This is the 12th annual listing of research on mathematics education. The research noted is alphabetically organized by author(s) within the following three categories: (1) research summaries; (2) journal-published reports; and (3) dissertation abstracts. Grade or age level is indicated for each reference. Included in the listing are studies in which mathematics education was not the sole or primary focus of research. While most of these peripheral studies are not annotated, those specific to mathematics are. Most annotations indicate one principle finding of the study. A list of the journals searched is provided, and the number of references from each cited journal is noted. An index of general topics is appended to help readers locate studies of particular interest. (MP)
Research on Mathematics Education Reported in 1981

Marilyn N. Suydam

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ERIC Clearhouse for Science, Mathematics and Environmental Education

The National Council of Teachers of Mathematics
A Journal of the National Council of Teachers of Mathematics

The Journal for Research in Mathematics Education is devoted to the interests of teachers of mathematics and mathematics education at all levels—elementary school through college.

Each manuscript submitted to the Editor of the JRME should be prepared in accordance with the guidelines detailed in the Publication Manual of the American Psychological Association (5th ed., 1994), except as those guidelines are applicable to a particular paper. This manual may be purchased from: American Psychological Association, 1200 Seventeenth Street NW, Washington DC 20036. For a model the same paper included on pages 98-99 of the Publication Manual. Give particular attention to the content and format illustrated on page 91 for the cover sheet abstract and first sheet of actual manuscript text. AME note the use of a running head on subsequent manuscript pages.

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This is the 12th annual listing of research on mathematics education to appear in JRME. It is organized alphabetically by author(s) within three categories (research summaries, journal-published reports, and dissertation abstracts). Grade or age is indicated for each reference, and an index of general topics is included to help readers locate studies of particular interest.

Included in the listing are studies in which mathematics education was not the sole or primary focus of the research. Most of these peripheral studies are not annotated, but brief annotations are given for studies specific to mathematics education. Most annotations indicate one principal finding of the study, although most studies have additional findings. Readers are urged to check the original report for other results as well as for information to aid them in assessing the validity of the findings.

Despite the fact that approximately 40 journals are searched page by page and indexes (such as Current Index to Journals in Education) are used to locate articles in journals in which mathematics research reports appear irregularly or in less-accessible journals, some references are, unfortunately, not located until after the listing for a given year is in print. Because of time and space constraints, no attempt has been made to provide a continuous updating within the annual listing. At intervals, however, the ERIC Clearinghouse for Science, Mathematics and Environmental Education publishes a compilation of research references containing those listed in JRME plus additional references (including ERIC documents).

The bibliographical entries in this listing do not conform to JRME style requirements. Permission was granted to the author to follow the procedures and format previously established. - The Editor

DAI is used to refer to Dissertation Abstracts International Order numbers are included. orders should be sent to University Microfilms International. P O Box 1764, Ann Arbor, MI 48106

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The listing is an attempt to aid readers, it is printed as soon as possible after the year to which it applies. It is hoped that it helps to keep a variety of readers informed about the scope of research in mathematics education.

ICME 5
24–30 August 1984
Adelaide, Australia

The ICME 5 Organizing Committee is pleased to announce that the Fifth International Congress on Mathematical Education will be held in Adelaide on 24–30 August 1984.
The ICME invites you to participate in this Congress. The Formal Program, informal meetings, and social events will offer many opportunities to develop personal contacts for the dissemination of information and ideas relevant to current problems and interests of mathematical education.
The Second Announcement will be available in the fall of 1983.
The firm of Travel Planners, Inc., located in San Antonio, Texas, has been appointed the Official North American Coordinator for U.S. and Canadian delegates attending the ICME 5.
In North America only, the Second Announcement will be mailed to all who write to the address below or call (512) 341-8131.

ICME 5 TRAVEL PLANNERS
P.O. Box 32366
San Antonio, TX 78216
Research Summaries

One listing of research reports and 12 articles summarizing or discussing research findings were located.


Meta-analysis of findings from 40 studies indicated that CAI enhanced mathematical learning. (grades 1-12)


Individualized approaches were found to offer positive results in many instances. (grades K-12)


Some findings on both general and mathematical problem solving are reviewed. (--)}


This eleventh annual annotated listing includes 11 research summaries, 184 journal-published reports, and 359 dissertations for kindergarten through post-secondary levels. An index is included. (grades K-12, college)

Journal-Published Reports

This section contains 206 articles. The list of journals searched and the number of articles from each source may be found at the end of the total listing.


The early testing program had a positive effect on student enrollment and achievement. (grades 11, 12, college)


"Convincing" evidence was found of three overlapping latent classes. For mathematics, the "formal" and "informal" teaching styles were close in effecting achievement. (elementary teachers)


Alvidres, Maria D. and Whitworth, Randolph H. The Development and Validation of an Entrance Examination in a Mexican University. Educational and Psychological Measurement 41: 503-509; Summer 1981. [college]

Anick, Constance Martin; Carpenter, Thomas P.; and Smith, Carol. Minorities and Mathematics: Results from the National Assessment of Educational Progress. Mathematics Teacher 74: 560-566; October 1981.

Black and Hispanic students consistently scored lower than other students, although there was some improvement from the first assessment to the second. (ages 9, 13, 17)

Arlin, Patricia Kennedy. Piagetian Tasks as Predictors of Reading and
Correlations of Piagetian tasks and mathematics scores ranged from .18 to .49. (grades K, 1)


Sex differences in participation favoring males existed for some higher-level mathematics courses. By the end of high school, males outperformed females on mathematical applications, which persisted even when participation was controlled. (age 13, grade 12)


The observed use of puzzles, games, and, to a lesser extent, audio-visual devices appeared negatively related to achievement in mathematics and reading. (grades 2, 3)


Preferences among subgroups were highly correlated. Interschool visitations were ranked highest of nine activities. (in-service elementary teachers)


No significant interaction was found for verbal or verbal-spatial instruction on algebraic structures. (preservice elementary teachers)


Focused instruction, along with certificates of recognition, caused
significantly higher mathematics achievement scores than did direct instruction. (grade 7)


The number of years in a self-contained class significantly affected arithmetic achievement. (ages 8-9)


There was a distinct trend for disproportionate teacher contacts with male students. (teachers in grade 10)


Both high- and low-aptitude students in mathematics classes where more than one-third of the students were high aptitude and less than one-third were low aptitude had greater achievement gains than students in less favorable mathematics classes. (grades 3, 4)


Children were able to use a calculator for counting. (grades K, 1)


Bell, Alan and Janvier, Claude. The Interpretation of Graphs Representing Situations. *For the Learning of Mathematics* 2: 34-42; July 1981. [age 12]


Exploratory interviews, the development of a diagnostic test, and the use of calculator-enriched teaching materials are described. The latter resulted in "dramatic success" in improving pupils' understanding of place value. (ages 12, 16)


The development of notions about money proceeded in six definable stages. (ages 3-8)


The use of informal, "naive" methods of limited applicability was found to be widespread even at age 15. (ages 12-15)


No significant differences in achievement were found between the use of fraction bars, pictures of the bars, or neither in games. (grades 5, 7)


Only one factor was analyzed for scale scores, accounting for 99.3% of the variance for females and 99.9% for males. For item scores, eight factors were found. (grades 7-8)


Students showed lack of understanding about decimals. (ages 11-15)


Students' anxiety in mathematics situations increased from grade 6 to grade 12. (grades 6-12)


Stories children told about pictures were described by four categories: general, set recognition, set and motion recognition, and perception of a mathematical relationship. (grade 1)


Emphasis on the counting relationship among addition facts resulted in higher achievement than no such emphasis. (ages 4-6, grade 1).


Students performed routine computation better with the aid of a calculator, but problem-solving scores were poorer with calculator use. (ages 9, 13, 17)

Carpenter, Thomas P.; Corbitt, Mary Kay; Kepner, Henry S., Jr.; Lindquist, Mary Montgomery; and Reys, Robert E. Decimals: Results and Implications from National Assessment. *Arithmetic Teacher* 28: 34-37; April 1981.

Lack of conceptual understanding led to computational errors with decimals at age 13. Pupils aged 9 had little knowledge of decimals. (ages 9, 13)

Carpenter, Thomas P.; Corbitt, Mary Kay; Kepner, Henry S., Jr.; Lindquist, Mary Montgomery; and Reys, Robert E. What Are the Chances of Your Students Knowing Probability? *Mathematics Teacher* 74: 342-344; May 1981.

Percentage of correct responses on probability items increased with age, but was still low. (ages 13, 17)


Children who had no formal instruction in addition and subtraction successfully solved problems, using processes that directly represented the action or relationship in a problem. (grade 1)


Many students made reversal errors when expressing relationship algebraically. (college)

Groups receiving understanding-then-practice tended to be slightly faster than practice-then-understanding groups, but were slightly poorer at generalizing and justifying the algorithm. (grade 6)


Strategies were found to be necessary for the solution of problems that involve the organization of well-understood parts. Use of strategies can be taught as an intellectual skill. (college)


Danner, Fred W. and Lonky, Edward. A Cognitive-Developmental Approach to the Effects of Rewards on Intrinsic Motivation. Child Development '52: 1043-1052; September 1981. [ages 4-10 (grades K, 1, 2, 4)]


Positive correlations were found between students' attitudes toward using a computer and attitudes toward mathematics and instructional setting, plus achievement variables. (grades 11, 12)


Lessons focusing on the notion of the equality sign, the part-whole relation, and verification were found to be successful. (grades 1, 2)


Ninety-two per cent of the responding colleges indicated they require at least one course in mathematics content; 90 per cent require at least one methods course. (elementary preservice)


Students with high reasoning scores, those with high analytic processing scores, and those with high gestalt processing scores profited more from the transformational treatment. (grade 10)


Only 20 to 40 per cent of the students in the remedial course took another mathematics course; almost half will fail. (college)


Changes were not dramatic, but the trends suggested that a deterioration of behaviors occurs in late spring. (grades 7, 8)

Fennema, Elizabeth and Carpenter, Thomas P. Sex-Related Differences in Mathematics: Results from National Assessment. Mathematics Teacher 74: 554-559; October 1981.

Little difference in male-female achievement was found at ages 9 and 13, but females scored lower at age 17. (Ages 9, 13, 17)


Females who had a special program increased their knowledge about sex-related differences in mathematics, indicated they would study more mathematics, and actually enrolled in more courses. (grades 9-11)


Fischbein, E.; Tirosch, D.; and Melamed, U. Is It Possible to Measure the Intuitive Acceptance of a Mathematical Statement? Educational
Three types of problematic situations to check an intuitive acceptance were identified. (grades 8, 9)


Teachers indicated general willingness to add topics to the curriculum, but reluctance to delete topics. Tests and objectives had significantly greater effects than other factors in regard to adding topics. (teachers in grade 4)


Students had some significant changes in both attitude and knowledge after using the play about Thales. (grade 9)

Fuller, Gerald B. and Goh, David S. Intelligence, Achievement, and Visual-Motor Performance Among Learning Disabled and Emotionally Impaired Children. Psychology in the Schools 18: 261-268; July 1981. (elementary)


Differences were found between the agreed meaning of some mathematical terms and the meaning ascribed to them by students. Three clusters of response patterns were noted. (ages 12-17)


Spontaneously offered prompts fell into three categories: motivational, process, and product orientation. (college)


Gray, J. and Satterly, D. Formal or Informal? A Re-Assessment of the British Evidence. British Journal of Educational Psychology 51:
The reanalysis did not conflict with earlier conclusions that "formal" teaching styles were only modestly related to progress in mathematics and English. (elementary teachers)


Students who set their own learning goals attained more of them. (grade 6)


Teachers supported the idea that every student should have some minimal understanding about computers, but the extent of coverage of computer topics was minimal. (secondary in-service teachers)


Analysis of three textbook series for grade 4 mathematics indicated that metric conversion has had an impact on the curriculum. (grade 4)


Harrison, Jo-Ann; Strauss, Helen; and Glaubman, Rivkah. The Impact of Open and Traditional Classrooms on Achievement and Creativity: The Israeli Case. *Elementary School Journal* 82: 27-35; September 1981. [grades 1, 3, 5]

Harrison, Jo-Ann; Strauss, Helen; and Glaubman, Rivkah. Who Benefits from the Open Classroom? The Interaction of Social Background with Class Setting. *Journal of Educational Research* 75: 87-94; November/December 1981. [grades 1, 3, 5]


Data on the performance of British students on fractions are given. Students probably did not see them as an extension of the set of whole numbers. (ages 12-15)


