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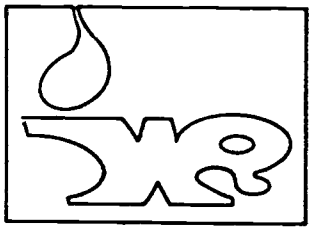
ABSTRACT

The programs and publications of the Wisconsin Center for Education Research from 1980 to 1984 are listed and described in this document. The center's efforts focus on the study of the nature and effects of diversity among students. The research program adds to knowledge about how children learn, how they are taught, and what characterizes effective programs for different students. This report presents an overview of the center's mission and activities, then examines each of the center's four main program areas in greater depth. Each of these main program areas is broken down further into major and minor projects supported. The personnel involved are identified and each individual's publications are listed. The four main areas and the major project topics within them are (1) Learning and Development, covering language development and cognitive processes, metacognition, and language disorders; (2) Classroom Processes, covering skill development, interaction and organization, and technology in the classroom; (3) School Processes, covering both elementary and secondary schools; and (4) Social Policy, covering federal, state, and local roles, historical perspectives, and the education of minorities. Amost 400 articles, books, papers, and other publications are cited. ERIC document numbers are provided when appropriate. (PGD)



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Wisconsin Center for Education Research

WISCONSIN CENTER FOR EDUCATION RESEARCH

BIBLIOGRAPHY 1980-1984

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Contents

CENTER MISSION AND GENERAL OUTCOMES

The mission of the Wisconsin Center for Education Research is to improve American education by studying the nature and effects of diversity among students. We are studying how this diversity affects students' education and educability and how it relates to educational processes and social policy. Whether student diversity is welcomed or bemoaned by educators, dealing with it poses a challenge for every classroom teacher. Our belief is that knowledge about the causes and consequences of diversity can be used to improve the quality, and equality, of schooling. To this end, we can point to three major outcomes of our research program.

First, we are adding to the knowledge of *how children learn*, particularly in the areas of reading, language, and mathematics. Our work ranges from basic studies of children's cognitive processes and language development to more applied research on problem solving, oral communication, and reading comprehension. The research activities encompass studies of individual as well as group differences, age groups from preschool to adult, children of varying socioeconomic level and cultural background, and developmentally handicapped as well as normally developing children.

Second, we are learning more about *how children are taught*. Here we have gained an understanding of what actually occurs in classrooms in terms of time on- and off-task; the effects of grouping practices; differences in teaching and learning styles; and the perspectives, expectations, and goals of teachers, especially as they affect opportunities for minority group students.

Third, we look toward the emergence of a more complete understanding of effective schools—*what characterizes effective programs for different students*—at the elementary and at the high school level. Our work in this area ranges from designs for implementation to observational studies, from analysis of large-scale data bases to synthesis of knowledge and policy analysis.

These outcomes related to learning, teaching, and effective school programs interact to give us a comprehensive picture of what can be done to strengthen schools. Our approach is interdisciplinary because the problems of education in the United States go far beyond pedagogy. We therefore draw on the knowledge of scholars in psychology, sociology, history, political science, and law as well as experts in teacher education, curriculum, and administration in order to arrive at a deeper understanding of schooling.

We have paid special attention to the recommendations of the several national commissions which have issued reports recently. In particular, we are devoting more effort to the issues of school improvement, computer technology, and science and mathematics education and are involving faculty members throughout the University in an attempt to answer critical questions in these areas.

SUMMARY OF PROGRAM ACTIVITIES

Programmatic work of the Center clusters in four areas Learning and Development, Classroom Processes, School Processes, and Social Policy. Each program area includes results of related work supported by the Center through, for example, the Center's visiting scholar program and our pre- and postdoctoral fellowships for women and minorities. In addition to the four program areas, there is a cluster of recent initiatives and collaborative activities.

The *Learning and Development* area deals primarily with critical aspects of the development of language, including reading and writing The focus of this group is on individuals, their variability in basic learning and development processes School instruction is in general highly normative in orientation, from the point of view of the norms which are established, many students fail to achieve adequacy in some (or even all) of the basic skills. The question which drives the Learning and Development area is, What essential cognitive processes must students control in order to be successful in school? This focus excludes studies of cognition or language development which hold no promise of impact on performance in basic school skills such as reading and problem solving. Although the work in this area must have demonstrable educational impact, it need not, and in most instances will not, lead directly to an implementation in schools.

Whereas the Learning and Development program area seeks to identify and describe processes underlying psychological constructs, the *Classroom Processes* program area seeks to adapt such constructs to the improvement of classroom learning and instruction. In the skill development subarea, improvement refers both to the development of diverse students' information-processing skills and to the development of effective classroom curriculum materials. Faculty in the interaction and organization subarea seek information for the improvement of classroom grouping and the organization of activities in the classroom. Technology in the classroom, a new subarea in the Learning and Development program, aims to exploit the instructional potential of microcomputers.

Research conducted by members of the *School Processes* program area focuses on schoolwide issues and variables, rather than on classrooms or individuals. The original focus of this group was on elementary schools, but emphasis is shifting to secondary schooling. In examining existing school processes designed to accommodate students' diverse needs and backgrounds, members of this group seek to identify administrative and organizational practices that are particularly effective.

In the *Social Policy* program area, research is directed toward delineating the conditions under which social policy is likely to succeed, the ends to which it is suited, and the constraints which it faces. Researchers recognize that, although education is frequently an instrument and object of social policy, the record of education in substantially furthering the aims of social policy is mixed. A major emphasis of the Social Policy area has been on the examination of the federal role and the implementation of federal policy. State and local policies also come under scrutiny. Improving educational opportunities for minorities is a second emphasis of the policy area. In addition, other investigators are providing a historical perspective to social policy issues.

