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# Master's Thesis and Field Study Abstracts

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July 1977/June 1980

# MASTER'S THESIS AND FIELD STUDY ABSTRACTS

## FORWARD

This publication, the eighth in a series which began in 1957, contains the abstracts of Master's Theses and Field Studies completed by graduate students of St. Cloud State University. The bulletin contains those theses and field studies completed during the period from July of 1977 through June of 1980.

A bound copy of each thesis or field study is on file in Centennial Hall, which houses the library on this campus. The library copy of each thesis and field study is available for use on an Interlibrary loan basis.

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# CONTENTS

## COLLEGE OF EDUCATION

### EDUCATIONAL ADMINISTRATION

Continuous Schooling Opportunities for American Dependent Children In Overseas Schools by J. Nolan Adams, Specialist . . . . .	17
An Analysis of Learning Opportunities for Teachers as One Aspect of an Inservice Program by Kent A. Beldry, Specialist . . . . .	17
The Publics' View of the Role of the Principal In Decision Making by Sy Berezni, Specialist . . . . .	18
A Study to Describe the Implications of Implementing Program Budgeting in a Large Suburban School District by Myron B. Burshelm, Specialist . . . . .	19
A Study of Elementary School Programs for High Potential Students in Selected Hubbard, Otter Tail, Todd and Wadena County Schools by R. Clifford Busch, Specialist . . . . .	20
A Follow-up Study of the Technical High School Early Graduation Policy by John F. Caristed, Specialist . . . . .	20
A Study of Organizational Design in Kindergarten and Its Effects on Academic Readiness by Ronald V. Cln, Specialist . . . . .	21
Critical Factors in Determining Staff Reduction in Minnesota Secondary School Experiencing Declining Enrollments by Roy D. DeBoer, Specialist . . . . .	22
A Study of Supervisors' Commitments to Their Educational Supervisory Roles by J. Nick Demuth, Specialist . . . . .	23
A Comparison of Reading Achievement of Children in a Right to Read School Versus Children in a Non-Right to Read School by Arlene Magdiane Ferrian, Specialist . . . . .	24
A Study of Critical Aspects Related to the Function of Elementary School Curriculum Advisory Committees in Anoka-Hennepin Independent School District No. 11 by Robert Gander, Specialist . . . . .	25
An Appraisal of Factors Which Influence the Effectiveness of Parent-Teacher Conferences by Thomas M. Glatch, Specialist . . . . .	26

A Study to Aid Educational Forecasting and Educational Planning Procedures for Rural Minnesota Counties by Ernest J. Janisch, Specialist . . . . .	27
A Descriptive Study Regarding the Administration of the Substitute Teaching Program in Selected Minnesota Elementary Schools by Albert A. Johnson, Specialist . . . . .	27
An Appraisal of the Pilot Projects Utilizing Advisory Committees in Minnesota and Recommendations for a Citizens Advisory Committee by Roy M. Johnson, Specialist . . . . .	29
A Study of Self-Concept/Motivation and Juvenile Correctional Institutional Programmatic Variables by William G. Klundt, Specialist . . . . .	29
A Descriptive Appraisal of the Mathematics Program at Independent School District #15 for Students in Grade Seven by Phillip J. Knoll, Specialist . . . . .	30
A Scientific Appraisal of Factors Relating to How Junior High Students Perceive School by Ron P. Kockelman, Specialist . . . . .	30
Statistical Study of Two Groups of Rural Elementary Students 1970-1976 by Ruthe M. Lachelt, Specialist . . . . .	31
A Survey of the Involvement of Secondary Principals in the Negotiations in Their District: A Study Limited to the Schools Belonging to the Western Division of the Minnesota Association of Secondary School Principals by Richard H. Link, Specialist . . . . .	32
A Study to Determine the Skills, Abilities, and Knowledge Required of High School Graduates Entering Office Employment in Stearns County Businesses by James Anthony Loecken, Specialist . . . . .	33
An Assessment of the West Central Vocational Center's Accomplishment of Its Educational Objectives by Henry G. Lubbesmeyer, Specialist . . . . .	33
A Descriptive Study of the Negotiating Procedures Used by Elementary Principals in the Central Division of Minnesota by William G. Madouros, Specialist . . . . .	34
A Study of the Bush Public School Executive Fellows Program Task Force on Procedures to Implement Motivation in Public Schools by Norman B. Maguire, Specialist . . . . .	35
A Study of How Current Minnesota Department of Education Regulations Have Affected the Practices and Procedures Utilized in Schools to Identify and Implement Special Programs for the Handicapped by Wayne T. Melby, Specialist . . . . .	36

An Evaluation of the Developmental Reading Program In Independent School District 862 by Leslie L. Norman, Specialist . . . . .	37
An Appraisal of the Effectiveness of an Alternative Approach to Teacher Preparation by Sandra J. Ohlgren, Specialist . . . . .	38
A Descriptive Study of the School Personnel, School Children and Community of Redlake High School by Thomas M. Ohman, Specialist . . . . .	39
A Study of Leisure Time Activities of Adults in School District #912, Milaca Public Schools by James G. Oraskovich, Specialist . . . . .	40
A Study of the Articulation of Middle School Students from the Elementary to the High School Level in the State of Minnesota by James B. O'Toole, Specialist . . . . .	41
Police Emergency Driving Instruction Program Evaluation by John W. Palmer, Specialist . . . . .	42
A Descriptive Study of School Climate Improvement in One Elementary School by Rodger J. Quist, Specialist . . . . .	43
The Enhancement of Readiness in the Development of Oral Language in Preschool Children Ages 3-5 by Robert F. Rosenbaum, Specialist . . . . .	43
A Study to Determine If Change in an Administrative Policy has an Effect on Student Self Concept by Noel L. Schroeder, Specialist . . . . .	44
A Study of Elementary Classroom Teachers Opinions Toward the Instruction of Listening Skills by Verne W. Shea, Specialist . . . . .	45
A Descriptive Study of Sociometric Methods and Characteristics of Students in the Title I Program by Marvin A. Sneller, Specialist . . . . .	46
An Evaluation of the Chemical Dependency Program at Wayzata Senior High School by William A. Sommers, Specialist . . . . .	47
A Study to Determine the Differences Between the Professional Educators' and the School Communities' Perceptions in the Ranking of Educational Goals for Curriculum Development in a Selected Elementary School Service Area by Donald E. Thompson, Specialist . . . . .	47
An Appraisal of the Junior High School Focus Replication Project in Anoka-Hennepin Independent School District 11 by David G. Tjaden, Specialist . . . . .	48

A Study to Determine the Importance of the Administrator's Role In Developing an In-service Program: The Outdoor Education Classroom by Vern A. Trandem, Specialist . . . . .	49
A Study to Assess the Wayzata Alternative School by John A. Waight, Specialist . . . . .	50
An Appraisal of the Little Falls and Seton Hall Readiness Programs by James R. Walker, Specialist . . . . .	51
A Study to Compare the Difference in Background of Elementary Students with Curriculum Methodology by Sister Patricia Wallis, Specialist . . . . .	52
A Study of Inter-Rater Reliability of an Adaptive Behavior Scale for Severely/Profoundly Retarded by Richard J. Welch, Specialist . . . . .	52
A Study of Parental Opinions Involving Curriculum Priorities In the Evansville School District by Norman R. Zielinski, Specialist . . . . .	53

#### ELEMENTARY EDUCATION

Personalizing the Social Studies Curriculum for an Intermediate Non-Graded Unit at Lincoln School in Elk River, Minnesota by Marian Lunn Abel, M.S. . . . .	54
A Descriptive Study on Factors Affecting the Acquisition of Quantity and Space Concepts Involving Kindergarten Children by Linda O. Fior, M.S. . . . .	55
A Historical Case Study of Project Research by Joyce Elaine Juntune, M.S. . . . .	56
Investigation of the Identification of Learning styles by Ray A. Lucas, M.S. . . . .	56
Assessments Describing Chaska Fifth Grade Students' Mathematical Functioning by Norma Strommer McNelis, M.S. . . . .	57
Behavior: How It Relates to Self-Concept by Helene Elizabeth Swartwood, M.S. . . . .	58

#### HEALTH, PHYSICAL EDUCATION AND RECREATION

Anxiety Levels of Senior High School Students by Dennis L. Baidus, M.S. . . . .	59
The Effects of Downhill Training on Sprinting Speed by William Scott Bye, M.S. . . . .	59
The Body Composition of High School Wrestlers by William D. Gilman, M.S. . . . .	60

A Comparative Study of the Incidence of Injury In Female and Male Basketball Players In Selected Minnesota State High School League Schools by Dianne K. Glowatzke, M.S. . . . .	61
Body Composition and Somatotyping of Female High School Gymnasts Pre- and Post-Season by Geraldine L. Graham, M.S. . . . .	61
An Analysis of Strength and Muscular Endurance Changes of University Football Players During the Regular Football Season by Robert Earl Hilton, M.S. . . . .	62
A Comparative Study of the Completions and Attempts in the First Shot of the One-and-One and Two-Shot Award in Three Female Inter- collegiate Basketball Tournaments by Mary C. Ingram, M.S. . . . .	63
A Study of the Effects of Three Elementary Physical Education Exercise Programs in Relation- ship to Physical Fitness and Heart Rate of Sixth Grade Students by Bradley J. Isberner, M.S. . . . .	64
A Comparative Study of the Success of Girls' and Boys' Basketball Teams in the Central Gopher Conference by Sharon K. Lorton-Gregerson, M.S. . . . .	65
An Analysis of the Effects of a Junior Size Basketball on the Skill Level of Ninth Grade Girls by William G. Pohl, M.S. . . . .	66
A Study of Selected Performance Factors and Their Relationship to Team Success in College Basketball by Donald L. Rockstad, M.S. . . . .	66
An Assessment of Health Knowledge and Attitudes of Ninth Grade and Twelfth Grade Students Within the Mounds View School District. by Russell D. Scholer, M.S. . . . .	67

#### INFORMATION MEDIA

Advancing Media In Education, Minnesota's Educational Media Organization by Michael Buck, Specialist . . . . .	68
Sex Role Stereotyping In a Random Sampling of 16mm Films, With Release Dates After 1973, Intended for Instructional Use with Children of Kindergarten Through Sixth Grade Ages by Cynthia Friis, Specialist . . . . .	69
Mounds View School District Computerized IMC Catalog of Nonprint Materials by Robert E. Grahek, Specialist . . . . .	70



Development of an Administrative Policy Manual for Medical Learning Resources Center Staff and a Users Guide to the Medical Learning Resources Center, Veterans Administration Fargo, North Dakota by Glenn E. Hasse, Specialist . . . . .	71
A Study of the 3M Tattle Tape Book Detection System of St. Cloud State University by Harlan J. Jensen, Specialist . . . . .	72
Polish Novels In English Translation: An Annotated Bibliography and a Guide to Their Location in the Libraries of the Minneapolis-St. Paul Metropolitan Area by Paul Theodore Kulas, Specialist . . . . .	72
A Profile of Media Generalists and Their Acceptance of the Integrated Media Concept by Thomas Richard Miller, Specialist . . . . .	73
Predicting Future Instructional Media Curriculums by Robert K. Smith, Specialist . . . . .	73

#### READING CONSULTANT

A Comparative Study of Two Methods of Teaching a Study Skill in a Junior High School Social Studies Class by Dennis T. Dunne, M.S. . . . .	75
The Effect of Advance Organizers on Selecting the Main Idea in Expository Prose Passages by Lucille I. Fillenworth, M.S. . . . .	76
An Experimental Investigation of Two Spelling Methods by Jane A. Horns, M.S. . . . .	76
A Study of the <i>DIAL</i> Screening Instrument and Its Ability to Predict Reading Success by Phyllis Joanne Murphy, M.S. . . . .	77
A Comparison of Two Methods of Vocabulary Instruction by Mary Jo Rollins, M.S. . . . .	78
The Significance of Early Reading Before Formal Reading Instruction Has Begun in Kindergarten on Reading Achievement Through Grade Six by Jean Elizabeth Sahstrom, M.S. . . . .	79

#### SPECIAL EDUCATION

Perceptions of the Mainstream Teacher, the Special Learning Disabilities Teacher, and Parents Regarding Interpersonal Communication and Problem Solving Skills Used in an Individualized Planning Conference by Kathryn N. Aarseth, M.S. . . . .	79
--	----

A Comprehensive Three-Year Follow-up Study of Graduates and Dropouts from the Career Education Center Component of the Becker-Clay County Special Education Cooperative by Larry L. Anderson, Specialist . . . . .	80
Summer Losses of Various Physical Education Skills Due to Non-Programming for the Trainable Mentally Retarded by Arlene K. Beal, M.S. . . . .	81
A Comparison of Locus of Control for Normal Elementary and Learning Disabled Students by Janice J. Benson, M.S. . . . .	82
Learning Disabilities: A Familial Study by Linda Sue Benson, M.S. . . . .	82
Teacher Attitudes Toward Mainstreamed Children: Strategies for Coping by Beth Ellen Bessesen, M.S. . . . .	83
A Seven Year Follow-up Study of EMR Graduates From a Mainstreamed High School Program by Robert J. Carruth, M.S. . . . .	84
Written Language Skills of Bloomington Title I Children as Compared with Non-Title I Children by Lila J. Cavanaugh, M.S. . . . .	85
A Study of the Attitudes of Educators Toward Handicapped Students After Inservice Training by Connie Faye (Isle) Christiansen, M.S. . . . .	86
Content Analysis of Educational Program Plan and Periodic Review Staffings by Joanne M. Clepper, M.S. . . . .	86
The Effects of Some Specific Variables on Attitudes of Learning Disabled Children Toward Some Common Dimensions of School by Audrey Lucille Dallen, M.S. . . . .	87
A Procedure for Reinforcer Referencing in Severely/Profoundly Handicapped Students by Neil R. Doughty, M.S. . . . .	87
The Effects of Social and Token Reinforcement on the Production of Novel and Diverse Forms in the Drawings of Secondary School Students by Jean Elizabeth Ege, M.S. . . . .	88
Investigation of the Relationship Between Pupil Achievement and Teacher-Pupil Interaction by Bradford Morris Ellevoid, M.S. . . . .	89
Analysis of a Screening Battery for Early Identification of Learning Disabled Children by Doris M. Enter, Specialist . . . . .	89
Peer Acceptance of Learning Disabled Children In the Classroom by Myrna L. Erickson, M.S. . . . .	90

Parental Perceptions of Special Education Due Process Procedures and Parental Knowledge of Their Legal Rights as Stated in Public Law 94-142 by Nancy Ann Fenna, M.S. . . . .	90
A Study of Elementary Teacher Attitudes Toward Handicapped Students by Hal Lawrence Gritzmacher, M.S. . . . .	91
A Comparative Study of Regular Education and Learning Disabilities Teachers' Knowledge of Phonics Generalizations by Duane L. Hagen, M.S. . . . .	92
An Analysis of the Effectiveness of Three Teaching Procedures on Improving Comprehension by Barbara K. Hakes, M.S. . . . .	92
An Analysis of Chronological Age Relating to the Referral Patterns and Achievement Levels of Elementary School Children by Frank R. Harrington, M.S. . . . .	93
Reduction of Inappropriate Vocalizations in Severely Retarded Adolescents in a Public School Setting by W. Michael Hokeness, M.S. . . . .	93
The Effects of Alternative Education on Disaffected Students by Judith M. Honkola, M.S. . . . .	94
Random Versus Patterned Word Lists in Spelling Instruction for Learning Disabled Students by Patricia H. Howe, M.S. . . . .	95
The Effects of Labeling a Student Learning Disabled in Relation to Teacher Expectations by Roger W. Hunt, M.S. . . . .	95
A Reliability and Validity Study on a Vision Assessment Instrument for Teachers of Profoundly and Severely Retarded Multiply Handicapped Students by Mary Hutchings-Ruprecht, M.S. . . . .	96
The Nature and Scope of Potential Disagreement Between Parents and Teachers in the Behavioral Assessment of Moderately to Profoundly Retarded Children by David R. Kiewatt, M.S. . . . .	97
A Comparison of Special Education Programs in Finland with Those in Minnesota by Florence E. Knox, M.S. . . . .	98
A Survey of Parents of Elementary School Students to Determine the Number and Characteristics of Children Who had an Aversion to School and the Relationship of Avoiding School to Pre-School Attendance by Judith K. Larson, M.S. . . . .	99

A Study of the Use of Texture in Tactual Political Maps by Richard William Larson, M.S. . . . .	99
A Follow-up Study of the Job Success of the Students who Completed a Vocational Evaluation and Training Program by Dennis L. Leshner, M.S. . . . .	100
A Descriptive Evaluation of Work Effort That Mainstreaming of Handicapped Students Requires of the Regular Classroom Teachers by Phyllis A. Lindberg, M.S. . . . .	101
A Study of Teachers' Ratings vs. Independent Classroom Observers' Ratings of Behavior on Emotionally Disturbed Adolescents by Ted B. Lorentzen, M.S. . . . .	102
The Effect of Indifferent Teacher Interaction on Word Recognition and Classroom Behavior of Second Grade Learning Disabled Students by Myra Mangan, M.S. . . . .	103
Female Juvenile Delinquency: A Comparative Study by Carol A. Markham, M.S. . . . .	103
The Development of Methods of Observation Skills and of Record Keeping for the Learning Disabilities Teacher by Lorraine Matthias, M.S. . . . .	104
The Importance of Legible Handwriting in Business and Industry by Norma Kastella McNeil, M.S. . . . .	104
Post-School Adjustment of Graduates of the Vocational Development Center of Little Falls, Minnesota by John P. Messelt, M.S. . . . .	105
The Effects of Automated and Social Reinforcement on Upright Head Positioning in Multiply Handicapped Students by Margaret M. Moore, M.S. . . . .	106
A Study of Professionals' Observations, Opinions, and Attitudes of Camp Confidence and Year-Round Camping Facilities for the Mentally Retarded by David L. Nelson, M.S. . . . .	107
Pre-Service Training for Implementation of the Education for All Handicapped Law (PL 94-142) in Minnesota Four Year College and University Teacher Training Programs by Beverly E. Nestingen, M.S. . . . .	107
A Study of the Ability of Deaf Adolescents to Comprehend Factual Information Using Four Communication Modalities by William J. Newell, M.S. . . . .	108

Description, Problems, and Suggestions of High School Dropouts by Kathrine Toft Nielsen, M.S. . . . .	109
The Effects of Integration on the Social Interaction, Eating, and Grooming Skills of a Group of Previously Segregated Trainable Mentally Retarded Students by Richard W. Northrop, M.S. . . . .	109
A Study of the Relationship Between Social Group Position and Disruptive Classroom Behavior by Margaret M. Novakoske, M.S. . . . .	110
Teacher Aide Job Satisfaction at the Cambridge Area Developmental, Rehabilitation and Education Center by John James O'Brien, Specialist . . . . .	111
The Control of Topographically Dissimilar Maladaptive Behaviors Exhibited by a Profoundly Retarded Subject with Short Duration Hand Exercises and Differential Reinforcement of Other Behavior by Lon D. Peterson, M.S. . . . .	111
Parental Criteria for Nursery School Selection by Joan Kelling Prochnow, M.S. . . . .	112
An Inservice Education Needs Assessment of Educators Relative to Effective Mainstreaming of Handicapped Students by Kenneth E. Runberg, Specialist . . . . .	113
Characteristics of Participating and Non-Participating Parents Whose Children Receive Special Services by Barbara L. Trcolin, M.S. . . . .	114
A Descriptive Survey of the Degree of Awareness Parents of the Atwater School District Possess of the Legislation P.L. 94-142 by Mary B. Voss, M.S. . . . .	114
A Design for Program Planning for the Trainable Mentally Handicapped by Ronald W. Watkins, Specialist . . . . .	115
Classroom Teacher Perception of the Special Education Student In Elementary Schools by John R. Zeyer, M.S. . . . .	116

## COLLEGE OF FINE ARTS

### ART

An Analysis of Young Children's Preferences on Displaying Their Artwork by Janis E. Johansen, M.S. . . . .	116
The Relationship of Junior High School Students Satisfaction and the Degree of Difficulty with Their Drawings by Ronald J. Kopp, M.S. . . . .	117

MUSIC

The Relationship Between Public School Bands and Community/Municipal Bands In Minnesota  
 by James W. Thullen, M.S. . . . . 118

COLLEGE OF LIBERAL ARTS AND SCIENCES

BIOLOGY

Nutrient and Hydrologic Budgets, and Trophic Status of Lake Koronis, Paynesville, Minnesota, and Elk Lake, Near Clear Lake, Minnesota  
 by John M. Barten, M.A. . . . . 119

A Cytogenetic Study of the Spider Plant, *Chlorophytum Comosum* (Liliaceae)  
 by Gary R. Baughan, M.A. . . . . 120

A Natural History Study of the Red-Tailed Hawk In Central Minnesota  
 by Robert T. Bohm, M.A. . . . . 120

A Study of the Vegetation in the Upland Forest of St. John's Abbey and University, Collegeville, Minnesota  
 by Lorraine Westrup Cofell, M.A. . . . . 121

Biology of Greater Sandhill Cranes in Burnett County, Wisconsin  
 by Ronald A. Crete, M.A. . . . . 122

Acute, Continuous-Flow, Effluent Bioassays with 7 Species of Fish at the Coal-Fired Sherburne County Generating Plant Near Becker, Minnesota  
 by Duane O. Dittberner, M.A. . . . . 123

A Key to the Gyrinidae of Minnesota and Adjacent States and Canadian Provinces  
 by William D. Ferkinhoff, M.A. . . . . 124

Laboratory Resource Competition Among *Daphnia Pulex*, *Ceriodaphnia Reticulata*, and *Moina Affinis* (Crustacea: Cladocera)  
 by John B. Gorentz, M.A. . . . . 124

A Quantitation of Macrophage Migration Inhibition In Rats of Various Ages  
 by Charles Jones, M.A. . . . . 125

Evaluation of a Continuous-Flow Periphyton Bioassay System Using the Wastewater Effluent From the Coal-Fired Sherburne County Generating Plant Units 1 and 2 Near Becker, Minnesota  
 by Debra L. Koehlinger, M.A. . . . . 125

Winter Foraging Ecology, Territoriality, and Nesting Biology of the White-Breasted Nuthatch in Central Minnesota  
 by Jeffrey H. Larson, M.A. . . . . 126

Macroinvertebrate Functional Group Ecology and Order Classification of Northeastern Minnesota Streams by Jeffrey Lee McCulloch, M.A. . . . .	126
Selective Culturing of Mississippi River Periphyton Grown at 30C in an Artificial Stream Apparatus by Dennis James McGovern, M.A. . . . .	127
Physical Training and Its Effect on the Activities of Some Glycolytic Enzymes in Rat Heart and Skeletal Muscle by Hassan Moltaji, M.A. . . . .	127
A Survey of the Enteric Bacteria of the Painted Turtle <i>Chrysemys Picta Bellii</i> (Grey) by Robin D. Monroe, M.A. . . . .	128
Capturing, Tagging and Radio Telemetry Monitoring Great Blue Herons ( <i>Ardea herodias</i> L.) in Central Minnesota by Richard W. Pelfer, M.A. . . . .	128
A Uniaigal Bioassay of the Waste Water Effluent from a Coal-Fired Electricity Generating Plant at Becker, Minnesota by Barry H. Rosen, M.A. . . . .	129
Production of a Stream Caddisfly ( <i>Ecdropsyche Phalerata</i> Hagen, Trichoptera: Hydropsychidae) in the Mississippi River near Monticello, Minnesota by Wayne F. Sarappo, M.A. . . . .	129
Diatom Populations Observed on Artificial and Natural Substrates in the Mississippi River Near Monticello, Minnesota by Orbbie Keith Webber, II, M.A. . . . .	130
The Relationship of Leaf Processing Rates and Invertebrate Functional Groups to Stream Order in Northeastern Minnesota by Steven Norman Williams, M.A. . . . .	131

## ENGLISH

Character and Theme in J. R. R. Tolkien's <i>The Lord of the Rings</i> : An Examination of Tolkien's Use of Minor and Non-Heroic Characters to Delineate Four Major Themes by Jane L. Burgstaler, M.A. . . . .	131
C. S. Lewis's Trilogy: Models--Modern and Medieval by John T. Haugen, M.A. . . . .	132
<i>Lubābat Dīwān Al-Ṣabāba wa Mawā'D Al-'Iṣāba</i> : A Translation With an Introduction on Its Place in the Profane Love Genre Among the Arabs by Rima Karam Haugen, M.A. . . . .	133

The Structure and Function of Irony In <i>Giants in the Earth</i> by Karen E. Maki, M.A. . . . .	133
The Technique and Time of Pre-Writing A View of the Composing Process by Carol J. Moeglein, M.A. . . . .	134
Voyage Through The Dark: The World of Jean Rhys' Novels by Jane Z. Oplitz, M.A. . . . .	135
The Arthurian Legend in Malory and the 1970's: A Comparison by Marian R. Rengel, M.A. . . . .	136
Drama as Musical Theatre: A Comparison of Lynn Riggs' <i>Green Grow the Lilacs</i> with Rodgers' and Hammerstein's <i>Oklahoma!</i> and Ferenc Molnar's <i>Liliom</i> with Rodgers' and Hammerstein's <i>Carousel</i> by Annette E. Schneider, M.A. . . . .	137
Black Folk Culture in the Fiction of the Harlem Renaissance by Judith A. Schreiner, M.A. . . . .	137
Hunter S. Thompson: Moralist or Second-rate Accountant by Charles W. Seefeldt, M.A. . . . .	138
The Influence of Church and State on Seventeenth-Century English Biography by Doris Bogut Simonett, M.A. . . . .	139
A Critical Survey of the Publications of the National Council of Teachers on English Public Doublespeak Committee by Roberta Peirce Trooien, M.A. . . . .	140
The Hermetic Magi of the Renaissance: Their Theories and Their Possible Influence Upon Christopher Marlowe by Kay E. Vaughter, M.A. . . . .	141
A Comparison of the Hemingway and Bellow Protagonist by Patricia A. Welter, M.A. . . . .	141

## GEOGRAPHY

The Prominent Role of the Streetcar in the Dispersal of Population In the Twin Cities from 1870 to 1920 by Nell Chamberlain, M.S. . . . .	142
Orrock in Transition by Dori J. Northrop, M.S. . . . .	143



## HISTORY

- Minnesota Public Opinion Toward Germany as Reflected in Minnesota Newspapers, 1935-1945  
by Randall A. Heeringa, M.S. . . . . 144
- The Securing of the English Throne by Execution 1485-1603  
by Linda L. Jude, M.A. . . . . 145

## MATHEMATICS

- A Study of the Enumeration of Finite Semigroups  
by Leon J. Schilmoeller, M.A. . . . . 146

## SOCIAL SCIENCE

- An Investigation of Youth Involvement at General Participation Festivals: A Cross Cultural Analysis  
by Barry C. Clough, M.S. . . . . 146

## SPEECH SCIENCE, PATHOLOGY AND AUDIOLOGY

- Mother, Father, and Nonparent Verbal Interactive Behaviors in Adult-Child Discourse  
by Barbara Elaine Commers, M.S. . . . . 148
- Mental Ages and the Ability of the Severely and Profoundly Retarded to Learn American Sign Language  
by Karen L. Ochsendorf, M.S. . . . . 148
- Adaptation in the Intelligibility of Misarticulated Speech  
by Jean D. Rolle, M.S. . . . . 149
- Identification of Differences in the Articulatory Skill of Normal Speakers  
by Judith Ann Wenner, M.S. . . . . 150

## SPECIAL STUDIES

- Evaluating College and University Archives: A Minnesota Sample  
by Marie K. Eisen, M.A. . . . . 151
- A Study on Financial Effects of the 1976 State Omnibus Education Law on Selected Minnesota School Districts  
by David J. Erickson, M.S. . . . . 152
- Behavior Modification Training and Its Impact on Industrial Safety  
by John A. Gaylord, M.S. . . . . 153

Communication of Entertainment Across  
National Boundaries--"Roots" in Japan  
by Kaoru Haraoka, M.A. . . . . 154

# COLLEGE OF EDUCATION

## EDUCATIONAL ADMINISTRATION

### *CONTINUOUS SCHOOLING OPPORTUNITIES FOR AMERICAN DEPENDENT CHILDREN IN OVERSEAS SCHOOLS*

*J. Nolan Adams*

**PROBLEM:** Many American dependent children of military and civilian personnel in Europe do not receive 180 days of schooling each year due to the rotation date of the sponsor.

This field study devises a plan whereby dependent children overseas will be assured at least 180 days of schooling. The optimum number of days of school attendance is an integral part of the problem.

**PROCEDURE:** Various types of year-round school plans were studied in depth. These plans were analyzed for their adaptability to overseas schools.

A group of students were identified at Garfield Elementary School. The grade level achievement scores of this group was compared to the number of days of school attendance.

**FINDINGS:** The author determined that two plans of school attendance were most adaptable to and fit the needs of overseas schools best, the Flexible All-Year Plan for elementary grades and Concept 8 for secondary grades.

The results on the correlative study of school attendance failed to show a convincing connection between attendance and grade achievement scores. The author felt that the divergence in attendance was not great enough to give convincing data.

**RECOMMENDATIONS:** Year-Round School Plans offer a means whereby school districts may increase their educational offerings, and the author feels, although the data was not conclusive, increase the academic achievement of students. Various school districts may institute Year-Round School Plans on a partial basis and compare the results in student achievement with their traditional attendance plans.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1978*

*George A. Farrak, Chairperson*

### *AN ANALYSIS OF LEARNING OPPORTUNITIES FOR TEACHERS AS ONE ASPECT OF AN INSERVICE PROGRAM*

*Kent A. Baldry*

**THE PROBLEM:** The purpose of this study was to analyze the inservice program entitled *Learning Opportunities for Teachers* in terms of staff characteristics and the critical components of the program to determine the effectiveness of the training.

**RESEARCH PROCEDURES:** Teachers from the twelve-school Wasloja Special Education Cooperative were surveyed. The instrument utilized to determine the effects of the inservice program was an author-developed questionnaire. It consisted of forty-two statements dealing with four major areas: style, content, rate, and

environment. The predictor variables incorporated into this study included age, sex, and teaching experience. The survey instrument was administered on April 23, 1979. A general analysis of means and variance was completed by computer in July, 1979.

**FINDINGS:** The results of the study showed the inservice program produced minimal significant differences among the areas of content, style, rate, and environment in comparisons made within the predictor variables of age, sex, and experience. It was also evident that a significant difference occurred in comparing the variable of sex. It was found that the surveyed group was in agreement in concepts and goals of LOFT, but did not provide data to show the program changed their effectiveness in dealing with student differences in their classrooms. The general findings indicated that more females participated in the survey than males.

**RECOMMENDATIONS:** It is recommended that the Wasioja Cooperative staff and school administrators become sensitive to the perceptions of LOFT participants expressed by the results of the survey, and encourage school personnel to continue working on inservice programs that will deal with individual differences in students. It is also recommended that school districts continue to follow up and observe the long range effects of LOFT.

*APPROVED BY RESEARCH COMMITTEE, MAY 1980*  
*George A. Farrah, Chairperson*

#### **THE PUBLICS' VIEW OF THE ROLE OF THE PRINCIPAL IN DECISION MAKING**

*Sy Berezni*

The purpose of this study was to compare opinions of the school's publics toward the principal and his role as a decision maker. The publics were identified as students, teachers, administrators and adults (parents). Nine schools were selected to take part in the study. The schools selected were in the same athletic conference and shared many similarities such as school size, life styles, and similar economic levels. A questionnaire consisting of twenty-nine questions dealing with five variables was used to gather the data and interpret opinions. The questionnaire was administered by the administrators of the participating schools in May of 1978.

Although other factors (variables) could be identified as effecting decision making and educational outcomes, only the following were included in the survey instrument: public relations, discipline, curriculum, instruction, and operations. The survey instrument consisted of three parts, namely: personal data, ranking of educational priorities, and survey of opinions. The ranking of educational priorities served as a very useful check on the validity of the survey of opinions. The data collected can be used to design a model dealing with the variable affecting decision making. While no two school settings are identical, much can be gained by developing a sensitivity to all publics with whom the principal must relate.

The data collected strongly suggest that the public(s) most closely identified with the goals or outcomes of the school tend to be more critical of the school. Likewise, those publics that are further removed from the school's goals or purposes tend to follow a middle of the road approach or appear to be more indecisive than the other groups. To the surprise and enlightenment of the author, all publics generally support the principal and the school. This finding may be interpreted as a general vote of confidence.

It is recommended that this study be expanded on a much larger basis to include a bigger and broader population base. The study and others like it can

have a high degree of significance if it is used as a basis for constructing a time management model. Finally it is recommended that the five areas included in the study (public relations, discipline, curriculum, instruction, operations) be given to in-depth research in order that the decision making process might be enhanced.

APPROVED BY RESEARCH COMMITTEE, FEBRUARY 1979  
*George A. Farrah, Chairperson*

#### **A STUDY TO DESCRIBE THE IMPLICATIONS OF IMPLEMENTING PROGRAM BUDGETING IN A LARGE SUBURBAN SCHOOL DISTRICT**

*Myron B. Buraheim*

**PROBLEM:** The increased costs of education and the recognized importance of educational outcomes have created a need for more effective budgeting and accounting procedures. It was the purpose of this study (1) to review the literature reporting the processes and implications involved in the program budgeting, and (2) to investigate the opinions of school district administrators toward the implementation of program budgeting.

**PROCEDURE:** In the review of the literature, the author investigated the (1) rationale for change and the development of program budgeting, (2) processes involved in program budgeting, and (3) critical aspects as implications to be considered in program budgeting.

A questionnaire consisting of twenty items was developed and distributed to eighty-three administrators in the Anoka-Hennepin School District. Seventy-four questionnaires were returned to the researcher. These seventy-four samples were analyzed in terms of the twenty items versus the characteristics of position, experience, and preparation. Based on the responses to the questionnaire, an analysis of means and variances was utilized to determine if significant differences exist between the selected characteristics of the sample group for each item in the questionnaire. In comparing mean scores between the various sample groups, all significant findings were based on the 5 percent confidence level.

**FINDINGS:** Statistically, significant differences between the characteristics of the administrators were found on seventeen of the twenty items in the survey. Forty-seven significant differences were noted in the study.

**SUMMARY AND CONCLUSIONS:** The characteristic of preparation produced the greatest number of significant differences in mean scores. The administrators with Specialist degrees and Doctorate degrees as groups tended to significantly differ more frequently on the questionnaire items than those with Bachelor's degrees and Master's degrees.

The administrators with 1-5 years experience as a group tended to significantly differ more frequently on the questionnaire items as compared to administrators with more experience.

District Office administrators as a group tended to significantly differ more frequently on the questionnaire items as compared to administrators in other positions.

APPROVED BY RESEARCH COMMITTEE, MAY 1978  
*George A. Farrah, Chairperson*

*A STUDY OF ELEMENTARY SCHOOL PROGRAMS FOR HIGH POTENTIAL STUDENTS IN SELECTED HUBBARD, OTTER TAIL, TODD AND WADENA COUNTY SCHOOLS*

*R. Clifford Busch*

**PROBLEM:** To determine why high potential students in elementary schools appear to be neglected and what appropriate steps could be taken to improve present programs for high potential students.

**PROCEDURE:** Twenty-four elementary schools in a four-county area were selected. Questionnaires containing pertinent statements relating to provisions or services for high potential students were sent to the administrative-supervisory staff, the instructional staff, and the guidance and counseling-special services staff of each of the schools.

**CONCLUSIONS:** High potential students appear to be neglected for the following reasons: (1) local funds not earmarked; (2) inadequate screening and identification procedures; (3) inadequate teacher training; (4) organizational plan not conducive to providing for them; (5) class size too large; (6) parents not exerting pressure for such programs; (7) too much emphasis on helping slow learners; and (8) local school boards not understanding the need for improved services for them.

Lowering the teacher/student ratio, better teacher preparation and adding specialized staff rank highest as next steps toward improving programs for the high potential.

**RECOMMENDATIONS:** Recommendations are included to school boards and superintendents, elementary principals, teachers, parents, and teacher training institutions.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1977*

*George A. Farrah, Chairperson*

*A FOLLOW-UP STUDY OF THE TECHNICAL HIGH SCHOOL EARLY GRADUATION POLICY*

*Joim F. Carlsted*

The purpose of this study was to answer four questions relating to early graduates from the Technical High School classes of 1973, 1974, and 1975.

(1) What motivated Technical High School students to choose the early graduation option? (2) What were the short and long range plans of the early graduates and did they follow through on their plans? (3) In retrospect, did the early graduates within the classes of 1973 and 1974 feel it was a wise decision?

(4) As they now see it, what kinds of educational programs would be necessary to cause these early graduates in the classes of 1973 and 1974 to decide to spend the entire year at Technical High School? Essentially, the research was confined to a review of the literature available at St. Cloud State University and within professional publications found at Technical High School. A nineteen item questionnaire was completed by 28 early graduates from the class of 1973, 54 from the class of 1974, and 39 applicants for early graduation in the class of 1975. This represented a 78.5 percent completion and return of the questionnaire.

The findings of the study clearly established a profile of characteristics describing these early graduates from Technical High School. The characteristics are (1) the primary motivating factors for electing the early graduation option were non school-related such as work, advanced study, travel, and military service, (2) the 15 percent who were influenced to graduate early by school-

related factors tended to carry with them a rather negative attitude about Technical High School, (3) those who rated the curriculum as challenging had similar ratings for curriculum scope and relevancy. Correspondingly, those who rated the curriculum as having minimal challenge indicated negative ratings for curriculum scope and relevancy, (4) early graduates gave higher ratings for the value and relevancy of elective courses than for required courses, (5) non-participation in extra-curricular activities was a rule for these early graduates, especially for the girls, (6) they possessed a positive self image and possessed positive feelings about the quality of their education and the overall learning environment, (7) gaining productive employment was a primary short and long-term plan, (8) ninety-three percent believed they made the correct decision, and, (9) increased availability of college and vocational school courses was listed as the most important factor that might encourage students to stay in school for the entire senior year.