Many students were only able to apply remembered rules to the solution of problems, without knowing whether the rule works. (ages 12-15)

Hashway, Robert M. Sex Differences in Mathematics Achievement — Are
Males and females did not differ significantly in their achievement in five of eight content domains. Females scored higher on fractions, while males scored higher on geometric principles and ratio, proportion, and per cent. (college freshmen)


No significant differences were found between groups using calculators with conventional algorithms, calculator-based algorithms, or conventional algorithms. (college)


No sex differences were found in the patterns of evaluative feedback used by teachers, or in students' expectancies for success on familiar tasks. Girls had lower expectancies for success on unfamiliar or future tasks. (grades 7, 9)


Students were quite proficient at simple measuring skills but did not understand certain underlying concepts of measurement. (ages 9, 13)


The Piagetian reasoning abilities of length conservation and transitivity were required to learn some but not all measurement concepts. (grade 1)


The group having the shadow seminar improved significantly in understanding of the algebra of the real number system, but not in other knowledge or attitudes. (preservice teachers)


Students scored low on most items, indicating conceptual problems. (ages 13, 17)

Horodezky, Betty and Weinstein; Pauline Smith. A Comparative Analysis

The total number of running words differed considerably between series, with texts having few words in common. (grades 1-3)


First graders used a variety of counting procedures to solve addition examples, while second graders used both counting and non-counting procedures. (grades 1, 2)


The program was successful in accelerating the algebra learning of very talented students. (grades 7-9)


The number of vacancies for mathematics teachers far exceeded the number of mathematics teacher education graduates in Iowa from 1970-79. (teachers in grades K-12)


Geometrical Rigidity was found to be a cognitive style construct. (grade 9)


Jamison, Dean T.; Searle, Barbara; Galda, Klaus; and Heyneman, Stephen P. Improving Elementary Mathematics Education in Nicaragua: An Experimental Study of the Impact of Textbooks and Radio on Achievement. *Journal of Educational Psychology* 73: 556-567; August 1981. (grade 1)


Students who had positive attitudes and an internal locus of
control did better on a fractions unit when small groups were used than in large-group direct instruction. (grades 4, 5)


The impact of situations on problem-solving ability is discussed in relation to students' answers to several problems. (ages 11-15)


College-bound women terminated their study of mathematics much earlier than college-bound men did. One-fourth of the students had not taken sufficient mathematics for the college program they wanted. (grade 12)

Karmos, Joseph S.; Scheer, Janet; Miller, Ann; and Bardo, Harold. The Relationship of Math Achievement to Impulsivity in Mathematically Deficient Elementary School Students. School Science and Mathematics 81: 685-688; December 1981.

Impulsivity accounted for at least 20 per cent of the variability in mathematics scores for half of the 14 areas studied; computation was correlated most strongly. (elementary)


Mathematics achievement was not consistently related to the time measures. (grades 2-5)


Portions of classroom dialogues are discussed. (grade 7)


Students appeared to have only a superficial knowledge of geometry. (ages 13, 17)


The two studies differed in findings about whether conservation of length is a necessary condition for doing transformation tasks. (grades 2-4)

Kleiman, Glenn; Humphrey, Mary; and Lindsay, Peter H. Microcomputers
Children did almost twice as many exercises on the computer as they did with paper and pencil, although no differences were found in proportion correct or time. (ages 6-14)


The computer game group responded correctly to twice as many items on the speed test as did the control group. (grade 2)


Data from a British assessment (CSMS) were reanalyzed to determine facility levels. (age 14)


A factor involving encouragement from significant others and subjective value placed on mathematics was the best predictor of taking non-required mathematics courses. (grades 9, 10)


Students who preferred to process mathematical information by verbal-logical means tended to outperform more visual students on mathematical tests. (college)

Summer 1981. [grades 1, 3]


The performance of the operational group was superior to that of the non-operational group on addition and subtraction problems. (ages 6, 7)

Linn, Robert L. and Harnisch, Delwyn L. Interactions Between Item Content and Group Membership on Achievement Test Items. *Journal of Educational Measurement* 18: 109-118; Summer 1981. [grade 8]


Preskills alone did not enable students to perform multiplication tasks correctly. (ages 8-9)


Margolis, Howard; Sheridan, Rosemary; and Lemanowicz, James. The Efficiency of Myklebust's Pupil Rating Scale for Detecting Reading and Arithmetic Difficulties. *Journal of Learning Disabilities* 14: 267-268, 302; May 1981. [grades 1, 2]


Both children and selected adults failed to give correct answers to all six subtraction examples posed. (age 11, adult)


No significant differences on problem solving scores for pupils...
aged 6 and 8 were found between those taught verbally, visually, or kinesthetically. (ages 4, 6, 8)

McKillip, William D. Computational Skill in Division: Results and Implications from National Assessment. *Arithmetic Teacher* 28: 34-37; March 1981.

Data on division items are briefly presented, followed by discussion of how to teach division effectively. (ages 9, 13)


All children successfully judged relative numerosity when number covaried with length or density, but only concrete operational children were successful when number did not covary with other dimensions. (ages 3-7)


Verbal, Numerical, and especially Induction abilities appear important to successful mathematical problem solving. (grade 4)


Murphy, R. J. L. Symposium: Examinations, O-Level Grades and Teachers' Estimates as Predictors of the A-Level Results of UCCE Applicants. *British Journal of Educational Psychology* 51: 1-9; February 1981. [college]


Pupils scored 66 per cent correct on horizontal open sentences and 74 per cent correct on the vertical form. (grade 1)

The group devoting more time to minute readings which were not multiples of five scored higher than the group focusing on multiples of five. (grade 2)


Mathematical skill performance in Edmonton declined slightly from 1956 to 1977 in specific areas. (grade 3)


Number of mathematics courses taken and level of mathematics achieved varied by sex, with males favored. (grade 12)


High achievers tended to make non-systematic errors in multiplication; low achievers tended to make systematic errors. More systematic errors occurred with subtraction, followed by multiplication and then addition. (grade 5)


Excerpts from interviews with two ninth-graders illustrate the conclusion from interviews with other students that they do not understand fully what fraction symbols mean. (grade 9)

Students lacked conceptual understanding of fractions; they appeared to "sift through rules" that seemed almost meaningless to them to find one that might work. (grade 6)


A small set of variables was found to explain some of the variance in female and male mathematics plans. (secondary)


High- and low-ability students did better on a geometry unit using a small-group approach than a large-group approach. Medium-ability students did slightly better with a large-group approach. (grades 4, 5)


Students were unable to detect incorrect use of the concept "set" in excerpts from textbooks. (elementary preservice teachers)


No significant effects for order, knowledge, or anxiety were found on several arrangements of a mathematics test. (college)


Most students had little knowledge about computing means and the concept of the mean. (college)


Data indicated that students aged 9 were just beginning to attain fraction concepts in relation to regions and sets. Over 60 per cent of 13-year-olds answered equivalent fraction items correctly, but...
fewer scored well on computation items. (ages 9, 13)


Some findings from a set of tests designed to indicate incorrect ways of thinking are discussed. (secondary)

Roberge, J. J. and Flexer, B. K. Re-Examination of the Covariation of Field Independence, Intelligence, and Achievement. *British Journal of Educational Psychology* 51: 235-236; June 1981. (grades 6-8)


The percentage of low achievers having high confidence in the algorithms they used was: addition, 85%; subtraction, 79%; multiplication, 70%; division, 52%. (grades 5-8)


Students' lack of understanding about the meaning of a variable in an equation is discussed. (college)

Ross, Steven M. and Rakow, Ernest A. Learner Control Versus Program Control as Adaptive Strategies for Selection of Instructional Support on Math Rules. *Journal of Educational Psychology* 73: 745-753; October 1981. (college)


Saxe, Geoffrey B. and Sicilian, Stephen. Children's Interpretation of Their Counting Accuracy: A Developmental Analysis. *Child
As age increased, pupils' estimates of their counting increasingly corresponded to their actual counting accuracy. (ages 5, 7, 9)


No significant difference in achievement was found between groups taught by an active game medium or by the textbook approach. (grade 2)


Groups taught estimation via whole-group, meaningful instruction, or CAI drill-and-practice learned to estimate; the meaningful instruction group retained and transferred the skill. (grades 4-6)


High achievement and high attitudes in teachers were each significantly related to high achievement in pupils, but also related to least favorable pupil attitudes toward mathematics. (preservice teachers in grade 6)


Both modeling and didactic instruction enhanced persistence and accuracy on division, while modeling produced greater gains in accuracy. (ages 9-11)


Findings from a study of high school enrollments and from college students' recruitment offers are noted, to focus attention on the need to develop arithmetical skills. (secondary, college)


No measurable detrimental effects were found for calculator use. Students learned basic facts and achievement was good despite calculator use. (grades 2-6)

Silver, Edward A. Recall of Mathematical Problem Information: Solving Related Problems. *Journal for Research in Mathematics Education*
Krutetskii's claim that high-ability students tend to recall information about the structure of mathematical problems they have solved was supported, in general, along with a significant transfer effect related to related problems. (grade 7)


Slavin, Robert E. and Karweit, Nancy L. Cognitive and Affective Outcomes of an Intensive Student Team Learning Experience. *Journal of Experimental Education* 50: 29-35; Fall 1981. Use of Teams-Games-Tournaments was not found to affect mathematics achievement significantly. (grades 4, 5)

Smead, Valerie S. and Chase, Clinton I. Student Expectations as They Relate to Achievement in Eighth Grade Mathematics. *Journal of Educational Research* 75: 115-120; November/December 1981. Individual expectations were found to relate to subsequent achievement. (grade 8)

Smith, Lehi T. and Haley, J. M. Inservice Education: Teacher Response and Student Achievement. *School Science and Mathematics* 81: 189-194; March 1981. Teachers reported changes in attitude and understanding as a result of the in-service program. It had a significant effect on achievement for the fifth graders tested. (elementary teachers and grade 5 students)


Smith, Walter S. and Schroeder, Cynthia K. Preadolescents' Learning and Retention of a Spatial Visualization Skill. *School Science and Mathematics* 81: 705-709; December 1981. Instruction on spatial visualization resulted in better performance and retention. No sex differences were found. (grades 4, 5)

Southall, Carey T. and Dumas, Wayne. Early Classroom Field Experiences...

The mathematics methods course reduced mathematics anxiety. (elementary preservice)


Students having a seminar-workshop approach showed greater improvement in attitude toward mathematics than those having a lecture approach. (preservice elementary teachers)


The hand-held calculator group scored significantly higher than the programmed-feedback calculator group. (grade 3)


The nature of counting for three children is described. (age 6)


Learning of the concept of equilateral triangle was facilitated by use of expository statements with examples and "interrogatives". (grade 4)


Few states have incorporated metrics into teacher certification, although preservice work includes the topic in most states. Other data indicate metric commitment and funding. (science and mathematics supervisors)


On several subtests, performance was below chance level. "Non-negligible" proportions of the students consistently followed identified invalid inference patterns. (college)

Vest, Floyd; Nunley, B. G.; and Garner, M. V. *The Effects of Large Class Procedures on Achievement and Attitude in a Mathematics Course for Prospective Elementary Teachers.* School Science and Mathematics 81: 607-612; November 1981.

No significant differences in achievement or attitude were found between students in large or small classes. (elementary preservice)


No significant difference in locus of control was found between the two groups. (college)

Wade, Barbara E. *Highly Anxious Pupils in Formal and Informal Primary Classrooms; The Relationship Between Inferred Coping Strategies and Cognitive Attainment.* British Journal of Educational Psychology 51: 39-49; February 1981. [primary]


Less than half of 30 interviewed students gave conserving responses to any one of four tasks. (grades 5-12)

Watson, P. *Personality and Arithmetic of Normal School Pupils and Boys in a Community Home with Education.* British Journal of Educational Psychology 51: 394-397; November 1981. [ages 11, 12]

Webb, Noreen M. and Shavelsoh, Richard J. *Multivariate Generalizability of General Educational Development Ratings.* Journal of
Educational Measurement 18: 13-22; Spring 1981. [adult]


Wilkening, Friedrich. Integrating "Velocity, Time, and Distance Information: A Developmental Study. Cognitive Psychology 31: 231-247; April 1981. [ages 5, 10, 17-34]

Williams, Robert T. Beneath the Surface of the Mathematics Teacher Shortage. Mathematics Teacher 74: 691-694; December 1981.