RECENT INITIATIVES AND COLLABORATIVE ACTIVITIES

We recognize the value of programmatic research in ensuring progress toward educationally and socially significant outcomes. At the same time we acknowledge the importance of being able to respond to needs and opportunities when they arise. The Center is providing leadership to educators who are rushing

to incorporate microcomputers into their programs. We are collaborating with other educational agencies in school improvement efforts. In mathematics and science the Center has initiated collaborative activities, invited science educators to work with faculty, and cosponsored a conference on school mathematics. These activities are described in the Classroom Processes and School Processes sections.

ORGANIZATION OF THE BIBLIOGRAPHY

In the four remaining sections, one for each of the four program areas, research activities are described in more detail than could be provided by the preceding overview. Both the descriptions and the bibliographic listings that follow are arranged by projects within program area. On the cover page for each program area, researchers are identified by department at the University of Wisconsin-Madison or by institution other than UW-Madison.

All major projects are included in the descriptions. Listings of publications are more complete, including some visiting scholars and fellowship and small grant recipients whose work, although not described in the narrative section, was supported in whole or in part by the Center.

Listings in the bibliography are primarily reports of basic and applied research, although many publications for practitioners appear. All entries have been published in books or journals or are in the ERIC system.

LEARNING AND DEVELOPMENT

Peter A. Schreiber, *Coordinator*

Language Development and Cognitive Processes

Robin S. Chapman, *Communicative Disorders*
Jon F. Miller, *Communicative Disorders*
P. Martin Nystrand, *English*
Gary G. Price, *Curriculum & Instruction*
W. Charles Read, *English* and *Linguistics*
Peter A. Schreiber, *English* and *Linguistics*

Metacognition

William Epstein, *Psychology*
Arthur M. Glenberg, *Psychology*
Steven R. Yussen, *Educational Psychology*

Language Disorders

Anne M. Donnellan, *Studies in Behavioral Disabilities*

This program area deals primarily with critical aspects of the development of language, including reading and writing. The focus of this group is on individuals, their variability in basic learning and development processes. Both psychologists and linguists are conducting studies in this area. They expect that their different approaches to the relation between cognitive and linguistic development will lead to a richer understanding of the relationship than would be possible with independent sets of studies. The individual projects fall into three natural subgroups: analysis of language development and its relation to cognitive processes, metacognitive development, and language development in communicatively disordered children.

Research in this subarea is focused on the most basic stages in language learning. Linguists are studying children beginning to read and both children and adult illiterates whose written language skills are at an early developmental level. Their colleagues in psychology are documenting the development of verb knowledge in normal and handicapped children.

Peter Schreiber is working to determine which structural cues children rely on in comprehending spoken—and written—sentences. One question concerns the role of prosody (e.g., pitch and duration), which Schreiber's previous work suggests is far more salient to young children than to literate adults. If this is so, beginning readers may have difficulty adapting their comprehension strategies to written sentences, in which prosody is not systematically signalled. A second question concerns children's individual differences in reliance on specific structural cues which able readers use When the differential role of such cues is better understood, we will be better able to deal with certain problems that many students experience in the acquisition of advanced reading fluency. For example, the well-known phenomenon of word-calling, essentially expressionless oral reading and corresponding lack of comprehension, may be partially due to the word caller's failure to make better use of the morphological and syntactic cues preserved in written forms and to compensate for the absence of graphic signals corresponding to certain oral prosodic cues. This account of word-calling has fairly clear implications for the type of remediation that would help the word-caller attain reading fluency.

Charles Read has found that the study of young children's spelling provides valuable information about cognitive processes and development. His creative spellers, children in preschool or first grade who make up their own spellings, use certain patterns that have a phonetic basis. Spelling patterns also occur in Dutch, French, German, and Spanish and in various dialects of English. Before children are able to make up spellings, they must be able to divide speech into individual sounds, that is, to segment words. Segmentation is an essential skill for literacy and one that some children have persistent difficulty with. Read is now studying the relationship between spoken and written language in children at the beginning of literacy and is testing to see whether adult illiterates have the same difficulty with segmentation as children. In addition, during a year as visiting professor at Beijing Normal University of China, he studied spelling and writing of people whose native language is morphographic, based on characters, rather than alphabetic.

Robin Chapman and Jon Miller are studying the development of verb comprehension to provide information needed for clinical evaluation of language disordered children. Because verb comprehension has been difficult to assess, almost nothing is known about verb acquisition in normal children. With the animation and record keeping capabilities of the microcomputer, Chapman and Miller expect to identify how various factors interact as children learn verb meanings. Children of ages from two to eight years have been tested using the touch screen. They demonstrated the appeal and effectiveness of the task by sticking with it longer than with conventional procedures. In interviews children demonstrated that they have developed extensive specific verb meaning through real world knowledge.

Gary Price studied the relative efficiency with which children encoded and retrieved verbal information. His interests were both age differences and content domain differences. Although second graders consistently named objects more quickly than kindergartners, the younger children were only negligibly slower to name objects familiar to them. However, kindergartners were markedly slower to name school-taught objects—letters, numbers, common classroom items. In a followup, Price and his colleagues found a substantial correlation between children's speed of letter naming in January of kindergarten and their reading comprehension at the end of grade 1. In other work, Price

has demonstrated a logical fallacy in the confluence model sometimes used to predict a child's mental age. Also, in the process of attempting to reanalyze results of a study of mothers' accuracy in estimating children's ability, Price developed a tool for secondary analysis of data.

Working with older students, Martin Nystrand has found that peer-editing has positive effects on college freshmen's writing. Student writers develop an improved awareness of their readers and use a greater variety of techniques. They also demonstrate a more accurate and realistic sense of the writing process. Subsequent work will not only provide guidelines for teachers wanting to use the peer-editing process but also help to define the role of metacognition in the composing process (knowing about knowing how to write) and the social dimensions of learning to write.