The need clearly exists to adjust Technical High School programs to better accommodate the students who would normally choose the early graduation option. New and expanded work/study and work release programs need to be developed for seniors. Innovative programs allowing for study and exploration beyond the mainstream curriculum need to be initiated at all levels. All curriculum offerings, especially the required courses, must be reviewed to determine necessary revisions, and extra-curricular programs need to be modified to better meet the needs and interests of seniors.

APPROVED BY RESEARCH COMMITTEE, OCTOBER 1977  
James W. Anderson, Chairperson

#### A STUDY OF ORGANIZATIONAL DESIGN IN KINDERGARTEN AND ITS EFFECTS ON ACADEMIC READINESS

Ronald V. Cin

**PROBLEM:** This study evaluated whether an administrative change in schedule from half day every day to full day alternate day for kindergarten children would produce a difference in their academic readiness.

**RESEARCH PROCEDURES:** The Metropolitan Readiness Test, Form P, was administered to four hundred fifty-nine kindergarten children during the 1977-78 and 1978-79 school years. Two hundred sixty-five of these students attended half day every day sessions and one hundred ninety-four of the students attended full day alternate day sessions for half as many days. The *Metropolitan Readiness Test* was administered twice to each group, once as a pre-evaluation and once as a post-evaluation. In the treatment of data the author utilized an analyses of means and variance and Chi-square.

**FINDINGS:** Since the statistical hypotheses included both general and null hypotheses, there was sufficient evidence to accept the general hypothesis; namely that the administrative change would produce differences between the control group and experimental group. Specifically, the analyses of variance and means revealed significant differences in the mean scores of the auditory pre-tests and auditory post-tests when the experimental group and control group were compared. The analyses of variance and means also indicated significant differences between the experimental group females and the control group females on the pre-test for language and post-test for reading. The Chi-square identified significant relationships between the variables group by pre-language and group by post-auditory when comparing the control and experimental groups.

RECOMMENDATIONS: These data should be shared with school boards and school administrators so they are better informed about the effects the organizational design has on the development of academic readiness of kindergarten students. Second, colleges need to develop a greater awareness of academic readiness in their prospective teachers, and kindergarten teachers need to be given opportunities to sharpen their abilities to teach academic readiness skills, particularly in auditory. Third, school administrators need to initiate and maintain close-working relationships with the parents of preschool children within their district in order to create a greater awareness of academic readiness. In conclusion, the school administrators who can facilitate the unification of the above recommendations will greatly increase the chances of greater academic readiness in kindergarten students.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1979

George A. Farrah, Chairperson

### CRITICAL FACTORS IN DETERMINING STAFF REDUCTION IN MINNESOTA SECONDARY SCHOOL EXPERIENCING DECLINING ENROLLMENTS

Roy D. DeBoer

The purpose of this study was to identify the critical factors in making staff reductions and to discover the relationship of how staff reductions *should be made* to how staff reductions *are made*. An initial pilot study was used to determine the five critical categories which are as follows: 1) State Department of Education requirements, 2) legislative requirements, 3) existing school facilities, 4) student educational needs, and 5) available budget.

After the initial pilot study, the author developed a questionnaire which was sent to fifty-six schools within a designated geographical area in western Minnesota. The responses were divided into three predictor variable groups which included (1) school positions, (2) age of the respondent, and (3) school size. The questionnaire included the five critical categories which had been determined from the pilot study. Those responding to the questionnaire were asked to make two separate rankings of these critical categories. One ranking indicated how staff reductions *should be made*; the second ranking indicated how staff reductions actually *are made*. In addition to these rankings, nineteen items requiring a scaled response from strongly disagree to strongly agree were included in the questionnaire. These items all provided data for analyzing and interpreting the use of the five critical categories when making staff reductions. An open-end question was also included in the questionnaire to verify the selection of the five critical categories from the pilot study.

The analyses and interpretations of the study were made from the items on the questionnaire which were significant at the  $p < .05$  level by an analysis of variance. Fifteen items were found to be significant in the predictor variable of school position; twelve items were significant in the predictor variable of age; and seven items were significant in the predictor variable of school size. The analyses and interpretations were made between the subgroups of the three predictor variables as well as between the predictor variables themselves. An analysis of means was used to determine the relationship of the two rankings of the critical categories comparing how reductions should be made with how reductions are made.

The analyses and interpretations of the significant items revealed several areas of agreement and disagreement between the subgroups of the predictor variables as well as between the predictor variable groups themselves. A comparison of the mean scores of the subgroups within each predictor variable and the composite mean scores of each predictor variable reveal a significant difference when the five critical categories are ranked indicating how staff reductions *should be made* and how reductions *are made*.



The conclusion of this study presents a number of recommendations based upon the aforesaid analyses and interpretations. These recommendations can be used by each school in the decision-making process of staff reductions.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1978

*George A. Farrah, Chairperson*

### **A STUDY OF SUPERVISORS' COMMITMENTS TO THEIR EDUCATIONAL SUPERVISORY ROLES**

*J. Nick Demuth*

**THE PROBLEM:** The supervisor of any instruction and curriculum area plays a major role in the improvement of the educational program. Each variable of supervision should be given attention to develop sound curriculum planning. These variables are likely to be identified when one considers such things as administrative behavior patterns, structural elements, system goals, history of position, expectation of others and availability of resources. When the supervisor has identified the variables, he is then in a better position to determine the priority of time that he needs to give the various supervisory roles.

**PROCEDURES:** A questionnaire along with a cover letter indicating the nature of study, was mailed on November 6, 1978, to the office of the 117 identified supervisors. Supervisors of media, special education, curriculum, and directors of elementary instruction listed in the 1978-79 Director of Public Schools published by the Minnesota State Department of Education are included in this study. One hundred seventeen supervisors were identified and mailed a copy of the survey instrument. There were 91 respondents who served as the actual population used in this study. The individual responses on the questionnaire were tabulated and analyzed by both simple percent and Chi-square.

**FINDINGS:** Generally, supervisors are functioning in all ten roles although they are not allocating the amount of time they should be to each role. The presence of restraints increases the discrepancy between time spent and time desired in supervisory role. Time spent and time desired in supervisory roles are greatly influenced by a number of population variables. When the four supervisory role types are considered in terms of restraints, a highly significant difference was found among these four categories and no significant difference was found within these four categories of educational roles. Clerical, reporting and routine functions keep the supervisors heavily encumbered and prevent them from giving the amount of time needed to their priority roles. All daily demands, expectations and rewards limit the supervisors potential for performing as instructional leaders. The relationship of time to performance of supervisory roles was a dominant theme in this study.

**RECOMMENDATIONS:** A thrust involving instructional leaders should be undertaken to develop a clearer description of the instructional supervisor's skills and responsibilities and to clarify role expectations through workshops or in-service meetings. School systems should provide time and necessary clerical support to assure that valuable instructional supervisory personnel are not used in this capacity. Assurance should be provided that persons funded in instructional positions are in fact giving their time to those responsibilities that are directly related to the improvement of instruction.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1979

*George A. Farrah, Chairperson*

# A COMPARISON OF READING ACHIEVEMENT OF CHILDREN IN A RIGHT TO READ SCHOOL VERSUS CHILDREN IN A NON-RIGHT TO READ SCHOOL

*Arlene Magdlene Ferris*

**PROBLEM:** The purpose of this field study is to evaluate the reading achievement of students to determine the relative effectiveness of two types of reading instruction. One type of instruction is the structured approach used in the Minnesota Right to Read Program where it is suggested that the teachers use only those materials published by a particular basal reading company to the exclusion of other reading materials. The other type of reading instruction would be using the basal reader supplemented with materials from other companies.

**PROCEDURES:** Two elementary schools, the Browerville Public School, a Non-Right to Read School and the Eagle Bend Public School, a Right to Read School, were selected for this field study. The schools are located in Todd County about ten miles apart. Their elementary enrollment is about 25 students to the average class. Both schools use the Lippincott Basal Readers.

The students in grades three, four, and five in both schools were given the Lorge-Thorndike Intelligence Test and the Stanford Achievement Reading Test Form Level I in the fall of 1976. In the spring of 1977, they were given the Stanford Achievement Reading Test Form Level II.

The data were analyzed by a computer for an analysis of means (t-test) to determine if there was any significant difference between I.Q. and reading achievement for each grade. Then a comparison was made between the reading achievement gain for each grade between the two schools to see if there was any significant difference between the children using the structure procedure as in the Right to Read and children using a basal reader supplemented with other reading materials as in a Non-Right to Read School System.

**FINDINGS:** The analyses of the data were based on the findings of the computer printouts.

When comparing the group average I.Q. scores for each grade between the two schools, no significant difference was observed.

When dividing students by group average Stanford Achievement Reading Scores and not by I.Q., there was no significant difference observed between the Right to Read and the Non-Right to Read student's total reading achievement in grades three and five. There was a significant difference observed between the Right to Read and the Non-Right to Read student's total reading achievement in grade four in favor of the Non-Right to Read students. It was also observed that even though the difference in gains was not significant, the children in grades three and five in the Non-Right to Read School showed more yearly gains in reading achievement than those children in the Right to Read School.

A study of relatedness between I.Q. and Reading Achievement showed that there was a significant difference between I.Q. and Reading Achievement of students in the third and fifth grade in the Right to Read School; and that there was a significant difference between the I.Q. and Reading Achievement of the students in grades four and five in the Non-Right to Read School. There was no significant difference between I.Q. and Reading Achievement of the students in the third grade in the Non-Right to Read School, and the fourth grade in a Right to Read School.

**CONCLUSIONS:** This field study implies that there is a significant difference between I.Q. and Reading Achievement of students in four out of six grades in this study, two in the Right to Read School and two in the Non-Right to Read School. Also indicated was that the students in a Non-Right to Read School showed a greater gain than students in a Right to Read School in their reading achievement from the beginning of the school year in the fall to the end of the school year in the spring.

RECOMMENDATIONS: The author recommends that teachers with enthusiasm and dedication should use a single basal reader in the elementary grades and supplement the basal reader with related materials regardless if they come from the same company as the basal reader or from another company. The main point to stress is that teachers should teach for a certain percentage of mastery expectancy from all students in all levels of reading.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1978  
*James W. Anderson, Chairperson*

**A STUDY OF CRITICAL ASPECTS RELATED TO THE FUNCTION OF  
ELEMENTARY SCHOOL CURRICULUM ADVISORY COMMITTEES IN  
ANOKA-HENNEPIN INDEPENDENT SCHOOL DISTRICT NO. 11**

*Robert Gardner*

STATEMENT OF THE PROBLEM: The policy of Anoka-Hennepin Independent School District No. 11 is to encourage staff and general citizen involvement in the school district decision making process through participation of advisory committees. There are nine standing advisory committees on elementary school curriculum consisting of administrators, teachers, and general citizens. This study described the relationship of selected criteria and opinions about school district advisory committees on elementary school curriculum.

REVIEW OF LITERATURE: The writer reviewed the literature looking at formal and informal studies about advisory committees and about citizen participation in education. Five topics were considered: 1) a set of critical aspects relating to citizens' advisory committees, 2) selection, structure, and organization, 3) citizen participation, 4) concerns about citizens' advisory committees, and 5) the present status of citizens' advisory committees.

RESEARCH PROCEDURES: A survey instrument consisting of 12 statements about general citizens on elementary advisory committees was sent to all committee members. Because the population was not large, all members were surveyed rather than using a random sample.

Items 1-4 on the survey instrument were concerned with the selection of general citizens to committees. The commitment expected of these citizens was related to Items 5-8. Items 9-12 dealt with the level of participation that might be looked for with general citizens.

Committee members were asked to respond to the 12 statements on a scale of 0-5, ranging from "strongly disagree" to "strongly agree." For each statement the respondent disagreed with, three options were given to indicate a statement that matched their opinion.

The interaction of such characteristics as sex, age, committee on which they were serving, role on committee, location of school they represented, length of service on committee, and occupation was compared to the aforesaid items. Moreover, in the analyses and interpretation of data, extensive use was made of tables to portray percentages and analysis of variance techniques.

FINDINGS: The study was summarized as an intent to examine and make recommendations about the elementary school curriculum advisory committees in Anoka-Hennepin Independent School District No. 11.

The writer made 17 conclusions based on statistically significant findings from the analyses of data. Among those conclusions were: 1) the number of citizens on an elementary advisory committee should be less than the number of staff, 2) the best criterion for selection of general citizens is interest in the topic, 3) the best way to select general citizens is through administrative appointment, 4) specific terms of office should be established for citizens with

an option to continue, and 5) there should be a minimum meeting attendance requirement for general citizens.

**RECOMMENDATIONS:** It was recommended that no major changes were needed for the elementary advisory committees in District No. 11, but eight recommendations were offered for improving citizen participation. Among these recommendations were: 1) terms of office of two years should be established for each general citizen. The terms should be staggered and the committee members should have the option to continue, 2) general citizens should be appointed by the elementary curriculum coordinator with the approval of the membership of the committee, and 3) there should be a minimum attendance requirement of two-thirds of all the committee meetings.

*APPROVED BY RESEARCH COMMITTEE, AUGUST, 1979*  
*George A. Farrah, Chairperson*

### *AN APPRAISAL OF FACTORS WHICH INFLUENCE THE EFFECTIVENESS OF PARENT-TEACHER CONFERENCES*

*Thomas M. Glatch*

**THE PROBLEM:** Conferring with parents is a major responsibility for teachers. It appears that not enough is being done to refine the process and utilize the parent-teacher conference as the foundation for reporting pupil progress in school.

This study was a descriptive appraisal of factors that contribute to effective communication during parent-teacher conferences. The purpose of this study was to identify the degree of "coincidence," among teachers and parents, in their responses to statements in six topic areas: 1) the circumstances of parent-teacher conferences, 2) the importance of parent-teacher conferences, 3) the expectations of parent-teacher conferences, 4) the comfort level of parent-teacher conferences, 5) the characteristics of parent-teacher conferences, and 6) the role expectations of participants in parent-teacher conferences.

**RESEARCH PROCEDURES:** A survey instrument was designed to collect data from 100 teachers and 100 sets of parents of elementary school age children in ten schools. The survey consisted of thirty-six statements that elicited scaled responses in the aforementioned topic areas.

Initially a Chi-Square cross tabulation of variables identified any possible significant comparisons. These identified comparisons were statistically treated using the analysis of means and variance treatment models. A "t" Test was available to cross check the data.

**FINDINGS:** This study produced numerous significant findings that verified the importance placed upon parent-teacher conferences as a model for communicating pupil progress in school. Findings also indicate the understandings participants have of their responsibilities and that of their counterpart. Interestingly, parents and teachers agreed on the majority of their responses.

**RECOMMENDATIONS:** In terms of the general information gleaned from this study, it seems appropriate to recommend that parent-teacher conferences should serve as the model for reporting pupil progress in school and that methods should be devised to develop an awareness of responsibilities in parent-teacher conferences. Most important, this study should serve as an instrument for continued appraisal of parent-teacher conferences on both a local and regional scale.

*APPROVED BY RESEARCH COMMITTEE, MAY 1980*  
*George A. Farrah, Chairperson*

*A STUDY TO AID EDUCATIONAL FORECASTING AND EDUCATIONAL  
PLANNING PROCEDURES FOR RURAL MINNESOTA COUNTIES*

*Ernest J. Janisch*

**PROBLEM:** The primary purpose of this study was to identify and compare public feeling toward different educational developments that will be taking place in rural Minnesota school districts and to record the various kinds of reactions that are being experienced by rural citizens who are concerned with what the future holds for their rural school districts. Another important purpose of this study was to gain data which would be reliable and accurate enough in nature to aid in educational forecasting and planning for the rural school districts of Minnesota.

**PROCEDURE:** The information for this study has been gathered from a comprehensive review of legislative proposals, research on educational, demographic, and financial trends in Minnesota education, personal interviews, a study of professional literature, and a county-wide survey of randomly picked citizens regarding selected questions on educational concerns.

**FINDINGS:** This study revealed that:

1. The majority of rural citizens, regardless of location, age, or parental status, do not favor county-wide school districts as proposed by H. F. 156 during the 1976 state legislative sessions.

2. The rural citizens of the county surveyed do not favor legislation which mandates consolidation of their local school districts.

3. Taxpayers are willing to pay higher taxes if quality education is the end result. However, the study revealed that the more real estate one owns, the less one favors higher taxes.

4. Generally, those people who have children attending school have stronger feelings toward educational concerns than people who do not have children attending public schools.

5. Parents who have children attending a rural public school feel their children are receiving an adequate education and feel that public schools in general are doing an excellent job of educating.

6. Rural parents or citizens, in general, disagree with the concept that larger schools provide for better and more educational opportunities for students.

7. Most respondents of the county-wide survey did not feel that school districts could save money by sharing administrative personnel but they did feel there could be savings by sharing instructional personnel.

**RECOMMENDATIONS:** It was recommended that any legislation concerning school district reorganization should be carefully considered before it is mandated for school districts; that the planning or reorganization of school districts should emanate from the people involved; and that the State of Minnesota should provide the necessary funding and personnel, via regional educational cooperative service units, for comparative studies.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1979*

*George A. Farrak, Chairperson*

*A DESCRIPTIVE STUDY REGARDING THE ADMINISTRATION OF THE  
SUBSTITUTE TEACHING PROGRAM IN SELECTED MINNESOTA  
ELEMENTARY SCHOOLS*

*Albert A. Johnson*

**THE PROBLEM:** The purpose of this study was to investigate the critical aspects

of the administration of the substitute teaching program in selected Minnesota elementary schools. These critical aspects included: (1) recruitment and availability of qualified personnel, (2) lack of written school board policy, (3) inadequate central office administration of the substitute teacher program, (4) evaluation of substitute teacher performance, (5) in-service training and an effort to involve the substitute teacher as an integral professional staff member, (6) organization so that there is no delay in the student's educational plan and progression, (7) cost of the substitute teaching program; salary of the substitute teacher, (8) record keeping and quality control of services rendered by the substitute teacher.

**RESEARCH DESIGN:** The data for the study were developed from responses to a survey questionnaire. The instrument was mailed to two randomly selected groups of Minnesota elementary school principals.

The data were interpreted by content analysis, simple percent with an adjusted frequency and analysis of means and analysis of variance.

The review of literature was focused on the present status of the substitute teaching program in the public elementary school. Pertinent studies and other research were critically reviewed.

**FINDINGS:** This study reveals that most Minnesota elementary schools provide inadequate guidance and assistance for substitute teachers. Data collected indicates that there is an absence of written school board substitute teacher policy and a lack of orientation, in-service programs, formal written evaluations, and professional salary scales.

While most substitutes are not members of professional organizations, school districts do require teacher certification and maintain substitute teacher records of professional growth.

Most school systems reported an adequate supply of qualified substitute teachers available except in the specialist areas.

Some systems may be considering changes in their substitute teacher programs because eighty-five of the eighty-nine administrators responding to the survey requested a copy of the results.

The following opinions were expressed by those administrators responding to the survey: (A) employment of full-time substitute teachers is questionable, (B) school boards should have a written substitute teacher policy, (C) building principals should hire and evaluate substitute teachers, (D) substitute teachers should attend special orientation programs and regular staff in-service sessions and workshops, (E) substitute teachers are not just professional babysitters, however, they should not have collective bargaining rights or the same fringe benefits as regular teachers, (F) interruption of the students' educational program under a substitute teacher is questionable, (G) changes in the substitute teacher program may possibly be made in the immediate future.

**RECOMMENDATIONS:** The following areas are recommended for further research:

1. Substitute teacher in-service program model.
2. Substitute teacher orientation program model.
3. An evaluation model to evaluate the effectiveness of the substitute teacher.
4. Salary schedules for substitute teachers to include salary steps commensurate with professional training and teaching experience.
5. Written school board policies regarding substitute teachers.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1979*  
*George A. Farrah, Chairperson*

**AN APPRAISAL OF THE PILOT PROJECTS UTILIZING ADVISORY COMMITTEES  
IN MINNESOTA AND RECOMMENDATIONS FOR A CITIZENS ADVISORY  
COMMITTEE**

*Roy M. Johnson*

The citizens-advisory-committee approach in education is a method currently being emphasized in Minnesota education. This is not a new approach; it has been and is being utilized with varying educational results in our country.

The writer reviewed the literature pertaining to citizens advisory committees and using questionnaires. The literature revealed that public participation has been a part of education for hundreds of years. However, during the last few years, educators and lay people have realized the lack of public participation. As a consequence, states like Minnesota have passed legislation encouraging active, public participation in local educational planning via the citizens advisory committee.

The research procedures included the construction of a questionnaire which involved the critical aspects of 1) Committee Effectiveness, 2) School District Size, 3) Origin, and 4) Representation. The sample involved 20 middle sized public school districts with pupil enrollment and geographical location as two variables. The analysis of data for this descriptive study consisted of determining the percentage of responses in terms of critical aspects versus population and location.

The findings reveal that 1) apparently, all the twenty committees surveyed have effective committees, 2) size and location were not significant variables in the establishments of citizens advisory committees, 3) the majority of schools had true cross sectional representation of their committees, 4) in terms of membership, the school boards appointed ten to fifteen members to their advisory committees, and 5) usually one school administration acted as a liaison person between the committee and the board.

The writer concluded that citizens advisory committees perform a very useful and necessary function for local boards of education.

*APPROVED BY RESEARCH COMMITTEE, MAY 1978  
George A. Farrah, Chairperson*

**A STUDY OF SELF-CONCEPT/MOTIVATION AND JUVENILE CORRECTIONAL  
INSTITUTION PROGRAMMATIC VARIABLES**

*William C. Klundt*

**PROBLEM:** The Minnesota Home School, State Department of Corrections had routinely measured growth in the cognitive domain. Procedures in the affective domain have been lacking primarily for the absence of an appropriate instrument.

**PROCEDURE:** All students leaving the institution between January 1, 1976 and August 30, 1976 were administered the Self-Concept and Motivation Inventory. Selective demographic data were also collected. The statistical procedure was to carry out a correlation study and analysis of variance regarding the relationship between the relative scores of the SCAMIN and the following institutional variables: (1) age, (2) assigned program, (3) reading achievement, (4) arithmetic achievement, (5) length of stay, (6) pre-institutional placements, (7) negative incident reports, (8) positive incident reports, (9) Title I scores, (10) security cottage placements, and (11) size of community school district.

**FINDINGS:** It was found that there existed a relationship between the relative scores of the SCAMIN and each of the institutional variables enumerated in the

above paragraph. The direction of the relationship was negative on 1, 2, 3, 4, and 9; positive on 7, 8, and 10; and, bi-directional on 5, 6, and 11.

**SUMMARY AND RECOMMENDATIONS:** It was summarily concluded that this type of research had direct implications for continuation at the Minnesota Home School, and to conceivably extend to the State Department of Corrections and its role in community corrections. The SCAMIN was evaluated as being a useful tool for measurement in the affective domain.

*APPROVED BY RESEARCH COMMITTEE, FEBRUARY 1978*

*George A. Farrah, Chairperson*

### **A DESCRIPTIVE APPRAISAL OF THE MATHEMATICS PROGRAM AT INDEPENDENT SCHOOL DISTRICT 15 FOR STUDENTS IN GRADE SEVEN**

*Philip J. Knoll*

**PROBLEM:** The purpose of this study was to provide a descriptive appraisal of the factors related to mathematics achievement at Independent School District #15 relative to students in grade seven. Specifically, this study sought to determine any relationships between mathematics achievement and ability level, general achievement level, and/or opinions related to classroom conditions, teachers, school in general, self-concept, and the mathematics discipline. Each of the above was also analyzed in relation to birthdate, sex, the first grade attended in District #15, parents' occupations and parents' educational levels.

**RESEARCH PROCEDURES:** The grade seven students at the St. Francis Middle School were selected for this field study. The students who participated were given the Iowa Tests of Basic Skills and the Cognitive Abilities Test. They responded to an opinion survey developed by the author related to the school and family. Lastly, they provided information as to personal characteristics related to themselves and their parents.

The data were analyzed by a computer for an analysis of variance to determine if there was any significant difference between and among the various criteria and characteristics considered in the study. In addition, profiles of mean scores were developed and comparisons were made with local, state, and national data where applicable.

**FINDINGS:** Student achievement in mathematics, specifically at grade seven, was very highly related to characteristics of their parents. In addition, students who perceived school more positively also obtained higher general achievement levels.

**RECOMMENDATIONS:** Students, parents, teachers, and administrators should be informed as to the results of this study and the contributions each can make relative to improvement of student achievement in mathematics and school in general. The relatedness of cognitive skills and attitudes of students must be recognized and used positively to improve their ability to achieve.

*APPROVED BY RESEARCH COMMITTEE, MAY 1980*

*George A. Farrah, Chairperson*

### **A SCIENTIFIC APPRAISAL OF FACTORS RELATING TO HOW JUNIOR HIGH STUDENTS PERCEIVE SCHOOL**

*Ron P. Kockelman*

The purpose of this study was to analyze the effects of a treatment model on



how junior high students perceive school. The treatment model consisted of twelve ten-minute group discussions led by a school counselor in two groups of eighth grade students. The instrument utilized to determine the effects of the treatment model was one developed elsewhere in Minnesota and consisted of thirty questions with five questions dealing with each of the six major areas: Teachers, Parents, Student Social Life, Counselors, Academics, and Administration. The predictor variables incorporated into this study included age, sex, and parents' education. A general analysis was made between Alexandria Junior High students and Moorhead South Junior High students. The treatment model was administered between April 21, 1977, and May 10, 1977, while the questionnaire instrument was administered on May 12, 1977. This study, a replication of a similar study done recently in Moorhead, Minnesota, involved all students of Central Junior High School, Alexandria, Minnesota.

The null hypothesis stated that the treatment model would produce no significant differences among eleven specific comparisons involving the treatment and control groups which included all characteristics. It was evident that significant differences were found in 47 out of the 240 cases where comparisons were made in Alexandria, within the predictor variables. It was also evident that a significant difference occurred in comparing the control groups in grade eight from Alexandria and Moorhead. It was found that the seventh and ninth grade students were as positive in their perceptions about school as were those students in Moorhead, while the eighth grade students in Alexandria displayed more positive perceptions about school than did the eighth grade students in Moorhead.

It was recommended that the staff at Central Junior High School in Alexandria become sensitive to the immediate perceptions expressed by the students, and encouraged that the counseling staff continue concentrating more time in identifying, not only immediate, but also, latent perceptions the students have about school. It was also recommended that this study be incorporated into the Planning, Evaluating, and Reporting (P.E.R.) program at Central Junior High School. Finally, it was recommended that additional research be conducted, in the form of replications of this study, to further discover and analyze factors related to how junior high students perceive school.

APPROVED BY RESEARCH COMMITTEE, JULY 1977  
*George A. Parrish, Chairperson*

#### STATISTICAL STUDY OF TWO GROUPS OF RURAL ELEMENTARY STUDENTS 1970-1976

*Ruth M. Lachelt*

PROBLEM: It is the purpose of this Field Study to present a descriptive and statistical study of two groups of students in a rural elementary school between 1970 and 1976. One group (P) started school in 1970 and had a year of preschool prior to starting kindergarten; the other group (N) had no preschool and started kindergarten in 1971.

Statistics gathered over a six-year span will be used to prove that there will be a significant difference between the two groups.

PROCEDURE: An appraisal was made of the two groups and using the Ex Post Facto Experimental Design the students were random sampled by age and I.Q. The (P) group and (N) group of students represent random samples from a large population of rural students.

The writer has been attentive to individual as well as group performances on IQ tests. The writer found a dramatic increase during the first four years in the number of preschoolers whose IQ's have risen above 115. There is no such dramatic increase among those students who did not have preschool.

The writer offers two types of interpretation of data; (1) a descriptive (graphical) interpretation of the data and (2) an inferential interpretation about the data with respect to their means and standard deviations.

**SUMMARY AND CONCLUSIONS:** It is conjectured that these samples are representative of a population of students at other schools having similar demographic characteristics in the geographic region of central Minnesota.

It is apparent that the preschoolers were beginning their education with an advantage over those students not having preschool.

There are several variables that controlled the outcomes of this study but it is the judgment of the writer that the "hard criterion" used by the instructor plus the highly structured program (Distar) with the (P) group were the major determining factors for the program's success.

*APPROVED BY RESEARCH COMMITTEE, APRIL 1979*

*James W. Anderson, Chairperson*

*A SURVEY OF THE INVOLVEMENT OF SECONDARY PRINCIPALS IN THE NEGOTIATIONS IN THEIR DISTRICT: A STUDY LIMITED TO THE SCHOOLS BELONGING TO THE WESTERN DIVISION OF THE MINNESOTA ASSOCIATION OF SECONDARY SCHOOL PRINCIPALS*

*Richard E. Link*

The rapidly changing role of the principal as teacher negotiations broaden and intensify deserves attention and study. Some researchers suggest the principalship has sunk to an all time prestige low. Teachers no longer attribute to the principal all of the power and wisdom needed to operate and administer the schools in which they work.

What shall be the principal's proper place in this rapidly changing setting?

Traditionally, school boards have resisted the development of collective negotiations. The "meet and confer" law was an introduction and this was greatly expanded by the Public Employees Labor Relations Act. The objective of collective negotiations, agreement between the parties, means some type of face to face confrontation will take place. This has tended to limit the decision making powers of school administrators and accounts for some of their dislike for the procedure.

The passage of PELRA legislation in Minnesota has affected principals as well as teachers.

Principals feel left out and bypassed in the process and some feel it has put them at odds with their superintendents and boards as well as with their staff.

They feel left out of the process, but seem to have enjoyed some salary gains as a result of it. These gains are in dollars only, as there has been no change in the spread between teachers' salaries and principals'.

The analysis of gathered data, based on 24 completed questionnaires, shows little direct involvement on the part of principals in the direct process of negotiations. Negotiations activity would not be considered unusual but it is not commonplace. A majority of principals indicated a desire to be more involved in the negotiating process. The majority feel the process has not affected their staff relationship, and any effects felt were "moderate."

It appears principals are deluding themselves if they feel they have made salary gains because of PELRA, since the spread or gap has remained the same.

Principals may be getting some benefits not readily apparent, little involvement in the process but higher salaries because of it.

This must be balanced against the continued erosion of their authority and stature.

Further studies of this type should be undertaken to help principals decide for themselves how great their involvement is to be. The professional organizations now serving principals on a state and local basis are well equipped to handle such research and development of policy recommendations.

*APPROVED BY RESEARCH COMMITTEE, APRIL 1977*

*James W. Anderson, Chairperson*

**A STUDY TO DETERMINE THE SKILLS, ABILITIES, AND KNOWLEDGE  
REQUIRED OF HIGH SCHOOL GRADUATES ENTERING OFFICE  
EMPLOYMENT IN STEARNS COUNTY BUSINESSES**

*James Anthony Loecken*

**PROBLEM:** The intent of this study was first to find out which qualifications of high school graduates are essential to businesses and their offices in Stearns County.

Secondly, the study involved a comparison of business requirements (1) between St. Cloud and smaller communities and (2) among different types of businesses.

**PROCEDURES:** A search of literature obtained from various resources available at St. Cloud State University was reviewed.

A questionnaire was sent to 85 businesses in Stearns County that had two or more office personnel employed in 1977. Those responding were asked to check one of several possible variables and to supply any other information that they felt should have been included in the questionnaire.

**FINDINGS:** The analyses of the data were based on the findings of the computer print-outs. The results revealed that the number one criteria was the ability to handle telephone communications (i.e., 85.7%), as nearly 6 out of 7 employers gave this item an essential response.

In the comparison of St. Cloud to smaller communities, there was a statistical difference in 8 of 44 items that were analyzed. Moreover, in the comparison of businesses themselves, it was found that there was a significant difference in 10 of 44 items that were analyzed. Throughout the study, the significant difference was determined at the .05 level of confidence.

**CONCLUSIONS:** The findings of this study from business employers stated that the three most important qualities are: 1) the ability to handle telephone communications, 2) the ability to spell correctly, and 3) the knowledge to file alphabetically.

It is recommended, therefore, that school administrators study a survey of this nature and work with their commercial departments to formulate objectives which will better train their graduates to meet the requirements of business employers.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1978*

*George A. Farrah, Chairperson*

**AN ASSESSMENT OF THE WEST CENTRAL VOCATIONAL CENTER'S  
ACCOMPLISHMENT OF ITS EDUCATIONAL OBJECTIVES**

*Henry G. Lubbesmeyer*

**PURPOSE:** The purpose of this study was to assess how well the West Central Vocational Center, located in West Central Minnesota, accomplished its objectives

of providing a vocational education to the students of Appleton, Dawson-Boyd, Madison and Milan Schools.

**RESEARCH PROCEDURE:** The research procedure in the author's study included the construction and use of a questionnaire which was mailed to the West Central Vocational Center graduates of 1975, 1976, and 1977. The questionnaire consisted of thirteen questions which were coded to the objectives of the West Central Vocational Center.

**FINDINGS:** Group data results and Chi-square comparisons were used to illustrate the general findings. The general findings revealed that the students in the follow-up study expressed a general satisfaction with the education they received from the vocational center.

Specific findings were based on the t test which was employed to determine significant differences of the independent variable responses. The data revealed that only with three of the center's objectives was there significant differences when compared with the three years of the study, 1975, 1976, and 1977. The females generally felt much more positive than the males about the education they received from the center as they responded significantly higher on eight of the thirteen objectives. When the school responses were compared, the data indicated that there were six significant differences. Based on the assumption that the clusters (Model Office, Health Careers, Child Care and Development, Automotive Services, Agriculture Power and Machinery, and Distributive Education) with the highest responses were the most effective clusters in the education of its students, the Model Office cluster ranked first; followed by Health Careers, second; Child Care and Development, third; Agriculture, fourth; Automotive, fifth; and Distributive Education, sixth.

**RECOMMENDATIONS:** It was recommended that an attempt be made by the four-school educators to analyze the strengths and weaknesses of the center and each cluster so that they might build on the strengths to improve their total vocational educational program and attempt to correct the deficiencies of the center. It was also recommended that each cluster follow-up with its own graduates on an every year basis to further analyze the effectiveness of its educational program. Finally, it was recommended that this study be incorporated into the Planning, Evaluating, and Reporting (P.E.R.) program in the four schools.

**CONCLUSION:** It was hoped that this study would provide a comprehensive evaluation model for the West Central Vocational Center and other vocational centers throughout the state. The author believed that such building blocks could enhance the quality education that our young people deserve.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1979*

*George A. Farrah, Chairperson*

*A DESCRIPTIVE STUDY OF THE NEGOTIATING PROCEDURES USED BY  
ELEMENTARY PRINCIPALS IN THE CENTRAL DIVISION OF  
MINNESOTA*

*William G. Madouros*

**THE PROBLEM:** The role of the school principal is in constant change. Currently, the school's middle managers are expressing concern and dismay regarding the continuing power struggle between the Board of Education and organized teacher bargaining groups that result in concessions that directly affect the organization and administration of the school.

Two approaches, the formal collective bargaining unit and the administrative

team are presently being used by principals to establish and maintain their role as instructional leaders. These approaches are also used to determine the school principal's terms and conditions of employment.

It was the endeavor of this study to determine the negotiation method used by Central Division elementary principals to determine their salary and benefits. In addition and more important, the study was designed to determine how negotiation method affected the principals' relationship with community groups and individuals, central office personnel, the superintendent, teachers and Board of Education members.

**METHODOLOGY:** The methodology of the study was descriptive. A questionnaire was designed to collect the opinions of the Central Division elementary principals. Demographic Data were compared with the Criterion Items in Part I--The Negotiation Method-Procedures Data, Part II--Salary and Benefit Data and Part III--Working Relationships.

Initially, a Chi-square cross tabulation of variables identified any possible significant comparisons. These identified comparisons were subsequently statistically treated using the analysis of variance and analysis of means treatment models.

**RESULTS:** The study produced numerous significant comparisons between the demographic data and method-procedure data vis-a-vis the working relationship of the principals with others within the school and community. In general, those principals that use the informal negotiation method see their relationship with Board of Education members and the superintendent as being positive. These principals are employed in school districts and communities that are smaller and at a greater distance from the Metro Area.

In contrasting the demographic data with salary and benefit data only a few significant comparisons were generated. Interestingly, method of negotiation did not produce significant comparisons with salary and benefit data.

**RECOMMENDATIONS:** Findings and interpretations of the data clearly indicate that further study concerning many facets of principals negotiation are warranted. Principals and others would be interested and possibly influenced by a study designed to determine the effectiveness of negotiation method relating specifically to the dollar value of salary and benefits.

A study constructed to determine the opinions of Board of Education members and superintendents regarding negotiation method and principal relationship could produce supportive evidence that the informal negotiation method produces more positive interaction.

In addition, a study should be devised to determine specifically why Central Division principals believe it will be necessary to organize formal PELRA bargaining units to determine their terms and conditions of employment.

*APPROVED BY RESEARCH COMMITTEE, MAY 1979*  
*George A. Farrah, Chairperson*

*A STUDY OF THE BUSH PUBLIC SCHOOL EXECUTIVE FELLOWS PROGRAM  
TASK FORCE ON PROCEDURES TO IMPLEMENT MOTIVATION IN  
PUBLIC SCHOOLS*

*Norman B. Maguire*

**THE PROBLEM:** This field study contains results of a task force project dealing with complacency in Minnesota School District 482 and is the culmination of work done while the writer participated in the Bush Public School Executive Fellows Program. The project's purpose is to determine the cause of complacency among people within the district and implement procedures to increase motivation in

the schools.