Data on the number of teachers certified and not certified to teach mathematics in North Carolina are included. (in-service teachers)


Number of semester hours' credit in mathematics and grade level of teaching accounted for 61 per cent of observed Mathematics NTE score variance. (secondary in-service teachers)


The data analysis "weakly suggested" that attitudes toward mathematics are causally predominant over mathematics achievement for their common variance. (grades 1-8)

Dissertation Abstracts

This final section of the listing contains 360 dissertations.

Abdelsamad, Omer Elfaroug Hamza. Improved Student Problem-Solving Procedure with the Calculator as Validated by Mathematics Experts. (University of Denver, 1980.) DAI 41A: 3452-3463; February 1981. [8101706]

The calculator was considered effective with 13 (of 60) problem-solving strategies. (secondary teachers)

Abo-Elkhair, Medhat El-Sayed Mahrous. An Investigation of the Effectiveness of Using Minicalculators to Teach the Basic Concepts of Average in the Upper Elementary Grades. (The Florida State University, 1980.) DAI 41A: 2980; January 1981. [8101953]

Significant differences favored the calculator group over the non-calculator group on a posttest, but not on retention or transfer tests. (grade 4)

Adams, James L. A Study of Achievement and Attitude Toward Mathematics in Remedial College Algebra. (The University of Nebraska-Lincoln, 1980.) DAI 41A: 2980; January 1981. [8100755]

A significant difference in algebra achievement favored the group given remedial instruction with a programmed text over those having a lecture-discussion method. (college)

Adams, Ronald C. A Study of the Effects of PSI and Lecture Teaching Methods upon Student Achievement and Attitude Change in College Mathematics. (Northern Arizona University, 1981.) DAI 42A: 519; August 1981. [8116927]

Students using PSI demonstrated greater achievement of algebraic skill than students having the lecture method, but no attitude difference was found. (college)


Albina, Melvis Ann. The Effects of Using Two Types of Calculating Devices on the Computational Skills of Selected Third and Fourth Grade Students. (The University of Akron, 1981.) DAI 42A: 1038; September 1981. [8117705]

No significant difference in achievement was found (at the .05 level) between groups using calculators, programmed feedback calculators, or no extra drill and practice. Calculator performance was superior at the .10 level. (grades 3, 4)

Allen, M. Carol. A Study to Determine the Congruence of the Planned and Experienced Curriculum in a K-12 School District in the State of Nebraska. (The University of Nebraska-Lincoln, 1980.) DAI 41A: 2905-2906; January 1981. [8101210] [grades K-12]
Al-Sarraf, Qasen Ali. 'Some Relationships Between Reflection-Impulsivity and Learning in Fourth Grade Boys in Kuwait.' (University of Colorado at Boulder, 1980.) DAI 42A: 134-135; July 1981. [8113936] [grade 4]

Anderson, Betty Jean. A Survey of Metric Education in Seventh and Eighth Grade Science Classes in Four Large School Districts in Texas. (East Texas State University, 1981.) DAI 42A: 639; August 1981. [8116847] [teachers in grades 7, 8]

Angello, Nancy Bryan. An Analysis of Washington Teachers' Interest in Selected Priority Areas of In-Service Training. (Washington State University, 1980.) DAI 41A: 3535; February 1981. [8104121] [in-service teachers]

Arnold, Susan Hardee. A Comparison of Principals' Perceptions of Administration, Curriculum, Discipline, and Community Relations in Tennessee's Junior High and Middle Schools. (Memphis State University, 1981.) DAI 42A: 1927; November 1981. [8118724] [junior high and middle school]


No significant difference was found in scores of pupils whose teacher had or did not have a course on Piagetian theory. (preservice teachers in grade 5)

Bass, Leon. A Comparison of Achievement and Attitudes of Black Male Students Attending Co-Educational and All Male Urban High Schools. (Temple University, 1981.) DAI 42A: 589; August 1981. [8115924] [grade 12]

Bastek, Carol Potyrara. The Effects of Teaching a Course in Group Theory Within a Secondary School Mathematics Curriculum. (Columbia University Teachers College, 1980.) DAI 41A: 4318-4319; April 1981. [8105854]

A six-week course in group theory was suitable for above-average students. (grades 10, 11)

Beasley, Nickie N. Relationship of Selected Variables to Student Achievement in the Transition from Elementary to Middle School. (The Florida State University, 1980.) DAI 41A: 4672; May 1981. [8108379] [grade 7]


Games were significantly better than traditional drill activities for both achievement and on-task behavior of both groups studied. (adolescents)
Beavers, Harry James. The Relationship Between Selected Educational Variables and Student Achievement in a Selected School District. (East Texas State University, 1981.) DAI 42A: 2460; December 1981. [8127363] [grade 5]

Benbow, Lena Camilla Persson. Development of Superior Mathematical Ability During Adolescence. (The Johns Hopkins University, 1981.) DAI 42A: 1586; October 1981. [8120053] SMPY students identified in grade 7 or 8 reaffirmed their initial superiority five years later by scoring an average of 200 points higher than college-bound 12th graders. (grades 7-12)

Bennett, Betsy Kraus. The Relationship Between Mathematics Anxiety and Number Pattern Recognition in Sixth Grade Students. (The American University, 1981.) DAI 42A: 2006; November 1981. [8124378] Anxiety was not correlated with skills achievement and use of algebraic patterns. (grade 6)


Bergan, Kathryn Suzanne. The Effects of Problem Exemplar Variations on Fraction Identification in Elementary School Children. (The University of Arizona, 1981.) DAI 42A: 133; July 1981. [8115068] Performance on the denominator rule posttest was almost 12 times better for children taught with denominator rules than for those taught with one-element exemplars. (grades 1-4)

Berie, Janis L. Development of Numerosity Judgments: Attentional Preference and Use of Perceptual Cues in Estimation Processes. (The University of Iowa, 1981.) DAI 42B: 2093-2094; November 1981. [8123300] Most subjects could be classified as using estimation processes predicted by one of several rule models. (grades 1, 5, 9, adults)

Berman, Barbara. An Investigation of the Efficacy of an Inservice Program Based on the Multiplier Effect on the Achievement of Elementary School Children. (Rutgers University The State University of New Jersey (New Brunswick), 1981.) DAI 42A: 175; July 1981. [8115175]
The program on the metric system was found to be effective. (elementary in-service)

Bienstock, Eric M. Initial Level of Learning, Retention, New Learning, and Self-Relearning of Basic Statistics. (New York University, 1980.) DAI 41A: 5011; June 1981. [8110699] [college]

Bierman, Susan Gale. Selected Intrapersonal Learning Variables as Possible Criteria for Choosing Instructional Methods to Increase Pupil Learning in Mathematics. (University of Southern California, 1981.) DAI 42A: 979; September 1981. [-]

Expository teaching was better than discovery learning or individually paced task sheets for acquiring facts and skills, especially for slower learners. (grades 3, 4)


The consensus was that mathematics is essential for a competent machinist, with level of mathematics depending on the nature of the task. (college, adult)


Contracting increased posttest scores significantly. (intermediate, EMRs)

Bliss, Samuel Stephen. An Analysis of Attitudes Toward Selected Characteristics of Minimum Competency Programs in Mathematics as Perceived by Public School Educators in Kansas, Nebraska, Iowa, Colorado, and Missouri. (Kansas State University, 1980.) DAI 41A: 5011-5012; June 1981. [8111812]

Elementary and secondary teachers differed on only four of 21 items on attitudes toward minimum competency programs. Curriculum directors differed from supervisors on one item. (grades K-12)

Block, Cielle Fink. The Relationship Between Teacher-Student Cognitive Style Distance and Academic Achievement. (The Catholic University of America, 1981.) DAI 42A: 1388; October 1981. [8120148] [elementary ?]

Bockarie, Alex. The Effectiveness of a Unit in Teaching and Learning of Growth Relations in the Sixth and Seventh Grades. (Michigan State University, 1980.) DAI 41A: 3853-3854; March 1981. [8106355]

Success rates on the unit were 90%, area; 68%, volume; 67%, perimeter; 65%, surface area. (grades 6, 7)

Boehm, Suzan Katherine Abeles. Predicting Academic Achievement from a Kindergarten Screening Battery. (Yeshiva University, 1981.) DAI 42B: 1629-1630; October 1981. [8120086] [grades 1-4]
Bone, Mary Adams. A Comparison of Three Methods of Mathematics Placement for College Freshmen. (Michigan State University, 1981.) DAI 42A: 565; August 1981. [8117212]

The placement test was found to be useful for the given college; an ACT test was also satisfactory. Faculty members placed students at a higher level, but they were less likely to succeed. (college freshmen)


In grade 8, students who had the teacher lecture the previous year showed greater test growth; in grade 9, individualized instruction was favored. Students who had practice on test problems did better than those who discussed test importance or who had not prepared. (grades 8, 9)

Brantley, William Garry. Pupil Mobility and Academic Achievement. (University of Southern California, 1981.) DAI 42A: 2462-2463; December 1981. [grade 6]

Bratendzel, Sharon Decter. The Relationship Between Proportional Reasoning and Visual Spatial Ability. (Rutgers University The State University of New Jersey (New Brunswick), 1981.) DAI 42A: 1574; October 1981. [8120808] [grades 9, 11]


Ability to read and solve problems appeared to depend most on skills concerning vocabulary meaning, computation, and determining the correct operation. (grade 5)


Instruction based on Polya's model produced significantly higher scores on "devising a plan" than did a less-directed treatment. (grade 5)

Brewer, Sallie Brassell. A Comparison of the Mathematics Achievement and Self-Concept of Students Using Individualized Mathematics System with the Mathematics Achievement and Self-Concept of Students Using a Random Program. (University of Georgia, 1980.) DAI 41A: 4221-4222; April 1981. [8107895]

Students using the individualized program attained significantly
higher achievement and self-concept scores than those in a traditional program. (grades 1-4)

Briggs, George Wright. The Effects of Symmetry on "Same" - "Difference" Reaction Times, Similarity Judgments and Complexity Judgments. (New York University, 1980.) DA 41B: 4715; June 1981. [8110719] [elementary ?]

Brodsky, Patricia Aline. A Construct Validation Study of Piaget's Equilibration Process. (The University of Manitoba (Canada), 1981.) DA 42B: 1656; October 1981. [--] [nursery school, grade K]


Brunson, Pansy Waycaster. The Relationship Between Achievement of Women in an All-Female Basic Algebra Class and the Achievement of Women in Mixed-Sex Classes. (Indiana University, 1980.) DA 41A: 4251; April 1981. [8105978]

Bryant, Carlyle Rupert. A Comparison of Two Arithmetic Programs on the Development of Basic Arithmetic Skills and Self Concept of Learning Disabled and Normal Sixth Grade Students. (University of South Carolina, 1980.) DA 41A: 3522-3523; February 1981. [8102751]

Buchanan, Samuel Paul. Mathematical Problem-Solving with and Without a Calculator and Its Effect on Alpha Activity. (The University of Texas at Austin, 1980.) DA 41A: 2981; January 1981. [8100880]


Burns, George William. The Interaction of Locus of Control with Method of Instruction and Its Effect on Performance in Elementary
Buschhoff, Frederick Maurice. The Effects of Attendance in a Diagnostic Teaching Center upon the Academic Achievement of Elementary School Children. (University of Northern Colorado, 1981.) DAI 42A: 168; July 1981. [8114097] [grades 2-6]


Caldwell, Judith Ann. A Follow-Up Study of Public School Students in Regular Classes Following Placement in Special Classes for the Emotionally Disturbed. (The American University, 1981.) DAI 42A: 1094; September 1981. [8119548] [grades 2-12]

Campbell, Douglas Ross. "Going for the Answers" with Questions in a Philippine Elementary Mathematics Classroom. (Stanford University, 1981.) DAI 41A: 4630; May 1981. [8108900] [grades 4-6]

Caplan, Janet Stojak. Play-It-Safe: A New Motto and Model for Behavior in Syllogistic Reasoning Tasks. (City University of New York, 1981.) DAI 42B: 1200; September 1981. [8119648] Sixth graders significantly preferred the unsafe interpretation for Venn diagrams, while adults preferred the safe interpretation. (grades 6, adults)

Carter, Jack Andrew, III. Perceptions of Problem Structure by Prospective Elementary School Teachers. (The University of Texas at Austin, 1980.) DAI 41A: 2981-2982; January 1981. [8100887] Differences between three types of translations of problems were found: action-sequence, solution-oriented, and mathematically related. (preservice elementary teachers)