METACOGNITION

Identifying the extent of awareness of active thinking processes and improving awareness and the quality of thinking are concerns of these lines of study. Nystrand's interest in metacognition in the composing process meshes with the interest of other Center researchers in metacognition. In addition to the continuing work described in the following paragraphs, Marilyn Schatz, a visiting scholar during the 1981-82 academic year, studied patterns of expressions and responses, work closely related to the metacognitive development research.

William Epstein and Arthur Glenberg study the illusion of knowing—readers' failure to understand text they believe to be understood. Such inaccurate assessment of one's knowledge indicates a "poorly calibrated" individual. College students showed strikingly low calibration of comprehension of expository paragraphs. Epstein and Glenburg hope to determine the relationship between prior knowledge and degree of calibration of comprehension and to learn whether students' ratings of their comprehension of text is related to their judgments about how successfully they could recall text. In addition the researchers will attempt to improve students' calibration by giving practice in verifying inferences from text.

Steven Yussen is investigating how reading comprehension skills—inference making, summarizing, and organizing and recalling text—develop during the elementary school years. Yussen and his collaborators have found that, across a wide range of elementary school ages, the ability to draw valid inferences from text is a function of both the relevance of information in the text itself and children's access to prior information that is consistent with the text. Yussen has found that young children have difficulty not only in distinguishing between more and less important information but also in recognizing the global, as opposed to detailed, form of a topic sentence. Finally, he has found that young elementary school children do not consciously use a story schema to organize their memory of a story as do older children and adults. Children can be taught to use such a schema; they have such methods of organization available although they do not spontaneously use them.

LANGUAGE DISORDERS

Studies of language disorders are carried out primarily in cooperation with schools in Madison and nearby communities. Close ties to schools and school [illegible]f help assure that Center research addresses the needs of educators and students and that research findings are translated into practice.

Anne Donnellan is working with staff of the Madison Metropolitan School District to better equip

autistic students to live and work in a variety of community settings. With a grant from the U.S. Department of Education Office of Special Education, Professor Donnellan has focused project attention on 10 students with autism who have been placed in age-appropriate heterogeneously grouped classrooms. The Madison Model of curriculum development which has been developed for other severely handicapped students is being applied to autistic students. To use this model one first observes the behavior both of someone successful in a particular situation and of a target student in the same situation, noting discrepancies in the target student's behavior. Then the curriculum is developed to train to minimize discrepancies. Originally effects were anticipated to spread to 30 or so students beyond the target 10. Attendance at inservice sessions has been so large that the effects are believed to have spread throughout Madison and surrounding districts.

Chapman and Miller, whose research is discussed earlier, are now documenting the growth of verb comprehension in normally developing children. This information is necessary for clinical evaluation of language disordered children.

With support of a predoctoral fellowship from the Center, Louise Tomlinson studied mainstreaming as it was perceived and practiced in one middle school reading class. She found that the teacher and the children, both regular and mainstreamed, perceived the class as successful, and she provided suggestions for meeting the needs of all children in an integrated reading class.

Language Development and Cognitive Processes

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Peter Schreiber

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Robin S. Chapman and Jon F. Miller

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Metacognition

THE ILLUSION OF KNOWING

William Epstein and Arthur M. Glenberg

In Press

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Steven R. Yussen

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Language Disorders

TEACHING AUTISTIC STUDENTS IN SCHOOL AND NONSCHOOL ENVIRONMENTS
Anne M. Donnellan

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CLASSROOM PROCESSES

Joel R. Levin and Penelope L. Peterson, *Coordinators*

Skill Development

Thomas P. Carpenter, *Curriculum & Instruction*
Dale D. Johnson, *Curriculum & Instruction*
Joel R. Levin, *Educational Psychology*
James M. Moser, now *Wisconsin Department of Public Instruction*
Thomas A. Romberg, *Curriculum & Instruction*

Interaction and Organization

Maureen T. Hallinan, *Sociology* (also *University of Notre Dame*)
Penelope L. Peterson, *Educational Psychology*
Aage B. Sørensen, *Sociology* (also *Harvard University*)
Louise C. Wilkinson, *Educational Psychology* (also *City University of New York*)

Technology in the Classroom

W. Patrick Dickson, *Child & Family Studies*
Janice H. Patterson, *Wisconsin Center for Education Research*
Gary G. Price, *Curriculum & Instruction*
James H. Stewart, *Curriculum & Instruction*
Alex C. Wilkinson, now *Bell Laboratories*

Because the process of education in schools occurs in classrooms, one group of Center scholars is investigating the effects of variation in classroom instruction. Research in skill development is conducted both to capitalize on students' strengths and to compensate for students' weaknesses. In the interaction and organization subarea, faculty are studying how grouping of students and other variations in classroom organization and instruction can be used effectively to respond to student diversity and promote excellence in education. Educational applications of the microcomputer are a third concern defined in the classroom processes area, although it is obvious from this overview and others that microcomputer applications are of interest to faculty in all areas.

A critical attribute shared by members of this subarea is a commitment to improve classroom processes—students' information-processing skills—and products—classroom curriculum materials. Applied language research is conducted in the area of vocabulary development. Elementary mathematics instruction is another primary domain of interest. Members of this group also participate in the subarea concerned with technology in the classroom.

Joel Levin has conducted research over the past few years that demonstrates that students can be taught to use a variety of pictorial mnemonic compensation strategies to improve comprehension and study skills. In learning about minerals, students using the mnemonic strategy had greater recall than students using either a taxonomic organization or free study techniques. Similar results were obtained in a comparison of semantic and mnemonic strategies used on biographical passages. Additional studies will be conducted using passages written with a taxonomic organization, for minerals, and a logical rather than arbitrary structure, for biographies, to learn how the strategies work in combination. The combination should provide students with a very potent repertoire of study skills. Related research was conducted by James Hall, visiting scholar during the 1982-83 academic year, who studied the effects of variation in vocabulary learning procedures.