The staff needed to replace complacency with motivation and to become responsive to problems affecting students' achievements in order to reach the goal of quality education for the district. Complacency was due to low regard for education, low achievement expectations, chemical abuse problems, poor discipline, lack of curriculum development, and adversity due to consolidation and bond issues.

**METHODOLOGY:** The major thrust of the study was done through the committee study approach. Committee members represented a cross-section of backgrounds. A preliminary questionnaire was used as a catalyst for discussion. Discussion at the meetings was informal--all topics were considered worthwhile. The split-page technique was utilized to describe problem areas and potential solutions determined by committees from the five public schools within the district.

Other methods were implemented to complement the committee work. Curriculum revisions were initiated based on student needs. Faculty in-service programs were scheduled to present positive attitudes and innovative ideas. Parents of kindergarten and senior high students were given orientation sessions showing how to help their students succeed. A faculty assistance program was proposed for staff members having personal problems.

**FINDINGS:** Results of committee work varied. At the elementary level, problems discussed concerned:

1. Curriculum coordination.
2. Gifted student programs.
3. Leisure-time programs.
4. Management improvements.

Middle school and high school committee concerns involved:

1. Attitudes and discipline.
2. Curriculum needs and clarification.
3. Staff supervision.
4. Food programs.

Innovative solutions occurred through committee involvement, curriculum development, additional teacher supervision and motivation, parent education and involvement, public relations efforts, new counseling programs, and physical improvements in the school program.

**RECOMMENDATIONS:** The program of the Bush Foundation trains participants to be leaders in innovative problem-solving. Programs of this calibre stimulate school executives. It is recommended that every effort be made to continue the Bush Public School Executive Fellows Program.

The committee approach to educational program evaluation and innovation develops understanding, cooperation, and vitality between parents, students, and faculty as they share complex problems. It is recommended that this task force project be continuous and on-going in this district's educational plan.

*APPROVED BY RESEARCH COMMITTEE, MAY 1979*  
*George A. Farran, Chairperson*

*A STUDY OF HOW CURRENT MINNESOTA DEPARTMENT OF EDUCATION REGULATIONS HAVE AFFECTED THE PRACTICES AND PROCEDURES UTILIZED IN SCHOOLS TO IDENTIFY AND IMPLEMENT SPECIAL PROGRAMS FOR THE HANDICAPPED*

*Wayne T. Melby*

**PROBLEM:** Recent Minnesota State Department regulations have mandated that each school district must develop procedures whereby handicapped children, ages 4-21, are systematically identified, assessed and programmed to match their needs with

appropriate remediation and intervention. This study attempts to identify existing special education practices, the changes required to meet the new regulations, and provide a "District Special Education Plan" model.

**PROCEDURES:** To obtain the necessary data, an instrument was developed, in the form of a questionnaire, and mailed to selected school district representatives throughout Minnesota. The sample utilized in this study included 48 school districts in Minnesota. The sample was stratified into six categories and school size was selected as the predictor variable. In addition, suburban and rural districts were compared as separate groupings.

**METHODS:** The t-test and group data statistics are used in this study to determine if significant differences exist between the selected groupings. In comparing mean scores between various groups, all significant findings are based on the .05 confidence level. By reviewing state department regulations and supplementary state department literature, a base-line standard for the criterion variables is established and this standard is compared with the responses for each district size.

**SUMMARY AND CONCLUSIONS:** Statistically, significant differences between school district sizes are found in 20 of the 49 questions used in this study.

Suburban district SLBP and EMR students spend a significantly higher percentage of time in the mainstream programs than do SLBP and EMR students in the rural districts.

In general, both rural and suburban districts are deficient in having effective methods for identifying four-year old and post-secondary (up to age 21) handicapped individuals.

In developing the "District Special Education Plan," the portion of the plan least developed in rural districts is the area dealing with least restrictive alternatives for special education students. In suburban districts, procedures for review and follow-up are the least developed portions of the plan.

In both rural and suburban districts, an average of four additional staff members have been hired in each district to effectively implement EDU 120-129.

In both rural and suburban districts, 71 percent of the districts do not foresee any problems in submitting their "District Special Education Plan" by the September 1, 1977 deadline.

The author developed a "District Special Education Plan" model that can be utilized by districts throughout Minnesota in formulating their specific plans.

*APPROVED BY RESEARCH COMMITTEE, JULY 1977*  
*George A. Farrar, Chairperson*

#### *AN EVALUATION OF THE DEVELOPMENTAL READING PROGRAM IN INDEPENDENT SCHOOL DISTRICT 882*

*Leslie L. Norman*

**PROBLEM:** The purpose of this study was to evaluate specific areas of the current reading program to determine the areas of the program that need strengthening. Local norms were developed to establish a reliable point of reference to accurately reflect the expectations of students in Independent School District 882.

**RESEARCH PROCEDURES:** The Metropolitan Achievement Test, Form F and G, was administered to 1,344 students in grades one through six during the 1976-1977, 1977-1978 and 1978-1979 school years. The sample population, typically middle class, was drawn from Monticello, Minnesota. The elementary school had an enrollment of about twenty-five students to the average classroom with a

current school population of approximately 1,100 students. The Metropolitan Achievement Test was administered in the spring of each year, 1977, 1978, and 1979. The analyses of means and variance were used by the author in the treatment of the data.

**FINDINGS:** The analyses and interpretations of the study were based on the findings which were significant at the  $p < .05$  level. The analyses of variance and means revealed that females showed a significant difference over males in the mean scores in tests of vocabulary, decoding, and comprehension. These differences occurred in all tests (i.e., vocabulary, decoding, and comprehension) at the primary level and in comprehension tests at the intermediate level. The analyses of variance and means also indicated that first, third, and fourth grade students in 1979 significantly out-performed students at the same level in 1978 and 1977 in tests of decoding, vocabulary, and comprehension.

As a total population of grades one through six, students in 1979 showed a significant difference in the mean score as compared to the total population of grades one through six in 1978 and 1977. In all three years of the study, the total fourth grade population indicated a significant difference on the mean in reading vocabulary and comprehension over the total population of third, fifth and sixth grade students. The mean of the fourth and sixth grade students was higher than the mean of the third and fifth grade students in all three years of the study.

**RECOMMENDATIONS:** These data should be shared with school boards, school administrators, and teachers so they are better informed of the progress of students and patterns which are exhibited within the reading program. Second, an evaluation of a district's reading program should be accomplished to determine if improved achievement in reading is taking place. Third, workshops and in-service programs need to be developed to: a) help teachers understand the developmental differences that occur between males and females at various instructional levels that are within the reading program; b) provide teachers with established techniques that can be used in the instruction of comprehension skills; c) develop methods of instruction that will accommodate male students in their reading development. These workshops should be conducted by individuals with expertise in reading instruction to provide teachers optimum instruction in program components that need strengthening. Fourth, colleges need to develop a greater awareness of the developmental differences of children in their prospective teachers, and provide practicing teachers with opportunities to develop their abilities to teach comprehension skills. Fifth, school administrators who are instrumental in the formulation of recommendations, procedures, and policies should become knowledgeable in the area of reading evaluation. In conclusion, the school administrators who can facilitate the unification of the above recommendations will greatly increase the chances of greater academic success for students participating in the reading program.

APPROVED BY RESEARCH COMMITTEE, FEBRUARY 1980

*George A. Farrah, Chairperson*

#### AN APPRAISAL OF THE EFFECTIVENESS OF AN ALTERNATIVE APPROACH TO TEACHER PREPARATION

*Sandra J. Ohlgren*

The purpose of this study was to assess the viability of the Teacher Education Alternatives Model (TEAM) at St. Cloud State University, St. Cloud, Minnesota. This program was established as an alternative to the regular course of study of teacher education at St. Cloud.



This evaluation focused on certain dimensions of self-actualization skills and basic tenets of self-concept and motivation. Three instruments were used in this evaluation; the *Self-Concept and Motivation Inventory*, the *Personal Orientation Inventory*, and the *Verbal Reaction Behavior Log (Modified)*.

These three instruments were administered to two groups of students: twelve students who were in their final quarter of teacher preparation in the regular course of study within the School of Education at St. Cloud (control) and fifteen students who were also in their final quarter and who were enrolled in the TEAM program (experimental).

The statistical evidence showed that there was a significant difference in favor of the experimental group on one scale of the *Personal Orientation Inventory* which was self-acceptance and one area of significant difference in favor of the experimental group on the *Verbal Reaction Behavior Log*, the lower cognitive asking area. All other areas yielded no significant differences between the two groups.

While the scores of the two groups provided no conclusive evidence that those students enrolled in the TEAM program were, in fact, more self-actualizing or had a higher self-concept than those enrolled in the regular program, the scores were interesting when compared with a study completed by Dr. George Farrah, St. Cloud State University, in 1976. Randomly selected teachers were selected from a universe of 572 other teachers, representing all levels, from the State of Minnesota. In contrast with these random samples, others were compared to them on the basis of having been selected as "outstanding" by both counselors and principals. They were then given the *Self-Concept and Motivation Inventory* as were the students involved in the current study. The students from St. Cloud in both groups control and experimental scored much higher on all of the variables than did the teachers who were already in the field.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1978  
George A. Farrah, Chairperson

#### A DESCRIPTIVE STUDY OF THE SCHOOL PERSONNEL, SCHOOL CHILDREN AND COMMUNITY OF REDLAKE HIGH SCHOOL

Thomas M. Olman

The Redlake Indian community has problems in the area of education which express themselves in low scores on standardized tests, increased dropout and truancy rates, increased number of students going to boarding schools and a general lack of community confidence in and support of the present institution.

A substantial amount of these problems, the writer believes, stem from a great difference in what the school personnel, the students, and the community believe to be the role of the educational system at Redlake.

Consequently, the review of the literature explored the current research on the subject, the historical background of the Redlake Indian people, and the recent history of the Redlake educational system.

The community and school represent two different cultures, giving rise to the differences of opinions about the role of education. A questionnaire with 102 statements dealing with the expectations of the school, the expectations of the students, and student discipline was developed and responded to by 44 n's from the three involved groups. These groups were the staff, students and community members of Redlake.

Appropriate statistics were applied identifying 40 items with significant relationships. With probabilities occurring at the five per cent level, the greater number of significant relationships were in: 1) the expectations of the school category, which produced twenty significant items with thirty-eight significant interrelationships between groups; 2) the expectations of the students category, which produced eleven significant items with eighteen

significant interrelationships; and 3) student discipline, which produced nine significant items with fifteen significant interrelationships among the three groups.

Three basic thrusts were identified in the data with the following conclusions: 1) the school needs to improve school-community relations through more community involvement, 2) communications within groups need to be improved focusing on educating all groups involved about the school's mission, and 3) the school should establish an education system to help clarify important school aspects within the three groups.

There are several topics which the school, community and students could discuss and clarify. These include the "on time" concept, the educational roles of the three groups, the level of adulthood of Indian students, the methods used to discipline students, and the dangers of drug use and abuse.

*APPROVED BY RESEARCH COMMITTEE, JULY 1978*  
*George A. Farrah, Chairperson*

### *A STUDY OF LEISURE TIME ACTIVITIES OF ADULTS IN SCHOOL DISTRICT 912, MILACA PUBLIC SCHOOLS*

*James G. Oraskovich*

**PROBLEM:** The purpose of this study was to determine how much leisure time adults in the Milaca School District have and how they use their leisure time. The study concentrated on what people are presently doing and what they would like to do in the future during their leisure time.

**REVIEW OF LITERATURE:** Current trends in society give the assumption that people have more leisure time available today than during past decades. This trend has come about through technological advances in labor saving devices, shorter work-weeks, longer vacations, and government and union regulations. People no longer need to spend as much time at their jobs so they use their leisure time to find ways of achieving self satisfaction and involvement in activities that are not work related. The ways people spend their time is also influenced by many factors such as: social class, financial ability, personal values, and the type of work performed. Despite these factors the trend continues with more time and money spent on leisure time.

**RESEARCH PROCEDURES:** The sampling of the adults in the school district made it possible to determine the following trends:

1. The amount of leisure time available per week.
2. The type of activities people do during their leisure time.
3. Activities people desire to develop during leisure time in the future.

The survey also asked questions relating to seasonal use of time and the intent to make beneficial use of leisure time.

**FINDINGS:** Analyses of data, based on 166 randomly selected questionnaire, showed: 1) that a direct relationship existed between the amount of time available per week and participation in the type of activities that are of a beneficial nature, 2) that reading and watching television ranked highest as activities pursued during the average of 8 hours of leisure available each week, 3) that most people desire to learn new educational or recreational activities related to the way they were presently using their leisure time, and 4) more people had a desire to learn recreational activities rather than homemaking or educational type activities for recreation.

**RECOMMENDATIONS:** As the concept of using school facilities gains momentum

schools are becoming increasingly involved in education and recreation for leisure. Schools should become involved in outdoor education and recreation that provide life long skills, not only in physical education classes but also in cultural classes. Adults in communities can learn new skills offered in non-credit type of classes that provide opportunities to use leisure time that will be self satisfying to them.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1979

George A. Farrah, Chairperson

**A STUDY OF THE ARTICULATION OF MIDDLE SCHOOL STUDENTS FROM THE  
ELEMENTARY TO THE HIGH SCHOOL LEVEL IN THE STATE  
OF MINNESOTA**

James B. O'Toole

The purpose of this study was to analyze the middle school programs in the State of Minnesota to see if they were providing an effective transitional experience between elementary and high schools.

A review of literature found that, in this state, as well as nation-wide, the number of middle schools has increased rapidly during the past decade. The middle schools of this state range from 300 to 1500 in terms of student population, and employ both elementary and secondary licensed teachers in a ratio of one-third elementary to two-thirds secondary.

Via a state-wide survey, it was found that the middle schools of the state were providing an effective "bridge" from elementary to secondary high school levels in the areas of: 1) academic growth; 2) growth in non-physical maturity; 3) growth in self-concept; 4) readiness for high school. Respondents to the afore-mentioned survey rated themselves, overall, four on a five point scale with respect to affectiveness as a transitional unit between elementary and high schools. (Five was the top rating possible.)

Respondents also indicated that improvement of self-concept, greater variety of programs, better preparation for high school, more individualization, greater provision for student success, and more student enjoyment of and pride in school were the most significant contributions of their middle school to the students.

The author recommends that: 1) adviser-advisee programs be continued and strengthened, since they were an apparent factor in high ratings; 2) continued emphasis be placed on expanding programs which emphasize providing success for all students, regardless of age or ability; 3) programs of in-service concerning programs and practices of other middle schools be expanded; 4) high academic standards be maintained; 5) research be begun and continued on an on-going basis by middle school practitioners, concerning facets of the middle schools--one such program is the "Organizational Design for Integrated Studies" currently being offered by St. Cloud State University, under the direction of Professor George A. Farrah; 6) current middle school teacher licensure regulations not be changed in any manner which would restrict the present ability of both an elementary or secondary teacher to teach on any grade level within the middle school, given the proper academic background.

APPROVED BY RESEARCH COMMITTEE, APRIL 1979

George A. Farrah, Chairperson

## POLICE EMERGENCY DRIVING INSTRUCTION PROGRAM EVALUATION

John W. Palmer

This study attempts to answer the basic question, "Does practice and instruction in simulated emergency situations lead to improvement in the driving performance of the treated subjects, as related to accident reduction?"

As a group of drivers, police officers receive little or no special preparation in driving skills. With preparation minimal, it would follow that police officers who are confronted with emergency situations will often respond incorrectly and collisions will be the result. Training can, therefore, eliminate many accidents.

The study at St. Cloud State University was limited to comparisons between two groups of Minnesota Police Officers. The experimental group received three days of instruction which involved classroom and driving experience. Topics included in the curriculum were: vehicle dynamics, skids, serpentine, evasive action, controlled braking, specialized backing and pursuit driving. The control group, also composed of police officers, did not receive this training until after the study period. Comparisons were made by reviewing the accident records of both groups of police officers. Accident records for a two-year period preceding instruction were compared with two years following instruction for both groups. Comparisons were made two years preceding instruction as compared to the two years following instruction for the experimental group.

The major findings of the study were:

1. The experimental group experienced a 26.8 percent reduction in all accidents following treatment. This change was nearly significant at the .10 level of significance (.125).
2. The experimental group improved its business accident experience by 61.9 percent (24-9). This improvement was significant at the .10 level of significance. A business accident is defined as one occurring during working hours in a police vehicle.
3. The 17-25 year olds within the experimental group improved their total accident experience by 43.5 percent. This change was significant at the .10 level of significance.
4. The 17-25 year olds within the experimental group improved their private accident experience by 60 percent. This was significant at .10 level of significance.
5. The control group experienced a 3.7 percent reduction in accidents. This change was not statistically significant.
6. Although reduction in accidents were noted in each of the other age groups, none was as pronounced as the 17-25 group.

The study indicated that emphasis on instruction and practice in simulated emergency situations, as provided by the program at St. Cloud State University, can make a significant impact on the accident experience of the treated subjects.

1. Further study to determine if the program has accident reduction potential for other populations.
2. Further study to determine the optimum program structure including:
  - a. length of program
  - b. use of classroom time
  - c. use of film simulation
3. Further study to determine the long-term retention of the skill learned.
4. The program should be expanded for all police officers and evaluation methods should be continued.

An ex post facto scientific study was conducted to appraise the impact of the St. Cloud State University's Police Emergency Driving Program. It was found that the program had a beneficial impact on the accident frequency of the treated subjects, and that specific groups within the experimental group experienced statistically significant improvement. The author believes programs of this type deserve serious consideration as an accident counter-measure, and that further scientific investigations be conducted that will improve the impact of this type

of advanced driver education.

APPROVED BY RESEARCH COMMITTEE, JULY 1978  
*George A. Farrah, Chairperson*

### *A DESCRIPTIVE STUDY OF SCHOOL CLIMATE IMPROVEMENT IN ONE ELEMENTARY SCHOOL*

*Rodger J. Quist*

**PROBLEM AND PROCEDURE:** The problem was to ascertain the school climate in one elementary school, remediate weaknesses, and retest to measure any gains or losses in the area of school climate.

**FINDINGS:** The pre-test gave indications of problems between what the four participating groups--teachers, staff (classified employees), administrators, and parents--saw as the actual situations at the time of the pre-test and what they thought the climate of the school should be ideally.

The results of the study showed that the ideal situation was agreed upon by all four groups without any significant differences while the four groups showed quite different results in their opinions on what the actual situation was at the time. Administrators viewed the present situation much more negatively than did either the staff or teachers. Parents tended to be closer to the administrative group in their views than to teachers or staff. All four groups indicated concern in all eight areas of school climate.

If the questionnaire used in this study is the only means of evaluation concerning climate improvement in the one elementary school at which the activities were aimed, it would have to be concluded that these activities did not produce gains in two groups of participants, namely staff and teachers. This writer contends, however, that gains were made in positive school climate as measured by more unobtrusive means such as observation and the number of people mentioning gains to this writer.

**RECOMMENDATIONS:** The writer makes the following recommendations on conclusion of this field study:

- (1) Considerably more research needs to be completed concerning which activities lead to positive school climate improvements.
- (2) In addition to the use of a questionnaire, unobtrusive measurements need to be used when dealing with the evaluation of affective areas of education. It is exceedingly difficult to measure a person's feelings with a questionnaire.
- (3) The activities attempted and described in this field study are worthy of duplication.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1978  
*George A. Farrah, Chairperson*

### *THE ENHANCEMENT OF READINESS IN THE DEVELOPMENT OF ORAL LANGUAGE IN PRESCHOOL CHILDREN AGES 3-5*

*Robert F. Rosenbaum*

In serving the needs of its' preschool children, a community must develop a model for planned experiences which will depend upon the philosophy developed by the community for that perceived model.

The purpose of the present study is to develop and evaluate a flexible oral language readiness curriculum based upon current theory of early child behavior and development.

Four groups of children in two communities were involved in this study. Results may be generalized only to these populations. *The Minnesota Child Development Inventory* was used in the evaluation of the study and was completed on each child by the mother. To the degree that the mother responded accurately on the inventory, and to the degree of advancement on the initial inventory experience of some children, the reliability and validity may be affected or inappropriate.

Review of literature showed two definite positions taken on early childhood education. These positions were noted as being those who had strong evidence in favor as opposed to those who built cases for not involving children in formal preschool experiences.

The study hypothesized that differences would be developed between children who encountered a planned, sequentially ordered curriculum of oral language readiness instruction as opposed to children who encountered only the more typical experiences of being at home.

The Expressive Language and Comprehension-Conception subtests of *The Minnesota Child Development Inventory* were used in pre and post evaluation settings. Computer generated data from the evaluations was used in determining significant differences.

Results of the study overwhelmingly showed no significant differences being developed by the study. The general and working hypotheses were not accepted and hence, the null hypotheses were not rejected.

This study favors the position that normal children who are at home with a responsible parent are in an advantageous position. Certainly, none of the results from the concluded study particularly favor the child in the preschool setting. However, this study does not exclude other children who are in a less advantageous position, i.e., one parent, etc., but this consideration is beyond the scope of this study.

A number of suggestions for further research are made in light of results from the study.

APPROVED BY RESEARCH COMMITTEE, MAY 1978  
George A. Farrah, Chairperson

#### A STUDY TO DETERMINE IF CHANGE IN AN ADMINISTRATIVE POLICY HAS AN EFFECT ON STUDENT SELF CONCEPT

Noel L. Schroeder

**PROBLEM:** This study evaluated whether the administrative change in schedule from half-day to full-day for kindergarten children would produce a significant difference in the students' self-concept.

**PROCEDURE:** The *Self-Concept and Motivation Inventory* was administered to eighty-six kindergarten children. Forty-two of these students attended half-day sessions, and forty-four of the students attended full-day sessions for half as many days. The *Self-Concept and Motivation Inventory* was administered twice to each group, once as a pre-evaluation and once as a post-evaluation. The author utilized an analysis of means, and paired t-tests were used to determine the various comparisons.

**FINDINGS:** Since the statistical hypotheses involved both general and null hypotheses, there was insufficient evidence to accept the general hypothesis. Specifically, the analysis clearly revealed that the administrative change in schedule from half-day to full-day did not have a significant effect on the

self-concept of kindergarten students.

**RECOMMENDATIONS:** These data should be shared with the Alexandria Board of Education and the community, so they may be better informed about the effects that half-day and full-day kindergarten programs have on the self-concept of children. This researcher hopes for a continuation of this kind of study, which will contribute to the relatively non-existent base of research and literature devoted to the assessment of self-concept and achievement of students who are attending half-day and full-day kindergarten programs. Similar research is imperative if administrators are going to continue to make recommendations for programs based on information as to what is best for students.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1978*  
*George A. Farrah, Chairperson*

### *A STUDY OF ELEMENTARY CLASSROOM TEACHERS OPINIONS TOWARD THE INSTRUCTION OF LISTENING SKILLS*

*Verne W. Shea*

**THE PROBLEM:** The purpose of this study was to identify the extent to which listening is being taught in elementary schools related to the amount, practice, and methodologies of instruction.

**RESEARCH PROCEDURES:** A survey was used to sample the opinions of selected elementary teachers in "Southwest and West Central I.G.E." schools regarding the instruction of listening skills. Statistical procedures included the analyses of means and variance and Chi-square.

**METHODOLOGY:** The evaluation, via a survey, concentrated on five areas related to: how teachers view; 1) listening as a part of the local school district's curriculum; 2) teaching techniques and/or listening lesson objectives; 3) organization of listening skills and concepts; 4) position of State Department of Education and Minnesota colleges and universities on listening skills instruction; and 5) availability of published materials related to listening skills instruction.

**FINDINGS:** The most salient findings included: 1) there is little relationship between the amount of time children listen compared with actual classroom instruction, 2) listening is left to chance instruction, and that it is void of daily lesson planning, 3) there is a variance in instructional techniques relating to what teachers say and what they do in the classroom, and 4) the majority of institutions of higher learning do not include instructions for teaching listening skills in their curricular offerings.

**RECOMMENDATIONS:** First, the need to establish listening education as a recognized language arts skill and to provide teachers with an appropriate curriculum seems evident at this time. Local schools must request support from agencies such as the State Department of Education for further guidance in listening skills curricular adoption.

Second, colleges and universities preparing teachers could provide the leadership required to give a sound foundation in listening skills instruction through college course offerings. In-service programs could be provided for those teachers already in the field. The teachers surveyed in this study indicated a desire to be trained in listening skills instruction, and a willingness to take the responsibility for carrying out listening instruction in the schools.

Third, the direct approach to teaching listening must be emphasized as very little listening instruction exists without it. Exact and direct lesson

planning by teachers is necessary with a definite amount of time provided each day for the purpose of listening skills instruction.

Fourth, publishers of classroom instructional materials should be encouraged to publish materials adaptable to classroom usage with a listening skills emphasis. When listen content materials are available, listening skills instruction will be greatly enhanced.

Finally, the development of the International Listening Association (I.L.A.) should add impetus to the elevation of listening skills instruction to its rightful place in the total educational plan for all students.

*APPROVED BY THE RESEARCH COMMITTEE, FEBRUARY 1980*  
*George A. Farrah, Chairperson*

### *A DESCRIPTIVE STUDY OF SOCIOMETRIC METHODS AND CHARACTERISTICS OF STUDENTS IN THE TITLE I PROGRAM*

*Marvin A. Sneller*

**PROBLEM:** This study was designed to evaluate the social status of children receiving assistance in reading, math, and language development through Public Law 89-10, commonly known as Title I. The study was conducted in two similar elementary school settings in rural west central Minnesota. The significance of the study became evident when very little research was found that directly addressed this non-academic aspect of the Title I child.

**PROCEDURE:** The design of this descriptive study involved the use of seven indices: non-Title I students vs. Title I students, class size, reading achievement, grade, sex, School A, and School B. A sociometric questionnaire of four items was administered to all students in grades one through six in both elementary schools. Students were asked to respond to "How I Feel About Others in My Class" in regard to friendship and trust.

The data were analyzed by computer for an analysis of means (t-test) to determine significant difference of social status between non-Title I and Title I children. The Pearson Correlation Coefficients determined the relationships of pertinent criteria in the study.

**SUMMARY OF FINDINGS:** Reading achievement mean scores of non-Title I students were significantly higher in some of the groups when comparing non-Title I students with Title I students. An attempt was made to select non-Title I students to match as closely as possible the reading achievement score of selected Title I students. Nearly all class size comparisons were similar as intended by the design of the study.

When friendship selections were analyzed, Title I students received significantly less best friend selections and significantly more no friend selections as a total group than non-Title I students. This was particularly true with boys.

When trust was examined, Title I students, as a total group, received significantly less trusted selections and significantly more not trusted selections than non-Title I students. Again this fact was particularly true for boys.

It was found that when analyzing the total group sample for correlations, the programs, non-Title I and Title I, together are related to reading achievement scores, friendship selections, and trust selections. When analyzed by grade, inconsistencies resulted.

**CONCLUSIONS:** According to this study, Title I children, when treated as a whole sample from two rural Minnesota schools combined, were not selected as best friend or trusted as much as non-Title I children. They were rejected. Therefore it may be inferred that Title I students have a lower social status than



non-Title I students. This fact was particularly true for the Title I boys. In contrast, Title I girls were accepted as much as non-Title I girls.

This field study implies that students enrolled in the Title I program are more likely to have social problems than students not enrolled in the program. A very worthwhile follow-up study would be to identify the cause and effects of the low social status of the Title I child. Furthermore, it is suggested that a replication be made utilizing a larger sample to see if the findings that relate to the factors of sex and/or location are repeated.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1977

*George A. Farrah, Chairperson*

### **AN EVALUATION OF THE CHEMICAL DEPENDENCY PROGRAM AT WAYZATA SENIOR HIGH SCHOOL**

*William A. Sommers*

The purpose of this study was to assess the effectiveness of the Chemical Dependency Program at Wayzata Senior High School, Wayzata, Minnesota. The program was established to find an alternative to suspension in handling chemically-related problems in the school. At the time of this study, the program was in the third year of operation and had assisted in getting help for 125 students, 55 parents, and 5 staff members.

The evaluation concentrated in two areas: 1) does family involvement have an effect on residivism; and 2) does aftercare have an effect on residivism. The results indicate the Chemical Dependency Program does encourage and facilitate family involvement while dealing with chemically-related problems and provide aftercare support groups to enhance sobriety.

To attain greater success, several recommendations were made. Among those suggestions were expansion of support services, increased staff training, more community awareness, and development of junior high and elementary school programs.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1977

*George A. Farrah, Chairperson*

### **A STUDY TO DETERMINE THE DIFFERENCES BETWEEN THE PROFESSIONAL EDUCATORS' AND THE SCHOOL COMMUNITIES' PERCEPTIONS IN THE RANKING OF EDUCATIONAL GOALS FOR CURRICULUM DEVELOPMENT IN A SELECTED ELEMENTARY SCHOOL SERVICE AREA**

*Donald E. Thompson*

PROBLEM: The purpose of this descriptive normative study was to discover what differences exist between professional educators' perceptions of how community members rank educational goals, and the actual ranking of these goals by the community. The study also attempted to estimate the value of community involvement in curriculum.

PROCEDURE: A survey was taken of 78 parents and a total of 45 faculty members from Gladstone, Hazelwood, and Weaver Elementary Schools in Maplewood, Minnesota. These two groups represented the population sample.

A set of 18 Phi Delta Kappa goals were selected and mailed with cover

letter, study directions and self-addressed, stamped envelope to each participant. Parents were asked to rank these goals in order of importance to reflect their views on this question: What should the schools be doing to improve their educational programs? They were to rank these goals into groups of greatest, average and least importance.

Correlation coefficients were used to describe the relationship between the two rankings. Confidence intervals indicated the significance of these rankings.

**FINDINGS:** The general descriptive hypothesis of congruency was accepted. High correlations ranging from +.87 to +.91 were found between parents of all three elementary schools, and between the three school faculties when they were compared. Similar results were found when all parents were compared with all school faculties ranked these goals. The correlation coefficients tested at the 95 per cent level were significant. The confidence intervals between schools 1 and 2 were  $+ .81 < p < + .95$ ; between schools 1 and 3 were  $+ .79 < p < + .96$ ; and between schools 2 and 3 were  $+ .77 < p < .95$ .

**SUMMARY:** Parents considered the development of reading, writing and listening skills, and gaining a general education as the two most valuable goals. Their two least important goals concerned using leisure time and gaining information for job selections.

The educators ranked goals on the development of pride in work and a feeling of self-worth the highest. Goals concerning the development of reading, writing, and listening skills, and the development of good character and self-respect rated second. The two goals having the least priority related to gaining information needed for job selections, and developing skills to enter a specific field of work.

**CONCLUSIONS:** Parents and educators express much more congruency than differences in their educational views. Yet, parents need to become involved in curriculum development because the values and needs of society are changing which necessitates future curriculum changes.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1978*

*George A. Farrah, Chairperson*

#### *AN APPRAISAL OF THE JUNIOR HIGH SCHOOL FOCUS REPLICATION PROJECT IN ANOKA-HENNEPIN INDEPENDENT SCHOOL DISTRICT 11*

*David G. Tjaden*

The purpose of this study was to appraise the effects of a treatment model, FOCUS, on disaffected junior high school students. The junior high school FOCUS program was a school-within-a-school concept replicated from a senior high school program that was developed in the Roseville, Minnesota, Public Schools, emphasizing individual and small group instruction along with a "Family Group" time each day. Six areas of the program were studied: attendance, discipline referrals, grade point average, reading achievement, math achievement, and opinions of school. Eight groupings of FOCUS students were studied in each of the six areas: Fred Moore Junior High FOCUS students, Roosevelt Junior High FOCUS students, Coon Rapids Junior High FOCUS students, female FOCUS students, male FOCUS students, eighth grade FOCUS students, ninth grade FOCUS students, and the total FOCUS population. The instruments used to gather the data on the eight groups of students in the six areas studied on a pre and post FOCUS basis were: school records, Wide Range Achievement Test, Level II, and IOX School Sentiment Index. This study included only students in the FOCUS program for the entire time period October 1, 1977, through May 1, 1978.

The null hypothesis stated that FOCUS would produce no significant differences among the students in the 48 comparisons that were made. It was evident that significant improvements were found in 32 out of the 48 comparisons that were made. It was also evident that out of the remaining 16 comparisons that were made, no significant deteriorations occurred. Overall, the areas of discipline referrals, grade point average, reading achievement, and opinions of school indicated a significant improvement among the groups of FOCUS students that were studied. The areas of attendance and math achievement indicated no significant change among the FOCUS students.

It was recommended that continued funding be provided for the FOCUS program in District 11. It was also recommended that a student self-image inventory be used on a pre and post FOCUS basis and questionnaires should be developed for students and parents to express their opinions on the value and success of the FOCUS program. It was further recommended that attendance be monitored on a continuous basis and more emphasis be placed on the math portion of the program. Finally, it was recommended that additional research be conducted, in the form of replications of this study, to further appraise the effects of the FOCUS program on junior high school students.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1973*  
*George A. Farrak, Chairperson*

#### *A STUDY TO DETERMINE THE IMPORTANCE OF THE ADMINISTRATOR'S ROLE IN DEVELOPING AN IN-SERVICE PROGRAM: THE OUTDOOR EDUCATION CLASSROOM*

*Vern A. Trandem*

**STATEMENT OF THE PROBLEM:** The children of today will, as adults, be confronted with an ultimatum of how to survive in a world depleted of natural resources if educators and others who influence the value systems of the adults of tomorrow are not successful in helping children to develop attitudes that will result in sound environmental decision making. The need for environmental education and developing a curriculum for elementary schools is vital. The purpose of this inductive paper was to, via an organizational design, present an example of a step-by-step method to develop an outdoor classroom. The writer presented the leadership role that was needed to accomplish the objectives and goals. Therefore, the emphasis of this paper was on the principal's role in organizing, motivating, and implementing the development of the outdoor classroom and presenting new or innovative ideas to a staff. Chapter One discussed the importance of the project and provided the project background.

**REVIEW OF LITERATURE:** Chapter Two reviewed the literature from two different perspectives. First, literature pertaining to the development of new and innovative learning experiences and the principal's role in such development were discussed. Secondly, the development of the concept of the outdoor classroom and outdoor education were reviewed through the literature.

**RESEARCH PROCEDURE:** Chapter Three discussed the research design. A questionnaire was given to the staff prior to the use of the site and then after site development to assess any possible changes in opinion that may have occurred as a result of site development and the principal's role as an in-service leader. A pre and post test design was the research tool used in this project.

**ANALYSES OF THE DATA:** Through descriptive appraisal methods, the author administered a paired t-test in order to determine any possible significance in relation to the described project. The results of the t-test revealed that eleven of the

fifteen questionnaire items were found to be significant. General findings and interpretations were synthesized and the fifteen items and their respective scores were displayed in three different tables.

**SUMMARY, RECOMMENDATIONS, CONCLUSIONS:** Chapter Five summarized the project by discussing the various aspects encountered in the program development. The future provisions for financing were also discussed. The conclusions were as follows: 1) the project was successful as a result of effective in-service preparation; 2) staff and student involvement were crucial in developing the project; 3) building level in-service is more acceptable than district level in-service; 4) the administrator's role is paramount in leading in-service development.

The following recommendations were also included: 1) make the materials for the site readily available; 2) periodic in-service should occur for maximum program effectiveness; 3) prepare for future revisions and financing in order to accommodate changes in the program.

APPROVED BY RESEARCH COMMITTEE, MAY 1978  
George A. Farrar, Chairperson

## A STUDY TO ASSESS THE WAYZATA ALTERNATIVE SCHOOL

John A. Waight

**PROBLEM:** This was a descriptive, *ex post facto* study to assess the general effectiveness of the Wayzata Alternative School programs. The main thrust of this study was to assess the differences, if any, in teacher and parent perceptions of the effectiveness of the Wayzata Alternative School program.

**RESEARCH PROCEDURES:** A sample selection of one hundred fifty-six parents and forty-four teachers were involved in the study. A questionnaire, developed by community members, teachers and administrators was administered to the one hundred fifty-six parents and forty-four teachers. Statistical procedures included both the analyses of means and variance.

**FINDINGS:** Of the twenty-one Item Home Survey, the variable of the Wayzata Alternative School vs Mainstream parents had the highest number of questions which were significant at the  $p < .05$  level. There were 17 of 21 questions with a  $p < .05$  level of significance (i.e., the null hypothesis was rejected). Of the 17 questions that were significant, the working hypothesis, stating that there would be a difference in teacher perception and parent satisfaction between parents of Wayzata Alternative School students and parents of Mainstream students, was accepted. The null hypothesis was also rejected for the four remaining questions: the Wayzata Alternative School parents tended to be more strongly in favor of how the program was succeeding than the Mainstream parents. The research also showed that the teachers in the Wayzata Alternative School program felt the program to be a success, while the teachers of Mainstream classes showed more undecided feelings.

**RECOMMENDATIONS:** As a result of the research in this paper, the author recommends: 1) that community needs be assessed on a regular basis; 2) that further research be conducted on the differences in attitudes of teachers in the Wayzata Alternative School and Mainstream; 3) that a follow-up study be done using students and parents of students who have been in either program and are

now in junior high; and 4) that the reasons for teachers changing from one program to the other be studied.

APPROVED BY RESEARCH COMMITTEE, MAY 1980

George A. Farrah, Chairperson

## AN APPRAISAL OF THE LITTLE FALLS AND SETON HALL READINESS PROGRAMS

James R. Walker

**PROBLEM:** Preschool education received attention from many early educational leaders, yet early childhood education in the United States developed haphazardly.