Casterrow, Gilbert, Jr. The Effects of Calculator Instruction on the Knowledge, Skills, and Attitudes of Prospective Elementary Mathematics Teachers. (The Pennsylvania State University, 1980.) DAI 41A: 4319; April 1981. [8107547] The treatment in which students received teacher-guided instruction with the calculator was more effective than treatments without teacher guidance (preservice elementary teachers)

An original story generative approach to problem solving was more effective than a cue-circling generative approach. (grade 4)


No significant difference in problem-solving scores was found between computer programming and algebra classes. (grade 9)

Christensen, Larry Clean. An Item Response Model in the Latent Trait Theory as a Predictor of Algebra Achievement. (Brigham Young University, 1981.) DAI 42A: 2028; November 1981. [8124778]

The latent trait model provided much more information about test items than did standard test statistics. (grade 9)

Clapp, Terry Lee. A Factor Analysis of the WISC-R and WRAT Subtest Scores of Learning-Disabled Youngsters. (United States International University, 1981.) DAI 41B: 3882; April 1981. [8107093] [grade 4 (mean)]

Clark, Julia V. Development of Seriation and Its Relation to the Achievement of Inferential Transitivity. (Rutgers University The State University of New Jersey (New Brunswick), 1980.) DAI 41A: 3973; March 1981. [8105210] [grades K-1]


No significant difference in mathematics scores was found between pupils having or not having prekindergarten experience. (grade 4)


No significant differences in achievement or attitude were found between calculator and non-calculator groups. (grades 11, 12)

Cook, Willie Clance. The Effects of Negative and Positive Instances In Teaching Mathematical Concepts to Freshmen at Florida A&M University. (The Florida State University, 1980.) DAI 41A: 4630; May 1981. [8108385]

Students receiving both positive and negative instances did significantly better on an algebra concepts test than those given only positive instances. (college freshmen)

Corn, Juliana. Mathematics Applications in Technology: Student Achievement and Attitude. (Yeshiva University, 1981.) DAI 42A: 1521-1522; October 1981. [8120088]

The groups taught with integrated materials scored significantly higher than those using traditional materials. (community college)

Counihan, Maxine Hacutt. Effects of Teacher-Student Matches on Interpersonal Maturity Levels upon Student Academic and Behavioral Learning. (The American University, 1981.) DAI 42A: 1094; September 1981. [8117552] [adolescents]

Counts, Alphonso. Achievement in Reading and Mathematics as Predictors of Achievement in Science. (University of South Carolina, 1980.) DAI 41A: 3340-3341; February 1981. [8102754] [grade 8]

Cuthbert, Lewis Coulter. An Investigation of the Relationships of Certain Student and Curriculum Variables in a Selected Comprehensive High School to Scholastic Aptitude Test Scores. (Temple University, 1981.) DAI 42A: 1870; November 1981. [8124744] [grade 12]

Czarnecki, Karen Gordon. Adult Performance on the Test of General Educational Development as a Function of Field Dependent-Independent Cognitive Style. (Rutgers University The State University of New Jersey (New Brunswick), 1980.) DAI 41A: 3836; March 1981. [8105212] [adults]


David, Ronald Marshall. The Development and Delivery of Mathematics Service Courses at Two Year Colleges. (University of Maryland, 1980.) DAI 41A: 3463-3464; February 1981. [8103872]

A framework for examining the instructional effectiveness of mathematics service courses was presented. (two-year college)

Davis, Moira Keane. Pretraining and the Prediction of Achievement in Elementary Algebra for Chicano and Non-Chicano Students. (Stanford University, 1980.) DAI 41A: 3463; February 1981. [8103499]

The prognostic tests were reliable for both groups of students. Pretraining had no effect on test results. (grade 9)

Davis/Carney, Peggy Dean. A Study of the Use of Graph Paper for Arithmetic Computation. (Memphis State University, 1980.) DAI 41A: 5012; June 1981. [8109085]

No results were reported from this study on the use of plain or graph paper for doing practice work on computation. (grades 4-6)

Dean, David Keller. The Effectiveness of Using a Hand-Held Calculator as an Instructional Aid in Teaching the Basic Multiplication Facts to Fourth Graders. (Michigan State University, 1980.) DAI 41A: 3929; March 1981. [8106366]
No significant differences in achievement or retention were found between groups using calculators for all computation, or only for checking, or not using them at all. (grade 4)


The modification treatment did not significantly reduce anxiety test scores. (secondary, college, ages 14-58)

Dees, Roberta Lea. Selected Piagetian Tasks and the Acquisition of the Fraction Concept in Remedial Students. (The University of Florida, 1980.) DAI 42A: 585; August 1981. [8115626]

Students who could conserve number performed better on the discrete model of fractions. In general, students scored low on both conservation and fractions tests. (grades 10-12)

Deitch, Irene M. Cognitive-Behavioral Treatment of Mathematics Anxiety in College Women. (Yeshiva University, 1981.) DAI 42B: 1584; October 1981. [8120090]

Groups given either systematic desensitization or cognitive restructuring significantly reduced mathematics anxiety. (college)

Dershimer, Elizabeth Lovejoy. A Study to Identify the Characteristics of Teachers Willing to Implement Computer-Based Instruction Using Microcomputers in the Classroom. (Memphis State University, 1980.) DAI 41A: 3343; February 1981. [8101783] [grades K-12]

Dershimer, Wilbur Presley, Jr. The Development and Evaluation of an Interactive Computer Program Used as an Instructional Aid in Teaching Basic Flowcharting Techniques. (Nova University, 1979.) DAI 41A: 3399; February 1981. [8104503] [community college]


No direct impact of gender on pre-college quantitative ability was found; rather, it had an indirect impact through coursework preparation. (grade 12)


The typical teacher used the checklists once a year, to record test results, because they were required to do so. (elementary in-service)

Dimas, William A. The Relative Effectiveness of the Title VII Bilingual Program and Regular Mainstream Program in Trenton as Revealed by the Students' Grade Point Averages (GPA), Attendance Records and Drop-Out Rates. (Rutgers University The State University of New
Diodato, Virgil Pasquale. Author Indexing in Mathematics. (University of Illinois at Urbana-Champaign, 1981.) DAI 42A: 2340-2341; December 1981. [8127581] [college]

Doherty, Michael A. Effects of Reinforcement and Motivational Orientation on Children's Academic Behavior as a Function of Self-Determined and Externally Imposed Contingencies. (Temple University, 1981.) DAI 42A: 2069; November 1981. [8124562] [grade 3]


Dooley, Alfred Roberts. Effects of a Mathematics Facilitation Program upon Sex Role Identification and Attitudes Toward Mathematics. (Texas Tech University, 1981.) DAI 42A: 1546; October 1981. [8121884]

None of four treatments produced group differences. (college)


Twelve trends or generalizations were identified, in addition to answers to ten questions. (grades 7-12)

Doyle, Delores Marie. A Comparative Study of Third Grade Pupils' Achievement Test Scores on the 1953, 1964, and 1973 Editions of the Stanford Achievement Test. (George Peabody College for Teachers of Vanderbilt University, 1980.) DAI 41A: 4050; March 1981. [8105454] [grade 3]

Doyle, William Howard. Using an Advance Organizer to Anchor a Subsuming Function Concept to Facilitate Learning, Transfer, and Retention in Remedial College Mathematics. (The Ohio State University, 1981.) DAI 42A: 2006; November 1981. [8121785]

It was concluded that an advance organizer could anchor concepts of functions. (college)


The manipulative approach (using Matchiles) had favorable effects on both achievement and attitudes. (college)

No significant difference in achievement was found between use of the programmed text or the regular textbook. (grades 4, 5)

Duncan, Ruth Kruger. The Effects of Two Instructional Treatments on Increasing Computational Skill in Subtraction with Regrouping of Grade Three Students. (Indiana State University, 1980.) DAI 41A: 3876; March 1981. [8105540]

No significant difference was found between groups taught using base-blocks or expanded notation. (grade 3)

Duren, Phillip Edward. Teaching Reconstruction Memory Strategies to Seventh Grade Students in a Problem Solving Setting. (The Ohio State University, 1980.) DAI 41A: 2982; January 1981. [8100143]

Students used reconstruction strategies significantly more often if the rules were taught in an inductive or deductive style rather than in a rule/example style. (grade 7)

Dygert, Catherine Weber. The Effects of a Human Relations Program on Self Concept and Achievement of Eighth Grade Rural Students. (The Ohio State University, 1980.) DAI 41A: 4978; June 1981. [8107318] (grade 8)


Only a limited amount of variance was explained by the predictor variables studied; GPA in high school mathematics was the best predictor of success in college mathematics. (grade 13; junior college)


Variables affecting success were identified for those taught by traditional pacing or self-pacing. (community college)


No significant difference was found between groups using calculators or paper and pencil on problems. (grade 6)
Engelhardt, John Joseph. The Effects of Systematic Instruction in Verbal Problem Solving on the Achievement of Sixth-Grade Students. (University of Missouri-Columbia, 1980.) DAI 42A: 585-586; August 1981. [8117424] No significant difference was found in problem-solving scores between a group taught by a systematic approach to problem solving and a control group. An attitude measure favored the control group. (grade 6)


Evans, Richard Charles. An Illuminative Evaluation of Inservice Education Programs in New Hampshire. (The University of Wisconsin-Madison, 1980.) DAI 42A: 121; July 1981. [8110069] Elementary teachers were generally satisfied with staff development programs, while middle school and secondary teachers were generally dissatisfied. (elementary and secondary in-service)

Everett, Eunice Fleming. Effectiveness of the Use of Behavioral Objectives with and Without Student Self-Evaluation Tests in the Teaching of Intermediate Algebra at the Community College. (Florida Atlantic University, 1980.) DAI 41A: 3929; March 1981. [8105313] Use of behavioral objectives did not significantly affect achievement in lecture-taught classes. Self-evaluation testing had a negative effect on achievement. (community college)

Feghali, Issa Nehme. The Relationship Between Volume Conservation and a Volume Algorithm for a Rectangular Parallelepiped. (The University of British Columbia (Canada), 1980.) DAI 41A: 5012; June 1981. [---] Students having instruction on volume resembling that in textbooks were able to apply the volume algorithm regardless of their level of conservation. (grade 6)

Ferguson, David Lawrence. The Language of Mathematics: How Calculus Students Cope with It. (University of California, Berkeley, 1980.) DAI 42A: 121; July 1981. [8113028] No significant effect was detected of "local reading" instruction on ability to solve calculus word problems. (college)


A significant but moderate relationship was found between mathematics achievement and ability to use the soroban. (ageps 6-11)

Ford, Karyn Marie. The Effect of Team Teaching upon Achievement in and Attitude Toward Mathematics and English. (Michigan State University, 1981.) DAI 42A: 982; September 1981. [8117231]

No significant difference in mathematics scores was found between students taught by team teaching or "traditional" approaches. (grade 9)

Ford, Mary Elizabeth. Children's Understanding of Probability. (The University of Iowa, 1980.) DAI 42A: 139; July 1981. [8114252]

No significant difference in mathematics scores was found between students taught by team teaching or "traditional" approaches. (grade 9)


Teachers gained metric knowledge from four one-day workshops and reported using an activity approach more frequently. (teachers in grades 3, 5, 6)


Fulken, Herman Brooks, Jr. A Comparison of Two Approaches in Teaching Mathematics to Special Education Students. (The Louisiana State University and Agricultural and Mechanical College, 1981.) DAI 42A: 2610; December 1981. [8126958]

Diagnostic-prescriptive materials were found to be more effective than programmed materials. (secondary)

Furuto, David Masaru. A Study of Affective Variables and Performance in Mathematics: The Effects of Systematic Counseling upon Student Self-Concept, Anxiety, Attitude, and Achievement. (Brigham Young University, 1981.) DAI 42A: 2546; December 1981. [8126332]

Systematic counseling was found to be effective. (two-year college)

Futterman, Robert. A Causal Analysis of Expectancies and Values Concerning Mathematics. (The University of Michigan, 1980.) DAI 41B: 3628; March 1981. [8106139]

Ability was found to play an important causal role in the attitudinal process. (grades 5-11)

Galvao, Vilma Pereira. Mathematical Problem Solving: A Conceptual
Garabedian, Charles, Jr. The Effects of Proof on Achievement and Reasoning Ability of Students in Geometry. (The University of Connecticut, 1981.) DAI 42A: 586; August 1981. [8116732]

The amount of proof required for geometry students (less than 50% or more than 80%) had no significant effect on geometry achievement or on reasoning ability. (grades 10, 11)