Dale Johnson and his associates investigate vocabulary teaching strategies that build on the knowledge structures of elementary school students. The strategies of semantic mapping and semantic feature analysis help children relate new words to what they already know. Studies of the effectiveness of these strategies relative to the conventional procedures have been carried out with elementary school children in this country as well as with children in Taiwan. Both strategies were effective for direct vocabulary instruction with the varying student populations, and both assist in long-term retention. Semantic mapping is also useful as a prereading strategy for passage comprehension. Johnson has surveyed elementary schools nationwide to identify techniques and procedures in use for vocabulary instruction. He anticipates applying this work to the assessment of software used for teaching vocabulary.

Tom Carpenter and Jim Moser have found that preschoolers solve simple mathematics word problems with a variety of strategies they have invented themselves. These effective informal strategies are more sensible to children than the formal strategy of writing number sentences that is taught in school. In fact, most children see no connection between the two, and some have difficulty solving problems for many of their elementary school years. Using the microcomputer, Carpenter and Moser offered children the chance to model the problem naturally and simultaneously view the number sentence representing their own model. In a pilot study, three of four second-semester first graders, instructed individually, wrote correct number sentences and consistently used them to solve problems. The researchers provided children with a procedure for expanding their thinking to include formal mathematics.

Thomas Romberg conducted a series of studies of children's mathematical learning in Australia with Kevin Collis at the University of Tasmania. They found, as had Romberg, Carpenter, and Moser in this country earlier, that mathematics instruction is based not on children's instructional needs but rather on grade level, curriculum structure, and teacher. Romberg, with Collis and Mourad Jerdak of the American University of Beirut, developed a set of mathematical superitems under contract to the National Institute of Education and the Education Commission of the States. Superitems consist of a number of increasingly complex questions about a single problem situation. Questions on students' comprehension, application, and analysis of each problem efficiently discriminate among students at different levels of cognitive development. Such items could be useful for diagnosis and placement of students for mathematics instruction.

A continuing area of activity is mathematics education. Tom Romberg organized a conference "School Mathematics: Options for the 1990s" which was held in Madison in December 1983, in cooperation with the Office of Educational Research and Improvement in the U.S. Department of Education and the National Council of Teachers of Mathematics. The reports from the conference made specific recommendations in the areas of curriculum materials, testing, classroom and school strategies, and teacher training and licensure. One outgrowth of the conference, already underway, is a monitoring plan for examining the impact of new curriculum reforms in mathematics. Romberg is working with a variety of mathematics organizations to establish a national board or steering committee to deal with the monitoring issue.

INTERACTION AND ORGANIZATION

At the present time, teachers lack research-based guidelines for how they might organize their classroom activities and vary their classroom instruction to maximize achievement, motivation, and social skills of individually different students. Researchers in this area are providing those guidelines. In 1981, they convened a multidisciplinary conference on student diversity and instructional groups, the integration of findings across disciplines and implications for research and practice are discussed in *The Social Context of Instruction* edited by the conference organizers. Another conference is planned for 1985 to present research on children's thought processes during classroom learning of mathematics A synthesis of work on these underlying processes is expected to shed light on the effects of direct instruction on student achievement.

From her research on students' cognitive processes, Penelope Peterson learned that higher ability students, who also have higher achievement, report using specific cognitive strategies in mathematics instruction. These students made use of a teacher provided overview, related new information to prior knowledge, and remembered problem-solving steps Because the studies were carefully controlled short term projects, student attention to the lessons was quite high and not the strong variable other researchers have found. Peterson completed a half-year study in 30 classrooms both to ascertain the stability of the effects found in more controlled settings and to determine the effects of training in the use of cognitive and communicative processes small groups.

Louise Cherry Wilkinson studies communication in small student-led instructional groups in the classroom. She developed a model of the effective speaker, and data on students in first-grade classrooms supported the model. The model also predicted communication in small groups in second- and third-grade classes. *Effective speakers*, those whose requests are successful, make requests that are direct, sincere, on-task, and designated for a particular listener. Wilkinson has recently extended her studies of effective speakers to compare native-English speakers with those for whom English is a second language. She is also interested in children's metalingusitic understanding, and she has collaborated with Penelope Peterson in studying children's knowledge about effective requests, appropriate responses, and their relationship to achievement.

The instructional groupings studied by Maureen Hallinan and Aage Sørensen are those that occur within classrooms. Effects of ability groups on both achievement and friendships in 48 classes (10 schools) are being investigated. Classroom characteristics of interest are class size, racial composition, and ability composition. The investigators have found that class size affects the size of ability groups rather than their number; three groups per class is the norm. The number of friendships within a class is expected to increase with class size, and group size, because of the larger pool of similar peers available. Achievement, long noted to be inversely related to class size, is likely to be more directly related to group characteristics, it should be positively related to ability group homogeneity, for example. Although the

three groups typically formed in a classroom are usually of approximately equal size, in racially mixed classrooms the high ability group is usually the largest. This leads to two competing effects on achievement: less growth in achievement in larger ability groups and accelerated growth in achievement in high ability groups. Hallinan and Sørensen expect to find smaller growth in achievement for students in the high ability groups in racially mixed classes than in racially segregated classes.

TECHNOLOGY IN THE CLASSROOM

Many Center researchers have been exploring educational applications of the microcomputer, both as a tool for research and as an instructional device. To provide additional opportunities for exchange of information and to focus microcomputer activities, this new subarea has been formed. The work of Tom Carpenter and Jim Moser in mathematics and of Joel Levin and Dale Johnson in vocabulary development, discussed above in the skill development subarea, contributes to the work in technology. Robin Chapman, Jon Miller, and Charles Read, all in the Learning and Development area, also are studying educational applications of technology.