What is the most effective program delivery system for preschool education? What is the definition of readiness skills? Are readiness skills identified and taught in the Little Falls and the Seton Hall programs?

**PROCEDURES:** This writer reviewed pertinent literature to examine the philosophy of preschool education, current program delivery systems, and readiness. Preschool delivery systems were at first based on centralized locations. Fredrick Froebel and Marie Montessori gave support to this system. More centralized preschools were established as a result of the Equal Opportunity Act of 1964. In the early 1970s, more preschools initiated a home-based component because research showed such programs to be more successful. Readiness was defined as a process of concept formation, generalization, and relationships.

The research design was based on interviews with administrators of the Little Falls and the Seton Hall projects.

**SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS:** The findings indicated that:

- 1) The Little Falls and the Seton Hall projects are product-oriented, require inexpensive equipment, and are centered around a home-based component,
- 2) both have no stated readiness objectives or definitions,
- 3) parental participation is necessary for achieving program objectives, but parents have no authority,
- 4) there is no systematic analysis of evaluation procedures,
- 5) both have flexible time frames and home components,
- 6) neither has a formal program to teach readiness,
- 7) both assume that early development and intervention are essential, and
- 8) the staff requirements are few and the cost is low.

Little Falls is designed for handicapped students, while Seton Hall is non-categorical. They also differ in evaluation procedures and in degree of individualization. Seton Hall is more flexible regarding number of students it can accept, and it requires more active participation by parents. Little Falls is more highly structured. It also has a definite classroom space requirement. Little Falls was developed in one year; Seton Hall required three years. Seton Hall centers on the parent-child relationship; Little Falls is structured by other adults. To reach goals, Little Falls has from identification until school entrance; Seton Hall has one year. Little Falls has greater space, time, and transportation requirements. Seton Hall's first year expenses were greater.

An effective preschool program should have a home-based component, product-oriented objectives, measurable objectives, a minimum of certified staff, activities that require student-parent participation, and an approach to teaching readiness.

APPROVED BY RESEARCH COMMITTEE, SEPTEMBER 1978

George A. Farrah, Chairperson

## *A STUDY TO COMPARE THE DIFFERENCE IN BACKGROUND OF ELEMENTARY STUDENTS WITH CURRICULUM METHODOLOGY*

*Sister Patricia Wallis*

The purpose of this study was to set up a mathematics methodology in which the point of entry was made through the affective, psychomotor area, using the rhythmic method of learning. This particular methodology was chosen because the author felt that it was geared to the cultural needs and backgrounds of Indian students.

The study analyzed the rhythmic theory of learning in grades one, four and six at St. Mary's Mission School on the Red Lake Chippewa Reservation in Redlake, Minnesota. This methodology is an organizational arrangement that has two basic elements which are essential: time and flexibility. It is taught in a spiral setting which includes: (1) goal setting, (2) readiness, (3) work-study activities, and (4) evaluation.

The general and working hypotheses stated that curriculum methodology, specific for the differences in backgrounds of elementary students, will produce a difference in the cognitive and affective areas of mathematics, and that students at St. Mary's Mission School, being taught by a methodology specific for their backgrounds and needs, will produce a difference in the cognitive and affective areas of mathematics. The analysis of means was used to determine the magnitude involved. A 2-tailed probability of .000 was obtained for all three grades involved in the study. The t-value for grade one was -9.63; for grade four it was -10.76; and for grade six it was -4.13. In all three grades the experimental groups had greater growth than the control groups in the cognitive skills when using a methodology whose point of entry was through the affective and psychomotor area, and when using the rhythmic method of learning.

A total of seventy students took part in this study. Students in the control group and the experimental group used the mathematics program of the Scott Foresman, Co., 1975, *Mathematics Around Us Series*.

It is recommended that the rhythmic theory of learning be used in teaching mathematics to Indian students at St. Mary's School at Redlake, Minnesota. It is further recommended that this theory also be used and measured for success in reading and language arts, and that further research be conducted in the areas of: (1) measuring the four basic elements of methodology (readiness, goal setting, work study experience and evaluation) in order to determine which of these four areas is more significant in the rhythmic method of learning, and (2) measuring the actual growth in the affective and psychomotor areas in order to correlate this growth and to compare it better with cognitive learning.

*APPROVED BY RESEARCH COMMITTEE, DECEMBER 1977*

*George A. Farrah, Chairperson*

## *A STUDY OF INTER-RATER RELIABILITY OF AN ADAPTIVE BEHAVIOR SCALE FOR SEVERELY/PROFOUNDLY RETARDED*

*Richard J. Welch*

**PROBLEM:** The purpose of this study was to determine the degree of inter-rater reliability of the CADRE (Cambridge Assessment Developmental Rating and Evaluation) Instrument, by objective, domains, and total instrument.

**PROCEDURE:** The sample for this study were selected from the population of severely/profoundly mentally retarded students in residence at Cambridge State Hospital. Five high performance and five low performance students were selected on a representative basis.

Two raters simultaneously observed the teacher working with the student or the two raters worked with the student together. Based on these observations, students were rated on the degree to which she/he had mastered each objective

on the CADRE scale. In those few instances where observation was not possible, data was obtained by interviewing the teacher.

Coefficients of correlations were computed for each item when rated on a one-to-eight scale. This scale was then collapsed to a three point scale and coefficients of correlation were computed. Correlations were also computed for each domain and for the total scale.

**RESULTS:** Inter-raters reliability of the individual objectives was high, indicating comparability of the results of the two raters. When judged on the one to eight scale, 66.3 percent of all correlations were significant. Using the three point scale, 67.9 percent of the correlations were significant.

In reviewing the reliability across domains, a significant correlation was found on 12 of the 16 domains. The reliability of the total instrument was .872 when using the eight point scale and .858 when using the three point scale. Both were significant at the .01 level.

**CONCLUSIONS:** It was concluded the adaptive behavior scale is statistically reliable and can be used as a student assessment and program instrument with considerable confidence.

There is near equal reliability by objective and domain when using either rating scheme, subsequently the greater practical value justifies using the more precise 1-8 rating scale.

Specific items in the instrument need to be revised because of lack of reliability and these revisions would tend to increase the overall reliability.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1979*  
*Stanley C. Knox, Chairperson*

#### *A STUDY OF PARENTAL OPINIONS INVOLVING CURRICULUM PRIORITIES IN THE EVANSVILLE SCHOOL DISTRICT*

*Norman R. Zielinski*

Declining enrollments and increased costs have forced some schools to administer budget cuts. In some cases, the budget cuts have affected curriculum. It is a possibility that the Evansville School District could be facing such a problem.

It was the purpose of this study to establish curriculum priorities. The curriculum priorities would be used as a foundation for decisions affecting curriculum and for the improvement of instruction. The opinions of the parents in the Evansville School District were gathered by the use of a questionnaire.

George H. Gallup's Poll of Parents Attitudes Toward the Public Schools served as the major source in the review of literature. Gallup discovered that (1) discipline was still a major problem of the schools, (2) parents are in favor of a back-to-the-basics movement, and (3) the parents generally thought the schools were doing a good job of educating their children.

The research procedures in the author's study included the construction and use of a questionnaire. The questionnaire contained four basic components: (1) background information, (2) unstructured opinions, (3) criterion items, and (4) ranking of school subjects. The components of the questionnaire were analyzed and interpreted by cross tabulation of criterion items with the characteristics contained in the background information. Statistical data was organized into tables using Chi Square.

The findings revealed that: (1) the parents support the back-to-the-basics movement, (2) parents felt that there is too much emphasis on sports, (3) discipline is a problem and (4) age and education proved significant in most cases as characteristics.

Based on the findings of the survey, it was recommended that the subjects of

reading, writing, spelling, math, and art be reviewed by parent committees. It was also recommended that objectives for the athletic program be established.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1978  
George A. Farrah, Chairperson

## ELEMENTARY EDUCATION

### PERSONALIZING THE SOCIAL STUDIES CURRICULUM FOR AN INTERMEDIATE NON-GRADED UNIT AT LINCOLN SCHOOL IN ELK RIVER, MINNESOTA

*Marian Lurn Abel*

Personalization goes many steps beyond individualization. Not only does it answer to a child's ability level and pace but to his other interests, needs and style of learning. Over twenty years of classroom teaching helped to build and reinforce this philosophy and to strengthen a trust in the judgment of young people. It also ultimately led to the study which this document reports.

This is an ex-post facto thesis describing research, a year-long study with students in personalized curriculum building, and a description of the results. It was not planned with the University or its staff except in a very general way as explained in Chapter I.

As to the reason for the study, there seemed to be a need to try to prove that starting with the premise stated in the first paragraph above, a student could learn as many of the basic social studies skills as traditionally learned, while building a more positive self-concept.

The year-long study with students took place during the school year 1973-74. Implementation of the plan meant interviewing individual students, involving parents in answering questionnaires regarding ancestry, adding to map collections as each student built up a packet of factual information and related materials.

Activities which made this a varied and exciting social studies experience included writing letters for further information, studying shipping lanes and ship companies, setting up displays, demonstrating skills used by ancestors and inviting speakers to the room.

Beginning with one hundred six students, this was a time-consuming and demanding experience for a teacher to conduct and needed the cooperation of the three other teachers of the team. It could be carried out as easily in a self-contained classroom as it was in this open, non-graded group.

The basic measuring device used was SCAMIN, a Self-Concept and Motivation Inventory, given students in the fall and again in the spring. Analysis of the data gathered in this inventory is open to various interpretations. Statistically significant changes occurred in five of the twenty-eight areas of the inventory.

Conclusion drawn at the end of the year's study was that it was a success in terms of teacher evaluations, such as seen in observation of student interest, attitude and participation. Basic skills in map and globe work tested remarkably higher in the spring than they had in the fall, without drill or practice or stress on these skills. These skills became an essential need of students as each pursued his/her study or his/her historical background and ancestry. Whether or not self-concept can be changed in the classroom may still be open to question, but the year's work convinced the team of teachers involved that it was an effective and successful year. Many of the things introduced during this year



of study have been adapted and included in the Social Studies Curriculum and *Personalization* has become an important word in this teaching team vocabulary.

APPROVED BY RESEARCH COMMITTEE, MAY 1977

Russell H. Schmidt, Chairperson

A DESCRIPTIVE STUDY ON FACTORS AFFECTING THE ACQUISITION OF  
QUANTITY AND SPACE CONCEPTS INVOLVING KINDERGARTEN  
CHILDREN

Linda O. Flor

**PROBLEM:** The purpose of this study was to describe relationships among the factors age, sex, and/or Intelligence quotient and the acquisition of the basic concepts of quantity, space, and the total answers. The subjects of the study were kindergarten children in a suburban school near Minneapolis, Minnesota.

**PROCEDURES:** The study was conducted during the four-year period of 1975-1979. The subjects were 233 kindergarten children of which 102 were boys and 131 were girls. The study's population was a portion of the children who attended kindergarten. The 233 children were those whose parents chose to participate in the district-wide voluntary preschool screening assessment. This was given annually in the spring prior to starting school in September.

The data for analysis were the child's age, the child's sex, the child's IQ, the child's quantity concept scores, the child's space concept scores, and the child's total concept scores. The *Group Large-Thomdike Intelligence Test, Level 1, Form A*, was used as the measuring tool for the IQ score. This was administered in January following their entrance to school. The *Boehm Test of Basic Concepts, Test 1, Form B*, was used as the measuring tool for basic concepts during the preschool assessment. All data was found in each child's cumulative school folder.

The data were analyzed using the Analysis of Variance Test (ANOVA) after dividing the children's age, sex, and IQ into two groups. Age groupings were sixty-six months or younger and sixty-seven months or older as of September first before entering kindergarten. The sex groupings were boy and girl. IQ groupings were 112 or less and 113 or greater. The quantitative, spatial and total answers for each group were compared in a two by two by two factorial design.

**FINDINGS:** A statistically significant relationship (.01 level) was found to exist between the IQ factor and the acquisition of the basic concepts. The relationship of the age factor and the acquisition of space concepts and total answers also showed this same level of significance. The age factors showed that a relationship existed with the quantity concepts at a .10 level of significance. Thus the IQ and basic concepts relationship were more reliable. There was no statistically significant relationship shown with the sex factor or with the interactions of age and sex, age and IQ, sex and IQ and age, sex, and IQ.

APPROVED BY RESEARCH COMMITTEE, FEBRUARY 1980

Florence M. Anderson, Chairperson

## A HISTORICAL CASE STUDY OF PROJECT REACH

Joyce Elaine Juntune

The purpose of this study is to make a historical case study of Project REACH and to report the evaluation of its progress after three years of operation. Project REACH (Reaching Educators and Actualizing Children) is a teacher development program that emphasizes a combination of theory and workable teaching strategies for developing creative thinking behavior on the part of students. It was developed by the staff and administration of Pike Lake Elementary School, Independent School District #621 (Mounds View), New Brighton, Minnesota.

A systematic, research based, teacher inservice program was the core of Project REACH. Classroom teachers attended these sessions to develop their understanding of thinking, behavior, and creativity. The sessions also assisted teachers in developing instructional methods which emphasized creative thinking. The traditional curriculum content became the medium for developing each student's creative thinking potential. Parents were also trained in methods for encouraging creative thinking behavior in the home.

All students were pre-tested in 1974 with the *Torrance Test of Creative Thinking* and the *Multiple Talents Test*. Post tests were given in the spring of 1975, 1976, and 1977. A random sampling of students were selected for analysis purposes. Students in grades four through six from a nearby school were used as a control group.

The testing showed statistically reliable increases on the *Torrance Tests of Creative Thinking* and the *Multiple Talents Tests* in gain scores of project school students across the duration of the project and in the comparison scores of the project school students with the control school students.

Project REACH was successful in implementing a program for assisting teachers in actualizing the creative potential of their individual students. In talking with teachers involved in the project, it was evident that the majority of teachers felt their own creative potential was awakened and developed more fully. They also indicated a permanent change in their teaching style and new ways of perceiving their students.

APPROVED BY RESEARCH COMMITTEE, JULY 1978

Russell H. Schmidt, Chairperson

## INVESTIGATION OF THE IDENTIFICATION OF LEARNING STYLES

Ray A. Lucas

The purpose of this study was to explore the feasibility of using the non-verbal *Personal Profile* developed by Dr. John G. Geier, as an instrument to identify learning style in fourth, fifth, and sixth grade students. The investigation attempted to determine if relationships exist between:

- 1) Students' non-verbal *Personal Profile* responses and re-administration non-verbal *Personal Profile* responses.
- 2) Students' non-verbal *Personal Profile* responses and teachers' non-verbal *Personal Profile* responses.
- 3) Students' non-verbal *Personal Profile* responses and teachers' verbal *Personal Profile* responses as the teachers view the students.
- 4) Students' non-verbal *Personal Profile* responses and teachers' Forced Choice Descriptors responses as the teachers view the students.
- 5) Students' non-verbal *Personal Profile* responses and the way students are viewed by their peers in non-verbal *Personal Profile* responses.

6) Students' non-verbal with students' verbal *Personal Profile* responses. The investigation was conducted with 237 nine, ten, eleven, and twelve year olds, and with random samples from this population.

All students were assessed to determine their "DISC" dimensions as defined by the non-verbal *Personal Profile*. A re-administration of this instrument was conducted with a random sample. An assessment of a random sample was made using the verbal *Personal Profile*. Teachers were asked to make assessments of the re-administration sample using: 1) the non-verbal *Personal Profile*, 2) the verbal *Personal Profile*, and 3) the Forced Choice Descriptors Instrument. Students were asked to view peers in a randomly selected group using the non-verbal *Personal Profile*.

Responses were analyzed in an attempt to: 1) describe the behavior patterns identified by the non-verbal *Personal Profile*, 2) determine the reliability of the non-verbal *Personal Profile*, and 3) determine the validity of the non-verbal *Personal Profile*, for fourth, fifth, and sixth grade students.

**FINDINGS:** It was concluded from the analysis of mean responses that students perceive expectations of tolerance, attentiveness, and following expected practices; that students have a positive self-image, and perform to meet acceptable goals under pressure. Further, it was concluded that girls perceive themselves as receiving fewer expectations of assertiveness and respond with less dominant self perceptions. Under pressure girls respond with perceptions of more conforming behaviors. It was concluded that no difference exists across grades in mean responses, but that differences across ages may be due to developmental stages.

The non-verbal *Personal Profile* demonstrated positive reliability across three of the four dimensions, "DIS," at .001 significance level. No positive reliability was apparent for the "C" dimension. No apparent relationship exists between the verbal and non-verbal instruments as used by students in this study, but teachers' responses were consistent on the verbal and non-verbal instruments.

Validity was determined greatest in the responses of students with peers. Teachers' responses compared with students' responses did not produce a strong relationship.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1977*

*Russell H. Schmidt, Chairperson*

### *ASSESSMENTS DESCRIBING CHASKA FIFTH GRADE STUDENTS' MATHEMATICAL FUNCTIONING*

*Norma Strommer McNeilis*

The purpose of this study was to investigate: 1) learning that is assessed by standardized tests and Piagetian interviews and 2) similarities and differences between males' and females' verbal, visual-spatial, and mathematical achievement. Jean Piaget's ideas about knowledge and assessing it were summarized. Learning and thinking meant to be assessed by standardized tests were reviewed. Differences in males' and females' verbal, visual-spatial, and mathematical achievement as found by others were summarized. Comparisons of Piagetian Interview, Stanford Achievement, and Cognitive Abilities Test results were analyzed. Results indicated that Piagetian Interviews and the nonverbal section of the Cognitive Abilities Test assess similar reasoning. Data showed that fifth grade males' and females' performances on verbal, visual-spatial, and mathematical assessments were

similar. Reasons for these results were considered.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1979

*Florence Anderson, Chairperson*

## BEHAVIOR: HOW IT RELATES TO SELF-CONCEPT

*Helene Elizabeth Swartwood*

**PROBLEM:** The purpose of this study was to investigate the relationship between the self-concept and the anti-social behaviors among first grade children in a suburban school district adjacent to Minneapolis, Minnesota.

**PROCEDURE:** The study was conducted during the 1976-1977 school year, using the twenty-one boys and girls of the author's first grade classroom as subjects. A pre-test/post-test design was followed using *The Self-Concept and Motivation Inventory* and *The Self Awareness Inventory* as the measuring instruments. Both inventories were administered in November and again in May. An outside observer visited the classroom for an eight day period prior to each testing period and counted the target behaviors of the students.

During the six-month period between testing, the author followed a behavior modification program designed to "catch the children being good" by rewarding their positive behaviors. Through this program, the author hoped to increase the child's self-concept and at the same time, decrease the anti-social behaviors.

The data were analyzed using the Pearson product-moment test for correlation to see if any statistically significant correlations existed between the variables.

**FINDINGS:** A high negative correlation (.05 level) was found to exist between the post-observation counts in Anti-Social Behavior and the post-test scores in Role Expectations, Self-Adequacy, and Self-Concept. Significant positive correlations were found between the change in Anti-Social Behavior counts and the pre-test score in Self-Concept.

Further analysis was undertaken of the data of eight students whose self-concept improved more than the class mean. In addition to the above statistically significant correlations, the following high correlations were also found to exist: Post-observation Anti-Social Behavior Count and Achievement Investment; Anti-Social Behavior change and pre-Motivation scores; Anti-Social Behavior change and the change in Self-Adequacy scores.

**SUMMARY AND CONCLUSIONS:** The high correlations between the variables means that the child has learned by having his honest efforts rewarded. Reinforcement of the positive behaviors appears to have strengthened the success pattern in the school environment. The lowest Self-Concept scores of the pre-testing period tended to show the greatest change in Anti-Social Behavior counts.

APPROVED BY RESEARCH COMMITTEE, JULY 1977

*Edgar A. Bavery, Chairperson*

## HEALTH, PHYSICAL EDUCATION AND RECREATION

### ANXIETY LEVELS OF SENIOR HIGH SCHOOL STUDENTS

*Dennis L. Baldua*

The IPAT 8 Parallel-Form-Anxiety Battery Form A was administered to 305 sophomores, juniors and seniors from Watertown-Mayer High School, Watertown, Minnesota. All the subjects were volunteers including 118 sophomores, 92 juniors and 95 seniors in the study.

The purpose of the study was to determine if there were differences in anxiety levels of different subgroups within the school. The following hypotheses were tested: 1) There will not be a significant difference in the anxiety levels of males and females. 2) There will not be a significant difference in the anxiety levels of athletes and nonathletes. 3) There will not be a significant difference in the anxiety levels of arts participants and nonparticipants. 4) There will not be a significant difference in the anxiety levels of students who participate in both athletics and arts and those who participate in only arts, or only athletics. 5) There will not be a significant difference in the anxiety levels of sophomores, juniors or seniors. 6) There will not be a significant difference in the anxiety levels of those who participate in team sports and individual sports, or those who participate in both team and individual sports. 7) There will not be a significant difference in the anxiety levels of male and female athletes. The Null Hypotheses was assumed in analyzing the mean differences in anxiety scores for the groups. The  $t$  Test Technique was used to determine differences and the hypotheses were accepted and rejected on the basis of the .05 level of significance.

The results indicated that for this investigation the females had significantly higher anxiety scores than the males. The same results were found for male and female athletes. There were no significant differences in the athletes and nonathletes or in the arts and nonarts participants. Those who participated in both arts and athletics had anxiety scores that were significantly higher than those who participated in only one or the other. The juniors had anxiety scores that were significantly lower than the sophomores and seniors. There was not a significant difference in the anxiety scores of those who participated in team sports and individual sports or both team and individual sports.

It appears that the activity programs neither cause nor relieve anxiety in the students and that the sex and age of the student may have more influence on anxiety than the activities in which the student participates.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1979

*John M. Kelly, Chairperson*

### THE EFFECTS OF DOWNHILL TRAINING ON SPRINTING SPEED

*William Scott Bye*

Forty male students at St. Cloud State University were selected to determine the effects of downhill training on sprinting speed. Pre- and post-testing sessions were used to investigate whether or not changes occurred in the sprinting speed of these forty individuals, due to the effects of training on a downhill surface as opposed to training on a level surface. Group A

consisted of those runners who trained on a level surface and constituted the control group. Group B was made up of those runners who trained on a downhill surface.

The following hypothesis was investigated and accepted: after a ten week training period, there will be no significant difference in sprinting speed between a group of runners trained on a downhill surface and a group of runners trained on a level surface; nor will there be pre-test and post-test differences within either group. Pre- and post-testing values for sprinting speed (as measured by a forty-yard dash) were compared using t-ratio tests to determine if any significant changes had taken place. The .05 level of confidence was used to indicate significance.

It was concluded that there were no significant changes either within or between the mean speeds of the two groups. The individual subjects exhibited very little gain in sprinting speed. The slowest runners, in each group, improved at the fastest rate. Although some benefit was experienced by each group through its respective training method, the benefits were not significant.

It was recommended that further study is necessary in this area of downhill training. Further study utilizing more subjects and occurring over a longer period of time, and with more intensive training would add to the validity of the findings of this study.

APPROVED BY RESEARCH COMMITTEE, FEBRUARY 1979

*John M. Kelly, Chairperson*

## THE BODY COMPOSITION OF HIGH SCHOOL WRESTLERS

*William D. Gilman*

The body composition of forty-six high school wrestlers was evaluated densitometrically and anthropometrically in pre-season (September-November) and in the peak-season (late January-early February). The testing consisted of height, weight, thirteen skeletal diameters, six body circumferences, seven skinfold thicknesses, and the determination of residual lung volume and underwater weight. These data were evaluated for significant changes between tests and compared with previous body composition studies. Prediction equations for body density, percent fat and minimum wrestling weight (MWW) were developed using step-wise linear regression analysis. The Wickkiser-Kelly, Sinning, and Tipton-Tcheng prediction equations were evaluated on this group of wrestlers. The perception of MWW of the coaches, wrestlers, and physicians was compared to the MWW determined densitometrically in the laboratory.

Significant decreases occurred between the pre- and peak-season tests in all seven skinfold thicknesses, the thigh and calf circumferences and a significant increase occurred in the neck circumference. There was a three-pound gain in lean body weight, a three-pound decrease in fat weight, no change in total body weight and a decrease in the percent fat from 13.0 percent to 10.9 percent. These wrestlers were smaller in lean body weight and fatter than collegiate wrestlers. The prediction equations developed for this group correlated with the laboratory determined values as follows: Body density,  $R = .90 \pm .0055$  gm/cc; percent fat,  $R = .91 \pm 2.2$  percent; MWW,  $R = .99 \pm 3.44$  pounds. The Wickkiser-Kelly equation was the best of the three tested and had an  $R = .83 \pm 2.18$  percent for fat and  $R = .99 \pm 3.48$  pounds for MWW. The densitometrically determined MWW was compared to that perceived by the coaches, wrestlers, physicians, and the formula predicted weight classes. The formulas were the best predictors of MWW and the physicians under predicted MWW most frequently.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1977

*John M. Kelly, Chairperson*

**A COMPARATIVE STUDY OF THE INCIDENCE OF INJURY IN FEMALE AND MALE BASKETBALL PLAYERS IN SELECTED MINNESOTA STATE HIGH SCHOOL LEAGUE SCHOOLS**

*Dianne K. Glowatzke*

The purpose of this study was to investigate the incidence of injury in girls' basketball compared to the incidence of injury in boys' basketball. Class A schools in Region 5 of the Minnesota State High School League were selected for study. Of the ninety head coaches initially contacted, sixty-four persons, thirty-two girls' coaches and thirty-two boys' coaches, took part in the injury evaluation.

Evaluation of basketball injury was limited to varsity basketball players in grades ten, eleven and twelve. Three hundred and twenty girls and four hundred and twenty-one boys were evaluated for an eleven week period. Injury evaluation began on the first day of practice as set by the Minnesota State High School League and concluded on the Friday preceding MSHSL District tournament play.

The writer collected data by utilizing an injury report card. Coaches provided the following information on the injury card: (1) player's name, (2) part of the body injured, (3) type of injury sustained, and (4) whether the injury occurred in practice or during a game.

Three hundred and sixteen injuries, 151 injuries to girls and 165 injuries to boys, were sustained by varsity basketball players. Chi square was employed to accept or reject the null hypothesis at the .05 level of confidence. The null hypothesis that there was no significant difference in the incidence of injuries sustained by male and female varsity basketball players was accepted.

Sprained ankles, foot blisters, bruised knees, sprained knees and sprained fingers were the most often occurring injuries. Of these five injuries, girls sustained significantly more sprained fingers. No significant difference was found between females and males in the types of injuries sustained nor in the body parts injured with the exception of injuries to the finger area in which case girls sustained a significantly greater number.

The part of the season in which injuries occurred to study participants was found to be not significant. Furthermore, there was no significant difference in the number of injuries sustained in practices compared to numbers occurring during games.

No significant difference was found in the number of injuries sustained between girls in grades ten, eleven and twelve. On the other hand, boys in grade ten were injured significantly more than were boys in grades eleven and twelve. In addition, girls in grade twelve were injured significantly more than boys in the same grade and boys in grade ten were injured significantly more than girls in the same grade.

Finally, no significant difference was found between females and males in the number of injuries sustained at the center, forward or guard positions. However, tenth grade boys playing center and guard were injured significantly more than tenth grade girls playing these positions.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1977

*Frank P. Osendorf, Chairperson*

**BODY COMPOSITION AND SOMATOTYPING OF FEMALE HIGH SCHOOL GYMNASTS PRE- AND POST-SEASON**

*Geraldine L. Graham*

Forty female high school gymnasts from Apollo, Technical and Cathedral

High Schools in St. Cloud were densitometrically and anthropometrically measured during the gymnastic season, November to April, 1976-1977. Density was measured by hydrostatic weighing in a stainless steel tank. Determinations for residual lung volume were taken using the closed-circuit oxygen dilution method. A total of fourteen skeletal diameters, twenty body circumferences, and nine skinfolds were measured. A regression equation to predict per cent body fat was developed using seven variables: Midaxillary skinfold, age in months, and the circumferences of the right knee, right wrist, waist, hips and breast (multiple  $R = 0.92$  with a standard error of estimate  $\pm 2.167$  per cent). A similar regression equation was developed to predict the ideal competitive weight after fifteen per cent body fat using three variables: Weight, abdomen and thigh circumference ( $R = .94$  with a standard error of estimate  $\pm 4.84$  pounds). Descriptive data, step-wise linear regressions, and a t-test for correlated pairs were analyzed by the computer. Subjects were divided by age to evaluate the differences that might exist because of age. A t-ratio test was used to note significant changes in the anthropometric and densitometric data as a result of physical training. Comparisons were made with other studies done on gymnasts: One group of high school students; two groups of nationally ranked and Olympic gymnasts; one group of college-age gymnasts; and two groups of non-gymnasts, college-age. A somatotypic description of each gymnast was compiled by the Health-Carter method and compared to the visual ratings established by the coaches. Previously established formulas were applied with the data from the present study to determine the accuracy of per cent fat and body density in the calculations of the present study.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1977*  
*John M. Kelly, Chairperson*

#### *AN ANALYSIS OF STRENGTH AND MUSCULAR ENDURANCE CHANGES OF UNIVERSITY FOOTBALL PLAYERS DURING THE REGULAR FOOTBALL SEASON*

*Robert Earl Hilton*

Thirty-seven players of the 1978 St. Cloud State University football team selected by their coach prior to the season as players who would likely be starters. This population represented all the various positions on a football team. The players were divided into two groups; an experimental and control group. The experimental group performed the strengthening exercises during the season. Pre-, peak-, and end-season test sessions were used to determine if muscular strength or muscular endurance changes occurred in both groups throughout the entire season. The movements analyzed during this study were flexion and extension of both knees. The pre-, peak-, and end-season test values for strength and muscular endurance were compared by using a one-way analysis of variance with repeated measures. The Tukey test was utilized to determine which differences were significant. Both methods for analyzing the data used the .05 level of significance to accept or reject the hypotheses.

In the control group, 45 of the 48 tests administered showed decreases in strength or muscular endurance. The experimental group elicited a greater number of increases than decreases. It was concluded that the program utilized by the experimental group allowed them to maintain or slightly increase their strength. The movement speed showing the greatest loss in the control group was 180 degrees per second while in the experimental group the same number of increases occurred at 30, 120, and 180 degrees per second. The variable most affected in this study was muscular endurance. All 12 tests in the control group showed decreases in muscular endurance, while in the



experimental group nine of the 12 tests demonstrated increases in muscular endurance. The muscle group showing the greatest loss in the control group was the quadriceps, eliciting decreases in each of the 24 tests while in the experimental group increases occurred in 13 of the 24 tests. Therefore, the quadriceps showed the greatest benefit from the program. It appears the exercise program utilized by the experimental group was adequate enough to maintain strength but not intense enough to promote significant increases. Another possible explanation for the lack of significance by the experimental group was the athletes were in good condition prior to the start of the season, therefore, making it more difficult to show significant improvement. It is feasible for a squad of 60 ballplayers to perform these exercises with six universal knee machines purchased over a period of time.

During the course of this study four knee injuries occurred within the control group, while no knee injuries occurred within the experimental group. These data present a strong case for trainers, coaches, and football teams to include an in-season strengthening program, not only to increase performance but to aid in the prevention of injury.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1979

*John M. Kelly, Chairperson*

#### *A COMPARATIVE STUDY OF THE COMPLETIONS AND ATTEMPTS IN THE FIRST SHOT OF THE ONE-AND-ONE AND TWO-SHOT AWARD IN THREE FEMALE INTERCOLLEGIATE BASKETBALL TOURNAMENTS*

*Mary C. Ingram*

**PURPOSE:** The purpose of this study was to investigate the first shot in the one-and-one situation versus the first shot in the two-shot award under various game conditions in three 1977 female intercollegiate basketball tournaments. Game conditions studied were half of game, point difference in score, point difference and half of game combinations, and level of competition. Research was undertaken to determine whether a significant difference existed between the proportions of completions and attempts of the first shot in the two groups of fouls under the influence of game factors.

**LIMITATIONS:** The study was limited to the free throw statistics taken from the 1977 MAIAW State Basketball Tournament, Region 6 AIAW Basketball Tournament, and AIAW National Basketball Tournament. The sample was comprised of a select group of women basketball players. The female intercollegiate players consisted of all one-and-one and two-shot foul-shooting participants in the three 1977 tournaments. Thirty-one basketball games were evaluated.

**PROCEDURES:** Data was recorded by the author by utilizing a free throw chart. Information obtained included type of foul-shot, point difference in score, half of game, and level of competition.

**TREATMENT OF DATA:** *T* test for the difference between two proportions was employed to accept or reject the null hypotheses at the .05 level of confidence. A critical *t* value of 1.96 or more was the criterion for significant difference between the two types of foul-shot.

**FINDINGS:** The findings of this study present an overall view of foul-shooting performance in the first shot in the one-and-one and two-shot award in three 1977 female intercollegiate basketball tournaments.

The results indicated that the basketball players performed significantly better in the first shot in the one-and-one situation, when compared to the

first shot in the two-shot award in the following areas: (1) second half of games in the combined tournaments, (2) total games in the MAIAW Tournament, (3) first half and second half of games in the MAIAW Tournament, (4) point difference in score of zero to five points in the MAIAW Tournament, and (5) second half with a zero to five point difference in score in the MAIAW Tournament.

A significant difference, favoring the first shot in the two-shot awards, was found in the AIAW Tournament when the point difference in score was zero to five points.

*APPROVED BY RESEARCH COMMITTEE, MAY 1978*  
*Robert G. Waxlan, Chairperson*

### *A STUDY OF THE EFFECTS OF THREE ELEMENTARY PHYSICAL EDUCATION EXERCISE PROGRAMS IN RELATIONSHIP TO PHYSICAL FITNESS AND HEART RATE OF SIXTH GRADE STUDENTS*

*Bradley J. Isberner*

**PROBLEM:** It was the purpose of this study to explore three different sixth grade elementary exercise programs and determine which program would promote the highest level of physical fitness. Also, to find which exercise programs contributed to cardiovascular fitness as measured by resting heart rate and to find which programs significantly improved AAHPER Youth Fitness Test scores within a six week time period.

**PROCEDURE:** Three sixth grade classes at Kimball Elementary Public School were randomly placed in a fitness exercise program for a six week period. Pre fitness test scores were taken and recorded and a group mean fitness score and pre resting heart rate was then determined. The first class was placed in Group I, the circuit training exercise program; the second class was placed in Group II, the running and flexibility exercise program; and the third class was placed in Group III, the standardized exercise program. Each group performed a specified set of exercises three days per week for six weeks. Post fitness test scores were then taken and recorded along with post resting heart rate. Pre and post test scores were then compared by use of the t-test to determine significant differences. Also, pre and post resting heart rate were compared to determine significant values. Each program was then compared to one another to determine which exercise program proved to have the most substantial gain in improving physical fitness levels and resting heart rate.

**FINDINGS:** This study indicated that the standardized exercise program, Group III, along with various forms of running, significantly improved fitness levels by .001 level of confidence. Also, this group indicated a lower post mean resting heart rate by .05 level of confidence. Significant improvement was indicated in four of the six tests given.

The circuit training exercise program, Group I, indicated an improvement of physical fitness level by .03 level of significance. Resting heart rate was not improved by significant values. Group I improved significantly in three of the six tests given.

The running and flexibility exercise program, Group II, indicated the least improvement in fitness levels and resting heart rate. There was no indication of significant improvement in physical fitness level nor in resting heart rate. However, there was significant improvement in four of the six tests given.

**CONCLUSIONS:** Through this study it may be concluded that the standardized

fitness exercise program, Group III, proved to have a substantial gain over two other exercise programs in improving physical fitness and lowering resting heart rate in a six week time period. It shall also be noted that all three programs increased physical fitness levels over a six week time period and that improvement of five of the six tests given was indicated when group mean values were combined from all three exercise programs.

APPROVED BY RESEARCH COMMITTEE, OCTOBER 1979  
*John Kasper, Chairperson*

### **A COMPARATIVE STUDY OF THE SUCCESS OF GIRLS' AND BOYS' BASKETBALL TEAMS IN THE CENTRAL GOPHER CONFERENCE**

*Sharon K. Lorton-Gregerson*

**PROBLEM:** The problem of the study was to compare statistical results of the boys' and girls' basketball teams. A comparison of the relative success rate of the teams to selected factors was made to discover which of the factors contributed most to a team's success.

**SAMPLE:** The boys' and girls' varsity teams of the seven Central Gopher Conference schools were chosen as samples for the study.

**REVIEW OF LITERATURE:** The review of literature cited studies that supported the hypothesis that success is often contagious between teams at the same school. Current literature presented popular ideas such as coaches feel that superior facilities encourage success, money is needed to obtain superior coaches, large numbers of athletes are needed in a program to succeed, off-season training is necessary to improve individual skills, and superior skill level is a desirable asset for an athlete.

**PROCEDURES:** The win-loss percentages of the boys' and girls' basketball teams were correlated separately for the girls and boys with seven variables which included school population, facilities, practice schedules, coaching experience, off-season training, athletic budget, and skill level. The Pearson rank order correlation formula was used.

**RESULTS AND CONCLUSIONS:** The analysis of the data found that nine correlations of a possible twenty-eight were significant at the .05 level. Rank order correlations were calculated between the girls' and boys' win-loss percentages, and also for the boys' and girls' teams separately to the seven selected factors. The variables that were found to be significantly related to the boys' win-loss percentage were boys' field goal percentage and amount of money spent on the boys' basketball program. Offensive average, defensive average, and margin of win-loss were found to be significantly related to both the boys' and girls' win-loss percentages. A significant positive correlation was found between the success of the boys' basketball team and the girls' basketball team at the same school.