Garrett, Donald Mitchell. The Impact of School Building Age on the Academic Achievement of Selected Eleventh Grade Pupils in the State of Georgia. (University of Georgia, 1980.) DAI 41A: 4231; April 1981. [8107912] (grade 11)


No significant differences in achievement or attitude were found between groups given or not given a specially selected mathematics program. (grades K, 1)

Goldsmith, Diane Bradford. An Attributional Approach to Gender Differences in Mathematical Achievement. (University of Utah, 1980.) DAI 41A: 4631; May 1981. [8109568]

Students' attributions of their own mathematical achievement did affect eventual achievement, but previous performance, age, and self-expectancies exerted far more influence. (college)


Goodall, Charles Gayle. The Reduction of Mathematics Anxiety Utilizing Relaxation and Desensitization and the Presentation of Practical Examples. (University of South Florida, 1980.) DAI 41A: 5012-5013; June 1981. [8108260]

Relaxation-desensitization alone was more effective than when used with practical examples for reducing anxiety. (junior college)


The developed curriculum materials seemed effective in promoting problem-solving skills. (grade 9)
Gore, Dolores A. Sex-Related Differences in Relation to Teacher Behavior as Wait-Time During Fourth-Grade Mathematics Instruction. (University of Arkansas, 1981.) DAI 42A: 2546; December 1981. [8127292]

Both teacher wait-time and incidences of being called on by the teacher favored boys. (grade 4)

Goth, Patricia Ellen. The Development of Addition-Subtraction Knowledge and Its Relation to Conservation in Young Elementary School Children. (The University of Texas at Austin, 1980.) DAI 41B: 2791; January 1981. [8100907] [grades K-2]

Craw, Ethel Esther. A Study of the Effects of Team Teaching on Student Academic Achievement, Attitudes and Self Concept. (University of Colorado at Boulder, 1980.) DAI 41A: 3349; February 1981. [8103098] [grades 1-3]

Greenberg, Robert Neil. Fluid and Crystallized Intelligence, Age, Socioeconomic Status, and Mathematics Achievement of Children with Special Learning and Behaviour Problems. (New York University, 1980.) DAI 41B: 4717; June 1981. [8110660]

Fluid and crystallized intelligence were effective predictors of achievement for younger but not older children. (ages 7-17)


No significant differences were found between four teaching practices or pupil achievement. (teachers in grade 5)

Gullatt, David Elmer. Effects of Matching-Mismatching Field-Dependent-Independent Teachers and Students on Student Achievement and Evaluation of Teacher Attributes. (University of Kansas, 1980.) DAI 42A: 525-526; August 1981. [8115745]

No differences in mathematics achievement were found when students were matched with teachers on field-dependence-independence or sex. (teachers in grades 9, 10)


Significant differences in enrollment, ability, and post-secondary school paths were found. Students tended to study little mathematics; males take more mathematics courses than do females. (secondary)


Hack, Raymond John. A Longitudinal and Cross-Sectional Study of the
Reading and Mathematics Achievement of Early and Delayed School Entrants. (Northern Illinois University, 1980.) DAI 41A: 4907-4908; June 1981. [8111563] [grades 1, 3, 5, 8]


Harkins, Ronald Joseph. The Effect of Mode of Presentation on Attitudes Toward and Achievement in Mathematics. (Indiana University, 1980.) DAI 41A: 3930; March 1981. [8029225]

The individualized tutorial format was more effective for low-anxiety students, while the lecture mode was more effective for high-anxiety students in remedial algebra. (college)

Harre, Ruthanne. An Investigation of the Interactive Effects Among Student Types and Treatment Types on Time-on-Task Behavior in Eighth Grade Mathematics Classes. (University of Missouri-Columbia, 1980.) DAI 44A: 4631-4632; May 1981. [8108801]

The on-task behavior of different types of students varied across instructional programs and across phases of the lesson. (grade 8)

Harris, Rubie J. Relationship of Counseling Factors to Minority Females' Participation in Mathematics and Science. (The University of Wisconsin-Madison, 1980.) DAI 42A: 87; July 1981. [8110076]

Encouraging black females to enroll in mathematics and science courses appeared effective. (secondary)


Hayes, Joseph Edward. A Comparison of Minimum Competency Testing Programs in Five Selected Illinois Public School Districts. (Southern Illinois University at Carbondale, 1980.) DAI 41A: 3350-3351; February 1981. [8102377] [grades K-12]


Significant but weak relationships were found between student ratings and both instructor and classroom variables. (college)

Hecht, James Erich. Using the Monte Carlo Method to Teach Probabilistic Problem Solving to Ninth Grade General Mathematics Students. (University of Illinois at Urbana-Champaign, 1980.) DAI 41A: 4632; May 1981. [8108535]

The unit on probability was effectively used with low achievers. (grade 9)
Helm, Estelle Bailey. Piagetian Conservation Tasks as Predictors of First Grade Achievement in Reading and Mathematics. (Memphis State University, 1980.) DAI 41A: 2912; January 1981. [8101792] (grade 1)

Helm, Finley. Covariation of Cognitive Preference with Instructional Mode and Classroom Reward Structure. (University of Kentucky, 1980.) DAI 41A: 3489; February 1981. [8104466] Socioeconomic background, health status, and prior mathematical experience are significantly related to cognitive preference in remedial mathematics students. (college)

Hempel, Judith Ann. The Effect of Prior Knowledge, Piagetian Level, Attitude, Sex, and Teaching Format on Achievement, Retention, and Transfer in Informal Elementary Geometry. (University of Houston, 1980.) DAI 41A: 3930; March 1981. [8105365] The deductive group achieved at a significantly higher level than the guided discovery group. (elementary)

Hezel, Michael Charles. A System for the Remediation of Student Subtraction Errors. (Brigham Young University, 1981.) DAI 42A: 983; September 1981. [8118969] Of those tutored for 40 minutes, 81 per cent showed no recurring consistent errors two days later. (grades 3, 4, 6)

Hildreth, David John. Estimation Strategy Uses in Length and Area Measurement Tasks by Fifth and Seventh Grade Students. (The Ohio State University, 1980.) DAI 41A: 4319-4320; April 1981. [8107340] Estimation ability and strategy use were correlated with perceptual ability. They were related to mathematical ability for the college students and unrelated for students in grades 5 and 7. (grades 5, 7, college)

Hirmanpour, Iraj. A Computerized Model for Placement and Diagnostic Testing in College Remedial Mathematics. (Florida Atlantic University, 1980.) DAI 41A: 4687; May 1981. [8109304] A set of computer programs was developed to implement a task analysis model of diagnosis for any subject where hierarchical relationships can be defined. (college)


Holland, Locke, Jr. Operational Levels of Cognitive Stage Achievement and Representations of Cognitive Structures Used in Mathematical Problem Solving by Young Adult Prospective Teachers. (The University of North Carolina at Greensboro, 1980.) DAI 41B: 3208; February 1981. [8101505] Only 27 per cent of the students achieved consolidated formal operations. Cognitive stage and problem-solving success were not
Horady, Ernest Edward. The Effects of Chisanbop on the Mathematics Achievement of Selected Elementary School Students. (North Texas State University, 1980.) DAI 41A: 4632; May 1981. [8109355]

The Chisanbop technique made a significant difference in mathematics performance in grade 2, but not grade 3. (grades 2, 3)

Huang, Chein-Hsiang. A Study of an Urban School District’s Students’ Mathematics Achievement Compared with NAEP Results and a Comparison of the Mathematics Objectives of NAEP with the Georgia Criterion Referenced Test. (Auburn University, 1981.) DAI 42A: 1522; October 1981. [8114921]

The NAEP group scored higher than the local group tested on the same objectives. (age 13)

Humphrey, Jackie Marie Hance. Persistent Error Patterns on Whole Number Computations and Scores on Piagetian Tasks as They Relate to Mathematics Achievement of Adolescents. (The University of Texas at Austin, 1981.) DAI 42A: 1038; September 1981. [8119307]

No significant difference in performance on Piagetian tasks was found between students who did or did not make persistent computational errors. (grade 9)

Hunting, Robert Paul. The Role of Discrete Quantity Partition Knowledge in the Child’s Construction of Fractional Number. (University of Georgia, 1980.) DAI 41A: 4320; April 1981. [8107919]

Children able to think about fractions in terms of flexible units or multiples of such units exhibited superior solutions to fraction problems. (grades 4, 6)

Isaacson, Dan. Discovering the Microcomputer as an Instructional Media Tool in Teaching: (A Laboratory for Elementary and Secondary Educators). (University of Oregon, 1980.) DAI 41A: 3536; February 1981. [8101839] [elementary and secondary teachers]


Jackson, Leslie Cecilia. The Effect of Desegregation and Achievement Motivation on Academic Achievement Levels of Black High School Students. (California School of Professional Psychology, Los Angeles, 1981.) DAI 42B: 2600; December 1981. [8124382] [grade 12]

Jackson, Michael Bee. The Effect of Vocabulary-Oriented Mathematics Instruction on Learning of Seventh Grade Pre-Algebra Mathematics. (University of South Florida, 1981.) DAI 42A: 1462; October 1981. [8120667]

The group given vocabulary activities scored significantly higher than the control group. (grade 7)

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Students with greater amounts of allocated time had significantly greater achievement gains in mathematics. (grade 3)

Johnson, Daphne Evadne. A Study of One-, Two-, and Three-Dimensional Linear Patterns, Sex, and Hemispheric Lateral Organization Among Young Jamaican Children. (The University of Connecticut, 1980.) DAI 41A: 3416; February 1981. [8103183] [grade 3]


Both groups were strongly systematic in hypothesis testing, with higher-ability students more systematic, successful, and consistent than lower-ability students and significantly more efficient in using strategies. (grade 9)

Johnson, John, II. Effectiveness of a Parental Tutorial Program on Mathematics Achievement and Self-Concept Scores of Black Inner-City Students. (University of Miami, 1981.) DAI 42A: 1462; October 1981. [8121133]

Parent tutoring with learning activity packets significantly increased achievement, but not self-concept. (grade 3)

Jones, Lois Harrison. An Investigation of the Relationships Between Self-Concept and Academic Achievement of Pre-Middle School Students. (Virginia Polytechnic Institute and State University, 1980.) DAI 42A: 1948; November 1981. [8121501] [pre-middle school]


Twelve recommendations about tests and programs were made. (two-year college)


Errors' and thought processes used by 28 students were identified. (grade 9)

Kapagy, Max Earl. The Effectiveness of Piagetian Spatial Representation and Selected Other Tasks as Multiview Drawing Aptitude Tests. (The Ohio State University, 1980.) DAI 41A: 2972-2973; January 1981. [8100176] [grade 8]


Background on the goals, definitions, mandates, implementation, and
Impact of minimum competency testing is given. Surveys of teachers in four states indicated their reactions. (teachers in grades K-12)

Kaufman, Sherwin. The Comparison Between the Utilization of Behavioral Objectives in the Teaching of the Mathematics of Merchandising in the Distributive Education Curriculum and Traditional Teaching. (Temple University, 1980.) DAI 42A: 676-677; August 1981. [8115945] [secondary ?]

Kenison, Paul Edson. A Comparison of Logical Interpretation with Various Types of Content. (The Florida State University, 1981.) DAI 42A: 2547; December 1981. [8125830]
Students had great difficulty in recognizing logically equivalent statements presented verbally. (college)

Kennedy, Madeleine Maria. The Effects of Learner Expectation, Number Anxiety, and Instructional Focus on the Learning of a Statistical Concept. (Indiana University, 1980.) DAI 41A: 5069; June 1981. [8112491]
No significant correlation was found between number anxiety and learning outcome for students given differing expectations. (college)

Kim, Byong Sung. Teachers' Instructional Climate, Mastery Model Strategy and Student Achievement at Different Grade Levels. (Michigan State University, 1980.) DAI 41A: 2838; January 1981. [8101126] [elementary teachers]

Students in the Title I program scored significantly higher than those in a comparison group. (grades 11, 12)

Knight, Douglas Hugh. The Effects of Transfer Materials on the Critical Thinking Abilities of Second-Year Algebra Students. (Wayne State University, 1980.) DAI 41A: 4632-4633; May 1981. [8107220]
No significant difference was found between students who used or did not use transfer materials. (grade 11)


Koelle, William Harry. The Effects of Locus of Control and Self-Concept on Academic Achievement in Deaf Adolescents Using Instrumentation Modified for Deaf Subjects. (The Catholic University of America, 1981.) DAI 42A: 2033-2034; November 1981. [8120753] [adolescents]

Konsin, Mary Ann C. Spatial Visualization and Mathematical Problem Solving. (The University of Wisconsin-Madison, 1980.) DAI 41A: 3930-3931; March 1981. [8023417]
Level of spatial skill was not reflected in methods of solving problems, although some differences were noted for those high in spatial skill. (grades 6, 7)

Kopp, Katherine Harris. Effects of a Systematic Planning Technique on the Mathematical Computation Performance of Mildly Handicapped Learners. (George Peabody College for Teachers of Vanderbilt University, 1980.) DAI 41A: 3986; March 1981. [8105515]

The planning technique was found to be effective. (elementary ?)