Pat Dickson, James Stewart, and Gary Price will build on their earlier Center work in children's learning and communication. The primary content emphasis of the group will be on problem solving in mathematics and science. In addition, they plan to develop well validated software for language arts. Working with other Center and UW researchers investigating microcomputers in education, they expect to develop a conceptual framework for research on vocabulary development and on problem solving skills in mathematics and science.

The book edited by Alex Wilkinson, *Classroom Computers and Cognitive Sciences*, is based on papers presented at a conference sponsored by the Center. Two papers documented the effectiveness of computers for improving children's writing skills. The lack of agreement on the meaning of computer literacy was also addressed. Although warnings note that much is unknown about how learning occurs in a computer environment and that there are risks in imposing instructional computers on teachers, the overall tone is optimistic, working together, cognitive scientists and educators can fulfill the potential of classroom computing. In addition to Wilkinson, Center contributors to the volume were Robin Chapman, Jon Miller, and Janice Patterson.

Janice Patterson's work on microcomputers in the schools provides the group with a link to what is occurring in classrooms. She was guest editor, and wrote an article, for the Autumn 1983 issue of *Theory Into Practice* which focused on microcomputers as a revolution in learning. The paper by Joseph Lipson and Kathleen Fisher in that issue was commissioned by the Center. *On Wisconsin Computing*, a newsletter in its fourth year of publication, includes teachers' reports of successful experience with microcomputers as well as research reports of instructional uses of computers. Cooperation with statewide organizations will continue. The Center participated in preparation of a resource guide for classroom computing with the Wisconsin Department of Public Instruction.

Skill Development

PICTORIAL LEARNING AIDS FOR THE CLASSROOM
Joel R. Levin

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USING THE MICROCOMPUTER TO TEACH PROBLEM-SOLVING SKILLS

Thomas P. Carpenter and James M. Moser

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Thomas A. Romberg

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Interaction and Organization

ADAPTING INSTRUCTION TO STUDENT DIFFERENCES IN APTITUDES AND COGNITIVE PROCESSES

Penelope L. Peterson

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STUDENTS' COMMUNICATIVE COMPETENCE IN INSTRUCTIONAL CONTEXTS

Louise Cherry Wilkinson

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THE EFFECTS OF INSTRUCTIONAL GROUPING ON GROWTH IN ACADEMIC ACHIEVEMENT

Maureen T. Hallinan and Aage B. Sørensen

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SCHOOL PROCESSES

Richard A. Rossmiller, *Coordinator*

Elementary Schools

Lloyd E. Frohreich, *Educational Administration*
Thomas S. Popkewitz, *Curriculum & Instruction*
Stewart C. Purkey, now *University of Oregon*
Gary G. Price, *Curriculum & Instruction*
Thomas A. Romberg, *Curriculum & Instruction*
Richard A. Rossmiller, *Educational Administration*
Marshall S. Smith, *Educational Policy Studies* and *Educational Psychology*
B. Robert Tabachnick, *Curriculum & Instruction* and *Educational Policy Studies*
Kenneth M. Zeichner, *Curriculum & Instruction*

Secondary Schools

Herbert J. Klausmeier, V.A.C. Henmon Professor, *Educational Psychology*
Cora B. Marrett, *Sociology* and *Afro-American Studies*
Mary H. Metz, *Educational Policy Studies*
Fred M. Newmann, *Curriculum & Instruction*
Gary G. Wehlage, *Curriculum & Instruction*

As with other aspects of Center work, the School Processes area is concerned with improving the quality of schooling, especially as it relates to the accommodation of students' diverse needs and backgrounds. Research conducted by members of this group focuses the school, rather than classrooms or individuals. By identifying and analyzing existing school processes which are designed to enhance the success of all students, but particularly students with special needs, the investigators expect to gain insight into more and less effective administrative and organizational practices.

Work in this subarea focuses on improving schools. It includes examining activities within schools, studying beginning teachers, investigating a major change effort, and developing theory about effective schools.

Richard Rossmiller and Lloyd Frohreich are concluding a study of the relationship between the allocation and use of human and physical resources in elementary schools and the cognitive and affective outcomes of schooling manifested by students. In each of four schools, students were followed through their third-, fourth-, and fifth-grade school years. Observational data are supplemented by data obtained through questionnaires and through interviews with students, teachers, administrators, and parents. Rossmiller and Frohreich found that nearly 50 percent of the nominal school day is directed to activities other than instruction of students in basic academic subjects. Rossmiller concluded that longer school days or years by themselves will not greatly increase the time available for instruction in academics. Analyses of the relationship of cost variables to student outcomes is nearly complete.

In their study of the development of teachers' perspectives about teaching, Robert Tabachnick and Kenneth Zeichner are also investigating the often-ignored link between teacher education and the first years of teaching. This study explores the perspectives toward teaching that were developed by a group of student teachers and how these perspectives were influenced by the interplay between the intentions and capabilities of individual students with the characteristics of the institutions of which they became a part, first as student teachers and later as teachers. Thirteen students were studied during the student teaching experience at one university and four of these were followed until the end of their first full year of teaching. The student teachers did not, in general, change their teaching perspectives during their semester of student teaching, and only one first-year teacher shifted her perspectives in response to institutional pressures. The product of work underway will include a review and refinement of teacher socialization theory and a related theoretical description of the institutional structures of schooling.

