use of Tests by Teachers Trained in a Summer Institute.	J. T. Hastings, P. J. Runkel.
722	Occupational Choice and Mobility in the Urbanizing Piedmont of North Carolina.	R. L. Simpson, D. R. Morsworthy.
729	The Impact of a Value-Oriented University on Student Attitudes and Thinking.	J. F. S. Foster, et al.
736	Measurement and Evaluation of Change in College Women.	M. B. Freedman.
737	Creative Thinking in Children at the Junior High School Levels.	J. P. Guilford, P. R. Merrifield, A. B. Cox.
748	Leisure Time Activity-Interests of Youth in the Washington Metropolitan Area.	H. C. Hoffsommer.
753	A Study of School Classroom Behavior from Diverse Evaluative Frameworks: Developmental, Mental Health Substantive Learning, and Group Process.	W. Morse, R. Bloom, J. Dunn.
757	A Study of Values as Determinants of Educational-Vocational Choices in Hawaii.	A. A. Dole.
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F-2	Research Seminars on Educational Administration.	J. A. Culbertson.
G-1	Research Seminar on Mental Retardation.	R. K. Wilcox.

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