The study found that the girls' basketball team statistics were lower than those of the boys' teams. Less money was spent on the girls' teams than on the boys' teams. The practice schedules and facilities were very similar for the girls and boys, but the boys' average number of practice hours was greater. Coaches of boys' and girls' teams had similar years of coaching experience. A need was shown to have further studies conducted on girls' basketball, on differences between girls' and boys' basketball programs, and

on factors that influence the success of basketball teams.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1977  
*Frank P. Osendorf, Chairperson*

### AN ANALYSIS OF THE EFFECTS OF A JUNIOR SIZE BASKETBALL ON THE SKILL LEVEL OF NINTH GRADE GIRLS

*William G. Pohl*

**PROBLEM STATEMENT:** This is a study to determine whether the use of a smaller basketball by ninth grade girls would be to their advantage in terms of skill performance.

**RESEARCH METHOD AND DESIGN:** All ninth grade girls at Buffalo Junior High School, Buffalo, Minnesota, were tested with half using junior sized basketballs and half using the larger regulation ball. They were tested against a battery of four tests from the AAHPER Basketball Tests for Girls. Forty-one girls were randomly selected from each test group to represent the sample. The scores of the tests were set against Mann-Whitney U test with a critical value of 1.96 at the .05 level of significance.

In addition, all the ninth grade girls and ninth grade boys were hand printed for the purpose of showing hand size difference and advantage in the use of the present regulation ball. The relationship of the girls' hand size to the smaller ball was also demonstrated.

**MAJOR FINDINGS:** The null hypothesis stood as is in the Half-Minute Shooting Test, the Push-pass Test, the Dribble Test, and the Foul Shot Test. In three of the four tests the statistics favored the smaller basketball, although not significantly.

There was a definite advantage to the boys in hand area for holding or maneuvering the regulation ball and a positive gain in holding or maneuvering the smaller ball for the girls in relation to their hand size.

It was concluded that this study does not statistically show advantages of the use of the small ball and recommended that more study be done with practice and teaching time. Another recommendation is to test the smaller ball against the larger ball over an interscholastic season with statistics being compared.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1979  
*John Kasper, Chairperson*

### A STUDY OF SELECTED PERFORMANCE FACTORS AND THEIR RELATIONSHIP TO TEAM SUCCESS IN COLLEGE BASKETBALL

*Donald L. Rockstad*

The purpose of this study was to determine the relationship between selected basketball performance factors and team success. A further purpose was to determine the possibility of establishing an accurate regression equation that would be useful in predicting the success or failure of a team. The male varsity basketball teams at St. Cloud State University, Eastern Washington University, West Texas State University, and the University of

Toledo were selected for this study. All varsity basketball games were charted during the period 1972 through 1978 to provide the information needed. The following information was requested: 1) the OER, 2) the DER, 3) rebound percentage, 4) turnover rate, 5) field goal percentage, and 6) free throw percentage of each team.

A computer analysis was used to compute the condensative data, the zero-order correlation coefficients, the *t*-ratio tests, the multiple correlations, and the regression equations from the data.

The multiple correlations and regression equations were computed by the use of the step-wise linear regression technique. Two multiple correlation and regression formulas were derived for the prediction of the winning percentage criterion, one with the variable OER-DER and one without the variable OER-DER. A multiple *R* = .92 and a Standard Error of the Estimate of  $\pm 6.96\%$  was found between the criterion and the performance factors, OER-DER, field goal percentage, and rebound percentage. A second multiple *R* = .93 and a Standard Error of the Estimate of  $\pm 7.1\%$  was found between the criterion and the performance factors, OER, DER, rebound percentage, and field goal percentage. Even though the standard error in both cases was quite large, it was felt that the equations were still of some value in the prediction of winning percentage.

It was concluded that there were several relationships between the criterion, winning percentage, and selected basketball performance factors. It was also concluded that an accurate regression equation could not be derived for the prediction of winning percentage, but that its value was great enough to be of some use.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1978

John M. Kelly, Chairperson

#### AN ASSESSMENT OF HEALTH KNOWLEDGE AND ATTITUDES OF NINTH GRADE AND TWELFTH GRADE STUDENTS WITHIN THE MOUNDS VIEW SCHOOL DISTRICT

Russell D. Scholer

The purpose of this study was to determine to what extent proposed curriculum changes could be made in health education at the secondary level, based on data gathered in both the cognitive and affective domains. The Seffrin Standardized Test of Health Education Objectives in the Cognitive Domain was used to gather data on students' knowledge levels. A two-part questionnaire, developed by this author, was administered to students in an attempt to develop a reflective picture of student attitudes and values as they related to their experiences in health education.

The test and questionnaire were administered to ninth and twelfth grade males and females in the Mounds View School District #621, located in St. Paul, Minnesota during the 1979-1980 school year. The sample population used in this study included 563 ninth grade students attending four different schools containing ninth graders, and 205 twelfth grade students attending two different high schools. The overall distribution between males and females was nearly equal, with males making up 390 students and females making up 378 students.

The significance of the problem that brought about this investigation was a lack of a district-wide evaluation of health education at the secondary level. In order to affect change in the area of health education within the Mounds View School District, such a district-wide evaluation tool was needed in order to identify strengths and weaknesses in the present curriculum.

The investigative procedures employed in this study included permission to conduct the research, granted by the Mounds View School District Director of

Testing, Evaluation, and Staff Development, the six school principals involved, the school instructors whose class time was used, and parental approval for their son or daughter to participate. Students were randomly selected using the school district computer to generate student groups, with the test instrument being administered at each building by the author according to the specified conditions on the manual of directions.

The validity and reliability of Seffrin's Instrument reported a mean of 33.42 and a measure of variability that displayed a range of scores from a low of nine to a high of 63 on a 70 item Instrument. The standard deviation reported was 10.47. Reliability was computed using the Kuder-Richardson Formula 20 and was found to be .8728.

Statistical procedures included in this study were item analysis and a computer program (SPSS) that had as subprograms the F test, the T test, Cochran's test for homogeneity, and a frequency distribution table. Each of these tests was used in a supportive way to establish significant data results.

Comparisons were made with the resulting data, using the variables of schools as a whole, sex, question, and concept. T tests were run between two variables to determine which group caused the significant F to occur within the item analysis.

The principal results of the investigation include the following items:

1. There was a significant difference found among the mean scores by question and concept when all six schools were compared using the total population.
2. There was no significant difference found between the mean scores by question when ninth and twelfth grade males were compared by grade level to ninth and twelfth grade females.
3. The three concepts that the total population scored the highest in were: a) personal health (68%); b) family life (57%); and c) mood modifying substances (56%). These three topics are taught in all six schools at the secondary level, within the Mounds View School District.
4. When all students were asked how useful they felt their health education classes were to them in their everyday life, 10 percent said very useful, 42 percent said useful, and 41 percent felt they were somewhat useful.

In conclusion, the study revealed a wide range of knowledge strengths and weaknesses between the six schools involved, with a hypertrophy of knowledge occurring between ninth and twelfth grade students. Students seem to demonstrate difficulty with several basic health knowledge questions and concepts, that would seem to indicate a less than adequate understanding of issues to be an effective health information user. Finally, it appeared that students' curricular needs are wholistic rather than topical. This pattern revealed itself when students were given the opportunity to list current areas of importance they desired information be presented on.

APPROVED BY RESEARCH COMMITTEE, MAY 1980  
*Frank Osendorf, Chairperson*

#### LIBRARY AND AUDIOVISUAL EDUCATION

#### ADVANCING MEDIA IN EDUCATION, MINNESOTA'S EDUCATIONAL MEDIA ORGANIZATION

*Michael Buck*

PROBLEM: There are many members and supporters of the Minnesota Educational Media Organization (MEMO) who know little or nothing of the organization or its purposes. In order to develop an expanded public relations program, MEMO

sought to develop an informational message that could be easily transported and shipped to meetings throughout the state with a minimal cost and a maximum amount of effectiveness.

**PROCEDURE:** The slide/sound presentation was selected as the medium best suited to deal with the problem; and a single tray, single screen program was selected as being most feasible. The field study was designed to research and produce such a program, and the study was subsequently divided into two parts. Part one was historical research in that it was designed to capture in writing the history of the two parent organizations, the Minnesota Association of School Librarians and the Minnesota Audio-Visual Coordinators of Minnesota, and the subsequent merger into MEMO. The second part was to research the history of MEMO and to develop a slide/sound presentation that was to include: (1) a short historical sketch, (2) the organizational structure of MEMO, (3) the activities of MEMO, and (4) the future of MEMO.

**CONCLUSIONS:** The presentation portrays, positively, through narrative and personal commentary, that MEMO is an educational media organization of people and programs, which is committed to promoting professionalism in the teaching and learning process.

*APPROVED BY RESEARCH COMMITTEE, MAY 1980*  
*Lawrence Smelaer, Chairperson*

***SEX ROLE STEREOTYPING IN A RANDOM SAMPLING OF 16mm FILMS, WITH  
RELEASE DATES AFTER 1973, INTENDED FOR INSTRUCTIONAL USE WITH  
CHILDREN OF KINDERGARTEN THROUGH SIXTH GRADE AGES***

*Cynthia Frits*

**PROBLEM:** The problem of the study was to determine if producers and distributors of instructional 16mm films located in the Hopkins School District film library for children of kindergarten through sixth grade ages have eliminated sex role stereotypes in their films since the Title IX regulations of the Education Amendments of 1972.

**PROCEDURE:** The fifteen films selected for the study were a stratified random sample of 16mm instructional films, having release dates of 1973 or later. Three films from each of five different curriculum subject areas in the Hopkins School District #274 Film Library were randomly selected. These films were viewed together, over a two day period, and were then evaluated separately by a male and female, each using a check list evaluation sheet. A consensus of what was viewed was arrived at by the male and female together on a separate "consensus" sheet of this same evaluation form. The films were evaluated to determine if a) males and females were portrayed in sex role stereotyped ways, b) a wide variety of jobs were open to both sexes, c) both women and men were equally visible in films, and d) one sex was put in a secondary position through the use of language.

**FINDINGS:** The data collected indicated that sex role stereotyping has not been eliminated in 16mm instructional films for elementary age children since the Title IX regulations of the Educational Amendments of 1972. Sex role stereotyping still exists and is evidenced by the high percentage of sex stereotyping of activities, roles, characteristics and occupational opportunities in the sampled films with release dates after 1972.

**SUMMARY AND CONCLUSIONS:** From the data collected, it was concluded that sex role stereotyping still exists in 16mm instructional films for elementary

school age children. It was recommended that this study be made available to district media personnel and to producers and distributors of films. A follow-up study, using only films produced in the last two years, should be made to determine if these films indicate that more progress has been made in eliminating sex role stereotyping. Studies should also be done concerning sex role stereotyping in non-print instructional materials such as videotapes, slides, filmstrips, audio recordings, etc.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1979*  
*Lawrence B. Smelser, Chairperson*

### *MOUNDS VIEW SCHOOL DISTRICT COMPUTERIZED IMC CATALOG OF NONPRINT MATERIALS*

*Robert E. Grahek*

**PROBLEM:** It was the problem of this research to describe the computerization of nonprint materials in the Mounds View School District and to evaluate the effect of the computerization on the ability of teachers to locate and use nonprint materials.

**PROCEDURE:** The description of the development of the computerized catalog was obtained from the notes and interviews by the author and the Mounds View Data Processing Department personnel. A questionnaire given to twenty-one teachers at Pinewood Elementary School provided the catalog's evaluation. These teachers were selected because they had used the catalog longer than other teachers in the District and they had been at Pinewood school at least one year prior to the introduction of the computerized catalog. All twenty-one questionnaires were returned.

**FINDINGS:** The catalog was a cooperative effort of the Mounds View Data Processing Department, Darrel Van Orsdel and this writer. In 1970, Mr. Van Orsdel and this author assumed new positions in the Mounds View School District. Immediately, both were faced with a common problem—the dissemination of information on nonprint collections to teachers.

Several meetings were held with the Data Processing Department which eventually led to a computer program being written and tested. In 1973, the first catalog was printed. The computerized or IMC file consisted of one hundred and fifty records stored on a disk storage file. Each record contained the type and key numbers, title, Dewey number, publisher code and grade level of each item. Also included in each record were the count and fund fields for each school, the District office and four open school areas. Changes, additions and deletions were processed randomly against the IMC file from punch cards. There were three listings which a user could request from the IMC file: An entire file, a school listing, or adhesive labels.

Because of a lack of funds, the future of the IMC file and catalog were questionable at the time of this study. However, a majority of the teachers who answered the questionnaire ranked the catalog excellent or good. They also stated that the catalog helped them find and use nonprint materials. The teachers concluded that the catalog should be updated and continued.

**SUMMARY AND CONCLUSION:** It is this author's opinion, based on the questionnaire results, that the computerized catalog has been accepted and used by the teachers and therefore should be continued.

*APPROVED BY RESEARCH COMMITTEE, OCTOBER 1976*  
*Lawrence B. Smelser, Chairperson*



*DEVELOPMENT OF AN ADMINISTRATIVE POLICY MANUAL FOR MEDICAL  
LEARNING RESOURCES CENTER STAFF AND A USERS GUIDE TO THE  
MEDICAL LEARNING RESOURCES CENTER, VETERANS ADMINISTRATION  
FARGO, NORTH DAKOTA*

*Glenn E. Hasse*

**INTRODUCTION:** In 1975 an affiliation between the United States Veterans Administration Center, Fargo, North Dakota, and the University of North Dakota Medical School, Grand Forks, North Dakota, was established.

Traditional library service, adequate for many years, could not provide the wide range of information services required. Proposals and contracts were formulated and approved. In 1976 enlarged collections, enlarged facilities and the addition of continuing medical education audiovisual programs and computerized capabilities for searching medical literature indexes were added as regular services.

This field study related to a very real need, the further refinement and definition of policy and procedure basic to operation of the Fargo Center. Veterans Administration Center Office guidelines do not and cannot cover the variety of situations and contracts extended by 170 field libraries.

Veterans Administration staff are now one of many groups of qualified users. Medical faculty, residents, students, professionals and paraprofessionals in the Southeast area of North Dakota are served by the Fargo Center under the terms of affiliations with the University Medical School and the federally funded Area Health Education Center (AHEC) program.

The situation at Fargo was ideal for a field study leading to preparation of an administrative policy/procedure manual for Medical Learning Resources Center staff and a Users Guide to the Center. This study was pursued by the author over a period of fifteen months.

**COLLECTION OF INFORMATION AND DATA:** An extensive literature search was conducted. Sample policy/procedure manuals and users guides were requested, but few were found to exist. Telephone interviews provided an important means for informal exchange of information and ideas with colleagues in the medical field.

**PRESENTATION AND INTERPRETATION OF DATA:** What is policy and procedure? Why and how are they developed? Policy is generally approved by top level administrators and put into written form. Procedure can be written or unwritten, consisting of methods and techniques by which policy is carried out, how things get done in a manner acceptable to higher authority.

**PREPARATION AND USE OF FARGO VAC MANUALS:** Results of this study show it is more difficult to arrive at specific policy in federal health care centers. The medical profession keeps a close eye on ancillary service departments. Furthermore, a very long chain of command exists, supplemented by the very real needs and desires of newly affiliated University Medical School and AHEC administrators. Two loose-leaf manuals were produced as a result of this study, found in appendixes A and B of the field study paper.

**SUMMARY AND RECOMMENDATIONS:** The author recommends that persons employed in federal resource centers cooperate fully with their agency central office staff to update general guidelines. These can be supplemented locally with bulletins, handouts, fact sheets and informal, loose-leaf administrative manuals and users guides.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER, 1977  
Lawrence B. Smelser, Chairperson*

*A STUDY OF THE 3M TATTLE TAPE BOOK DETECTION SYSTEM OF  
ST. CLOUD STATE UNIVERSITY*

*Harlan J. Jensen*

**PROBLEM:** The problem of the study was to determine if a book detection system would reduce book losses from open stacks and prevent unauthorized borrowing from a non-circulating collection.

**PROCEDURES:** A sample of four classification sections within the Reference Collection were selected for the study. A pre-inventory of those sections was conducted prior to the establishment of the detection system. A post-inventory of the identical sections was done after the detection system was in operation for two academic quarters. The book loss rate per academic quarter was then determined to establish if the detection system would reduce the rate of books lost.

**FINDINGS:** It was determined after the pre-inventory out of a sample of 7,710 books, 49 books were missing after eight quarters of use or an average book loss per quarter of 6.1 books. Following the post-inventory after the detection system had been used for two academic quarters, six books were reported lost from a sample of 7,682 books. After allowing for the variable length of time between the two inventories, it was determined that the book loss rate per quarter has been reduced by approximately 50 percent.

**SUMMARY AND CONCLUSIONS:** The results of this study indicated that: (1) the detection system reduced the book loss rate within the Reference Collection at St. Cloud State University; (2) the book loss rate at St. Cloud State University was below the average loss rate reported by other libraries; (3) patrons would receive better service because fewer books were stolen or borrowed without authorization; and (4) a reduction in the book loss rate would save replacement costs of needed materials. The results further suggest a need for additional studies on circulating collections to determine book loss rate.

*APPROVED BY RESEARCH COMMITTEE, JUNE 1977*

*Lawrence B. Smelser, Chairperson*

*POLISH NOVELS IN ENGLISH TRANSLATION: AN ANNOTATED BIBLIOGRAPHY  
AND A GUIDE TO THEIR LOCATION IN THE LIBRARIES OF THE  
MINNEAPOLIS-ST. PAUL METROPOLITAN AREA*

*Paul Theodore Kulas*

**PROBLEM:** The problem of the study was to identify the novels of Polish authors that have been translated into English and to indicate those translations which are available in Minneapolis-St. Paul area libraries.

**PROCEDURE:** To identify the Polish novels which have been published in English translation, general works on Polish literature and biographical dictionaries of European and world authors were examined and various appropriate bibliographies of translations were searched. The titles that were identified were then checked against the catalogs of libraries in the Minneapolis-St. Paul metropolitan area to determine if the translations were included in their collections. The libraries included in the study were the MELSA (Metropolitan Library Service Agency) libraries and the library of the University of Minnesota.

Biographical information about the authors and book reviews of the translations included in the study were sought.

FINDINGS: The study lists a total of one hundred and thirty-six translated Polish titles by seventy-five different Polish authors. Of these one hundred and thirty-six translated titles, eighty-nine were found in the various libraries in the Minneapolis-St. Paul metropolitan area.

APPROVED BY RESEARCH COMMITTEE, MAY 1978  
*Lawrence B. Smelser, Chairperson*

### **A PROFILE OF MEDIA GENERALISTS AND THEIR ACCEPTANCE OF THE INTEGRATED MEDIA CONCEPT**

*Thomas Richard Miller*

PROBLEM: The media generalist is a basic component of the school media program. Yet, in Minnesota, the media generalist is a new form of licensure. Because of the media generalist's influence upon the media program, and eventually upon the students who are served by the program, it was important that the media generalist be studied.

In Minnesota, as well as in the rest of the nation, the concept of an integrated media facility is relatively new. The attitudes that media generalists exhibit towards the concept of integrated media, will eventually determine whether or not the concept will survive.

Specifically, the problem of this study was (1) to establish a profile of licensed media generalists from within the state of Minnesota, and (2) determine whether licensed media generalists agree with the integrated media concept.

PROCEDURE: The descriptive survey characterizes the approach used for gathering data in this study. The survey, in the form of a questionnaire, was sent to a group of randomly selected media generalists, licensed as such by the state of Minnesota. The data received was coded and transferred to data processing cards for computer analysis and a printout of the frequency data. From the descriptive patterns which emerged, the writer was able to establish a profile of Minnesota media generalists and determine their acceptance of the integrated media concept.

FINDINGS: A profile, describing various characteristics of media generalists, was established. Those characteristics, which were described, included sex, age, title, tenure in present position, previous positions, previous institutions, areas of responsibility, and education.

It was found that media generalists do accept the integrated media concept. Their media facilities are integrated, and the majority of media generalists strongly agree with the integrated media concept.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1978  
*Lawrence B. Smelser, Chairperson*

### **PREDICTING FUTURE INSTRUCTIONAL MEDIA CURRICULUMS**

*Robert K. Smith*

PROBLEM: The intent of this study was (1) to identify future areas of competencies instructional media personnel need assistance in developing;

(2) to utilize the Delphi technique as a means of predicting which competencies of the state media standards instructional media personnel will need further renewal in the next 20 years; (3) to predict which area institutions of higher learning in the State of Minnesota offering curriculums in information media should possibly direct their energies and resources in the next decade to meet the future renewal needs of media personnel; (4) to further the growth of the author in designing a method of predicting instructional media curriculums and in designing a needs assessment of personnel presently in the field of information media; (5) to observe the social dynamics of the Delphi approach as the participants partake in the needs assessment; (6) to observe how the values of the group participating in the study have changed in the course of the study.

**PROCEDURE:** A series of three Delphi questionnaires was administered to individuals listed by the State Department of Education as being assigned as media personnel by their appropriate school districts. Thirty-four Delphi questions were formulated from information obtained from the Minnesota State Certification Standards. The means and variations of the three modified Delphi questionnaires were examined to determine what the working media "professional" thought about their competence as a certified media person. The fourth correspondence with the participants reported to them the results of the first three modified Delphi questionnaires. The results of each questionnaire were tabulated via computer and cross-referenced. A t-test was used to establish the significance of the mean and variance for each question. The results of each of the 34 questions from questionnaires one, two, and three were then compared. Each participant was sent a copy of the final results. A number of general conclusions were drawn from the data.

**SUMMARY AND CONCLUSIONS:** The results of the three Delphi questionnaires were not particularly conclusive. The study, Predicting Future Instructional Media Curriculums, tended to indicate that those individuals surveyed generally were rather confident about their capabilities as media persons. A high rate of variance on ten of the 34 questions tended to show more disagreement than the other 24 competency based statements. The areas of greater variance may indicate areas where institutions of higher learning in the State of Minnesota might offer new or improved media curriculums. These possible areas are:

- a. Ability to use computer resources
- b. Ability to meet needs in the year 2000
- c. Evaluation of processing services
- d. Ability to meet needs in the year 1980
- e. Ability in staffing
- f. Ability in budgeting
- g. Involvement in research
- h. Ability to use non-electronic resources
- i. Ability in community relations
- j. Ability in inventory
- k. Ability in electronic production
- l. Ability to meet needs in the year 1990.

This study should encourage others to use the Delphi technique as a method of predicting future media curriculums. Possibly this information can be used to establish more concrete guidelines for using the Delphi technique as an effective social scientific method for predicting future curriculum needs.

*APPROVED BY RESEARCH COMMITTEE, OCTOBER 1978*  
*Lawrence B. Smelser, Chairperson*

## READING CONSULTANT

### *A COMPARATIVE STUDY OF TWO METHODS OF TEACHING A STUDY SKILL IN A JUNIOR HIGH SCHOOL SOCIAL STUDIES CLASS*

*Dennis T. Durne*

**PROBLEM:** The purpose of this study was to investigate the comparative effectiveness of (1) teaching social studies at the junior high school level utilizing a textbook containing a supplemental, teacher-designed study aid which was incorporated into the text as compared to (2) the relative effectiveness of teaching social studies at the junior high school level using a textbook that did not contain a supplemental, teacher-designed study aid. The supplemental aid consisted of numbers written next to the assigned questions in the textbook and the students being informed that these numbers would refer them to a page in their textbook where information could be located to assist in answering the assigned questions.

**PROCEDURE:** The sample consisted of 71 seventh graders who become eighth graders during the course of the study. The students were divided into two groups. One group consisted of 39 students who received a textbook containing numbers which directed them to the pages in the textbook containing the answers to the assigned questions. The other group consisted of 32 students who received a textbook which did not contain the teacher-designed study supplement. The group which received the textbooks containing the supplemental study aid was called the Experimental Group. The group which did not receive the supplemental study aid was called the Control Group. The students in the Experimental Group as well as those in the Control Group were divided into sub-groups according to their reading comprehension achievement scores on a standardized reading test. The sub-groups were entitled the Low, Middle and High Reading Ability Groups. The test scores and the assignment scores of the various groups were analyzed to determine whether or not there was a significant difference between the groups prior to the time that the supplemental material was introduced as well as during and after the time the supplement was provided. These three phases of the study were entitled the Pre-treatment, Treatment and Post-treatment Phases of the study.

An analysis of variance was conducted to determine if there was a significant difference between the mean test and mean assignment scores of students who (1) received the supplemental study aid as compared to students who did not receive the supplement and (2) students whose reading test scores placed them in the lower, middle and upper one-third of their class.

**FINDINGS:** The analysis of variance indicated that there was no significant difference in the Pre-treatment, Treatment and Post-treatment mean scores of the Experimental Group as compared to the mean scores of the Control Group. The analysis of variance, however, indicated that at the .05 level there was a significant difference between the mean scores of students in the Low, Middle and High Reading Ability Groups. This difference was found to exist during the Pre-treatment, Treatment and Post-treatment Phases of the study.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1979*  
*Roger L. Rouch, Chairperson*

## THE EFFECT OF ADVANCE ORGANIZERS ON SELECTING THE MAIN IDEA IN EXPOSITORY PROSE PASSAGES

Lucille I. Fillenworth

**PROBLEM:** Sixty-two college students currently enrolled in Reading 120, a reading rate improvement class, were given 20 expository prose passages ranging from 95 to 145 words in length. The students were divided equally into two groups. Group A received reading passages with the advance organizer as the title of the selection; Group B received identical passages but without the advance organizers. The students were asked to read each passage, then select the correct main idea from a series of five items. The students were not allowed to see the items before reading the selection, nor were they allowed to refer to the passage once reading time had been called. Although time was not a factor in the study, a reasonable time limit was established for both reading and passage and selecting the main idea.

**FINDINGS:** All findings were established by using the  $t$ -test for Independent samples. The value for the  $t$  ratio was required to be significant at the .05 level for a one-tailed test to indicate a statistically significant difference between Group A and Group B. It was found that in this case the difference was not large enough to support the experimental hypothesis.

**SUMMARY AND CONCLUSIONS:** The many variables which constitute comprehension and the cognitive process must be more clearly defined before the efficacy of the advance organizer can be established. These variables not only include clarification of the elements of comprehension, but how these elements are perceived by readers of differing cognitive styles and abilities.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1978  
Roger R. Rouch, Chairperson

## AN EXPERIMENTAL INVESTIGATION OF TWO SPELLING METHODS

Jane A. Horns

**PROBLEM:** The purpose of this study was to investigate the relative effectiveness of two methods of spelling instruction. The two methods, the Language Arts Approach and a Unified Approach, were utilized in grades three and four during the 1979-80 school year, in two Robbinsdale Public Schools.

**PROCEDURE:** A random sample procedure was utilized to select from the four classrooms the two groups of subjects who were using the methods being compared.

The two groups of subjects were administered two pretests (October, 1979) and posttests (April, 1980) separately for each grade.

To test the six null hypotheses on the relative effectiveness of the two spelling methods, the Mann Whitney U-Test was administered to the sets of scores obtained from the pretests, posttests, weekly tests and maintenance tests. The sets of scores were compared to determine if there was a significant difference in achievement at the .05 level of confidence.

**FINDINGS:** On the basis of the statistical results of the Mann Whitney U-Test, two of the six null hypotheses were rejected for grades three and four. Grade three experimental group pretest and posttest scores showed a significant difference for both the *Wide Range Achievement Test* and the *Stanford Achievement*

*Test scores.* However, only the *Stanford Achievement Test* pretest-posttest scores showed a significant difference for both grade three and four of the control group. The remaining four hypotheses were accepted for both grade levels.

The results of the statistical analysis of the data compiled for this study revealed that the data was inconclusive to accept or reject the null hypothesis that there was no difference in achievement between the performance of the experimental subjects using the Unified Approach, and the control subjects using the Language Arts Approach.

**CONCLUSIONS:** Although there were no significant differences in attainment through the weekly tests, maintenance tests, and pre-posttests for grade four subjects, grade three experimental subjects demonstrated significant growth over control group subjects on the *Wide Range Achievement Test* pretest-posttest scores.

The writer concludes that the Unified Approach provides equal spelling proficiency in elementary school subjects as the Language Arts Approach. However, the Unified Approach displayed inherent elements which provides for good spelling instruction: 1) an individualized spelling list; 2) a systematic method of study; and 3) a pretest of the weekly spelling words.

APPROVED BY RESEARCH COMMITTEE, MAY 1980  
*Roger Rouch, Chairperson*

#### *A STUDY OF THE DIAL SCREENING INSTRUMENT AND ITS ABILITY TO PREDICT READING SUCCESS*

*Phyllis Joanne Murphy*

**PROBLEM:** The purpose of this study was to investigate the relationship that reading ability has to the pre-school screening device, *Developmental Indicators for the Assessment of Learning*, hereinafter referred to as the *DIAL*, and two other testing instruments used at the conclusion of kindergarten and first grade. This study was conducted in a rural community in East Central Minnesota.

**PROCEDURE:** This study was conducted during the fall of 1975 consisting of all children who were four years old in the fall of 1975. From a total of 209 children from this district, 197 or 94% eligible children were screened, but for purposes of this study, only 89 subjects were used. These subjects had been screened by the *DIAL* and had subsequently completed kindergarten and first grade at the John F. Kennedy Elementary School at Lakeville, Minnesota. The measuring instruments used in this study were the *DIAL* screening instrument, the *Metropolitan Reading Readiness Test* and the *Gates-MacGinitie Reading Test*. The four subtests of the *DIAL*, namely gross motor, fine motor, concepts and communication, were compared with the composite reading scores from the above mentioned tests.

**FINDINGS:** A statistically significant Pearson product-moment correlation coefficient (.05 level) was found to exist between subtest scores on the *DIAL* and the scores on the *Metropolitan Reading Readiness Test* when an inter-correlation matrix was completed. Positive correlations existed between the gross and fine motor subtests of the *DIAL* and the *Gates-MacGinitie Reading Test*. The correlations of the concepts and communication subtests of the *DIAL* were not statistically significant with the *Gates-MacGinitie Reading Test*.

**SUMMARY AND CONCLUSIONS:** As a result of the study, the writer has found the relationship between the performance on the *DIAL* subtests correlated with reading achievement at the end of kindergarten as measured by the *Metropolitan Reading Readiness Test*. These same subtests on the *DIAL* are not as statistically significant as measured by the *Gates-MacGinitie Reading Test*.

The results of the data collected in this study indicate that other variables have interacted to make the results of the *DIAL* scores invalid as the child gets older. This is borne out by the low correlations between the *DIAL* subtest scores and the scores from the *Gates-MacGinitie Reading Test*.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1979  
Roger Rouch, Chairperson

## A COMPARISON OF TWO METHODS OF VOCABULARY INSTRUCTION

Mary Jo Rollins

**PROBLEM:** A comparison of the sight recognition method and the decoding method of vocabulary instruction to determine which method is the most effective mode of teaching primary children.

**PROCEDURE:** A sample of 60 first grade subjects of the White Bear Lake school district were used as the population of the study which was conducted from September through February of the 1976-77 school year. The students were administered the *Metropolitan Readiness Test*, Form A, and the *Lorge-Thomdike Intelligence Test*, Level 1, Form A, Primary Battery. The students' scores and observed abilities were assessed by teachers. Upon this consideration, children were assigned to the experimental and control groups over three ability levels which were low, middle and high. The experimental group of subjects were taught reading vocabulary by the sight recognition method, while the control group subjects were taught by the decoding method.

A test-retest design was established to compile the data collected. The subjects were periodically given vocabulary tests based on Dolch word lists (1941, pp. 196-215). The post test scores obtained were used to determine means, standard deviations and T-scores.

**FINDINGS:** All findings were established for the values of  $t$  (the critical ratio) at the .05 levels of significance. The findings of the study are the following.

1. At the low ability level, Null Hypothesis #1 was accepted. There appeared to be no significant difference in reading vocabulary mastery performance between the experimental and control groups on reading test 2-D-1.
2. At the middle ability level, Null Hypothesis #2 was accepted on tests 2-D-1, 3-D-1, and 4-D-2. There appeared to be no significant difference in reading vocabulary mastery performance between the experimental and control groups.
3. At the middle ability level, Null Hypothesis #2 is rejected on test 4-D-1. There appeared to be a significant difference in the reading vocabulary mastery performance between experimental and control groups.
4. At the high ability level, Null Hypothesis #3 was accepted. There appeared to be no significant difference in reading vocabulary mastery performance between the experimental and control groups on reading tests 4-D-1, 4-D-2, 5-11-D-1, and 5-11-D-2.

**SUMMARY AND CONCLUSIONS:** As a consequence of very similar post test scores of reading groups in both the experimental and control group classifications at



all ability levels, each method of vocabulary instruction, sight recognition and decoding, appear to be relatively good instructional approaches for the teaching of reading vocabulary. All reading groups, regardless of ability level, attained mastery levels established by the school district.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1977  
Roger Rouch, Chairperson

**THE SIGNIFICANCE OF EARLY READING BEFORE FORMAL READING INSTRUCTION HAS BEGUN IN KINDERGARTEN ON READING ACHIEVEMENT THROUGH GRADE SIX**

*Jean Elizabeth Sahlstrom*

**PROBLEM:** It was the purpose of this paper to try to determine to what extent the child's early reading ability affected the reading achievement over a period of time.

**PROCEDURE:** The California Achievement Test, Grades K-12, Form C and Form D jointly referred to as CAT C and D, was used in all test cases; it was administered per standard instructions.

The testing took place over a seven-year span, 1972 to 1979.

It was noted that authorities in the field of early reading showed divergent and conflicting views on early reading. Approximately one-half of the literature researched leaned away from the benefit of early reading while the other half favored early reading.

**FINDINGS:** Several items of interest were noted:

1. In this study most of the variables tested found no significant difference between early readers and nonearly readers.

2. Early readers may benefit from their early reading experience as it relates to the mechanics of language and vocabulary.

3. According to this study early reading instruction *may* be more effective for the girls than boys in relation to vocabulary skills.

**SUMMARY AND CONCLUSIONS:** Since the statistics used were limited to the two-way analysis of variance, more research should be done on the long range effects of early reading. This research would help educators, administrators and parents more accurately determine if their children are ready for formal reading instruction.

APPROVED BY RESEARCH COMMITTEE, MAY 1980  
Roger Rouch, Chairperson

**SPECIAL EDUCATION**

**PERCEPTIONS OF THE MAINSTREAM TEACHER, THE SPECIAL LEARNING DISABILITIES TEACHER, AND PARENTS REGARDING INTERPERSONAL COMMUNICATION AND PROBLEM SOLVING SKILLS USED IN AN INDIVIDUALIZED PLANNING CONFERENCE**

*Kathryn N. Aarseth*

It was the purpose of this study to investigate the perceptions of

Interpersonal communications and problem solving by the mainstream teacher, the Special Learning Disabilities teacher, and the parents during the individualized planning conference for a learning disabled student.

The sample population was drawn from the parents of learning disabled students, mainstream teachers, and Special Learning Disabilities teachers involved in individualized planning conferences in the Crow River Pupil Study Services Cooperative, Joint Powers District 937 from the elementary and middle school grades of seven participating schools over a period of nine months. Permission was obtained from the Coop Director and SLD lead teachers of the seven participating schools. A questionnaire was given to each of the three types of participants to be answered following the planning conference while their perceptions were fresh in their minds and hopefully not contaminated by any intervening events.

Tests of significance indicated that there were no differences in perceptions for 37 of the variables on the questionnaire. The five variables that had levels of significance were perceived differently by the observers. These variables dealt with participation in the development of the individual educational plan, learning new information about the student, identification of the reason for the conference and teaching methods for the student and the length of time spent in the conference.

Recommendations include improved conferencing skills such as sharing of information in simple direct language and increased efforts in joint decision making with the parent and teachers. It is also recommended that the purpose of conferences for individualized educational plans be thoroughly understood by all the participants.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1979  
*Richard Scribner, Chairperson*

**A COMPREHENSIVE THREE-YEAR FOLLOW-UP STUDY OF GRADUATES AND  
DROPOUTS FROM THE CAREER EDUCATION CENTER COMPONENT OF THE  
BECKER-CLAY COUNTY SPECIAL EDUCATION COOPERATIVE**

*Larry L. Anderson*

**PROBLEM:** There has been little or no feedback relating the degree of effectiveness of CEC programming as it applies to the problems and successes of its former students.

**PROCEDURE:** The research population included twenty-five graduates and twenty-five dropouts who were randomly selected from lists of male and female students compiled between 1973 and 1976. A third group was comprised of the parents of the randomly selected students. Data was obtained through the use of the interview schedule technique with items relating to academic, vocational, social, and personal competencies. Separate interviews with parents and students were conducted in the homes of the interviewees. The responses were coded and tabulated by code, then processed for computer programming. Where the data lent itself to such an analysis, a Chi-square was computed to determine the significance of differences between the groups. A probability of .05 or less resulted in the rejection of the null hypothesis.

**FINDINGS:** The successes of the graduates are more numerous than those of the dropouts. They rate their skills higher and possess better self-concepts. Although the dropouts are earning higher salaries, it is hypothesized that, given equal amount of time on the job, the graduates will be earning substantially more than their promotions and frequencies and amounts of salary increases have outnumbered those received by the dropouts. The parents of the

graduates are more aware and appear to be more concerned of their children's problems and educational needs than the parents of the dropout students.

**SUMMARY AND CONCLUSIONS:** There is evidence from the data gathered that the instructional programs in the academic and vocational areas are beneficial to the learning and application of basic skills necessary for obtaining and keeping a job and that they are contributing directly to the successes of the former students. There is a need to better educate the parents regarding the CEC programs in general and also a vital need to reach the potential dropout at an earlier age in an attempt to keep them in attendance until graduation. This inference was made upon statements made by many of the graduates and their parents that the CEC had offered an alternative setting and had renewed interest sufficiently to where the former student opted to remain in school and receive his diploma. However, over seventy-five percent of the dropouts left school shortly after their sixteenth birthdays when the legal option to drop out was theirs.