Tom Romberg directed an evaluation of Individually Guided Education (IGE), the Center's late-1960s comprehensive reform program for elementary schools. Different procedures were used in the evaluation. surveys of staff and students in over 250 schools were analyzed by Gary Price, a field study was conducted in six schools by Thomas Popkewitz, Robert Tabachnick, and Gary Wehlage, results of observations, interviews, and student tests contributed to studies of the IGE curriculum in use by Norman Webb and associates. Survey data showed that, after a national support system for IGE implementation had been unavailable for about three years, most IGE schools had only nominal implementation of the program. In rating their schools' implementation of IGE, staff members in only 5 of 159 schools indicated that over 75% of IGE procedures were in operation, staff in 60 schools reported under 50%. The other studies illustrated how program goals were altered as schools incorporated labels or aspects of the program into their established procedures.

Stewart Purkey and Marshall Smith have critically examined the literature on school effectiveness. In their widely circulated reviews they have identified faults in the existing studies and features of effective schools that emerged in spite of research problems. They concluded that school culture is a very powerful factor in determining student achievement. In schools with similar student body composition, school culture was the primary determinant of level of student achievement. Purkey and Smith identified 13 interrelated elements of an effective school culture. Nine of those elements can be implemented fairly quickly. They set the stage for the remaining four which emerge over time.

SECONDARY SCHOOLS

The work on secondary schools includes research that looks broadly at organizational aspects of schooling and the process of school improvement. In addition, there is research on issues pertinent to specific groups of students—marginal students, working students, minority students in mathematics and science, and students involved in community service.

Herbert Klausmeier is attempting to identify school district structures and processes that contribute to successful schools, those that have institutionalized an effective improvement capability. In this context, successful schools are those in which desired student outcomes are attained. Three of the participating schools had developed their improvement capability while participating in Klausmeier's earlier program for renewal and improvement of secondary education. These schools and five additional secondary schools are providing detailed information on a variety of institutional and student characteristics for three school years. The three districts whose schools are participating are also providing institutional details about demography and improvement processes, strategies, programs, and plans for the same period. Site visits are also used for data collection. By studying only schools that have already been involved in improvement activities, Klausmeier increases the likelihood that he will identify key structures and processes in schools and in districts.

Fred Newmann examined the relationship between standards of educational excellence and the broader quest for human dignity. With Tom Kelly he proposed a set of curriculum guidelines to prevent potential assaults on students' dignity that overzealous promotion of academic excellence might otherwise bring. Newmann also studied the effect of high school community service programs on adolescent social development. He found that students participating in community service programs had an increased sense of non-school social responsibility and felt greater personal competence. Doing meaningful work in the community was a major source of satisfaction for the students.

Gary Wehlage, also interested in adolescent social development, has studied programs for marginal students. His research was supported by the Wisconsin Governor's Employment and Training Office as well as the Center. Wehlage characterized effective programs on four dimensions. (1) Administratively the programs are for a small number of students, have a low student/teacher ratio, and have autonomy within the larger school. (2) Teacher culture includes high expectations about student behavior, accountability for the program, and a cooperative collegial atmosphere. (3) Student culture is also cooperative, is supportive of the program as well as its participants, and includes a public admission of need for help. (4) Instruction begins at the level of each student's need. The curriculum deals with problems that are real for students, including those found in experiential education programs, the most promising element in effective programs according to Wehlage.

Linda McNeil received a postdoctoral fellowship from the Center for her study of high school students' employment patterns. She found that, as students increasingly take part-time jobs, their interest in school work declines. Teachers react by watering down content and easing assignments, making classes still less interesting. The process then feeds on itself. She proposed that teachers demand more of students and give school work greater meaning by using work experiences as teaching opportunities.

Newmann and Wehlage, with Stewart Purkey and Marshall Smith, began a new project this year that builds on their earlier research and on their shared interest in effective schools research. The project is in collaboration with the Effective Schools Consortium, consisting of four other Centers and NIE. High School and Beyond (HSB) and Supplemental HSB Survey data will be analyzed. The investigators have defined five

main tasks. First, they have examined findings about the nature of high school life and recommendations about general topics for implications for the teaching of social studies. Second, by combining reports from principals and teachers about school improvement projects with other information available about the schools they will be able to develop a profile of high school improvement efforts. Through this activity it will be possible to assess the impact of recent commission reports. A third task is to test and revise Wehlage's model of effective alternative programs. The fourth activity derives from Newmann's study of high school community service programs. It will provide a profile of existing programs and will be related to recent recommendations for expanded community service opportunities for high school students. Finally the investigators will use merged HSB and Supplemental HSB data to identify major factors related to high school effectiveness. An initial framework has been developed and studies of high schools are being examined for additional hypotheses to be tested. The investigators expect their successive analyses to provide a revised model of school effectiveness.

Stewart Purkey completed a pilot study of implementation of an Effective Schools Project (ESP) in high schools in an urban school system. He examined both central office policies intended to support the project and the plans and first-year implementation efforts at six high schools. Although he found little impact in the first year—due in part to ineffective, inappropriate, or missing central office policies and lack of congruence between existing school plans and characteristics and those identified with an effective school culture—there was momentum for improved implementation in subsequent years. Also there was greater recognition in both the central office and the schools of the conditions required for school improvement.

Arthur Goldberger and Glen Cain received Center support for preparation of their critique of the Coleman, Hoffer, and Kilgore analysis. Their article appeared in the special issue of *Sociology of Education* devoted to the Coleman et al. report on the first HSB data set. Center faculty members Maureen Hallinan and Michael Olneck are editor and deputy editor, respectively, of the journal.