Verbal self-instruction training produced improvement in problem solving, but was not significantly different from the effect of cognitive strategies training. (elementary)


How a class used calculators with a specially designed curriculum over a two-year period was studied. (grades 11, 12)

Kuhlman, Cynthia. A Procedure to Facilitate Generalization of Academic Performance from Resource Rooms to Regular Classrooms. (Georgia State University-College of Education, 1980.) DAI 41A: 3987; March 1981. [8106830] [elementary]

Kuhs, Therese M. Elementary School Teachers' Conceptions of Mathematics Content and the Potential Effect on Classroom Instruction. (Michigan State University, 1980.) DAI 41A: 5013; June 1981. [8112108]

Teachers were primarily concerned with teaching content related to the four operations. Perceptions of specific topics varied, so variation in content may result. (teachers in grades 3-5)

Lane, David Seffers, Jr. Designing Instruction to Facilitate Conditional Reasoning Performance in Preadolescent Children. (The Florida State University, 1980.) DAI 41A: 4654; May 1981. [8108398] [age 11]

Laseter, Jesse Claude. An Investigation into the Effect of Teacher Effectiveness Training upon Student Achievement in Reading and Mathematics. (Georgia State University-College of Education, 1981.) DAI 42A: 937; September 1981. [8120124] [grades 7, 8]
Lasoff, Edward Marvin. The Effects of Feedback in Both Computer-Assisted Instruction and Programmed Instruction on Achievement and Attitude. (University of Miami, 1981.) DAI 42A: 1553; October 1981. [8121115] [college]

Lavizzo, Nancy Iles. An Investigation of the Relationship Among Birth Order, Intelligence, Sex, Biorhythm and Academic Achievement. (Loyola University of Chicago, 1981.) DAI 41A: 4654; May 1981. [8107077] [elementary]

LeMahieu, Bethene June Ohm. Talented and Gifted Programs in New Jersey: An Analysis of Status and Aspirations. (Rutgers University The State University of New Jersey (New Brunswick), 1981.) DAI 42A: 1408; October 1981. [8120834] [elementary]

Leslie, Helen Louise. The Effects of Alternate Day Scheduling and Daily Scheduling on the Achievement Scores of Seventh Grade Title I Mathematics Students as Measured by the Comprehensive Tests of Basic Skills. (George Peabody College for Teachers of Vanderbilt University, 1980.) DAI 41A: 3809-3810; March 1981. [8105488] Scheduling arrangement did not affect achievement. (grade 7).

Levine, Debrah Ruth. Computational Estimation, Ability and the Use of Estimation Strategies Among College Students. (New York University, 1980.) DAI 41A: 5013; June 1981. [8110705] Estimation appeared to be difficult, especially for students of low quantitative ability. Nine types of difficulties were identified. (college)


Lopez, Salvador, Jr. The Adaptation of Culturally Different Children to the Culture of the School and Bilingual/Bicultural Education. (The University of Michigan, 1981.) DAI 42A: 589; August 1981. [8116289] [grades 1, 2]

Lowery, Charles Shelby. The Effect of Piagetian-Type Training Activities on the Cognitive Functioning of Emotionally Disturbed Children. (University of South Carolina, 1980.) DAI 41B: 3910-3911; April 1981. [8102777] [elementary]


Lunsford, Dannie Gay. Responses in North Carolina High Schools to Mandated Remediation for Students Failing the Competency Examination. (The University of North Carolina at Chapel Hill, 1980.)

Textbooks and school catalogs were in agreement on the content of mathematics courses for liberal arts students. (community college)


Marsh, Martha Elizabeth. Academic Achievement and School-Wide Grouping of Students in Two Middle Schools. (The University of Florida, 1980.) DAI 42A: 528-529; August 1981. [8115653] [grades 5-8]

Martin, Hannah Sutter. A Follow-Up Evaluation of Middle-School Students Who Are Currently High School Juniors or Freshmen. (Georgia State University-College of Education, 1981.) DAI 42A: 2631; December 1981. [8126193] [grades 9, 11]

Martin, Marcee M. Evaluation of a "Planned Program" for Teacher Use of Competency Test Results. (Wayne State University, 1980.) DAI 41A: 4688; May 1981. [8107263] [teachers, grades 4, 7]


Few sex-related differences in enrollment patterns or motivating factors were found, but race-related differences were noted. (secondary)

Mauland, Cherry Nell Creamer. A Comparison of Two Learning Hierarchy Validation Techniques. (The University of Texas at Austin, 1981.) DAI 42A: 1038-1039; September 1981. [8119332]

Two hierarchy validation techniques were not found to be equivalent. The Walbesser ratios were more stringent than the Clark C test. (college)


Over half of the responses were below van Hiele's level II, largely because of six students who had not taken high school geometry. (college)

Mayes, Leslie William. An Evaluative Study of the First Year of a

Mazzuchi, Teresa Ann. The Relative Effectiveness of Positive and Negative Consequences in Contingency Contracts to Increase Daily Arithmetic Performance. (The University of Tennessee, 1980.) DAI 41A: 3493; February 1981. [8104607] [elementary]

McCabe, Robert Justin. A Comparison of the Accuracy Achieved by Students in Shop-Related Vocational Education Classes Through the Use of Metric and English Linear Measurement Systems. (Auburn University, 1981.) DAI 42A: 1609; October 1981. [8120498] [junior and senior high school]

McCuller, Crissy Cloudt. The Effects of Varying the Syntactic Complexity of Mathematics Word Problems on the Performance of Learning Disabled Students. (The University of Texas at Austin, 1981.) DAI 42A: 1099; September 1981. [8119334]

Sentence complexity had more effect as grade level decreased. (grades 3-8)

McEntire, Mary Elizabeth. Relationships Between the Language Proficiency of Adolescents and Their Mathematics Performance. (The University of Texas at Austin, 1981.) DAI 42A: 1039; September 1981. [8119335]

Language proficiency in reading and in writing were related to mathematics performance. (grade 8)

McLane, Darlene Harris. The Relation of Teacher Empathy, Mathematics Training, and Pedagogical [sic] Preparation to Changes in Their Students' Achievement and Attitude. (University of Houston, 1980.) DAI 41A: 3862; March 1981. [8105358]

A correlation of .60 was found between teacher characteristics and student attitudes and achievement. (teachers in grade 7)

McLaughlin, Brian. An Experimental Comparison of Discovery and Didactic Computerized Instructional Strategies in the Learning of Computer Programming. (The Catholic University of America, 1981.) DAI 42A: 529-530; August 1981. [8116843] [college]

McLaughlin, Judith Androit. Children's Understanding of Relational Terms and Operational Development. (Clark University, 1981.) DAI 1649; October 1981. [8118819] [ages 4-9]

McMillan, Margaret Ann. A Study of Drafting Abilities and Mathematics Abilities of High School Students in a First-Year Course of
Industrial Arts Drafting. (East Texas State University, 1981.) DA4 42A: 2002; November 1981. [8116864] [ages 14, 15]

McSpadden, Keith Wood. The Association of Double-Session Attendance and Pupil Achievement at the Second-Grade Level. (Northern Arizona University, 1981.) DA4 42A: 82-83; July 1981. [8114644] [grade 2]


As grade level increased, students rated their mathematical abilities and performances as lower, and viewed mathematics as more difficult and less useful and valuable. (grades 5-10)


The Burney Test predicted success in algebra, but algebra did not contribute to the development of formal logical reasoning. (grade 9)


A "basic" mathematics curriculum was produced, consisting of 96 objectives. (grades 3-6)

Miller, Janet Louise Kraft. Competition, Maturation Rate, and Motive to Avoid Success in Math as Predictors of Performance on a Spatial Task. (University of Washington, 1981.) DA4 42B: 2602; December 1981. [8126129]

Girls showed more motive to avoid success at all levels. Spatial performance was highest under conditions of opposite-sex competition. (grades 5, 8, 11)

Miller, L. D. An Analysis of Mixed Cerebral Dominance (Torque) and Academic Achievement and Intelligence Test Performance in Elementary School Students. (United States International University, 1981.) DA4 42B: 780-781; August 1981. [8116171] [grades 2, 4, 6]

Miller, Linda Herman. The Relationship of Selected Variables in Mathematics Achievement of Teacher Education Applicants. (East Tennessee State University, 1980.) DA4 41A: 3359-3360; February 1981. [8025888]

Differences in achievement and attitudes were not found between males and females. Some correlations of attitude and achievement were noted. (college)

Miri, Eftekar. The Effect of Educational Practices on Attitudes Toward Mathematics Among Two Age Groups of Iranian and American
Students. (Fordham University, 1981.) DAI 42B: 2100-2101; November 1981. [8123561]

Iranian students had significantly higher attitudes toward mathematics than American students. (grades 4, 12)

Montiel, Reyes. Implementation and Evaluation of a PSI Mastery-Based Curriculum in General Studies for the "Colegio Universitario de Cabimas," Venezuela. (University of San Francisco, 1980.) DAI 41A: 4595; May 1981. [8110590] [college]

Moskol, Ann Eleanor. An Exploratory Study of the Processes That College Mathematics Students Use to Solve Real-World Problems. (University of Maryland, 1980.) DAI 41A: 4320; April 1981. [8104963] Students constructed more arithmetic than algebraic models. Many tested their solutions. (college)


Mundy, Joan Ferrini. Spatial Ability, Mathematics Achievement, and Spatial Training in Male and Female Calculus Students. (University of New Hampshire, 1980.) DAI 41A: 4633; May 1981. [8108871] Significant correlations were found between spatial visualization and other scores; some differences favored males and others, females. (college)

Murphy, Elwanda Bray. The Relationship Between Teachers' Expectations and Students' Knowledge of Mathematical Terminology for the Elementary Grades. (Northwestern State University of Louisiana, 1980.) DAI 42B: 4548; June 1981. [8110239] Fourth-grade teachers anticipated pupils' difficulty with 55 per cent of the terms; seventh-grade teachers anticipated difficulty with 20 per cent. (grades 4-7)

Murphy, Nancy Kathleen. The Effects of a Calculator Treatment on Achievement and Attitude Toward Problem Solving in Seventh Grade Mathematics. (University of Denver, 1981.) DAI 42A: 2008-2009; November 1981. [8121439] Students with unrestricted use of calculators achieved higher problem-solving scores than students not using calculators for instruction or tests. (grade 7)

Muzzio, Timothy Charles. Acquisition of the Negative Relational Term 'Less' as it Relates to Seriation. (University of Maryland, 1980.) DAI 42A: 538-539; August 1981. [817359] [?]

Nauheim, Ake Lynn. The Relative Efficacies of Anxiety Management Training, Negative Practice and Cognitive Therapy in the Treatment of Test Anxiety. (Hofstra University, 1980.) DAI 42B: 384; July 1981. [8111360] [secondary]


O'Brien, John Joseph. The Relationship Between Piagetian Cognitive Level and Memory Level in the Logical and Spatial Domain for Suburban Eighth Grade Students. (Rutgers University The State University of New Jersey (New Brunswick), 1981.) DAI 42A: 1555; October 1981. [8120843] [grade 8]

O'Neal, Larry Dean. A Comparison of the Predictors of Success of University and Junior College Students in the Initial Calculus Course. (The University of Mississippi, 1980.) DAI 41A: 4620-4621; May 1981. [8108766]

For university and junior college students significantly different equations were required for predicting grades in calculus.

(continued)


Owen, Jerry Monroe. A Survey of Teacher Perspectives and Practices of Selected Individualized Instructional Elements in Middle-Level Schools. (University of Colorado at Boulder, 1980.) DAI 42A: 77-78; July 1981. [8113992] [junior high teachers]

Palmer, Michael Eugene. Trigonometry Instruction: An Aptitude Treatment Interaction Study. (The Ohio State University, 1980.) DAI 41A: 2982-2983; January 1981. [8100218]

No significant difference was found between angle or circle approaches for students at different levels of field independence and Piagetian reasoning.