*APPROVED BY RESEARCH COMMITTEE, JANUARY 1978*  
*Stanley C. Knox, Chairperson*

#### *SUMMER LOSSES OF VARIOUS PHYSICAL EDUCATION SKILLS DUE TO NON-PROGRAMMING FOR THE TRAINABLE MENTALLY RETARDED*

*Arlene K. Beal*

**PROBLEMS:** The purpose of this study has been to explore the effects of consistency of physical education programming and the maintenance of physical skills in trainable mentally retarded children.

**PROCEDURE:** The sample consisted of 54 trainable mentally retarded children who were ambulatory and had been involved in an adapted physical education program in a public school for one year prior to testing. Thirteen tests involving strength, flexibility, endurance, and skill were administered to each student at the end of the school year and again at the beginning of the following school year. A small sample of seven non-summer school students was matched with a sample of seven summer school participants to explore in a very limited fashion, the possible effects of involvement in minimally structured, short term programming.

**FINDINGS:** The absolute probability for primary students was .087 and found not to be significant at the .05 level of significance. The probability for the secondary students was .0095 and found to be significant. The Mann-Whitney U Test used to compare the ranks of the non-summer school versus the summer school group found no differences in 12 of 13 tests.

**CONCLUSIONS:** Results of this study suggest that trainable mentally retarded children require continued programming to maintain the skills acquired in physical education. Since there was no difference in the rank order of scores in 12 of 13 tests when comparing summer school versus non-summer school group, it was concluded that non-specific programming will not maintain physical skills for the TMR child.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1978*  
*Floyd W. Ayers, Chairperson*

## A COMPARISON OF LOCUS OF CONTROL FOR NORMAL ELEMENTARY AND LEARNING DISABLED STUDENTS

*Janice J. Benson*

**PROBLEM:** The intent of this study was to determine if a difference exists in the locus of control of identified learning disabled and a normal elementary student population.

Locus of control is a psychological trait involving the control an individual believes he may or may not possess over both positive and negative events in his life.

A review of literature revealed only one completed study comparing the locus of control of a learning disabled population and a normal population, Hisama (1976). Replication of the study was recommended before any definite conclusions were drawn.

Past studies on various populations have shown locus of control as a variable that has tendencies towards certain characteristics, is possibly developed and influenced by environmental conditions and is a variable that should be considered when selecting reinforcements and classroom settings.

The study attempted to answer the question: Is locus of control an identifiable trait that distinguishes the learning disabled from a normal population? If so, past research on other populations may be helpful in setting up programs for learning disabled students.

**PROCEDURE:** A list of all regular classroom students in grades three through six was obtained from the school administration. The identified learning disabled subjects were pair-wise matched with another subject of the same sex, grade and ability as well as with another subject of the same sex, grade and achievement level.

Ability was based on test scores obtained from the Kuhlman-Anderson Test. Achievement scores were based on the results obtained from the Iowa Basic Tests. Age and sex data was obtained from their cumulative folders. The locus of control was based on the Intellectual Achievement Responsibility Questionnaire. The questionnaire was pre-taped and typed so each subject could listen and read questions as he recorded his answers.

Once the testing was completed, the t-test was used to determine the significance of differences between groups.

**CONCLUSIONS:** The t-scores showed no significant differences in total or sub-total Intellectual Achievement Responsibility Questionnaire scores for identified groups. Three individual questions showed significant differences for one or more groups. Due to the heterogeneous nature of items and populations involved in the three questions, the differences were of little value. Locus of control did not appear to be a distinguishable trait identifying a learning disabled student from a normal student. The three null hypotheses were accepted.

APPROVED BY RESEARCH COMMITTEE, MAY 1979

*Richard S. Scribner, Chairperson*

## LEARNING DISABILITIES: A FAMILIAL STUDY

*Linda Sue Benson*

**PROBLEM:** The purpose of this study was to demonstrate tendencies of learning disabilities in multichild families with one elementary aged child diagnosed LD and to determine similarities in LD characteristics shared by the learning

disabled child and his/her parents and siblings.

**PROCEDURE:** The percentage of elementary aged students in the Osseo School District affected by LD was determined. A letter of introduction and a survey formulated from Osseo's school enrollment form and Silver's (1971) conference questionnaire were sent to the parents. Telephone interviews with the parents were also conducted and descriptive statistics were compiled on eighty-seven LD students of multichild families who responded to the survey.

**FINDINGS:** Four percent of Osseo's School District elementary aged population was diagnosed learning disabled. In multichild families with one diagnosed LD, eleven percent of the LD subjects' siblings were also so classified. Thirty-nine percent of their parents and twenty-eight percent of the LD siblings could be described as having a learning problem.

The survey demonstrated that forty-seven of the sixty-seven families sharing learning problems also shared the same subject area weaknesses. Pre-natal, perinatal and postnatal stress were considered without significant results toward hypotheses.

**SUMMARY:** The study dealt with children in the Osseo School District. Results indicated more incidences of LD in multichild families having one of them diagnosed LD. Parents and siblings share similar LD characteristics with their LD child.

*APPROVED BY RESEARCH COMMITTEE, MAY 1980*  
*Richard Scribner, Chairperson*

#### **TEACHER ATTITUDES TOWARD MAINSTREAMED CHILDREN: STRATEGIES FOR COPING**

*Beth Ellen Beasesen*

**PROBLEM:** It is the purpose of this paper to determine the particular attitudinal factors influencing the successful mainstreaming of handicapped children. Teacher attitudes toward the handicapped are examined, as well as classroom organization and technical skills.

**PROCEDURES:** The research groups consist of two public school teacher groups, and one group of Laboratory School teachers. The three groups were selected because each group utilizes a different form of classroom organization, from "traditional" classes at one extreme, to an "open school" format at the other.

All three of the teacher groups were asked to complete a 24-item questionnaire. The survey is designed to elicit information about teacher attitudes toward the handicapped.

A chi square analysis was used to determine significant differences in attitudes according to the type of classroom structure utilized.

**FINDINGS:** Five of the survey items yielded a significant difference in attitudes between the three teacher groups. Three additional items showed differences which were nearly significant. All three teacher groups held positive attitudes toward mainstreamed handicapped students. The Laboratory School teachers, with an open school format, held the most positive attitudes. The public school teachers, using a classroom organization with learning centers, ranked next in positive attitudes. The least positive attitudes were held by the public school teachers in the more traditional classrooms.

Suggestions are made for the special education teacher/consultant responsible for facilitating mainstreaming.

*APPROVED BY RESEARCH COMMITTEE, FEBRUARY 1980*  
*Stanley Kroz, Chairperson*

### *A SEVEN YEAR FOLLOW-UP STUDY OF EMR GRADUATES FROM A MAINSTREAMED HIGH SCHOOL PROGRAM*

*Robert J. Carruth*

The purpose of this study was to determine the vocational and personal outcomes of the graduates of a mainstreamed program for the educable mentally retarded.

**PROBLEM:** There has been a lack of data in determining the relevancy of the special education program to its graduates. As a result, program decisions are made that may affect the post-school adjustment of the graduates of the program.

**PROCEDURE:** Graduates from the years 1970 through 1977 were interviewed to determine their vocational success and their level of self-sufficiency within the community. The population was personally interviewed and categorized into three groups according to the length of time since their graduation from high school. This was done to determine any trends in the vocational and personal outcomes of the graduates.

**FINDINGS:** It was determined that the graduates of the special education program have made good vocational adjustment. There was great diversity among the types of jobs the graduates held. The per hour wage of the graduates were found to be well above minimum wage requirements. The male graduates received a significantly higher wage per hour than the female graduates. The majority of the graduates were employed on a full time basis. A number of procedures were used to secure employment with parents being the most frequently used source.

The personal outcomes indicated that the majority of the graduates are still living at home with their parents. As the graduates were out of school longer, they tended to live more independently. Fifty-seven percent of the graduates had a driver's license and all the graduates experienced no difficulty in mobility. The majority of the graduates utilized a savings account, whereas, only 43 percent made use of a checking account. Twenty-five percent of the graduates had married with slightly more than half of these ending in divorce.

There was a considerable involvement by the graduates in secondary and post-secondary training programs. The secondary level included vocational technical schools and work study programs, whereas, post-secondary training agencies included rehabilitation agencies, colleges and vocational technical schools.

**SUMMARY AND CONCLUSIONS:** Several recommendations were made as a result of this study, with the intent of assisting the future graduates in making a more positive post school adjustment. More extensive involvement by the DVR counselor was recommended to provide information on services provided for the graduates. There is a need for a job preparation class to facilitate the transition from school to the world of work.

There is a need to develop an apartment training program for the high school seniors to prepare them for independent living.

There should be increased support services for secondary students while attending the vocational technical schools. The vocational technical institute

staff should receive an in-service training on how to deal with special education students within their classroom.

The special education staff should be continuously aware of post school training programs. This information should be shared with parents as well as the special education student.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1978

*William Lovelace, Chairperson*

### WRITTEN LANGUAGE SKILLS OF BLOOMINGTON TITLE I CHILDREN AS COMPARED WITH NON-TITLE I CHILDREN

*Lila J. Cavanaugh*

The purpose of this study was to investigate the written language skills of children in three grade levels. It was hypothesized Title I students would make significant gains but not exceed non-Title I students; that there would be a significant difference between male and female scores and between scores of students with less than one year of service and those with more than one year.

There were 29 second graders, 44 third graders and 34 fourth graders in the Experimental group. There were 24 third graders in the Control group. The Picture Story Language Test was used to pre and post measure on five scales, Total Words, Total Sentences, Words Per Sentence, Syntax and Abstract thinking level.

The study followed a quasi-experimental design centered around nonequivalent control groups. After testing a t-test analysis was used. An Analysis of Variance and Multiple Classification were used to determine overall main effects on three variables--grade, sex and service.

When results were examined the Experimental group made significantly greater gains in four out of five scales but did not exceed the Control group which meant the first hypothesis was supported. Females scored significantly greater gains than males in two out of five scales in a total group comparison which lended partial support to the second hypothesis. The amount of service a child had received was of no significance in gain scores. The third hypothesis was not supported.

When syntax error types were examined the same top four error categories remained on the post test at all grade levels. Those categories were omission of punctuation, omission of capital letters, word usage-addition and word usage-substitution.

The significant gains made by the Experimental group suggest continuation of the treatment program. Findings also suggest that beginning writers show no difference between males and females but differences begin showing up at the end of second grade with females making significant gains. Perhaps females profit more from academic instruction or a different instructional approach should be taken with males.

Gains in syntax appear to be made slower than other areas. Perhaps this is due to a correlation between written and oral language with oral language patterns well established before school age. This finding suggests a different approach to syntax instruction should perhaps be used.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1979

*Stanley C. Knox, Chairperson*

## *A STUDY OF THE ATTITUDES OF EDUCATORS TOWARD HANDICAPPED STUDENTS AFTER INSERVICE TRAINING*

*Connie Faye (Isle) Christiansen*

**PROBLEM:** The purpose of this study was to assess mainstreaming inservices which were presented during 1978-79 in the Little Crow Cooperative to see if differences exist between the quality of mainstreaming inservice proposals and attitudes of schools toward the handicapped after receiving mainstreaming inservices.

**PROCEDURES AND FINDINGS:** The subjects for the study were all educators in the Little Crow Cooperative which consists of fifteen school districts in and around Willmar, Minnesota.

All educators in the cooperative were requested to answer the Attitudes Toward Handicapped Individuals (ATHI) Scale along with an eleven question information sheet. There were 628 questionnaires received from educators in the cooperative.

A mainstreaming inservice proposal was developed by each school district and submitted to the Special Education Director. Three independent judges rated the mainstreaming inservice proposals using pre-determined criteria. The proposals were then assigned a point value and a quality of rating of either poor, average, or excellent.

T-test, analysis of variance, multiple regression and Pearson r Correlation were used to test levels of significance on the null hypotheses. Years of teaching experience was found to be significant on all of the tests. Other variables found to be significant include: (1) location of school, (2) credits beyond baccalaureate degree, (3) sex of educator, (4) number of special education credits, (5) handicapped friend or relative, and (6) grade taught.

**SUMMARY AND CONCLUSION:** Valuable information was collected in regard to teacher's attitudes toward the handicapped in the Little Crow Cooperative. All school districts were found to have overall positive scores toward the handicapped, but particular variables tested suggest that possessing certain characteristics may predict a more or less favorable attitude toward the handicapped. This information can now be used to help build more effective training programs that will meet specific school district's needs and hopefully will create change in educator's attitude toward the handicapped.

*APPROVED BY RESEARCH COMMITTEE, JULY 1979*

*James Lewis, Chairperson*

## *CONTENT ANALYSIS OF EDUCATIONAL PROGRAM PLAN AND PERIODIC REVIEW STAFFINGS*

*Joanne M. Clepper*

This study investigated the categories of parental involvement present in IEP and periodic review staffings of special education students, as well as investigated the frequencies of verbal contribution categorizations of differing staffing participants. Using a Sattler-Miller Contribution Classification System (modified by author), the dialogue of seven tape recorded staffings from two school districts were classified. Special Learning and Behavioral Problem teacher, parent and classroom teacher were the most common participants in the seven staffings examined. It was found that the greatest percentage of tallied categorizations in all the staffings was in the problem centered contribution area. This was also found to be true for each overall participant



role. However, a low percentage was recorded for parents in the category of giving suggestion or solution. Only four categorizations were tallied in this category over all seven tapes. Procedure centered contributions were consistently low or nonexistent in each taping and by each participant role. Special Learning and Behavioral Problem teacher was the only participant role to measure contributions in the category of giving a procedural suggestion. The highest level of participant centered contributions over all staffings, was made by the parent.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1978  
*Floyd W. Ayers, Chairperson*

#### THE EFFECTS OF SOME SPECIFIC VARIABLES ON ATTITUDES OF LEARNING DISABLED CHILDREN TOWARD SOME COMMON DIMENSIONS OF SCHOOL

*Audrey Lucille Dalien*

PROBLEM: The purpose of this study was to determine if the variables of age, grade, sex, IQ, months of service delivery, minutes of daily service, arithmetic score, spelling score and reading score have a significant relationship on the attitudes of learning disabled children toward the following six dimensions of school: (1) Teacher-Mode of Instruction, (2) Teacher-Authority and Control, (3) Teacher-Interpersonal Relationship, (4) Peers, (5) Learning, (6) School Social Structure and Climate.

PROCEDURE AND RESULTS: Fifty-two LD children were administered the *School Sentiment Index*. The test included 80 different questions which were read to them by proctors. Multiple regression analysis revealed variables of age, grade, spelling score, and arithmetic score were significant in the prediction of attitudinal responses of some school dimensions as measured by the *School Sentiment Index* beyond the .05 level.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1979  
*Richard Saribner, Chairperson*

#### A PROCEDURE FOR REINFORCER PREFERENCING IN SEVERELY/PROFOUNDLY HANDICAPPED STUDENTS

*Neil R. Doughty*

It is important to the success of special education programs using behavior analysis techniques to identify strong reinforcers for students. Data are presented that show a procedure utilizing an interlocking progressive-ratio (IPR) schedule of reinforcement can be used to quickly determine reinforcement preference for some multihandicapped children. Five students were assessed by calculating response titration level across six stimulus events. Two severely handicapped subjects preferred the tactile and auditory reinforcer categories more than the baseline condition but less than the visual reinforcer category. This pattern was stable across both subjects. The three profoundly handicapped subjects either did not have a preference for any of the reinforcers or this IPR procedure was not sensitive to them. The significance of the differences in performance generated by the severely handicapped children and the profoundly

handicapped children are discussed. Future areas of data collection and program design, such as using the IPR procedure as a diagnostic tool and determining those visual stimuli which can be effectively used as reinforcers are suggested.

APPROVED BY RESEARCH COMMITTEE, MAY 1978  
*Stanley C. Knox, Chairperson*

#### THE EFFECTS OF SOCIAL AND TOKEN REINFORCEMENT ON THE PRODUCTION OF NOVEL AND DIVERSE FORMS IN THE DRAWINGS OF SECONDARY SCHOOL STUDENTS

*Jean Elizabeth Ege*

The purpose of this study was to determine if instructions alone, token reinforcement, or descriptive reinforcement would increase form diversity in the drawings of high school students. Generalization to a standardized test of creativity was also explored.

Creativity was defined as behavior which had not been previously displayed by the individual. Diverse art forms were defined as forms new for a particular session, but not new compared to all previous sessions. Novel forms were defined as drawing forms which were new compared to forms appearing in all previous drawings.

The subjects were three students from St. Cloud Apollo High School in St. Cloud, Minnesota. The selection was made on the basis of low production of diverse forms during an initial drawing session.

The experimental phases consisted of a baseline measure and three experimental conditions. Session duration, novel forms, and diverse forms were recorded for each drawing.

Phase I consisted of instructions. Phase II consisted of token reinforcement for novel forms and descriptive reinforcement for diverse forms. Phase III consisted of descriptive reinforcement only.

The subjects attended the experimental sessions during their free time at school. Each student participated for 20 minutes, two or three times a week. A small reinforcer (10 cent value) was awarded for each session, non-contingent on the production of novel forms.

The results of this study were in agreement with previous similar research. Instructions to "be creative" had no consistent effect on the production of novel or diverse forms. Form diversity increased during the experimental phase of token reinforcement and descriptive reinforcement for all three subjects. The length of time spent on each drawing also increased across experimental phases for all three subjects. The high rate of diverse form production was maintained when token reinforcement was withdrawn.

It was found that the directly treated aspects of creativity (novelty and diversity) generalized to the circles and squares subtest of the Torrance Test of Creative Thinking.

The results of this study suggest that creative aspects can be increased through the type of reinforcement given.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1979  
*Joan Bigler, Chairperson*

## **INVESTIGATION OF THE RELATIONSHIP BETWEEN PUPIL ACHIEVEMENT AND TEACHER-PUPIL INTERACTION**

*Bradford Morris Ellevold*

**PROBLEM:** It was the purpose of this study to determine the relationship of pupil achievement and pupil sex on teacher interaction style in dyadic contacts with children.

**PROCEDURE:** Forty children age seven through ten were administered the California Achievement Test. Four pupils from each of the ten classrooms observed were selected for this study. In each classroom the two pupils (one boy and one girl) receiving the lowest cumulative achievement score and the two pupils (one boy and one girl) receiving the highest cumulative achievement scores were selected. Teacher-pupil interaction for two hours of class time for each child was recorded according to the Flanders' Interaction Analysis Category System. A second observer trained in interaction analysis provided a reliability measure. When the data was collected an analysis of variance was computed between the achievement groups and teacher interaction style (Indirect:Direct ratio), and an analysis of variance was computed between pupil sex differences and teacher interaction style (Indirect:Direct ratio).

**FINDINGS:** The children of the different achievement levels were treated differently. Low achieving pupils received a more direct teaching style while high achieving pupils elicited a more indirect teaching style. There was no relationship found between pupil sex and teacher interaction style.

**SUMMARY:** Teachers interacted differently with the students of different achievement levels. Teachers did not interact differently with pupils on the basis of sex.

**APPROVED BY RESEARCH COMMITTEE, JULY 1977**  
*Floyd Ayers, Chairperson*

## **ANALYSIS OF A SCREENING BATTERY FOR EARLY IDENTIFICATION OF LEARNING DISABLED CHILDREN**

*Doris M. Enter*

**PROBLEM:** Recent emphasis on early identification has brought about a need to find tests which are most useful for identifying students with learning problems.

**PROCEDURE:** The study centers on an analysis of a screening battery of tests used for the early identification of kindergarten students who were reported to be learning disabled. Comparisons were made of test scores and test codes, test scores and special teacher ratings, and test scores and type of service.

**FINDINGS:** Tests of basic academic skills were found to be most useful for early identification of students with learning problems.

**APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1977**  
*Stanley Knox, Chairperson*

## PEER ACCEPTANCE OF LEARNING DISABLED CHILDREN IN THE CLASSROOM

*Myrna L. Erickson*

The purpose of this study was to determine social acceptance and peer relationship of learning disabled children who leave their classroom for one hour of resource room service per day.

The method employed was to administer a sociometric instrument to nine fourth and fifth grade classrooms in which there was at least one learning disabled student. The sociometric instrument used was designed to measure who the children would like to sit near, work with and play with. The achievement ability of the children was determined by their most current Iowa Basic Skills Test score.

Findings indicate a significant relationship between sociometric status and achievement in the three activities tested. High achieving children as a group received a significant amount of the choices, placing them in the above average and most popular categories while low achieving children received significantly fewer choices, placing them in the below average, neglectee categories. The most significant difference was found in who the children would like to work with and the least significant difference was found in who the children chose to play with.

When comparing choices received by learning disabled children and low achieving children, no significant difference was found in the amount of choices given to either group in the three activities tested. However, learning disabled children were chosen the least in all activities tested although the differences were not significant.

Most children chose to sit near, work with and play with children in the other two achievement areas as well as their own. Learning disabled children and low achieving children as a group were chosen less often by their classmates and chose each other less often than they chose from the two higher achieving groups.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1978

*William Lovelace, Chairperson*

## PARENTAL PERCEPTIONS OF SPECIAL EDUCATION DUE PROCESS PROCEDURES AND PARENTAL KNOWLEDGE OF THEIR LEGAL RIGHTS AS STATED IN PUBLIC LAW 94-142

*Nancy Ann Fenna*

This study examined parental perceptions of and involvement in the due process procedures of their special education child. It also measured parents' knowledge of their legal rights as stated in Public Law 94-142.

The purposes of this study were to determine: 1) If parents of special education children are being afforded a coequal status with school personnel, 2) If parents are informed of their legal rights, and 3) If different groups of parents have different perceptions regarding their input into educational decision making.

Parents whose children were receiving special educational services from elementary or secondary SLBP, elementary or secondary EMR, or elementary speech were surveyed. Questionnaires were mailed to 263 parents of special education children. This represented a random sample taken from a population of approximately 845. One hundred twenty-five of the questionnaires were returned. The data were analyzed using a combination of descriptive and inferential statistics.

The study found that: 1) parents feel their input is necessary when educational decisions are made about their child, 2) parents feel they make decisions together with school personnel, and 3) parents were able to respond correctly to two-thirds of the questions pertaining to their rights. There were no significant differences between groups on any of the survey questions.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1979  
Stanley C. Knox, Chairperson

## A STUDY OF ELEMENTARY TEACHER ATTITUDES TOWARD HANDICAPPED STUDENTS

Eal Lawrence Gritzmacher

**PROBLEM:** The purpose of this study was to determine if a population of elementary teachers exhibit similar attitudes toward handicapped individuals in their classroom. A secondary purpose was to determine the extent of significance of certain variables: location of school, sex, years of experience, number of students currently in the classroom, amount of additional education, education in the field of special education, number of special education students in the classroom, contact time with the special education personnel, friend or relative who is handicapped, amount of time special education students receive special services, and the type of educational setting in relationship to the attitudes that the teacher possesses.

**PROCEDURE:** The elementary teachers of the Little Crow Cooperative were administered the *Attitudes Toward Handicapped Individuals Scale* and a data sheet in the spring of 1979. The scale was administered by the school district personnel and then returned. The data and test scores were computed. Analysis of variance was utilized to determine significance of the questions. T-tests were employed on significant questions. Pearson correlation coefficients were computed between attitudes and between attitudes and questions. All questions were further analyzed with the multiple regression technique.

**RESULTS:** After examining the variables to determine if differences exist in the attitudes of elementary teachers in the Little Crow Cooperative, it was determined that two variables were significant: years of teaching experience and amount of additional education. A relationship exists between those two variables and the age of the teacher. This relationship does not exist between the other descriptors: school district teacher works in, sex, number of students currently in their classroom, education in the field of special education, number of special education students in their classroom, time spent with special education personnel, friend or relative who is handicapped, amount of time handicapped receive services and type of setting. They were not statistically analyzable due to the limited variance in the responses. The ATHI Scale had a high amount of internal consistency.

**CONCLUSIONS:** There exist differences in teacher attitudes toward the handicapped among the elementary teachers in the Little Crow Cooperative. Years of experience and the amount of additional education are the areas where the differences exist. A high amount of internal consistency was found in using the ATHI Scale. It was difficult to respond to the statements, due to the use of the term handicapped which was too general. A specific disability should be examined.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1979  
Richard Scribner, Chairperson

## *A COMPARATIVE STUDY OF REGULAR EDUCATION AND LEARNING DISABILITIES TEACHERS' KNOWLEDGE OF PHONICS GENERALIZATIONS*

*Duane J. Hagen*

**PROBLEM:** Teachers of children with learning disabilities are often faced with the task of teaching phonics as a part of reading to disabled readers. The question arises as to whether these teachers are adequately prepared concerning their own knowledge of phonics.

**PURPOSE AND PROCEDURE:** The purpose of this study was to determine whether learning disabilities teachers as well as regular education teachers were well versed in phonics generalizations. Four groups of teachers were tested on phonic generalizations: Secondary teachers, elementary teachers, LD teachers from elementary backgrounds, and LD teachers from secondary backgrounds.

**FINDINGS:** The results showed that of all those tested, the average score was 73 percent correct on the Durkin Phonics Test for teachers. The mean scores for each group follow.

SLBP Secondary	49.5
SLBP Elementary	51.4
Elementary	47.0
Secondary	32.2

**CONCLUSIONS:** It was concluded from these scores that secondary teachers are not as well versed in phonics as any of the other groups. The mean scores of the other groups seem to indicate that no significant difference exists between them. Experience was found to play no significant part in teacher knowledge. It can also be concluded that teachers with previous secondary teaching backgrounds show an increase in their knowledge of phonics when they become SLBP teachers.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1978*

*Floyd W. Ayers, Chairperson*

## *AN ANALYSIS OF THE EFFECTIVENESS OF THREE TEACHING PROCEDURES ON IMPROVING COMPREHENSION*

*Barbara K. Hakes*

**PROBLEM:** An effective teaching procedure was needed to improve the comprehension skills of an eight year old male.

**PROCEDURE:** This study examined the effectiveness of three teaching methods. These methods were questioning (Procedure A), sequence of ideas (Procedure B) and outlining the main idea and details (Procedure C). The three methods were alternated with instructional sessions on an unpredictable schedule. A 100 word story was used in each session followed by ten questions. Questions consisted of five textually explicit questions, three textually implicit and two scriptal implicit questions. A multi-element design was used. Results were graphed.

**FINDINGS:** Training for Procedure C took longer to master. Procedure A resulted in 61 per cent accuracy on questions. Procedure B resulted in 71 per cent and Procedure C resulted in 87 per cent accuracy. Accuracy according to types of questions ranged from 71 per cent to 75 per cent. Procedure C showed the most accuracy on the three types of questions.

CONCLUSIONS: Using an outline procedure of main idea and details was the best method of comprehension instruction for this child. This supports earlier theories that the ability to organize material aids comprehension. The method utilizing sequence was not as effective as the method of outlining but it was more effective than the method of questioning.

APPROVED BY RESEARCH COMMITTEE, MAY 1980  
*William Lovelace, Chairperson*

**AN ANALYSIS OF CHRONOLOGICAL AGE RELATING TO THE REFERRAL PATTERNS AND ACHIEVEMENT LEVELS OF ELEMENTARY SCHOOL CHILDREN**

*Frank R. Harrington*

The primary purpose of this study was to determine if there is a relationship between chronological age and the referral of students for special service programs. It also attempted to determine the relationship of age and achievement.

The procedure included a tabulation of Stanford Achievement Test scores for grades K-4 students who had been categorized by grade, by age, and by referral or non-referral to special service programs. Chi-square and the Pearson product-moment coefficient of correlation were used to examine the data.

The results showed that there was no relationship between age and referral patterns when examined by chi-square. Nine of the twelve coefficients of correlation were not significant. The pattern of the three significant coefficients was such as to not be meaningful.

The conclusion of the analysis in this particular study finds no relationship between the age of entrance and various school outcome measures.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1979  
*Floyd W. Ayers, Chairperson*

**REDUCTION OF INAPPROPRIATE VOCALIZATIONS IN SEVERELY RETARDED ADOLESCENTS IN A PUBLIC SCHOOL SETTING**

*W. Michael Eokeness*

Inappropriate vocalizations may disrupt the learning environment in a TMR special education classroom by interfering with the verbal cues presented to the student. The reduction of these behaviors by the application of a minimally aversive procedure would be desirable for professional and ethical reasons. The procedure used should not have undesirable effects on collateral behaviors.

In this study, the effects of contingent applications of an overcorrection type procedure on inappropriate vocalizations were assessed. The procedure consisted of placing a cloth over the student's mouth for two seconds. The subjects were three, severely retarded, institutionalized, adolescents enrolled in a public school TMR classroom. An A-B-A-B reversal design was employed to determine experimental control of the target behavior. The effects of the procedure applied on three variable-ratio schedules. Variable-ratios of four, eight, and three were successively introduced following the A-B-A-B phases with one of the subjects of the study.

The effects on collateral behaviors were also assessed. Behaviors observed were inappropriate vocalizations in a control setting, the percent of successful responding on classroom activities and the daily frequency of undesirable behaviors that were being consequted by other behavioral procedures.

The results were varied. With the first subject, the rate of the target behavior dropped initially but recovered in the second treatment phase. With the second subject, the rate of vocalizations increased with the application of the procedure. With the third subject, the rate of inappropriate vocalizations dropped substantially and maintained a low rate across three different variable-ratio schedules. The more frequently the procedure was applied in these schedules, the greater was the effect on reducing the rate of the target behavior. No adverse effects were observed on the target behavior in the control setting or in the rate of other undesirable behaviors. There were no adverse effects on the percent of successful responses in classroom activities in the second and third subjects. There was an adverse effect on the classroom performance of the first subject. Classroom performance was measured solely on the results of speech training in the first subject whereas the performance measures taken on the other subjects were on less closely related activities.

It was recommended that the procedure be used in the classroom as long as possible adverse effects on speech development are monitored.

*APPROVED BY RESEARCH COMMITTEE, MAY 1980*

*James F. Lewis, Chairperson*

## *THE EFFECTS OF ALTERNATIVE EDUCATION ON DISAFFECTED STUDENTS*

*Judith M. Honkola*

The purpose of this study was to investigate the effects of alternative education on disaffected students at the junior high school level. It was hypothesized that there would be no difference in growth between four groups of students. These groups being: (a) students receiving alternative education, (b) those referred, but not accepted because of program limits, (c) S.L.B.P. students receiving service, and (d) mainstream students.

The means of pre and post testing of reading, math and composite scores on the SRA (Science Research Associates) and past records of attendance and school behaviors were compared. A sign test was employed to measure absolute and relative growth. The binominal probability test was used to see if the results were significant. In comparing students in the alternative program with other groups of students the null hypotheses were rejected at the .05 level of significance. The null hypotheses for the other groups of students were accepted.

Further, it was recommended that additional research into the effectiveness of alternative education on these students be executed over a longer period of time.

*APPROVED BY RESEARCH COMMITTEE, FEBRUARY 1980*

*Floyd W. Ayers, Chairperson*



## *RANDOM VERSUS PATTERNED WORD LISTS IN SPELLING INSTRUCTION FOR LEARNING DISABLED STUDENTS*

*Patricia E. Howe*

The purpose of this study was to investigate the comparative effectiveness of two methods of presenting spelling lists to learning disabled secondary school students. It was hypothesized that presentation of spelling words grouped according to their linguistic patterns would result in better performance on a test of those words and transfer words than would the random presentation of the same words.

Using a posttest-only control group design and applying a *t*-test for independent samples, it was found that no significant differences resulted between the experimental and control groups. It was concluded that presenting words according to linguistic patterns was not more effective than random presentation.

Further, it was recommended that additional research into the topic of spelling for learning disabled students should utilize a deductive teaching method and be executed over a longer period of time.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1977*

*Floyd W. Ayers, Chairperson*

## *THE EFFECTS OF LABELING A STUDENT LEARNING DISABLED IN RELATION TO TEACHER EXPECTATIONS*

*Roger W. Hunt*

**PROBLEM:** The purpose of this study was to determine if two randomly selected groups of teachers from Sample A (Chaska Elementary School) and Sample B (Chanhassen Elementary School) plus two non-randomly selected groups from Sample C (teachers enrolled in a practicum in SLD through St. Cloud State University) would differ in the evaluation of one student using a rating inventory to evaluate reading, math, spelling, and other observable behaviors when one group was informed that he was of average ability and the other group was informed he was learning disabled.

It was also intended to determine if the years of teaching experience, grade level the subjects taught at, and training in SLD have a significant influence on the subjects evaluation as it relates to the labeled or unlabeled student.

**PROCEDURE:** A total of 79 subjects were divided into two groups. One group was informed the student was learning disabled while the other group was informed he functioned normally in school. The subjects evaluated a fourth grade boy who was chosen on the basis of "normal" functioning in all academic and non-academic areas plus his intellectual performance, as measured by the Wechsler Intelligence Scale for Children--Revised. A 30 minute color videotape was developed and shown to the subjects of the student performing in reading, math, spelling, and other observable behaviors (which included language, attention span, and motor activities). Just prior to the showing of the videotape, the subjects were given a non-normed rating instrument which was developed by the researcher. It was the intent to give the subjects (classroom teachers and SLD practicum students) a relatively complete and comprehensive tool to evaluate the student in areas which coincided with the

videotape. Statistical evaluations were then made on the reading, math, spelling, observable behaviors, and the total evaluation score.

**FINDINGS:** A multi-analysis of variance and a "+" test between mean scores, using a .05 level of confidence, was employed. It was found that when the sample groups were informed he was learning disabled, he was evaluated significantly lower in reading, math, and the total evaluation score compared to the sample groups that were informed he functioned normally in school. There were no significant differences in the evaluation in spelling and observable behaviors. The years of experience of the teachers did not have a significant effect. The different grade levels that the teachers taught at had a significant influence in reading and the total evaluation score but not in math, spelling, and observable behaviors when comparing teachers that were told the student was learning disabled and teachers that were told he functioned normally in school. Although, significant differences existed between classroom teachers and the SLD teachers there were also significant differences between the two sample groups of classroom teachers. Therefore, SLD training cannot be demonstrated as an effective deterrent to being affected by labels in this study.

**SUMMARY AND CONCLUSIONS:** The results indicated that labeling has a lowering effect on the evaluation of a student. The findings were not conclusive enough or the sample sizes large enough from which to base very strong generalizations. Further study on the effects of labeling learning disabled are necessary. If the negative effects of labeling are significant, change in educational policy is warranted.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1979.*

*James F. Lewis, Chairperson.*

***A RELIABILITY AND VALIDITY STUDY ON A VISION ASSESSMENT INSTRUMENT FOR TEACHERS OF PROFOUNDLY AND SEVERELY RETARDED MULTIPLY HANDICAPPED STUDENTS***

*Mary Eutahings-Ruprecht*

**PURPOSE:** The purpose of this study was to determine whether The Vision Assessment Instrument, devised by this investigator, was a valid and reliable instrument capable of being used by teachers of the trainable mentally retarded to supplement a visual diagnosis completed by medical professionals.

**PROCEDURES:** Twenty-two classroom teachers were asked to complete a Vision Assessment Instrument on twenty-nine trainable mentally retarded students. The assessment consisted of three sections: 1) observations of the physical structure of the eye most commonly related to eye disorders or diseases; 2) a series of assessment items in which the teacher was asked to elicit a response for the student; and 3) a set of questions that the teacher was asked to answer, based on his/her long term prior knowledge of the student's visual behavior. The consulting optometrist associated each item on the assessment with one or more of five possible categories: 1) poor focus, 2) muscle imbalance, 3) eye pathology or disease, 4) photosensitivity, and 5) visual functioning. Three optometrists, in addition to the consulting optometrist also categorized each of the thirty-eight assessment items for validation of the consulting optometrist's categorizations.

A Vision Assessment Instrument was completed by the consulting optometrist on each of the students in the sample, using his reports as the criterion for

answering the questions. For validation purposes, these assessments were correlated with those completed by the teachers. Inter-rater reliability was obtained for ten of the twenty-nine assessments completed by the teachers. Reliability was also calculated between teachers for each item on the ten assessments.

**FINDINGS:** The results of the investigation indicated that categorizations of the consulting optometrist were an accurate measure of how an optometrist would categorize the items on the Vision Assessment Instrument. When the teacher's assessments were correlated with those of the consulting optometrist, the results showed that the teachers were able to perform in a similar manner. High coefficients shown in the reliability results further indicated that the teachers could use the vision instrument reliably and accurately, and that they could provide supplementary information to the medical professionals to assist them in making more accurate diagnoses of the student's visual acuity and functioning.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1978*  
*Stanley C. Knox, Chairperson*

#### ***THE NATURE AND SCOPE OF POTENTIAL DISAGREEMENT BETWEEN PARENTS AND TEACHERS IN THE BEHAVIORAL ASSESSMENT OF MODERATELY TO PROFOUNDLY RETARDED CHILDREN***

*David R. Kiewatt*

Research generally supports the premise that parents as a group can accurately estimate their child's level of functioning with results quite consistent to the professional estimates. However, when school personnel meet with the parents of moderately to profoundly handicapped children to plan educational programs, they must deal with the reality of facing single sets of parents who may or may not agree with the professionals' estimate of their child's ability. When disagreement occurs, it may cause severe communication problems, lengthy due process proceedings and possibly a lack of service to the child while issues are being resolved. Educators have often guessed at possible causes and probable trends in regard to disagreement between parents and professionals.

This study tested the significance of a relationship between the parents in a sample population who had the highest level of disagreement with the professionals in the behavioral assessment of their child and nine independent variables commonly perceived as being related to the level of agreement/disagreement.