The aim of Cora Marrett's research on mathematics and science education in secondary schools is to determine the nature of teacher goals that improve the performance and attitude of minority and female students. Marrett expects to find high involvement of females and minorities whose teachers have emphasized the relevance of science and mathematics or have attended to individual needs of students. She has gathered achievement scores and attitude reports from students in 46 mathematics and science classes. Preliminary analysis indicates that achievement in mathematics is more affected by one's status as a minority or nonminority student than by one's sex. The achievement of minorities, both male and female, is even lower for mathematics concepts and applications than for straightforward computation. This finding reflects, in part, the direct relationship between reading achievement and mathematics achievement. Professor Marrett's work was complemented by Westina Matthews' study of minorities in mathematics which was supported by a postdoctoral fellowship from the Center.

Mary Metz, with partial support from the Center, completed an ethnographic study of three magnet schools. She is studying in greater depth a powerful organizational influence on school climate, faculty culture. Although the staff and the student body play a large part in forming a faculty's culture, Metz feels that faculty culture is deeply affected by cultural elements in the larger society.

Elementary School Processes

RESOURCE UTILIZATION IN SCHOOLS AND CLASSROOMS

Richard A. Rossmiller and Lloyd E. Frohreich

1983

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IGE EVALUATION PROJECT

Thomas A. Romberg

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THE DEVELOPMENT OF TEACHER PERSPECTIVES

B. Robert Tabachnick and Kenneth M. Zeichner

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EFFECTIVE SCHOOLS AND SCHOOL IMPROVEMENT

Marshall S. Smith and Stewart C. Purkey

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Secondary School Processes

IDENTIFICATION OF POLICIES AND PRACTICES THAT ASSURE INSTITUTIONALIZATION OF SUCCESSFUL LOCAL SCHOOL IMPROVEMENT PROCESSES

Herbert J. Klausmeier

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HIGH SCHOOL COMMUNITY SERVICE PROGRAMS

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THE MARGINAL STUDENT AND THE PROBLEM OF ADOLESCENT SOCIAL DEVELOPMENT

Gary G. Wehlage

1983

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TEACHER GOALS AND RACE/SEX EQUITY

Cora B. Marrett

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FACULTY CULTURES

Mary Haywood Metz

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1982

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SOCIAL POLICY

Marshall S. Smith, *Coordinator*

Federal, State, and Local Roles

William H. Clune, *Law School*
Wallace H. Douma, *Student Financial Aids*
W. Lee Hansen, *Economics*
Stewart C. Purkey, now *University of Oregon*
Marshall S. Smith, *Educational Policy Studies* and *Educational Psychology*
Jacob O. Stampen, *Educational Administration*
Bruce A. Wallin, *Political Science*

Historical Perspectives and the Education of Minorities

Carl F. Kaestle, *Educational Policy Studies* and *History*
Michael R. Olneck, *Educational Policy Studies* and *Sociology*
Karl E. Taeuber, *Sociology*

Progressive social policy is developed in the hopes of redressing historical injuries, repairing systemic failures and reducing or preventing social conflict, encouraging or requiring individuals to pursue goals deemed needed for collective well-being, and pursuing consensually valued ends. Two related assumptions lie at the heart of the idea of social policy. The first is that purposive, guided, and informed interventions into the social and economic spheres, agreed upon in the political sphere, can successfully direct processes and outcomes in desired directions. The second assumption, upon which the first rests, is that social processes behave in ways which are predictable and knowable. Center studies of social policy consider federal, state, and local roles in education and implementation of federal policy, examine issues in improving the education of minorities, and provide a historical perspective on some major policy issues.

FEDERAL, STATE, AND LOCAL ROLES

Center research that focuses on local policy roles includes applied work of immediate use to local practitioners and studies of how recommendations for school improvement made by researchers, state agencies, and federal commissions can be incorporated into the programs of schools and school districts. At the state and federal levels, work in this subarea concentrates on how policy mandates are implemented and what changes actually occur as a result. Federal aid studies trace the history of particular grant programs and analyze data to evaluate the effectiveness of such programs. The interdisciplinary approach taken by the investigators in this area ensures a broad perspective on the problems faced by policy makers at all levels.

Drawing on their review of the effective schools literature, described in the School Processes area, Stewart Purkey and Marshall Smith have derived four policy principles for the development of effective elementary schools. First, the school is the focus of change. The ultimate policy target is the school culture. Second, a building staff should focus on altering the conditions in their school in the way most likely to produce a productive school culture. Staff can use the characteristics of effective schools as a guide in analyzing current school conditions. Third, resources, especially time and technical assistance, must be provided by the school district to encourage and nurture collaboration. Both collaboration and wide participation are necessary to change people and structures in schools. Fourth, an inverted pyramid approach to changing schools should be adopted. This approach maximizes local responsibility for school improvement while giving recognition to the legal responsibility of higher governmental levels. Using these guidelines Purkey and Smith have suggested specific federal, state, and local policies that are most likely to result in successful and varied school improvement programs.

Marshall Smith, continuing his interest in the federal role in education, in a February 1984 Science and Public Policy Seminar held in Washington, DC, reviewed the recent National Commission reports on the quality of education in the U.S. He found their overall analysis superficial and many of their recommendations not likely to have the desired effects. One source of these problems is that we simply do not have adequate information about the condition of education Another is the top-down approach to reform recommended by the Commissions; as Purkey and Smith have indicated, the focus of reform must be the local school, with support rather than mandates from the top. Lawrence Stedman and Smith had earlier reviewed four Commission reports. Among their concerns was the lack of careful consideration of the implications of recommendations. For example, lengthening the school year would require new curriculum materials and increased teacher pay. But, there is no evidence that "more of the same" would increase student achievement.