(continued)

Parrino, Leonard William. The Use of Cognitive Development Tasks as Predictors of Success in Developmental Mathematics Courses. (Rutgers University The State University of New Jersey (New Brunswick), 1981.) DAI 42A: 1522; October 1981. [8120845]

Students successful at one or two given tasks were more likely to achieve A or B grades in the mathematics course. (community college)


Pennau, Joan Ellen Erdman. The Relationship Between Early Entrance and Subsequent Educational Progress in the Elementary School. (University of Minnesota, 1981.) DAI 42A: 1478; October 1981. [8115026] [grades 3-6]

Peterson, James. Thinking Aloud as a Technique in Facilitating Mathematical Achievement for Title I Children in Grades One, Two, and Three. (The University of Mississippi, 1981.) DAI 42A: 1478; October 1981. [8117289]

Children taught a thinking-aloud procedure did not score higher than those not taught the procedure. (grades 1-3)

Philips, David William. Neuropsychological Differences Among Children with Good and Poor Academic Skills. (University of Washington, 1980.) DAI 41A: 4658; May 1981. [8109762] [ages 5-8]


Students in the experimental group achieved significantly higher scores than those taking the usual course. (community college)


Students failing to learn computation, but average in reading, had difficulty on two visual-spatial tasks and one reasoning task. (grades 7-9)


Use of feedback as part of a method for teaching algebra was found to be effective. (grade 9)


A significant difference attributable to community size was found between groups who took the state assessment test once or twice. Attitude scores differed by sex. (grade 8)
Plog, Claudia Elizabeth. The Relationship of Selected Variables in Predicting Academic Success in Computer Programming. (East Texas State University, 1980.) DAI 41A: 2903-2904; January 1981. [8027678] [community college]

Pounds, Mary Linda. The Derivation of a Prediction Equation to Identify Potential Dropouts Among Students Initially Accepted to an Urban University as Remedial Students. (Georgia State University-College of Education, 1981.) DAI 42A: 916; September 1981. [8120123] [college]


Direct instruction on reading skills appeared to be more effective in grade 3; differences were slight in grade 5. (grades 3, 5)


Differences on evaluation and planning stages of problem solving favored the pupils given instruction based on Polya's model. (grade 5)

Reinauer, Charles David. An Investigation of Selected Intellectual and Non-Intellectual Variables and Their Use in Predicting Success in Two Instructional Formats of a College Algebra Course. (University of Houston, 1979.) DAI 41A: 3932; March 1981. [8106756]

A significant amount of variance in predicting success in the course was accounted for by the selected variables, but there was no significant interaction with instructional format. (college)

Revicki, Dennis Albert. The Relationship Among the Social Psychological Family Environment, Parent Involvement in an Intervention, and Child Achievement. (The University of North Carolina at Chapel Hill, 1981.) DAI 42A: 2484-2485; December 1981. [8125612] [grade 2]


Boys and girls participated differently in mathematics classroom processes, though differences were not as large as expected and not consistent across classrooms. (grade 7)


In general, students did better when trained with a strategy matching their M-space, but some exceptions occurred. (grade 1)
Richardson, Mikel Freeman. An Assessment of Mathematics Anxiety Levels Among Adult Basic and Adult Secondary Students. (University of Georgia, 1980.) DAI 41A: 4254-4255; April 1981. [8107942]

Interactions were found among anxiety, and sex, age, functional level, and mathematical ability. (adults)

Richardson, Susan Ann. Effectiveness of Rational-Emotive Therapy or Problem-Solving/Relaxation in Reducing Math Anxiety and/or Improving Attitudes Toward Math in Potential Elementary School Teachers. (University of Wyoming, 1980.) DAI 41A: 4340; April 1981. [8106969]

No significant change was found between the two treatments on math anxiety. (elementary preservice)


The secondary school mathematics curriculum became less rigorous during the 1970s; ACT scores declined. (community college)

Ridgeway, Ina Campbell. Elements of Cognitive Style, Mathematics Anxiety, and Sex as They Relate to Achievement of High School Chemistry Students. (Indiana University, 1980.) DAI 42A: 161; July 1981. [8112451] [secondary]

Riticomrop, Thanomsri. Comparative Study of Mathematics Achievement for Seventh Graders in Central and Marginal Areas of Bangkok, Thailand. (University of Northern Colorado, 1980.) DAI 41A: 4271-4272; April 1981. [8108241] [grade 7]


The diagrammatic model was better than two others; the concrete-manipulative model fostered more rapid growth than the concrete-representational model. (grade 3)


No sex differences were found in the cognitive variables studied, but they were found in variables related to educational development, affective reactions, and occupational distribution. (adults)

Rodriguez, Elizabeth. Impact of Creativity Training on Academic Achievement and Creative Thinking Skills Concerning Four Ethnic-Sex Groups in the Fourth Grade. (New Mexico State University, 1980.) DAI 41A: 3334; February 1981. [8104568] [grade 4]

Rogers, Barbara Dillard. North Carolina's Minimum Competency Testing
Some problem-solving objectives on the test had little coverage in the two textbook series analyzed. (grades 3-8)

Rogge, William Earl. The Adaptation of National Assessment of Educational Progress Materials for Mathematics Assessment at the Local Level. (The University of Nebraska-Lincoln, 1980.) DAI 41A: 2983; January 1981. [8100439]

A 14-step model was tested and found to be operational. (ages 9, 13, 17)

Rosamond, Frances Ann Novak. Listening to Students in the Cornell Mathematics Support Center. (Cornell University, 1981.) DAI 42A: 1523; October 1981. [8119425]

The importance of listening to students and considering their feelings is stressed. (college)

Rosenbaum, Roberta S. A Study to Determine the Effect on Achievement and Course Attitude When Community College Students Write and Execute Computer Programs for Selected Topics in Elementary Statistics. (New York University, 1980.) DAI 41A: 5013-5014; June 1981. [8110680] [community college]

Rosenberg, Judith Hilda. The Ability of Selected Cognitive, Affective, and Educational Variables to Predict the Presence of Anxiety Related to Mathematics. (The University of Connecticut, 1980.) DAI 41A: 3390; March 1981. [8106749]

High levels of mathematics anxiety were related to low levels of such variables as achievement and parent attitudes. (college)

Rosenfield, Wayne David. A Developmental and Deficit Comparison of Intellectually Normal and Retarded Children Based on Measures of Academic Achievement and Cerebral Functional Asymmetry. (The University of Connecticut, 1980.) DAI 41A: 3957-3958; March 1981. [8106750] [grade 3]


Ross, Peter. Student Difficulties in Solving Calculus Word Problems. (University of California, Berkeley, 1980.) DAI 41A: 3465; February 1981. [8029567]

No significant difference in achievement was found between students who used problem-solving booklets or only the course text. (college)

Rothblum, Esther Dayida. Prediction of Cognitive and Affective Components of Learned Helplessness from Seligman's Three-Dimensional Attribution Model. (Rutgers University The State University of New Jersey (New Brunswick), 1980.) DAI 41B: 3588; March 1981. [8105045] [college]

Rothschild, Susan J. Schaflander. Factors Influencing the Mathematics-Related Attainment of a National Sample of Hispanic, Black, and White Women. (Virginia Polytechnic Institute and State University, 1981.) DAI 42A: 2547; December 1981. [8126285]

Different variables exerted the greatest influence on each group. (college)


Teaching method was not significantly related to change in student attitude toward mathematics or achievement. (grades 4, 6)


No significant differences were found between groups who used or did not use calculators for a unit on functions. (college)


Few differences in task scores were found between learning-disabled fourth graders and other pupils in grades 3 and 4. (grades 3, 4)


Students having formalized training in the use of calculators scored higher than those not having the training. (college)

Salama, Hassan Ali. The Effect of the Place-Value Method of Teaching Long Division upon the Teaching Ability of Prospective Elementary
Learning the place-value technique for teaching division favorably affected the mathematical understanding and teaching performance of ten student teachers. (elementary preservice teachers in grade 5)


At no age tested did a majority of the students attain the formal operational level for each of the tasks of exclusion, proportion, and combination. (ages 11-17)


Secondary teachers had perceptions of mathematics conforming closely to those of mathematicians, followed by prospective secondary teachers, elementary teachers, and prospective elementary teachers. (pre-and in-service teachers)

Schmid, Claire Hennessy. A K.I.D.S. Reinforcement Program: A Program for Schools Using the Kindergarten Inventory of Developmental Skills Screening Test. (Saint Louis University, 1980.) DAI 41A: 4272; April 1981. [8100505] [grade K]

Schulz, George C. The Effects of Peer Tutoring on the Self-Concept of Dropouts. (Yeshiva University, 1980.) DAI 41A: 3495-3496; February 1981. [8103731]

Both tutors and students tutored made gains in mathematics achievement. (secondary)


The mean score for the constructed response test was significantly lower than for either of two multiple-choice forms. Differences between high- and low-ability problem solvers were also noted. (grades 8, 11)

Scroggins, Fredna Carlson. An Exploratory Study of the Relationship Between Teacher Reacting Moves and Subsequent Student Verbal Participation in Selected Ninth Grade Algebra Classes. (Southern Illinois University at Edwardsville, 1980.) DAI 41A: 4353; April 1981. [8107089]
Patterns of moves and percentages of verbal behaviors were reported. (grade 9)


Mathematics achievement was the single best predictor for problem-solving scores. (grades 4-6)


Students using calculators or the computer-managed system achieved significantly better than students not using calculators or the computer-managed system. (college)

Sharpe, Audrey Howell. Effects of Assertive Discipline on Title I Students in the Areas of Reading and Mathematics Achievement. (Ball State University, 1980.) DAI 42A: 1531; October 1981. [8122002] [grades 5, 6]


Differences were observed favoring individualized criteria for the higher-performing groups, but almost no differences were found for the lower groups. (grade 5)


No significant achievement difference was found between groups having positive and negative or all positive instances. (college)


No significant difference in application ability or computational skills was found between students using or not using calculators. (grade 7)

The mathematics test had validity at the objectives level, but only marginal validity at the total test level. (grade 6)

Siegel, Phyllis E. Problem Solving Processes Assessed by Verbal Responses. (Fordham University, 1981.) DAI 42A: 1561; October 1981. [8120077]

Some differences between good and poor problem solvers were found. Different strategies were used for each problem. (grades 5, 6)


The curriculum was revised using heuristic images and examples directly related to the concepts and conceptual structures mathematicians use. (college)

Silverberg, Roberta Roth. Teaching Algebraic Concepts Through the Use of Coding Theory. (Rutgers University The State University of New Jersey (New Brunswick), 1981.) DAI 42A: 1523-1524; October 1981. [8108060]

Students given the developed units scored higher than a comparison group on one of two subtests. (secondary)

Simpson, James Franklin. A Study of Classroom Climate and Its Relationship to Self Concept and Achievement of Educable Mentally Handicapped Children. (George Peabody College for Teachers of Vanderbilt University, 1980.) DAI 41A: 3824; March 1981. [8105470] [secondary (MRS)]

Skolnick, Sidney Jay. The Effect of Physical Activities on Academic Achievement in Elementary School Children. (Temple University, 1981.) DAI 42A: 601-602; August 1981. [8115958] [grade 6]


No findings are reported from this study on the division algorithm. (grade 6)

Smith, Selma Ann. A Social Learning Counseling Program to Increase the Internal Locus of Control and Academic Achievement of Learning Disabled Elementary School Children. (Boston University School of Education, 1981.) DAI 41A: 5037; June 1981. [8112270] [grades 4-6]

Soileau, Lola Fonville. An Investigation of Academic Achievement and Selected Self Concept Factors of Magnet and Nonmagnet Middle School Students. (The Louisiana State University and Agricultural and Mechanical College, 1981.) DAI 42A: 2428; December 1981. [8126979] [grades 6-8]

Sousa, Gail Ann. A Comparison of Alternative Instructional Approaches
for the Analysis of Verbal Mathematical Problems. (Boston University School of Education, 1981.) DAI 42A: 2548; December 1981. [8126768]

The wanted-given approach was slightly better than the action-sequence approach for choosing the correct operation. (grade 3)

Sowa, Claudia Jean. Alleviation of Learned Helplessness in College Freshmen with Performance Difficulties in Mathematics. (Michigan State University, 1980.) DAI 41A: 4295; April 1981. [8106447]