The subjects consisted of the parents of 36 mentally retarded students in the Special Intermediate School District #916 Special Education Programs for moderately to profoundly handicapped students. A stratified random sampling was used to select the 36 students whose parents were involved in the study. The parents and teachers completed the Minnesota Developmental Profile System Scales (MDPS) through an interview technique using a trained interviewer. The paired responses for the 360 items of the MDPS scales were then divided into four sub-groups: 1) parents and teachers agree behavior is absent, 2) parent-behavior present/teacher-behavior absent, 3) parent-behavior absent/teacher-behavior present, and 4) parents and teachers agree behavior is present. The parents were rank ordered in each of the sub-groups and divided into quartiles.

The nine independent variables were: 1) intellectual ability, 2) family wealth rating, 3) age of child, 4) extent of handicapping conditions, 5) elementary or secondary program, 6) functional ability estimate, 7) type of student residence, 8) socioeconomic/lunch status, and 9) parent involvement with school.

The chi square was used to test the significance of the relationship between the sub-groups and the nine independent variables. No significant relationships were found between the independent variables and the sub-groups representing disagreement, putting to rest some of the common misconceptions relating to problems of parent-professional disagreement.

*APPROVED BY RESEARCH COMMITTEE, MAY 1980*  
*Stanley C. Knox, Chairperson*

### *A COMPARISON OF SPECIAL EDUCATION PROGRAMS IN FINLAND WITH THOSE IN MINNESOTA*

*Florence E. Knox*

**PURPOSE:** The purpose of this study was to compare special education programs in Finland with those in Minnesota.

**METHOD:** Data were collected through a review of the literature, site visits and interviews with Finnish education officials. Programs were compared on both program and population variables.

**CONCLUSIONS:** It was concluded that many philosophical similarities existed as far as goals of special education, responsibility of local schools, normalization and placement options, and individual educational programming were concerned. Finnish statements were usually broader in impact and less formal.

Some differences in definitions were noted. The major difference was the Finnish emphasis on the mobility of the child to function in the regular program in spite of the handicapping condition, compared with the Minnesota definition wherein the handicapping condition adversely affects the child's educational performance.

Special services which are available through special education programming are not funded in Finland. There appear to be problems of definition in learning disabilities in both programs and in the delivery system for emotionally disturbed.

Finnish schools tend to serve a large number of mildly mentally retarded who in Minnesota would be classified as "slow learners." The more severely retarded are the responsibility of the state, not the local schools.

Teacher training is more formal and more centralized in Finland.

While local districts have the responsibility for educational programs, only a small share of the financial obligation is their responsibility in both systems.

It was noted that Finland seems to have started with serving the more severely handicapped while Minnesota has traditionally served the more mildly handicapped. It was also noted that programs in Finland are based more on broad policy statements, while in Minnesota they are based on very specific detailed requirements in laws and regulations. It was suggested that, because of the differences in the sources and methods of regulation, information might be generated which would yield evidence of the most efficient procedures.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1979*  
*Floyd W. Ayers, Chairperson*

*A SURVEY OF PARENTS OF ELEMENTARY SCHOOL STUDENTS TO DETERMINE THE NUMBER AND CHARACTERISTICS OF CHILDREN WHO HAD AN AVERSION TO SCHOOL AND THE RELATIONSHIP OF AVOIDING SCHOOL TO PRE-SCHOOL ATTENDANCE*

*Judith K. Larson*

**PROBLEM:** The purpose of this study was to survey the parents of Fridley elementary students at Robert Lewis Stevenson Elementary School to determine the incidence and characteristics of elementary students who avoided or were afraid of school and whether there was any difference between those who avoided school and those that did not avoid school on the selected variables of: 1) grade, 2) sex, 3) number of children in the family, 4) position in the family, 5) pre-school experience, and 6) the descriptive behaviors while attending pre-school and elementary school. Another purpose was to determine if there were: 1) common characteristics of the school phobic child, and 2) what methods were effective in getting the child to school.

**PROCEDURE:** The instrument used to survey the parents was a questionnaire developed by the researcher. It was distributed to a population of 700 students, kindergarten through grade six. They were asked to have their parents/guardians complete the questionnaire and return it to the classroom teacher. Four-hundred and twenty-six questionnaires were returned (61% return). The responding parents reported 348 students had no problem in getting to school (82%) and seventy-eight students (18%) had some sort of problem, whether complex or minute.

Hypotheses were generated to determine if attendance in pre-school had any relationship to school avoidance problems. A descriptive study was also conducted concerning those seventy-eight children who had problems in school avoidance. Questions 11-20 on the survey were the descriptive variables that were answered by parents of the children. The variables were as follows: 1) the grade level the child first avoided school, 2) the length of unwillingness, 3) why was the child afraid of elementary school, 4) what behavior did the child display when trying to avoid school, 5) how did the parent get the child to school, 6) did they need assistance in getting the child to school, and 7) was the advice given appropriate in their opinion.

**RESULTS:** In the present study attendance in pre-school was not found to make a significant difference in whether a child did or did not later display school avoidance problems. It should not be concluded that pre-school in general may not lessen school problems. The lack of significant differences may have been due to the weakness of the questionnaire. Other instruments should be used to determine if pre-school attendance lessens school avoidance.

**RECOMMENDATIONS:** It is recommended that similar studies be conducted on attendance in pre-school and the parents' description of school avoidance behavior concerning those children who have been labeled as "school phobic" by professionals.

*APPROVED BY RESEARCH COMMITTEE, MAY 1980*  
*James Lewis, Chairperson*

*A STUDY OF THE USE OF TEXTURE IN TACTUAL POLITICAL MAPS*

*Richard William Larson*

**PROBLEM:** The purpose of this study was to determine whether it is easier for blind persons to use maps which contain both raised lines and texture than maps

which employ only raised lines. A secondary purpose was to discover whether or not a difference exists between the congenitally blind and the adventitiously blind with regard to this question.

**PROCEDURE:** The sample consisted of ten congenitally blind and ten adventitiously blind individuals. None of the subjects had any condition which was considered likely to affect the reading of a tactual map, and all were between the ages of twenty and sixty-five. None was able to count fingers visually at any distance. The subjects were shown the two maps in succession and were asked questions which required the extracting of information from the maps. After the subjects had answered the questions while using both maps, they were asked whether they felt one type of map was easier to use than the other. Half of the congenitally blind and half of the adventitiously blind subjects used the raised line map first, while the remaining individuals used the textured map first. The scores obtained by the individuals were tabulated with regard to the type of map used, the order of the presentation of the maps, and consideration of whether the subjects were congenitally blind or adventitiously blind. These scores were analyzed by means of the t-test. The opinions of the subjects concerning which map they felt was easier to use were analyzed with regard to the same factors; these results were analyzed by means of the chi-square.

**RESULTS:** No significant difference was found in the scores of the subjects when they used the raised line map and when they used the textured map. However, when they were asked which map they felt was easier to use, a significant difference was found in favor of the textured map. The responses of the congenitally blind and the adventitiously blind subjects to this question were similar. The subjects viewed the first map examined significantly more favorably than the second map, but did not differ significantly in the scores which they obtained when using the first and second map. The scores of the adventitiously blind subjects were significantly higher than those of the congenitally blind subjects.

**CONCLUSIONS:** It appears that the addition of texture to raised line maps can make such maps easier to use for many blind persons, including both congenitally and adventitiously blind individuals. The observation that none of the subjects in this study experienced serious difficulty with these maps suggests that most blind persons can gain much information from appropriate tactual maps. The fact that the subjects reported the textured map was easier to use but did not obtain higher scores while using this map can probably be explained by the simplicity of the maps, which made the use of both maps fairly easy.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1978*  
*Stanley C. Knox, Chairperson*

#### ***A FOLLOW-UP STUDY OF THE JOB SUCCESS OF THE STUDENTS WHO COMPLETED A VOCATIONAL EVALUATION AND TRAINING PROGRAM***

*Dennis L. Leasher*

**PROBLEM:** It was the purpose of this study to collect descriptive data on TMR students who have completed vocational evaluation to obtain information on job placement (where employed), salary, how long employed at present job, and employment status (competitive employment, sheltered employment, in-training, and unemployed). A second purpose of the study was to determine if work sample data can predict job success of TMR students who have completed a vocational evaluation program.

**PROCEDURE:** Part one of the survey was completed predominately by telephone interview with the TMR student or a close relative. A review of the vocational evaluation recommendations on the thirty-four TMR students comprised part two of the follow-up questionnaire. The follow-up study which was completed during the summer of 1979, dealt with the actual work and living status of thirty-four TMR students who had completed the vocational evaluation in 1975, 1976, and 1977. An analysis was then done to determine the accuracy of the vocational evaluation recommendations to job success.

**RESULTS:** The descriptive data indicated that overall seventy-eight percent of the vocational evaluation recommendations were accurate upon follow-up. The evaluation outcome and training recommendations showed that eleven of the fifteen TMR students (73.3 percent) were competitively employed. Also, fifteen of the nineteen (79 percent) of the students recommended for sheltered employment were in fact in sheltered employment. Of the eighteen of the twenty-two (82 percent) of the TMR students had actually completed a recommended training program.

Eleven of the thirty-four TMR students (32 percent) were competitively employed. Five of the thirty-four (14.7 percent) of the TMR students were in training, and fifteen of the thirty-four (44.1 percent) of the TMR students were in sheltered employment. Only three of the thirty-four (8.9 percent) of the students were unemployed.

Eleven of the thirty-four TMR students were in the annual salary range of \$2,000 to \$4,999. Nine of the TMR students were making less than \$1,000 annually. These were predominately TMR students who were in sheltered employment.

The living situation of the thirty-four TMR students located in the 1979 follow-up indicated that ten students were living in a group home, twenty-two students were living with family or foster family, and two students were married and living independently.

The second part of the study was to determine if work sample data can predict job success of TMR students who completed a vocational evaluation. No significance was found when comparing work sample data to job success. This may have been due to the small sample size.

**RECOMMENDATIONS:** There is a continual need for follow-up and program evaluation research to determine effectiveness of vocational evaluation recommendations. There is a need for change in research format for collecting follow-up data. One of the needs pertains to increasing the sample size; another criteria that should be considered in doing a follow-up study of this type is the level of training recommended and the amount of training effort needed to get a TMR student successfully placed.

*APPROVED BY RESEARCH COMMITTEE, MAY 1980*  
*James Lewis, Chairperson*

*A DESCRIPTIVE EVALUATION OF WORK EFFORT THAT MAINSTREAMING OF  
HANDICAPPED STUDENTS REQUIRES OF THE REGULAR CLASSROOM  
TEACHER*

*Phyllis A. Lindberg*

The purpose of this study was to investigate the amount of work-effort involved in the integration of the handicapped students into all classes of this middle school as well as to assess the attitudes of the regular classroom teachers toward the handicapped students within their classes. Using a

student accommodation questionnaire and applying a chi-square test for each item on the questionnaire, it was found that there was a significant difference in the behaviors for the regular classroom teachers toward special students and the regular students in all but two of the 12 items. It was concluded that there was a recognizable awareness of need for accommodation of the special education students in the mainstream by the regular classroom teachers.

A second aspect of the study was the use of an opinion survey to assess regular classroom teachers as to attitudes toward mainstreaming the handicapped students and to needs for preparation prior to service or need for inservice for those already involved in the mainstream movement. It was concluded that this group of teachers' responses indicate agreement with present research that the teachers in general are willing to receive the handicapped students into their classrooms but are uncertain of their capabilities to deliver services and consequently seek help and support from special education personnel and administration.

A general conclusion was made that research itself needs to produce more studies in all these areas: teachers' attitude toward the handicapped at this stage of progress toward mainstreaming, teachers' work-effort toward accommodation of the handicapped students, and effects of inservice and changes in teacher training for the regular classroom teacher toward accommodating handicapped students with special learning needs.

*APPROVED BY RESEARCH COMMITTEE, FEBRUARY 1980*  
*Stanley C. Knox, Chairperson*

#### *A STUDY OF TEACHERS' RATINGS VS INDEPENDENT CLASSROOM OBSERVERS' RATINGS OF BEHAVIOR ON EMOTIONALLY DISTURBED ADOLESCENTS*

*Ted B. Lorentzen*

**PROBLEM:** The purpose of this study was to determine whether the teachers' ratings of student behavior in a hospital setting, using a teacher made rating form, was a better predictor of success of students as they move into a non-hospital setting than ratings done by classroom observations by a non-participant observer using a pupil observation rating form.

**PROCEDURE:** Thirteen emotionally disturbed adolescent students were rated on a behavior rating form completed by each of the students' teachers and by a Pupil Observation Schedule completed by an independent classroom observer. As the students moved from a public school program in a residential treatment hospital to a school program located off the hospital grounds, the students' behavior was rated again by the teachers. Step-wise regression analysis was used to determine which rating device was the best predictor of success.

**RESULTS:** The results indicated that the teachers' rating form was superior to the pupil observations by an independent observer in predicting student success as they moved from a residential school program on the hospital grounds to a public school program located within the community.

The teachers' ratings were more valid and were thought to be more economical and feasible to use than the ratings done by the independent classroom observer.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1977*  
*James Lewis, Chairperson*



## *THE EFFECT OF INDIFFERENT TEACHER INTERACTION ON WORD RECOGNITION AND CLASSROOM BEHAVIOR OF SECOND GRADE LEARNING DISABLED STUDENTS*

*Myra Mangon*

**PROBLEM:** It was the purpose of this paper to find the differences in classroom behavior and reading word recognition of second grade learning disabled students during a period of indifferent teacher interaction and of positive teacher interaction.

**PROCEDURE:** Four second grade learning disabled students were observed during a twenty day period of indifferent teacher interaction followed by a twenty day period of positive interaction. A chart was kept for each student recording the frequency of behavior patterns during the forty day period. The Wide Range Achievement Test, Word Recognition (Level 1) was given as a pretest and posttest for each period.

**FINDINGS:** The significant findings were:

1. The students' interaction with the teacher was determined by how the teacher interacted with the students.
2. The frequency of undesirable classroom behavior was much higher during the indifferent teacher interaction period than during the positive period.
3. In all cases except one there was a greater rate of gain on the score of the WRAT Reading Word Recognition (Level 1) during the period of positive teacher interaction.

**SUMMARY AND CONCLUSIONS:** Since this research was limited to four learning disabled students no generalization could be made. The research did show, however, that with all four students, positive teacher interaction resulted in improved classroom behavior. With three of the students positive teacher interaction resulted in improved reading word recognition. Additional research needs to be done with a larger sample and with more observers recording student behavior.

*APPROVED BY RESEARCH COMMITTEE, MARCH 1978*  
*William Lovelace, Chairperson*

## *FEMALE JUVENILE DELINQUENCY: A COMPARATIVE STUDY*

*Carol A. Markham*

This study investigated the relationship between female juvenile delinquents and non-delinquents and their attitudes toward the women's movement. The intent of this study was to demonstrate that the dramatic increase in female delinquency within the past five years was significantly influenced by this movement. Another comparison is made between number of reported offenses from both groups and social influences to determine if a correlation exists.

A comparison was made of 26 adjudicated juvenile females and 26 non-delinquent females between the ages of 13 and 18. The Nye-Short Delinquency Scale determined the number of reported offenses from both groups of females. These results were compared with the degree of pro-feminist attitudes held by both groups as measured by the Attitudes Towards Feminism Scale. The California Psychological Index measured the extent to which social values are internalized for both groups and was compared with the Nye-Short Delinquency Scale. A dependent *t* test was used to determine any significant differences between groups.

An analysis of the results indicated that no significant differences were found between delinquents and non-delinquents on the Attitudes Towards Feminism Scale and the California Psychological Index. However, a dependent  $t$  analysis of the scores on the Nye-Short Delinquency Scale indicated that the delinquents reported a significantly higher involvement with unlawful acts. An analysis of the Pearson Product-moment among the three measures for both groups demonstrated no statistically significant correlations.

APPROVED BY RESEARCH COMMITTEE, MAY 1980  
*Sandra Reese, Chairperson*

### **THE DEVELOPMENT OF METHODS OF OBSERVATION SKILLS AND OF RECORD KEEPING FOR THE LEARNING DISABILITIES TEACHER**

*Lorraine Matthias*

The purpose of this thesis was to discover the techniques of observing the learning disabled child in the classroom and to identify types of record keeping used to make the observing a meaningful and helpful aid to program planning for each child.

The potential and the need for higher education instruction in the area of observation and record keeping of the learning disabled child and the educable mentally handicapped child in the near future is a possibility. Therefore, the questionnaire was developed in a manner which would not only identify the types of record keeping being used in the past year, but also the types of record keeping that would be perceived to be useful in the future, and the personnel who would use these various types.

The purpose was accomplished by various methods. First, literature was reviewed in order to identify various procedures used to collect data. Sample record forms were collected as a resource for developing the questionnaire. The questionnaire was designed to identify the types of record keeping which were used in the past school year, the types of record keeping perceived to be useful in the future, and the personnel who would use these types of record keeping for each technique.

The questionnaire was then mailed to special education personnel in three administrative districts in central Minnesota. Forty-six out of 150 (31%) were returned.

The results of the questionnaire indicated that the special education teachers were the most frequent users of all types of such procedures with classroom teachers ranking second. Projections indicated they would continue to be the major groups of school personnel who use such procedures. However, there was also a predicted increase in use by school psychologists and school social workers.

Charting and graphing, behavior tallying, checklists, and anecdotal records were the most frequently used methods of gathering data in that order. It was predicted that behavior tallying would become less popular in the future and that charting and graphing would become more frequently used.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1979  
*Stanley Knox, Chairperson*

### **THE IMPORTANCE OF LEGIBLE HANDWRITING IN BUSINESS AND INDUSTRY**

*Norma Kastella McNeil*

The present study investigated the importance of handwriting to employers in a small rural Minnesota community. Twenty-two employers were surveyed with

regard to their feelings about the importance of handwriting. They were also asked to identify the positions within their firm that needed legible handwriting and positions where legible handwriting was not required. A third task was to rank order a set of job application letters. The letters consisted of good cursive writing, good manuscript writing, legible printing, legible writing and poor cursive writing.

The results indicate that all of the employers felt legible handwriting was important for at least some of their jobs. Seventy-seven percent of them felt it was important for all of their positions. The twenty-two employers were divided into five categories: Industry, Community Services, Health Services, Civil Services, and Business and all of the identifiable positions listed were given an occupational status score. The occupational status scores were significantly higher for positions that require legible handwriting in Industry, Health Services, and Community Services. The scores were not significantly higher for Business although they were in the direction of the hypotheses. For the fifth category, Civil Service, no statistical test could be considered because there were no positions listed that did not require handwriting.

The final task of rank ordering the letters of application was very consistent in that these potential employers were very capable of making a clear and reliable distinction between levels of legibility.

The conclusions are that handwriting is important and should be continued as a curriculum element. Further investigation needs to be done to see if these results would also be obtained if the handicapped status of the potential employee were known to the personnel officer.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1979*  
*Floyd Ayers, Chairperson*

#### *POST-SCHOOL ADJUSTMENT OF GRADUATES OF THE VOCATIONAL DEVELOPMENT CENTER OF LITTLE FALLS, MINNESOTA*

*John F. Messelt*

The purpose of this study was to find out how well former students of a secondary program for the educable mentally retarded adjusted vocationally and socially as an adult, to what extent they have been able to live independently, and how they felt about the high school program in which they were involved.

**PROBLEM:** There has been a lack of data on which to base rationale for making program adjustments in the Vocational Development Center. There has been a lack of consideration, as a result, of how these program adjustments may affect the post-school adjustment of the graduates of the program.

**PROCEDURE:** Graduates from the years 1972, 1973, and 1974 were interviewed to determine how well they have adjusted to society and to determine what sort of life style they have adopted. They were personally interviewed and the data recorded in terms of frequency and percentages of responses.

**FINDINGS:** It was determined that the Vocational Development Center graduates have made good vocational adjustments. They have acquired jobs that pay well and indicated that they found satisfaction in what they were doing.

The social adjustments of the graduates were not as impressive. There was very little involvement in group activities or social clubs and organizations. There were few ways found in which the students could spend their leisure time. There were few who married.

There was considerable dependence on parents in regard to living and financial matters. Many of the subjects were receiving some sort of financial

assistance, and several of these were receiving support from more than one source.

There was little involvement in vocational training after graduation from high school. Most of the post-school education was for personal enjoyment rather than job-skill training. Several were involved in day activity centers and sheltered workshops.

Most students indicated a preference for vocationally oriented classes, although several indicated an attraction for academic classes such as mathematics, English, social studies, etc. A high percentage named these academic classes as those they strongly disliked. The subjects felt that it was the vocational classes that have been the most helpful to them since they have left school.

**SUMMARY AND CONCLUSIONS:** Several recommendations were made as a result of this study, with the intent of assisting the future graduates in making a more positive post-school adjustment. Added involvement of job placement agencies was indicated. In order to improve mobility a greater emphasis on obtaining a driver's license is warranted.

The students need additional training in personal financial management.

There should be increased awareness of post-school training programs with encouragement to become more involved in vocational courses while in high school. A change in the physical education program is necessary to provide a more positive experience for Vocational Development Center students.

*APPROVED BY RESEARCH COMMITTEE, FEBRUARY 1978*  
*William E. Lovelace, Chairperson*

#### *THE EFFECTS OF AUTOMATED AND SOCIAL REINFORCEMENT ON UPRIGHT HEAD POSITIONING IN MULTIPLY HANDICAPPED STUDENTS*

*Margaret M. Moore*

The acquisition of mid-line vertical head control is an important stage in the motor development process. For multiply handicapped individuals, the development of abnormal patterns or delay of this skill may seriously affect growth in the motor and cognitive areas.

A photo-electric relay system was used to train upright head positioning with four multiply handicapped, cerebral palsied individuals. Subjects were positioned so that appropriate head posture broke a light beam and activated a visual or auditory reinforcer. Delivery of social reinforcement occurred when the subjects' performance met a specified criterion.

The percentage of upright head positioning demonstrated by the subjects during each session and the mean percentage performance which occurred during criterion changes indicated that the use of social reinforcement in conjunction with automated reinforcers did not produce a significant positive effect on the upright head behavior of the four subjects.

Modifications of the procedure, the environment, and the head control apparatus are suggested for future study.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1979*  
*James F. Lewis, Chairperson*

*A STUDY OF PROFESSIONALS' OBSERVATIONS, OPINIONS, AND ATTITUDES OF  
CAMP CONFIDENCE AND YEAR-ROUND CAMPING FACILITIES FOR THE  
MENTALLY RETARDED*

*David L. Nelson*

**PROBLEM:** The purpose of this study was to explore the relationship between selected variables at Camp Confidence and the profession, sex, years of professional experience with the handicapped, years at their present professional position, and years of personal camping experience of the counselors who used Camp Confidence during 1977; to investigate the possible relationship between the traveling distance to and from Camp Confidence of the counselors and the days-per-year usage of said camp; and to examine the position of the professionals regarding year-round camping opportunities for the populations they serve, and the need/lack of need for more year-round outdoor education, recreation and camping facilities for the mentally retarded.

**PROCEDURE:** A questionnaire survey was sent to the 197 professionals who were responsible for bringing groups of mentally retarded persons to Camp Confidence during 1977. Professionals surveyed were asked to rate several items regarding Camp Confidence and year-round camping for the mentally retarded. A chi-square analysis was used to test the six hypotheses, while the three pertinent questions were summarized by tabulating the percentages of professional responses.

**RESULTS:** The results indicated that the profession, sex, years of professional experience with the handicapped, years at present professional positions, and years of personal camping experience had some effect on how activities and facilities found at Camp Confidence were rated. Statistical evidence did show a direct correlation at the .0003 level of confidence between the counselors' proximity to Camp Confidence and their usage of said camp.

Ninety-eight and five-tenths per cent of the professionals surveyed agreed that Camp Confidence is a worthwhile alternative in meeting the outdoor educational and recreational needs of the mentally retarded; and 99.2% of these same professionals felt that there is a need for more camping facilities designed to meet the needs of the mentally retarded, operating on a year-round basis.

*APPROVED BY RESEARCH COMMITTEE, MAY 1978  
James F. Lewis, Chairperson*

*PRE-SERVICE TRAINING FOR IMPLEMENTATION OF THE EDUCATION FOR ALL  
HANDICAPPED LAW (PL 94-142) IN MINNESOTA FOUR YEAR COLLEGE  
AND UNIVERSITY TEACHER TRAINING PROGRAMS*

*Beverly E. Nestingen*

The purpose of this study was to investigate the types of teacher training programs currently offered in the four-year private colleges and universities in Minnesota. It sought to determine if the changes mandated by PL 94-142 (Education for All Handicapped Law) were included as components of the training programs and if the skills and competencies required to relate knowledgeably to the law were being taught.

**PROCEDURE:** Questionnaires were sent to college faculty and graduating education majors. Both were addressed specifically to the characteristics of existing regular education programs. This was done to determine the components of PL 94-142 faculty members considered part of their program and also what

components graduating seniors felt competent to include as acquired skills.

FINDINGS: It was determined that the majority of four-year colleges and universities are including the components of PL 94-142 in their pre-service programs. This inclusion is, however, an awareness of the law and its demands rather than the teaching of specific skills and competencies necessary to meet its demands.

The majority of faculty indicated that concrete steps were being taken to improve upon current programs so they could include the skills and competencies demanded by the law.

Most of the graduating seniors indicated that they felt inadequate to deal with handicapped students and would like to have acquired more specific skills and competencies in order to teach all students.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1979*

*William Lovelace, Chairperson*

### *A STUDY OF THE ABILITY OF DEAF ADOLESCENTS TO COMPREHEND FACTUAL INFORMATION USING FOUR COMMUNICATION MODALITIES*

*William J. Newell*

PROBLEM: It was the purpose of this study to determine if manual communication enhances educational opportunities for deaf students by allowing them to comprehend more information in instructional settings. A second purpose was to determine whether results of previous investigations into the effectiveness of manual communication conducted with residential school students would be similar when the subjects had a significantly different educational history.

PROCEDURE: Four factual stories were narrated to twenty-eight deaf adolescents using simultaneous, manual, and oral communication, and interpreting. Following each story/modality presentation a ten point multiple choice comprehension test was administered to each subject. Data consisting of scores of from 0 to 10 points for each story/modality presentation for each subject were analyzed using analysis of variance and t-test of comparison of means to determine which method of communication was most effective.

RESULTS: Significant differences were found between simultaneous communication and each of the other three modalities. A significant difference beyond the .001 level of significance was found between the interpreted modality and the oral modality. No differences were found between interpreted and manual modalities and manual and oral modalities. Similarly no difference was found between junior high school subjects and senior high school subjects in their ability to comprehend factual information using the four communication modalities.

CONCLUSIONS: Simultaneous communication was found to be superior to the oral, manual, and interpreted modalities. The difference between the simultaneous and interpreted modalities was not, however, as clearly proven ( $p < .03$ ). The interpreted modality was superior to the oral modality ( $p < .001$ ) which suggests that the difference found between the simultaneous and the interpreted modalities deserves further investigation. The results suggested that deaf students would benefit from the use of both simultaneous and interpreted communication in instructional settings. These results also confirmed the findings of previous studies conducted with residential school students thus confirming the benefits of manual communication for deaf students who have had little or no exposure to sign language in their prior educational or

social interactions.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1977  
*Stanley Knox, Chairperson*

#### DESCRIPTION, PROBLEMS, AND SUGGESTIONS OF HIGH SCHOOL DROPOUTS

*Katherine Toft Nielsen*

Of the enrolled students in Alexandria, Minnesota, in 1975-76, 4.3 percent withdrew from their high school program. Research and statistics predict a bleak outlook for these people in the future. This study describes the dropout student in terms of specific variables and identifies the specific factors instrumental in the termination process.

A student/parent questionnaire was used to collect data from the dropouts via written or telephone responses. Response rate was 93 percent.

Subjects felt most of their problems began in grade four, junior high, or grades ten and eleven. Grade ten had 44 percent of the withdrawals. More girls dropped out than boys. Grade failure at the secondary level was experienced by 23 percent. There was little involvement in special programs or school activities. The primary factors influencing withdrawal were school-related for 62 percent and out-of-school related for 38 percent of the respondents. Attendance problems are the best indicators of school problems, reflecting lack of interest, academic problems, and clashes with teachers or administrators. Administrators, teachers, and friends were encouraging withdrawal; family opposing it.

Concerns were expressed about teachers and administrators caring, taking time to help and understand. A need was expressed for more emphasis on basic and job-related skills. There were few regrets; few would consider returning. Present occupations reflected unskilled jobs, unstable marriages, and unemployment. There were few future plans.

In 1976-77 an advisor-advisee program including parent conferences was implemented, a family counselor added, and the learning disabilities program expanded. In 1977-78 an Alternative Learning Center will be implemented at the junior high. Senior high science curriculum has been revised to include basic classes. The work experience program will be available for ninth and tenth graders. An alternative program is in planning stages to be implemented in 1978-79.

Recommendations to Jefferson High School include the alternative program, expansion of the learning disabilities program, provisions of day care services for teen mothers, a school social worker, a review of attendance and withdrawal procedures, flexibility on graduation requirements, emphasis on involvement in special programs and school activities.

Recommendations to District 206 include curriculum review, emphasis on caring teachers, and taking advantage of Public Law 94-142.

Recommendations to the community are for support of the school.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1977  
*Richard Scribner, Chairperson*

#### THE EFFECTS OF INTEGRATION ON THE SOCIAL INTERACTION, EATING, AND GROOMING SKILLS OF A GROUP OF PREVIOUSLY SEGREGATED TRAINABLE MENTALLY RETARDED STUDENTS

*Richard W. Northrop*

PROBLEM: The purpose of this study was to determine if there was a difference

in social interaction, eating, and grooming skills of a group of TMR students eating in an integrated as opposed to a segregated cafeteria as rated on a checklist of items taken from the AAMD-ABS. The checklist was also used to determine if the group of TMR students and a group of randomly selected high school students behaved differently in a high school cafeteria.

**PROCEDURE:** A group of teachers rated the TMR students in the cafeteria of the sheltered workshop where the TMR students attended class. A group of high school student sponsors who accompanied the TMR students during the integration experience in the high school cafeteria also rated the TMR students. Two hired observers rated a group of randomly selected high school students in the high school cafeteria. The ratings were done over a period of nine weeks. The results were analyzed non-parametrically by use of the Wilcoxon Matched-Pairs Signed-Ranks Test and the Mann-Whitney U Test.

**RESULTS:** Significant differences in the grooming portion of the checklist were found that affected the comparisons of the second student sponsor rating of the TMR students with the other ratings. The significant differences were determined to be the result of the sponsors reluctance to evaluate the performance of the TMR students on the checklist and not due to student behaviors. Five blank checklists and seven partially completed checklists resulted in a total of 114 omissions on the grooming portion of the second sponsor rating. Friendships between the sponsors and the TMR students were concluded to be the cause of the sponsors reluctance to rate the TMR students a second time.

*APPROVED BY RESEARCH COMMITTEE, JULY 1978*  
*James Lewis, Chairperson*

#### *A STUDY OF THE RELATIONSHIP BETWEEN SOCIAL GROUP POSITION AND DISRUPTIVE CLASSROOM BEHAVIOR*

*Margaret M. Novakoske*

The purpose of this study was to compare social group status with the number of disruptive incidents of each student within a classroom. Subjects were two groups of first grade students in a traditional classroom setting. Data was collected over a two-year period with a fall pre-test and a spring post-test. Observers were the classroom teacher, two professional aides, and the music teacher. Data was collected using a teacher constructed sociometric test and a teacher constructed behavioral checklist.

The null hypothesis stated that there would be no significant difference between the social group status of a student and the number of disruptions caused by that student in the classroom. There would also be no significant differences in the number of disruptive incidences when sex, time of year, and subject matter areas were compared.

Means were compared through use of the t-test and an analysis of variance. Levels of significance were .05.

The data supported the null hypothesis stating that there was no significant difference between the social group status of a student in the classroom and the number of disruptive incidences caused by that student in the classroom. The null hypothesis stating that there will be significant difference in the number of disruptive incidences in a classroom when time of year, sex, and subject matter areas were compared was not completely supported by this study. In comparing the total number of incidents it was found that there was a significant increase of incidents in the spring as compared to the fall total. A breakdown of incidents by groups, however, showed that this was only true for one group. The other group's pre and post test totals were not significantly different. This same group showed a significant increase in



incidents in spring over fall tests in subject matter areas also, with reading being particularly high. For this group, sex differences were also suggested with boys showing a higher number of disruptive incidents in the subject matter areas tested with reading again being the area of greatest incidence.

Although the null hypothesis was supported by the data, several trends were noted which indicate several possibilities for further study. The area of social group status as it relates to classroom achievement could be further researched. The relationship between achievement and behavior is another possible area for research. Duplication of this study with a more representative group of subjects or with subjects from different geographic areas or from different social classes would possibly give quite different results. Further study regarding sex as a variable might reveal useful data on learning patterns or behavior problems.

Group structure emerges as a factor deserving of further study. In this research, where all the variables were basically the same except for the difference in the subjects, effective management would seem to be the key to behavior in the classroom. From the results of this study, generalization could be made to the extent of stating that all groups of students are different in the way they react to what appear to be the same conditions.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1979*

*Stanley Know, Chairperson*

#### **TEACHER AIDE JOB SATISFACTION AT THE CAMBRIDGE AREA DEVELOPMENTAL, REHABILITATION AND EDUCATION CENTER**

*John James O'Brien*

**PROBLEM:** The purpose of this study was to identify areas of job satisfaction, or the lack of it, as perceived by teacher aides employed at the Cambridge Area Developmental, Rehabilitation and Education (CADRE) Center.

**PROCEDURES:** Teacher aides were asked to complete a confidential opinion survey administered by classroom teachers. The survey consisted of ten categories of job satisfaction: The Work Experience, Pay, General Working Conditions, Employee Relations, Employer Relations, Serving Handicapped Students, Identification, Self-esteem, Security, and Duties. A total of five positive and negative statements was randomly generated for each of the ten sources of job satisfaction. Aides were asked to rate each statement using a scale of agreement (SA, A, U, D, SD). A frequency analysis of responses at each scale point for each statement was performed on the surveys returned.

**FINDINGS:** The results of the study indicated that the teacher aides are generally satisfied with their jobs, with exception of pay, fringe benefits, and communication between aides and CADRE administrators, all of which are unsatisfactory.

*APPROVED BY RESEARCH COMMITTEE, APRIL 1978*

*Stanley C. Know, Chairperson*

#### **THE CONTROL OF TOPOGRAPHICALLY DISSIMILAR MALADAPTIVE BEHAVIORS EXHIBITED BY A PROFOUNDLY RETARDED SUBJECT WITH SHORT DURATION HAND EXERCISES AND DIFFERENTIAL REINFORCEMENT OF OTHER BEHAVIOR**

*Len D. Peterson*

Due to an increasing number of laws and regulations restricting the use

of electro-shock and other aversives in public facilities serving the mentally retarded, it has become important for professional behavior modifiers to develop behavior modification techniques which are both effective and ethically acceptable.

In this case study, nine maladaptive behaviors exhibited by a profoundly retarded institutionalized subject were significantly reduced by consequating each of the behaviors with a short duration (15 second) manually guided hand exercise supplemented with differential reinforcement of other behavior (DRO). The consequated behaviors were of varying topographical classifications and included aggressive, self-stimulative, self-injurious, and disruptive responses. The investigation was carried out over a period of 36 consecutive days without interruption of the subject's normal daily routine.

Reversals were conducted on six of the nine target behaviors with all but one demonstrating significant increases when consequation of the behaviors were discontinued for a three day period. When intervention was resumed following the reversal condition, the maladaptive behavior frequencies again decreased to pre-reversal frequency levels. The utilization of the hand exercise and DRO intervention procedures resulted in a 97 percent reduction of the combined initial baseline rate.

The success of the procedure was attributed to seven factors. One of the major factors stressed the importance of breaking or interrupting inappropriate behavior chains.

*APPROVED BY RESEARCH COMMITTEE, MARCH 1979*  
*William E. Lovelace, Chairperson*

## *PARENTAL CRITERIA FOR NURSERY SCHOOL SELECTION*

*Joan Kelling Prochnow*

This study was done to determine the relative importance of eight selection criteria for parents selecting a nursery school, and to determine what effect parental educational attainment level had on the relative importance of the selection criteria.

Thirty percent (77) of the parent units from five nursery schools in the central Minnesota communities of St. Cloud and St. Joseph were asked to rate the importance of each of eight selection criteria (program offered, teacher's training, teacher-student ratio, school location, physical facilities, professional recommendation) in choosing the nursery school for their child to attend. Parents indicated the most and the least important criteria, selected their most important reason for sending their child to nursery school, indicated the extent of which they knew information relevant to each of the selection criteria, and identified the educational attainment level of each parent.

The results suggest that educational attainment level has little or no effect on how parents rated the importance of the selection criteria. The school's program was the highest rated criteria, and the location of the school was rated as least important. Most parents possessed information relevant to the school's program, and "kindergarten readiness" and the "opportunity to play with others" were the most important reasons for sending children to preschool.

The educational attainment levels of mothers was lower than that of fathers, but the educational attainment levels of couples were correlated (Spearman's Rho,  $r = .49$ ,  $p \leq .001$ ); the educational attainment levels of the parents was not representative of adults in the same geographical area, according to 1970 census data.

A relationship between the school parents chose and parent's most important reason for sending their children to nursery school was shown.

Suggestions for future research are discussed.

APPROVED BY RESEARCH COMMITTEE, SEPTEMBER 1977

Floyd A. Ayers, Chairperson

### AN INSERVICE EDUCATION NEEDS ASSESSMENT OF EDUCATORS RELATIVE TO EFFECTIVE MAINSTREAMING OF HANDICAPPED STUDENTS

Kenneth E. Runberg

Recently the concept of "mainstreaming", educating handicapped children in the most normal setting possible, has created much interest and anxiety amongst educators, parents, lawyers and legislators. This interest and concern has appeared within the Crow River Pupil Study Services Cooperative, which consists of nine independent school districts within the Hutchinson, Minnesota area.