William Clune concluded that legal intervention is a mixed bag, having both advantages and disadvantages. Drawing on his background in both law and social science, Clune examined the tension between legalization and educationally effective reform Although change occurs most readily when goals are operationalized, objective definitions tend to become goals in themselves independent of and often contrary to educational aspirations. Clune developed a model of policy implementation that argues for analyzing and evaluating social programs politically, that is as ongoing compromises between interest groups. In the case of school improvement programs, Clune proposes an institutional analysis which considers changes in patterns of authority, roles, communication, and culture at all levels in the implementation chain from, for example, legislatures to schools. From an institutional analysis of major existing school improvement programs we can learn the institutional mechanisms present in successful efforts and try to understand the causes for breakdown in failures. He has identified analytical research that questions whether programs

must achieve various ends, or are even well designed to do so, but has found a dearth of empirical research that investigated whether programs actually met the ends. In predicting the success of proposed reforms, Clune would use institutional analysis to identify changes which are both capable of producing big effects and easy to implement. A change that is easy to implement is said to be administratively robust; it does not carry difficult organizational conflicts, and it can easily be described and implemented.

Bruce Wallin is completing his study of the validity of the assumptions underlying federal aid to education. He hopes to account for the deviation of actual federal aid practices from what appear to be theoretically optimal strategies. His analysis explores the division of responsibilities among levels of government, the politics of federal government growth, issues of program design and grant type, the politics of grant formulation, evidence on the impact of grants, and criticisms of federal aid. The final phase of this project focuses on how various political networks did (or did not) function in enacting the 1978 amendments to ESEA and passage of ECIA in 1981.

Henry Lufler and Blanche Kushner wrote a handbook of school law for Wisconsin. The book includes federal and state legislation and clarification coming from court decisions. The authors discuss such topics as free speech, religion, search and seizure, and student discipline in nonlegalistic terms. Educators can use the book to familiarize themselves with legal issues and procedures before problems arise.

Noting the fragmented nature of research and data on federal aid to students in higher education, Lee Hansen, Jacob Stampen, Marshall Smith, and Wallace Douma have begun to organize and reanalyze existing data and to undertake cross-disciplinary studies for the evaluation and improvement of student aid. The effort will permit evaluation of the impacts of student aid on diverse kinds of students and will generate suggested program improvements. Preliminary analyses indicated that the overall distribution of aids—federal, state, and institutional—is equitable. It seems to be what one would expect from a well-operating system. Analysis of data from four states showed that aid recipients differ from those not receiving aid only in that they come from families with substantially lower incomes. Economic barriers to access to higher education seem to have been addressed. However, educational barriers linger from lower levels in the system. Blacks and Hispanics were underrepresented in higher education in the four states.

HISTORICAL PERSPECTIVES AND THE EDUCATION OF MINORITIES

Carl Kaestle has begun to develop a social history of the American reading public over the period from 1880 to 1980. He will relate changes in reading activities at 20-year points to cultural and technological changes during the periods. In this way he should be able to describe how technology and culture have interacted to shape reading activities and whether print literacy has served to enhance cultural homogeneity or to maintain divergent subcultures and points of view. Kaestle expects to learn more about the uses of school learning outside the school and how these uses have changed over time.

Michael Olneck is examining the possibilities for pluralism in American public education. He sees a widely shared rhetorical commitment to ambiguous and ill-defined terms such as *culturalism* and *diversity* but questions whether the abstract endorsement will ensure consensus about concrete purposes, practices, and policies. Since he feels that inheritances from the past constrain possibilities for the present, Olneck is undertaking a historical and comparative analysis. The comparative analysis should also reveal the conditions of success and failure of alternative approaches to pluralism. Olneck is studying five movements which

have responded to ethnic diversity: Americanization of immigrant children in the early 20th century, the intercultural education movement from the 1930s through the 1950s, the black community control movement of the late 1960s, and the concurrent multicultural and bilingual movements from the late 1960s to the present.

Olneck is also completing a new look at work on the effects of schooling on male income and occupational status. He has addressed two major issues: whether similar school experiences affect different groups in the same or different ways and whether past researchers have ignored the importance of persistence in school for overcoming certain outcome thresholds such as poverty level. He found that high school completion results in increases in income of 9-16 percent and reduces chances of receiving poverty level income by 43 percent. Although the economic effects of secondary education on proportionate income and poverty likelihoods do not vary among whites, blacks, and Hispanics, Olneck's study showed appreciable effects of racial background per se on income likelihoods, with the evidence suggesting that barriers to affluence have been lowered more than the barriers to merely escaping poverty.

Continuing his interest in school segregation, Karl Taeuber is preparing a report on current levels of school racial segregation and the trends in desegregation and resegregation that brought about these levels. Existing reports end with data for 1978 and, according to Taeuber, offer too little or too much aggregation. The 1980 census data and recent OCR racial enrollment data make possible a new analysis of the demographic consequences of desegregation, particularly white flight. Methodological indices of the degree of desegregation developed by Taeuber have recently been used in a variety of desegregation plans. The second aspect of the work he proposes is a study of community responses to pressures toward school desegregation. Both facets are important to informed consideration of future policy.

Cora Marrett's work, discussed earlier in the School Processes area, also considers the education of minorities. In addition, the Center's visiting scholar and fellowship programs have supported a number of related activities. Janet Wilson received a postdoctoral fellowship from the Center for her study of factors contributing to completion of college degrees by American Indians. She identified five factors, the most important of which was access to financial aid. In her dissertation supported by a Center fellowship, Carla Trujillo studied expectations of professors for minority college students. She found differences in quality of interactions in question-answer situations but no differences in numbers of various types of interactions.

John Ogbu was a visiting scholar at the Center during the summer of 1982. He completed a number of manuscripts and refined his conceptual framework explaining children's school performance in terms of broad social forces such as racial stratification and restricted economic opportunities. Barbara Shade reviewed a body of literature about Afro-American cognitive style and its relationship to success in academic settings. She concluded that the social orientation of Afro-Americans may work to their detriment in object-oriented settings such as schools.

Federal, State, and Local Roles

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