Significant differences on some attitude scales were found between groups given cognitive-restructuring or contingency-based treatments. *(college)*

Spungin, Rika C. The Relationship of Mathematics Anxiety and Problem Solving Attitude to the Problem Solving Performance of Female Prospective Early Childhood Teachers. (Boston University School of Education, 1980.) DAI 41A: 3932-3933; March 1981. [8101915]

The students had little mathematics anxiety, but their attitude toward problem solving was only slightly favorable. *(elementary preservice)*


Groups receiving "ordered text" did significantly better than the group reading "transposed text." *(college)*


Some results indicated that the material having a clear conceptual structure was effective. *(college)*

Stark, Jean Peterson. The Relationship of Anxiety to Achievement in Community College Remedial Algebra Classes with Differing Levels of Student Participation. (Loyola University of Chicago, 1981.) DAI 42A: 992-993; September 1981. [8118333]

No significant achievement differences were found between groups allowed high or low levels of participation. *(community college)*

Steinhoff, Richard Lee. Factors Affecting Mathematics Attitudes in Community College Students. (Purdue University, 1980.) DAI 42A: 588; August 1981. [8113765]

An attitude scale based on students' language was developed; factor analysis identified five subscales. *(community college)*

Stern, William Russell. Nonintellective Concomitants of Discrepant Achievement in Reading and Math. (The University of Texas at Austin, 1980.) DAI 41A: 3019; January 1981. [8100970] [ages 6-14]

Steve, Michael Harold. Effects of Rule Selection Training in Tasks
Requiring Both Rule Selection and Rule Application Capabilities.  
(The Florida State University, 1980.) DAI 41A: 3867; March 1981.  
[8104874] [grade 7]

Stewart, James Thomson, Jr. Using the Hand-Held Calculator as a Computing Aid for Instruction in Word-Problem Solving with Elementary Grade Students. (University of Illinois at Urbana-Champaign, 1980.) DAI 41A: 4634; May 1981. [8108676]

Using a calculator during instruction in problem solving produced significant improvement in less time than with pencil-and-paper computation. (grades 4-6)


Scores on the mathematics problem-solving test were significantly higher for students in the full-time gifted program than for those in the part-time program. (grade 9)

Suesbonthi, Prapavadee. Acquisition of a Mathematical Concept by Children Using Prototype and Skill Development Instructional Presentation Forms. (University of Minnesota, 1980.) DAI 41A: 4599; May 1981. [8109515]

Concept learning was better facilitated by a presentation of the best examples than by giving a list of attributes. (grade 3)

Tabler, M. Bernadine. The Relationship Between One Dimension of Cognitive Style and Students' Mathematics Performance. (Indiana University, 1980.) DAI 41A: 4281-4282; April 1981. [8105991]

No significant differences in levels of field dependence-independence, achievement in mathematics, or intelligence were found between males and females; males scored higher on spatial ability. (grade 5)


The instrument was found to have reliability of .81, .83, and .85. (grade 1)

Taylor, Timothy Davies. A Multicomponent Treatment Model for Reducing the Test Anxiety of High School Mathematics Students. (United States International University, 1980.) DAI 41B: 3563; March 1981. [8103991]

The "lecture-verbal interaction" method was effective in reducing

A significant relationship was found between developmental level and strategy used in getting answers to addition combinations. (grades 1, 2)


Significant differences were found between districts on perceptions of scoring procedures, and between scores from 1978 and 1979. (grade 11)

Thomas, William Edward. The Effects of Playing the Game of Master Mind on the Cognitive Development of Concrete-Operational Students. (University of Missouri-Columbia, 1980.) DAI 42A: 1089; September 1981. [8117475]

Students in the problem-directed group performed significantly better than those in a non-directed or a control group. (college)

Thompson, Louisa Ann Burke. The Prediction of Academic Achievement and Self-Concept in Gifted Children. (University of Washington, 1980.) DAI 41A: 3497-3498; February 1981. [8026320] [ages 7-15]

Tuli, Mulkh Raj. Mathematical Creativity as Related to Aptitude for Achievement in and Attitude Towards Mathematics. (Panjab University (India), 1980.) DAI 42A: 122-123; July 1981. [---]

Significant positive correlations were found among aptitude for mathematics, achievement, and mathematical creativity. (grade 9)


Reasons given for leaving the program and achievement and attitude scores are presented. (grade 12)


Significant reliability coefficients for the revised test were obtained. Most computation items served as good indicators for the problem-solving items. (grades 8, 10)

van Wyk, Petrus Cornelis. Orthopedagogic and Orthodidactic Assistance to Children with Specific Learning Problems in Mathematics in
Viravaidhya, Yupa. An Analysis of the Relationship Between the Piagetian Cognitive Level of Eleventh Grade Thai Students Who Are Science-Majors and Their Achievement in Biology, Physics, Chemistry, and Mathematics. (University of Northern Colorado, 1980.) DAI 41A: 4351-4352; April 1981. [B108248] (grade 11)

Waddell, Raymond Lee. A Model for Developing Student Proficiency in Basic Minimum Competencies Through a Program of Continuous Assessment with Involvement of All Teachers. (Memphis State University, 1981.) DAI 42A: 2433; December 1981. [B127496] (grades 9, 10)

Wagner, Barbara Ann. The Effect of a Numeration Learning Hierarchy on Mathematical Attitudes in Kindergarten Children. (University of Houston, 1980.) DAI 41A: 3874; March 1981. [B105364]

The curriculum based on a hierarchy of numeration concepts, using student confirmation of responses, resulted in more positive attitudes toward mathematics than use of a non-hierarchical curriculum. (grade K)

Walker, Bruce Worth. An Experiment to Determine the Effects of Mathematical Achievement and Attitudes Toward Mathematics of Prospective Female Elementary School Teachers by the Use of Supplementary Programmed Instruction. (Memphis State University, 1981.) DAI 42A: 2478; December 1981. [B127497]

Use of the programmed text in a lecture-discussion approach did not affect overall mathematics achievement or attitude. (elementary preservice)


Instruction in self-analysis of errors had more effect on achievement in grade 3 than in grade 5 or 7. (grades 3, 5, 7)

Wallace, Barbara Jean. Student Achievement in Small-Group Tutorial Programs. (University of Southern California, 1981.) DAI 41A: 3418; February 1981. [--] (grades 4-8)

Ward, Sidney Joseph. The Interactive Effects of Spatial Ability and Content on Analytical Reasoning. (University of Southern California, 1980.) DAI 41A: 3069; January 1981. [--] [?]

Wagner, Thomas Daniel. The Effects of Computer-Based Education on Sixth-Grade Students' Self-Concept, Locus of Control, and Mathematics Achievement. (The University of Akron, 1981.) DAI 42A: 1040; September 1981. [B117733]
Watson, Judith Elise. Effects of Modes of Instruction in Metrics on the attitudes and Knowledge of Elementary School Inservice Teachers. (Fordham University, 1981.) DAI 42A: 1524; October 1981. [8120081]

No significant achievement or attitude differences were found between groups given audiovisual, workshop, or programmed instruction approaches to metric instruction.


Webb, Lewis Vernon. The Relationship of Cognitive Styles and Academic Majors with University-Level Academic Achievement. (University of Southern California, 1981.) DAI 42A: 1563-1564; October 1981. [--] [college]

Weekley, Alice Louise Wolfcale. Effects of Group, Individual, and No Contingencies of Reinforcement on the Arithmetic Performance of Navajo and Hopi Students. (The Ohio State University, 1980.) DAI 41A: 4321; April 1981. [8107411]

Number of problems correct increased when individual reinforcement was given. (grade 7)


The same processes were used in computer programming and in problem solving. (secondary)


No significant achievement differences were found between students given visual or verbal approaches to problem solving. (grade 9)


Wheat, David Ewing. The Effect of a Mathematics Workshop on the
Mathematical Performances of Paraprofessionals. (Memphis State University, 1981.) DAI 42A: 2549; December 1981. [8127498]

The workshop significantly improved the achievement of aides. (paraprofessionals)


Whitfield, Charles. An Analysis of Sex-Role Stereotyping and Pupil Achievement. (Texas Tech University, 1980.) DAI 41A: 4973; June 1981. [8111959]

A negative statistical relationship was found between degrees of sex-role stereotyping and scores in mathematics and language arts. (grades 3, 5)

Wilkinson, Susan S. The Relationship of Teacher Praise and Student Achievement; A Meta-Analysis of Selected Research. (The University of Florida, 1980.) DAI 41A: 3998; March 1981. [8105630] [elementary]


Williams, Henrietta Ellison. An Investigation of Two Types of Learning Disabilities Among College Level Students. (Southern Illinois University at Carbondale, 1980.) DAI 41A: 3534; February 1981. [8112440] [college]

Williams, John Ellison, Jr. An Ex Post Facto Study of the Effects of the South Carolina Public School Kindergarten Mathematics Program on Children Who Have Attended the First, Second, and Third Grades in the Chesterfield County School District as Measured by the California Test of Basic Skills. (University of South Carolina, 1981.) DAI 42A: 1952; November 1981. [8123450]

No significant achievement difference was found between students who attended or did not attend kindergarten. (grades K-3)


No significant differences were found in self-reported achievement or causal attributions for success or failure. Only on "usefulness
of mathematics" did females have a more positive attitude than males. (grades 9-12)

Wingo, Lauren Hirschmann. Relationships Among Locus of Motivation, Sensory Modality, and Grouping Preferences of Learning Style to Basic Skills Test Performance in Reading and Mathematics. (Memphis State University, 1980.) DAI 41A: 2923-2924; January 1981. [8101803]. (grade 8)

Wirth, Patricia Ann. Diagnostic Assessment of Intellectual Development of Young Children Through Pictorial Classification Items: A Piagetian Perspective. (Southern Illinois University at Edwardsville, 1981.) DAI 42A: 998-999; September 1981. [8118119] [ages 5-7]

Wright, Everette Wayne. Achievement of Basic Skills by Tenth-Grade Compensatory Mathematics Students with Selected Instructional Measures. (The University of Florida, 1981.) DAI 42A: 2480; December 1981. [8127475]

No significant achievement difference was found between students given or not given compensatory help. (grade 10)

Wright, Jeanne B. The Measured Academic Achievement of Two Groups of First Grade Students Matched Along Five Variables When One Group Has Been Retained. (Temple University, 1979.) DAI 41A: 3418; February 1981. [8101864] [grades 1-3]


Suggestions are given for placement and for structuring the program. (college)

Young, Nancy June. The Effects on Spatial Abilities in Hemispheric Enhancement Through Right-Brain Instructional Techniques. (United States International University, 1981.) DAI 42A: 625; August 1981. [8116379]

Students receiving mathematics instruction designed to promote right-brain mental processing scored significantly better than those having instruction "in the usual manner." (grade 6)

Zettoun, Hassan Hussein. Predicting the Piagetian Cognitive Developmental Levels as Measured by the Burney Logical Reasoning Test Among Teacher Education Students at The Pennsylvania State University. (The Pennsylvania State University, 1980.) DAI 42A: 161-162; July 1981. [8112850] (college (preservice teachers))

Ziegenbalg, Sherry Bauer. Manipulative Versus Non-Manipulative Approaches to Teaching Renaming in Addition and Subtraction in Second Grade: An Experimental Study. (Rutgers University The State University of New Jersey (New Brunswick), 1981.) DAI 42A: 1524-1525; October 1981. [8120871]

No significant differences were found between groups taught using
the abacus, multi-base blocks, or teacher demonstration with aids. (grade 2)

Zirkel, Ronald Eimer. The Role of Manipulatives in Schematic Approaches to Area Measurement for Middle School Students. (Virginia Polytechnic Institute and State University, 1980.) DAI 41A: 3933; March 1981. [8105347]

Having students handle manipulative aids or having the teacher handle either manipulative or pictorial aids resulted in relatively equivalent achievement. (grades 6, 7)
Journals Searched

Journals indicated by an asterisk were searched page by page. For the remainder, either one or more issues could not be searched, or articles were located through the use of an index such as CIJE. The number in parentheses indicates the number of references listed.

* Alberta Journal of Educational Research (7)
* American Journal of Mental Deficiency (1)
* American Mathematical Monthly (4)
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* Behavioral Disorders (1)
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12 Journal for Research in Mathematics Education
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This index is designed to help the reader locate references to designated mathematical topics. Not all studies are included, nor is the cross-referencing exhaustive. The studies have been grouped by source (J, journal, D, dissertation), level is indicated by E, elementary, S, secondary, and C, college and other postsecondary.

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