This field study represents a needs assessment of skills and attitudes that educators within the cooperative exhibit relative to mainstreaming handicapped students. It is anticipated that the results of this field study will be utilized in the development of an inservice program to promote effective education for these students in the least restrictive environment.

In reviewing the literature, rationale for mainstreaming was noted including state and federal laws, court cases, educational principles, student achievement, and social development. The literature indicated numerous problems with mainstreaming including two major categories:

1. Regular school programs are not well suited for absorbing and serving handicapped students.
2. Communities are not well suited for accepting and absorbing handicapped individuals.

The literature provided items that are necessary to facilitate mainstreaming including, pre-service and inservice training. Information relative to who should receive inservice, the content of the training, and planning procedures are included in the review of the literature.

The method of completing the needs assessment included the utilization of a 50-item special education questionnaire which was designed by the author. All educators within the cooperative were asked to complete the needs assessment, which incorporated both attitudinal and cognitive questions on a Likert Scale Format. Eighty-six percent (86%) of the questionnaires were completed and returned.

The results were evaluated as follows:

First, educators were divided into groups based on the professional assignment. Accuracy by group was established for each test item. Second, each educator group was compared based on the results of the total questionnaire. Third, an item analysis was completed to determine the most difficult areas for each group. Areas that appeared to present the most serious difficulty included:

1. Attitudes towards the handicapped
2. Knowledge of handicapping conditions
3. Curriculum and method alternatives
4. Identification procedures

In conclusion, the field study recommends that an inservice program be established to provide training to all staff in the above listed areas. The inservice should cover general items on a group basis followed by in-depth, individualized training, including both instruction and practicum.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1978

Stanley C. Knox, Chairperson

## CHARACTERISTICS OF PARTICIPATING AND NON-PARTICIPATING PARENTS WHOSE CHILDREN RECEIVE SPECIAL SERVICES

Barbara L. Troolin

This study examined differences of parents who attended parent-teacher conferences with those who did not attend parent-teacher conferences during Fall of 1977. The parent groups were compared on several items that are classified in the following categories:

1. socio-economic and demographic factors
2. parent satisfaction regarding conferences
3. participation in school related activities
4. attitudes towards special services programs

One hundred twelve parents whose children were receiving special services from Title I, Speech, SLBP, or EMR were surveyed. This represented a random sample taken from a population of approximately 1,200. Ninety-eight and four tenths percent of the identified parents agreed to participate in a telephone interview. Other information was collected from the school records. The frequency of observations in the two groups was compared using a chi square test.

The study found there were no significant differences with regard to socio-economic and demographic factors. Differences did exist at the .05 level of significance on five items. There was a difference in expected frequency and obtained frequency regarding: (1) the explanation of their child's special service program, (2) parents volunteering at their child's school, (3) parents attending open house or visiting the school, (4) attitudes about attending staffing, and (5) having the special services program of the child explained to the parent.

APPROVED BY RESEARCH COMMITTEE, MAY 1978

Floyd W. Ayers, Chairperson

## A DESCRIPTIVE SURVEY OF THE DEGREE OF AWARENESS PARENTS OF THE ATWATER SCHOOL DISTRICT POSSESS OF THE LEGISLATION P. L. 94-142

Mary E. Voss

**PROBLEM:** The purpose of this study was to determine the extent of awareness parents of the Atwater School District, #341, have of their parent rights under Public Law 94-142, Education for All Handicapped Children Act of 1975. The major hypothesis was that there is no significant difference between the level of understanding of parents in relationship to PL 94-142 and what PL 94-142 guarantees.

**PROCEDURE:** Sixty parents of the Atwater School District were randomly selected from two groups; parents of special education students and parents of regular class students. They were mailed to the parents or sent home with the student. The questionnaire was returned by mail.

**RESULTS:** Results of the study indicate a basic and general awareness of PL 94-142 content by the parents. However, one area of concern was evident. There is a lack of knowledge about parent involvement in the IEP development, evaluation, and initiation. Also, mothers and parents of special education students answered a higher percentage of questions on legislation correctly than did fathers and non-special education students' parents.

CONCLUSIONS: Parents of the Atwater School District are aware of their rights as evidenced by the parent questionnaire but they should be In-serviced in some manner on their role in the IEP process.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1979  
*Richard Scribner, Chairperson*

#### A DESIGN FOR PROGRAM PLANNING FOR THE TRAINABLE MENTALLY HANDICAPPED

*Ronald W. Watkins*

This field study was conducted in a central Minnesota city of approximately 40,000. The purpose of the study was to document the process of planning, designing, and implementing the building of a special education facility for the Trainable Mentally Handicapped utilizing the least restrictive alternative concept. To complete this process, six major tasks were conducted as follows:

1. A needs assessment was conducted to determine enrollment projections, special needs of the Trainable Mentally Handicapped, and the social/political climate of the community involved.
2. A committee was selected to assist the Special Education Department in the planning and the promotion of upgrading the facilities for the mentally handicapped. This committee reviewed existing models of service, selected a plan of action, and received Board of Education approval to proceed with implementation of the recommended plan.
3. The committee identified specific components desirable in a new facility. The existing accommodations were reviewed for revision, building codes for new construction were gathered, and a listing of student needs and their structural implications was completed.
4. Site visitations were conducted on three out-of-state exemplary programs. Data from these visits was logged into a format preconstructed by the committee. Upon the completion of the three visits and the collation of all data, the committee evaluated the observations for possible implications in future planning processes.
5. A public relations campaign was conducted to bring information regarding the project before the public in a positive manner. Special interest groups were identified and various communication vehicles were reviewed for use with each selected group. The committee then matched the group, type of information required, and the dissemination process to be utilized in the public relations process.
6. The staff, students, and parents of the selected school received an orientation regarding the Trainable Mentally Handicapped, the components of their program, and general program objectives. The planning committee conducted a series of activities, specific to each group, to accomplish this orientation process.

The study contains the details of the above tasks, examples of goals utilized in the project, and finally, a statement regarding the degree of success of various major activities. Activities perceived as the most valuable were those which involved the school board, architect, program staff and regular education students. It was judged that greater communication with components within the district might have served to reduce misunderstandings.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1978  
*Stanley Knox, Chairperson*

## CLASSROOM TEACHER PERCEPTION OF THE SPECIAL EDUCATION STUDENT IN ELEMENTARY SCHOOLS

*John R. Zeyer*

**PROBLEM:** Does Special Education service those youngsters whom elementary teachers identify as being the most problematic?

**PROCEDURE:** Forty (40) elementary classroom teachers working in departmentalized schools were randomly divided into two groups of twenty (20) each. The researcher surveyed the two groups using two different formats. Format A asks the teachers to identify in rank order the six most problematic students they had in their class the previous school year. Then the teachers were given three categories dealing with special education labels and asked to place each of the six students in one of the categories. Format B gave the teachers the three categories first and then asked the teachers to identify the six most problematic students in rank order. This was done in order to see if stating a question using special education terms had any influence on the choice of the student whom classroom teachers chose as the most problematic. The three categories which were defined in the studies were: behavior problem, learning disabilities and low intelligence. Both methods of identification were compared with actual Special Education service rosters.

Teachers were then asked questions pertaining to whether they were satisfied with the above categories, satisfied with the special education services in their school, and could they identify the EMH and SLBP students they had on their class lists last year.

**FINDINGS:** The data were analyzed using the Chi Square ( $X^2$ ) formula to test whether or not asking the questions using form A or B made any significant difference on the category teachers chose to place students in. Significance was found at the .05 level on two statistical analyses. First, more special education students were identified as most problematic. Second, more behavior problems were identified as problematic than either of the other two categories.

The third statistic analyzed whether or not stating the question using special education terms first resulted in teachers identifying a significantly higher number of special education students as problematic. This was not found to be significant at a .05 level.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1979  
*Floyd Ayers, Chairperson*

## COLLEGE OF FINE ARTS

ART

### AN ANALYSIS OF YOUNG CHILDREN'S PREFERENCES ON DISPLAYING THEIR ARTWORK

*Janis E. Johansen*

Art education constitutes an important part of the curriculum in the primary grades. The children's artworks are commonly found displayed throughout

the school, with the assumption that children want their artwork displayed. This research was conducted to determine whether or not most young children consistently prefer to take their artwork home and whether or not the child's creative abilities and/or aesthetic abilities were significant factors in his/her choice.

The research was conducted with one kindergarten class and one second grade class. Two art lessons (A and B) were taught by the writer in each class. Following the art lessons, each child indicated what he/she chose to do with the drawing produced. Tabulation of this data indicated what the child chose to do with his artwork and whether or not he was consistent in that choice.

All of the drawings resulting from the A lesson were rated for their aesthetic qualities by three judges. An average was determined for each child and was considered the aesthetic ability rating of the child in the study. *The Torrance Tests of Creative Thinking, Figural Test B* (Torrance, 1974a), was administered to the children, T-scores were determined and a composite score was established for each child. The composite score indicated the child's creative abilities.

Statistical evaluation determined that a number of children do prefer to take their artwork home, but it was rejected that most children consistently prefer to take their artwork home. The study found no significant correlation between the child's choice as to what to do with his artwork and the child's creative abilities. No significant correlation was found between the child's choice and the child's aesthetic abilities.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1979  
*Gerald Korte, Chairperson*

#### *THE RELATIONSHIP OF JUNIOR HIGH SCHOOL STUDENTS SATISFACTION AND THE DEGREE OF DIFFICULTY WITH THEIR DRAWINGS*

*Ronald J. Kopp*

PROBLEM: The satisfactory results in drawing experiences are a major concern of most students at the junior high school level. When students are presented with a drawing unit, little or no enthusiasm is expressed from the majority of the students. For many students drawing is the most difficult part of the Junior High School Art Curriculum; students seem to fear the drawing tasks and gain little or no satisfaction from their drawings.

If junior high school students are presented with alternate methods of teaching a drawing unit, would a significant difference exist between the two methods as measured by the degree of student satisfaction? In addition, will a correlation exist between student satisfaction and the degree of difficulty between the two teaching methods?

PROCEDURE: The writer devised a three week drawing program which involved two groups of eighth grade art students. The traditional or dependent program was designed with teacher direction. Students in this group were not given a choice of drawing subject matter they might like to draw. All subject matter for the dependent group was chosen by the instructor. The other group used in the study was the independent group. The independent group were given more freedom. In this group students were allowed to choose any subject matter they wished in order to solve the drawing task.

A ten-step rating scale was devised to measure student satisfaction and the degree of difficulty encountered for each drawing. Each student in both groups were required to turn in one ten-step rating scale for each drawing.

Each student in both groups turned in a total of four drawings and four ten-step rating scales for the three week period. The data was used to determine what method of teaching produced the most satisfaction; and if a correlation existed between satisfaction and the degree of difficulty for each drawing method.

**FINDINGS:** According to the data collected, more student satisfaction was found by the use of the independent method of teaching. The statistics show a gain of .40 on a rating scale of 1-5 for student satisfaction for the independent group over that of the dependent group.

The amount of difficulty as measured by the rating scale of 1-5 indicates that the dependent group encountered the most difficulty.

A negative correlation existed between satisfaction and difficulty for both methods of teaching. The presence of a negative correlation coefficient in both groups indicates a lower satisfaction was associated with greater dependency. The data indicated that the dependent method of teaching had a more closely related correlation between satisfaction and difficulty.

*APPROVED BY RESEARCH COMMITTEE, MAY 1978*  
*Gerald Korte, Chairperson*

## MUSIC

### *THE RELATIONSHIP BETWEEN PUBLIC SCHOOL BANDS AND COMMUNITY/MUNICIPAL BANDS IN MINNESOTA*

*James W. Thulien*

**STATEMENT OF PROBLEM:** A large percentage of Minnesota public school students participate in school instrumental music programs. Students voluntarily participate in a wide variety of elective programs, as well. The majority of these students do not participate in an instrumental group after graduation from high school.

The purpose of this study is to trace the history and development of Minnesota Public High School bands as related to the community/municipal band to determine the possible need for providing performing opportunities for post-high school instrumental musicians.

**PROCEDURE:** A historical development was made of professional-touring bands. This development provided an insight into the growth of community/municipal bands, with their ultimate influence upon public school band development.

A study was made of the current instrumental music programs offered in public schools and the amount of student participation. Data was obtained from high school band directors and high school students.

A study was also made of community/municipal bands currently active in Minnesota, with data obtained from community/municipal directors and participants. Information was also obtained from retired members of community/municipal bands.

**CONCLUSION:** High school students participate in school instrumental music programs for a wide variety of reasons. Adults participate in community/municipal bands for many of the same reasons.



A high percentage of instrumental musicians do not continue the development of their skills and talents after graduation. There is a need to provide instrumental music participation opportunities for those who desire to continue their involvement. This need falls on the shoulders of the public school band directors.

An investigation into each individual community by the school band director would help to determine the number of possible participants in an adult band. These people, along with the director, could become the catalyst in the organization and development of a local community band.

APPROVED BY RESEARCH COMMITTEE, MAY 1980  
Shirley L. Schrader, Chairperson

## COLLEGE OF LIBERAL ARTS AND SCIENCES

### BIOLOGY

#### NUTRIENT AND HYDROLOGIC BUDGETS, AND TROPHIC STATUS OF LAKE KORONIS, PAYNESVILLE, MINNESOTA, AND ELK LAKE, NEAR CLEAR LAKE, MINNESOTA

John M. Barten

Lake and stream water samples were collected biweekly from 15 March 1978 to 17 November 1978 at nine sites in the Lake Koronis watershed, and at five sites in the Elk Lake watershed. Rainwater samples were collected at each lake, and rainfall and evaporation measurements were made. Water samples were collected from 196 wells adjacent to Lake Koronis and 53 wells adjacent to Elk Lake. Quantitative determinations of the physical, chemical, and biological parameters of the samples were made. Stream flows were gauged, and the water and nutrient inflow and outflow for each lake was determined.

Bioassays with *Selenastrum capricornutum* indicated that algal growth in the lakes was limited by nitrogen in August and September, and by phosphorus in October and November.

Twenty five of 196 wells adjacent to Lake Koronis and six of 53 wells adjacent to Elk Lake were contaminated with fecal coliform bacteria. Well water phosphorus concentrations ranged from 0.000 mg/l to 4.250 mg/l.

High levels of fluorescein dye were found in both lakes 24 hours after dye tablets were flushed into septic systems adjacent to the lakes.

Surface runoff, rainfall, and groundwater seepage supplied Lake Koronis with  $11.3 \times 10^7$  m<sup>3</sup> of water, and 11,479 kg of phosphorus in 1978. Twenty five percent of the phosphorus, 2892 kg, remained in the lake. Watershed runoff contributed 78%, the Paynesville sewage lagoons 11%, groundwater seepage 8%, and rainwater 3% of the phosphorus load.

The spring mean total phosphorus concentration in Lake Koronis was 0.091 mg/l, the chlorophyll *a* concentration was 28.8 mg/m<sup>3</sup>, and the Secchi disc depth was 1.78 m. These parameters indicate that Lake Koronis is eutrophic.

Elk Lake received  $6.72 \times 10^7$  m<sup>3</sup> of water and 12,906 kg of phosphorus from watershed runoff, groundwater seepage, and rainfall in 1978. Twenty five percent of the phosphorus, 3264 kg, remained in the lake. Ninety two

percent of the phosphorus was contributed by watershed runoff.

The spring mean total phosphorus concentration of Elk Lake was 0.130 mg/l, the chlorophyll *a* concentration was 55.2 mg/m<sup>3</sup>, and the Secchi disc depth was 0.71 m. These parameters indicate that Elk Lake is eutrophic.

APPROVED BY RESEARCH COMMITTEE, JUNE 1979

Keith M. Knutson, Chairperson

#### A CYTOGENETIC STUDY OF THE SPIDER PLANT, *Chlorophytum Comosum* (LILIACEAE)

Gary R. Baughan

A cytogenetic study was made of three greenhouse varieties of spider plant, *Chlorophytum comosum* (Thunberg) Jacques (Liliaceae): the green-leaved native of South Africa and two variegated-leaved horticultural varieties, *C. comosum* 'Picturatum' (variegated center) and *C. comosum* 'Variegatum' (variegated margin). The chromosome number is  $2n = 28$  and  $n = 14$  with normal bivalent formation in meiosis I. *C. comosum* and *C. comosum* 'Variegatum' each have a pair of heteromorphic chromosomes; *C. comosum* 'Picturatum' has two pairs of chromosomes with satellites. In the former two taxa, chromosome bridges are found at anaphase I and II; none occur in *C. comosum* 'Picturatum'. Because of the presence of heteromorphic chromosomes and chromosome bridges, it is concluded that a heterozygous paracentric inversion occurs in these two taxa. Giemsa and fluorescent banding patterns of somatic chromosomes were inconclusive. Seed viability ranges from 62% in *C. comosum*, 54% in *C. comosum* 'Picturatum', and 23% in *C. comosum* 'Variegatum'. Pollen stainability (viability) is 94.7% and 92.1%, respectively, in the former two taxa. Seeds from capsules on green inflorescence axes (*C. comosum* and *C. comosum* 'Variegatum') give rise to green seedlings, with albino seedlings from seeds produced on whitish/yellow axes (*C. comosum* 'Picturatum'). Mechanisms to explain leaf variegation are cited. It is concluded that the variegated varieties are chimeras.

APPROVED BY RESEARCH COMMITTEE, JULY 1978

Wayland Ezell, Chairperson

#### A NATURAL HISTORY STUDY OF THE RED-TAILED HAWK IN CENTRAL MINNESOTA

Robert T. Boism

Red-tailed hawk nest site selection, productivity, food habits, interaction with great horned owls, and utilization of artificial nest platforms were investigated in central Minnesota in 1976 and 1977. General observations of growth, development, and behavior of a red-tail nestling were made at weekly intervals in 1976.

Red-tails were observed in the study area in mid-March of both years. Courtship activities, territorial selection, and nest construction began soon thereafter. Most nests were located during this time, when the majority of trees were leafless. Seventy-two nests were examined. Nest size ranged from 33 cm x 41 cm x 43 cm to 76 cm x 94 cm x 56 cm. Nests were usually lined with corn leaves; shreds of bark and tufts of grass or sedge were used occasionally. Nests were decorated throughout the nesting season.

Nest density in a section of the study area was one nest per 4.7 square kilometers. Seventy-four percent of the nests were located in edge areas; 26% were in interior locations. Forty-four nests were in northern pin oaks. The average nest height was 13.6 m (range: 7.9 to 19.1 m). The most important factors in nest tree selection appeared to be the height of the tree and the presence of a suitable crotch for nest support. The average nest was located at 81% of the nest tree's total height. Nests were situated such that they provided good access for adult birds. Nests average 0.59 km from human dwellings and 0.5 km from graded roads.

Incubation began in late March or early April; the average clutch size was 2.3. A selected nestling tripled its weight between the ages of two and three weeks, and decreased slightly in weight between the ages of four and five weeks, perhaps due to extremely rapid feather growth during that time. Territorial nest defense behavior showed considerable individual variation. Most nestlings in the study area fledged in late June.

Nest failures were higher in 1977 (47%) than in 1976 (28%) due mainly to inclement weather. Probable causes of other nest failures were attributed to human interference and avian and mammalian predation. The causes of nest failures could not be determined in most cases. Successful nests produced 1.8 young; 1.1 were produced per nesting attempt.

The most frequently occurring prey were chipmunks, pocket gophers, and red-winged blackbirds. The appropriation of red-tail nests by great horned owls often forced red-tails to build new nests elsewhere. Red-tails showed little inclination to utilize artificial nest platforms. Due to human population pressure, the future of the red-tail in central Minnesota appears bleak.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1977

*Alfred H. Grewe, Jr., Chairperson*

#### *A STUDY OF THE VEGETATION IN THE UPLAND FOREST OF ST. JOHN'S ABBEY AND UNIVERSITY, COLLEGEVILLE, MINNESOTA*

*Lorraine Westrup Cofell*

**PROBLEM:** Data were gathered in the upland, hardwood forest of St. John's Abbey and University to 1) determine the composition and stage of succession of the forest, 2) compare an area that had been clear-cut fifty years ago with areas that had never been clear-cut, and 3) discover differences in the occurrence of species on north and south slopes.

**PROCEDURE:** Twelve areas of 10 acres each were chosen throughout the upland forest. The point quarter method was used to gather data on the trees listing the species of trees, circumference, and distance from sample point. On multiple trees, the circumferences of all trunks of the clone were recorded. In each quarter, the nearest shrub and sapling were also listed. The herbaceous plants present in a 1 x 1 meter quadrat at each sample point were recorded and the topography of the area noted.

The vegetational continuum index value of each study plot was determined on the basis of relative dominance, relative frequency, and relative density of the trees. Possible continuum index values could range from 300 for the most pioneer stand to 3000 for the most climax stand. The frequencies of saplings, shrubs, and herbaceous plants were calculated for each study plot.

**FINDINGS:** The continuum index values of the 12 plots ranged from 1470 for the plot that had been clear-cut 50 years ago to 2274 for the most climax

area. Seventeen species of trees were present in the upland forest. Of these sugar maple was dominant in the four plots with highest continuum index values; red oak was dominant in the eight plots of lowest continuum index values. Bur oak saplings had greater frequencies in plots of lowest continuum index values. Sugar maple saplings had highest frequencies in plots of highest continuum index values. Some species of shrubs, vines, and herbaceous plants showed similar patterns of correlation with the continuum index.

In the plot that had been clear-cut in 1926 many of the trees had multiple trunks sprouted from stumps. The continuum index value of that plot increased slightly when dominance was based on the total basal area of all the trunks in a clone. The trunk density was twice that of any other plot but the average trunk size was much smaller.

Definite differences were noted in frequencies of species on north and south slopes. Bur oak was not found on north slopes. Birch, which occurs here in the southern limits of its natural range, had a frequency three times greater on north slopes than on south slopes. Red oak, red maple, sugar maple, basswood, trembling aspen, and green ash were present more frequently on northern slopes. Ironwood, large-toothed aspen, American elm, and black cherry had greater frequencies on southern slopes. Understory plants also showed differences in frequency according to slope.

DISCUSSION: St. John's Forest has plant species typical of several types of forest communities with species typical of southern dry mesic forest occurring most frequently. Succession appears to be progressing from dry to more mesic conditions. Variations are apparent throughout the forest. These variations could have been caused by 1) ground fires in some areas which have acted as retrogressive agents in forest succession, 2) a history of selective and clear-cutting, and 3) a topography which includes fairly level areas, steep hillsides, and areas relatively protected from fires by lakes and swamps.

APPROVED BY RESEARCH COMMITTEE, JULY 1977

Max L. Partch, Chairperson

## BIOLOGY OF GREATER SANDHILL CRANES IN BURNETT COUNTY, WISCONSIN

Ronald A. Crete

Status, reproduction, habitat and distribution of greater sandhill cranes (*Grus canadensis tabida*) in Burnett County, Wisconsin was studied from March 1976 to July 1978. The primary areas used by cranes were Crex Meadows, Fish Lake and Amsterdam Slough State Wildlife Management Areas. Cranes returned to these areas by 1 April each year. Minimum spring populations totaled 51, 67, and 63 cranes during successive years of this study. Seventeen nests were located on Crex Meadows and Fish Lake areas. Territories of pairs where nests were located averaged 126 ha. Sixteen nests contained two eggs and the other one egg. The average hatch date for 11 clutches was 20 May. Nine days occurred between earliest and latest hatch dates. Twenty-one of 33 (63.4%) eggs hatched. Six eggs were infertile and at least four eggs were destroyed by predators. Fifteen of 21 (71.4%) colts fledged. *Carex rostrata* was the dominant plant species at nest sites based on average percent canopy coverage and frequency of occurrence. Twenty-nine cranes were captured and marked at Crex Meadows during this study and all were *Tabida* subspecies. Radio-tagged and color-marked cranes using Crex Meadows as a fall staging area provided information on migration routes and wintering areas and spring distribution. At least 181 and 179 cranes staged at Crex Meadows in fall 1976 and 1977, respectively. Radio-tagged crane behavior showed that roost selection during

staging was influenced by waterfowl hunting. Estimated annual juvenile recruitment observed at Crex Meadows was 12.2% in 1976 and 15.2% in 1977. Those years, recruitment estimates at Jasper-Pulaski Fish and Wildlife Area in Indiana were 13.0% and 10.3%, respectively. Breeding pairs of radio-tagged cranes marked at Crex Meadows during the staging period were later relocated near Hinckley and Little Falls, Minnesota, near Fish Lake and on Crex Meadows. Backpack radio packages did not affect egg fertility of three nesting pairs in spring 1978. Management of state lands in Burnett County for prairie grouse and waterfowl has been beneficial to cranes. Crex Meadows Refuge provided safe feeding, loafing and roosting habitat for cranes throughout the staging period. Cranes departed Crex Meadows by mid-November in 1976 and 1977.

KEY WORDS: greater sandhill crane; Burnett County, Wisconsin; status; reproduction; staging; radio-telemetry; roost selection; recruitment; Crex Meadows Refuge.

APPROVED BY RESEARCH COMMITTEE, MAY 1980  
Alfred H. Grewe, Jr., Chairperson

ACUTE, CONTINUOUS-FLOW, EFFLUENT BIOASSAYS WITH 7 SPECIES OF FISH AT THE COAL-FIRED SHERBURNE COUNTY GENERATING PLANT NEAR BECKER, MINNESOTA

Duane O. Dittberner

A standard flow-through bioassay procedure and apparatus were developed to monitor the effluent at the Sherburne County Generating Plant. Six, acute (96 hr), continuous-flow bioassays were conducted between May and November 1977 with the following species of fish: the white sucker *Catostomus commersoni* (Lacépède), the black crappie *Pomoxis nigromaculatus* (Lesueur), the bluegill *Lepomis macrochirus* Rafinesque, the largemouth bass *Micropterus salmoides* (Lacépède), the smallmouth bass *Micropterus dolomieu* Lacépède, the walleye *Stiaostedion vitreum* (Mitchill), and the fathead minnow *Pimephales promelas* Rafinesque. During the May to November period the plant's effluent ranged in specific conductance from 1600 to 5000  $\mu\text{hos/cm}$  and in sulfates (the principle constituent of the effluent) from 880 to 4100 mg/l. Water temperatures varied with the season but were consistently higher (1.0 to 9.90 C) in the effluent as opposed to the river water.

Linear regression analyses were done to determine if any relationships existed between the observed temperature, pH, dissolved oxygen and conductivity values recorded during the bioassays versus the effluent concentrations used. Conductivity and temperature were directly related to effluent concentrations with average coefficients of determination ( $r^2$ ) for the six bioassays of 0.87 and 0.60 respectively. Dissolved oxygen and pH were inversely related to effluent concentration with respective average  $r^2$  values of 0.53 and 0.20 for the six bioassays.

Though it was invalid to compute lethal concentrations of the effluent due to either high acclimation mortality, temperature differences between the river water and the effluent or low bioassay mortality, the data indicate that the effluent is probably not acutely toxic to the species tested. Fish exposed to full-strength effluent for 96 hrs survived as well as control fish.

APPROVED BY RESEARCH COMMITTEE, JUNE 1978  
Alfred J. Hopwood, Chairperson

A KEY TO THE GYRINIDAE OF MINNESOTA AND ADJACENT STATES AND  
CANADIAN PROVINCES

William D. Ferkinhoff

This paper presents adult keys, descriptions, and distributions for 4 species of *Dineutus* and 27 species of *Gyrinus* found in Minnesota and adjacent states and Canadian provinces. An adult key to the four North American genera is also included. Besides the keys, information on life history and habits, taxonomic characters, and laboratory preparation of specimens is given. There is also a glossary of terms.

No new species were described, but nine specimens of *G. gehringi* were identified. Prior to this, *G. gehringi* was represented by one pair of type specimens described by Chamberlain in 1929. One male *D. nigrior* from Cass County, North Dakota was also identified. This is the first *D. nigrior* recorded from that state.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1979

Ralph W. Gundersen, Chairperson

LABORATORY RESOURCE COMPETITION AMONG *Daphnia Pulex*, *Ceriodaphnia Reticulata*, AND *Moina Affinis* (CRUSTACEA: CLADOCERA)

John B. Gorentz

Cladoceran populations were grown in laboratory cultures at 17 and 23 C and fed on yeast at 0.2 and 0.8 mg/liter/day. Growth rates and densities observed at three day intervals for a 29 day period were fitted to the Lotka-Volterra equations for competing species.

The fit was best when a lag-time of three days was considered. There were no exact replicates for each culture, but competitive relationships and growth parameters were consistent within the cultures of a given treatment. Parameters and projections based on biomass were less consistent with observed events than those based on numerical densities.

Carrying capacities increased with, but were not proportional to the food supply. *Moina affinis* was relatively successful when competition was low, consistent with categorization of *Moina* as a relative r-strategist, with high growth rates obtained at the expense of efficiency. *Ceriodaphnia* growth was best in a treatment in which more single-celled food particles were provided. Theoretical considerations indicated some niche separation, although it was not clear along which dimension(s) the separation existed.

Analysis of population growth models indicates that laboratory ecosystems with constant food input rates might select for different species than similar systems with self-limiting resources. A method is presented for measuring intra- and interspecific competition among various age classes. The response of per capita growth rate to density was curvilinear, with greatest deviations from the fitted equations occurring at low densities. This is also predicted from a class of models in which growth rate is a function of food intake per animal.

APPROVED BY RESEARCH COMMITTEE, MAY 1978

Keith M. Krutson, Chairperson

## A QUANTITATION OF MACROPHAGE MIGRATION INHIBITION IN RATS OF VARIOUS AGES

Charles Jones

Cell-mediated immunity determined by macrophage migration inhibition (MMI) *in vitro* was studied as a function of age in female Sprague Dawley rats. A modification of the MMI assay was developed using a trocar and cannula technique to harvest the macrophages to avoid killing the animal. Also a culture chamber was developed as a simple and inexpensive replacement for a Sykas-Moore chamber. The results of the assay indicated that maximal immune competence was reached at 4 weeks of age and immune competence declined significantly with age (4 to 90 weeks). It is suggested that by using MMI a study could be developed to investigate how different environmental influences may affect cellular immune competence.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1978

John MacCue, Chairperson

## EVALUATION OF A CONTINUOUS-FLOW PERIPHYTON BIOASSAY SYSTEM USING THE WASTEWATER EFFLUENT FROM THE COAL-FIRED SHERBURNE COUNTY GENERATING PLANT UNITS 1 AND 2 NEAR BECKER, MINNESOTA

Debra L. Koehlinger

A continuous-flow periphyton bioassay system was developed to assess the impact of a coal-fired electrical generating plant wastewater effluent upon periphyton communities indigenous to the Mississippi River. Three 96-hour bioassays were conducted from June through November, 1977 to test the procedure and design of this bioassay system. In addition, a 12-day comparative test was conducted in October, 1977 to verify the homogeneity of conditions within the system.

An open bioassay system, in which test water flowed on a once-through basis, was constructed to simulate natural lotic conditions. Periphyton were simultaneously exposed to two dilutions of the effluent and a control. The natural receiving water, the Mississippi River, served as the diluent and control for each bioassay. Prior to each bioassay, Mississippi River water flowed through the bioassay system to supply a natural seed for the establishment of periphyton communities on glass microscope slide substrates. Glass slides were removed at the outset of the bioassays and later examined to determine the structure of periphyton communities before exposure to the effluent. At the completion of each bioassay, the remaining slides were removed to assess the impact of the effluent dilutions upon the structure of periphyton communities.

One hundred and forty-seven diatom species were observed during the entire study. Individual analysis of variance statistical tests were performed on the cell densities of the 15 most dominant diatoms from each bioassay and comparative test. Statistics from the comparative test and the outset of each bioassay indicated that similar periphyton communities initially colonized glass slide substrates. Results from the completion of each bioassay suggest that there were no significant differences in the periphyton community structure due to various dilutions of the coal-fired power plant wastewater effluent. Significant differences at a .01 alpha level (level of significance)

occurred in seven of the 45 individual analyses of variance.

APPROVED BY RESEARCH COMMITTEE, MAY 1979

Keith M. Knutson, Chairperson

#### WINTER FORAGING ECOLOGY, TERRITORIALITY, AND NESTING BIOLOGY OF THE WHITE-BREASTED NUTHATCH IN CENTRAL MINNESOTA

Jeffrey E. Larson

From December 1977 to May 1978, aspects of foraging ecology, territoriality and nesting of four pairs of white-breasted nuthatches *Sitta carolinensis caerulea* were observed in central Minnesota.

Nuthatches foraged in trees with rough bark more than trees with smooth bark, and spent more time on trunks than on branches. Oak, elm, and ash were preferred over other species, and selectivity was not a function of relative dominance alone. For each of two pairs, the birds spent 89 and 87% of foraging time searching for food. Eleven and 13% of foraging time was spent caching food, and caching rates were 8 and 16 caches/hr respectively. While foraging, the nuthatches averaged 109 flights/hr, and spent 6% of foraging time flying. Each flight averaged 2 sec, and the average flying time/hr was 218 sec. The average distance traveled by climbing while foraging was 198 m/hr.

Territory sizes were 16.1 and 18.4 ha for two of the pairs studied. Territories overlapped on the boundaries, and trespassing nuthatches were sometimes tolerated in these buffer zones. I divided territories into exclusive areas and buffer zones. Exclusive areas for the two territories were 4.2 and 14.8 ha, and buffer zones were 11.9 and 3.6 ha respectively.

Courtship behavior was first observed on 23 March 1978. All nests were in knot-holes of maple trees. Ground to nest-cavity heights ranged from 8 to 9.5 m. Materials used while bill-sweeping included: insects, down feathers, and fur. Nest-building materials included: outer and shredded inner tree bark; cattle, deer, shrew, squirrel, and rabbit hair; and a rabbit tail. Clutch sizes were 7, 8, 9, and 10. For two pairs, egg-laying began on 30 April and 4 May 1978. Incubation periods were 14 and 15 days respectively. Clutches hatched on 17, 20, 20, and 27 May. Males brought food to the nest 6 times/hr when the nestlings were one day old.

APPROVED BY RESEARCH COMMITTEE, MARCH 1979

Alfred E. Grewe, Jr., Chairperson

#### MACROINVERTEBRATE FUNCTIONAL GROUP ECOLOGY AND ORDER CLASSIFICATION OF NORTHEASTERN MINNESOTA STREAMS

Jeffrey Lee McCulloch

The ecology of stream macroinvertebrate functional groups and their relationships to stream order classification were investigated by drift sampling.

Seasonal changes in relative abundance and taxonomic composition of the functional groups were related to the seasonal nature of food supplies. The annual relative abundances of the functional groups also varied in response to stream order. This was the result of corresponding changes in the dominant source of energy. As stream order increased, shredders of live and dead plant



matter became less important, while collectors and scrapers became more important. Functional group analysis provided a simple way to evaluate the functional aspects of stream communities.

Cluster analysis of the sites indicated that stream order designations may not always reflect prevailing biological conditions, and thus should not be used as the sole basis by which streams are classified.

APPROVED BY RESEARCH COMMITTEE, MAY 1979  
Ralph W. Gundersen, Chairperson

### SELECTIVE CULTURING OF MISSISSIPPI RIVER PERIPHYTON GROWN AT 30C IN AN ARTIFICIAL STREAM APPARATUS

*Dennis James McGovern*

An artificial stream apparatus was constructed to assess the community composition and growth rates of Mississippi River periphyton collected on ten occasions, between August 16, 1976 and January 16, 1977, and selectively cultured at 30C. The apparatus simulated stream conditions by recirculating Mississippi River water between two tanks. Illumination, water temperature, and current velocity were kept constant. Algae were introduced into the system from seed rocks which were collected from the riverbed before each test. Algae sloughed off the rocks in varying quantities and colonized a series of microscope slides that were suspended in the artificial apparatus. The study consisted of ten tests each lasting eight days.

The same algal species dominated in each of the tests. Filaments of *Phormidium valderianum* and *Oscillatoria limnetica* were the dominant blue-green species, while *Nitzschia palea* and *Fragilaria construens* were the dominant diatoms. Green algae were not abundant in any of the tests. Diatoms colonized the glass slides first but were succeeded and dominated by the filamentous blue-greens which comprised 90.4 to 99.0 percent of the total community at the end of all tests. Linear regression analysis indicated that the relationship between time and the log of algal densities for the ten tests had a mean slope of 0.4887 with an  $r^2$  value of 0.8613. Analysis of variance showed that there was no significant difference among tests when specific growth rates were compared, while algal densities and chlorophyll "a" values indicated there was a significant difference. The study indicated that Mississippi River periphyton can be selectively cultured to obtain the same dominant species with the same growth rates.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1977  
Keith M. Krutson, Chairperson

### PHYSICAL TRAINING AND ITS EFFECT ON THE ACTIVITIES OF SOME GLYCOLYTIC ENZYMES IN RAT HEART AND SKELETAL MUSCLE

*Hassan Moltaji*

Enlargement of the heart is commonly reported in animals and men trained to endurance exercise. Few studies, however, have documented changes in glycolytic enzymes in the myocardium and skeletal muscle resulting from such exercise.

Male CFN rats of different ages were exercised five hours daily, five days a week for 12-16 weeks. The exercising program consisted of swimming in a

34-36°C water tank and running on a treadmill. At the end of the exercising program, the animals were decapitated and cardiac and skeletal muscle were used for determination of LDH and other glycolytic enzyme activities such as pyruvate kinase and phosphofructokinase.

Physically trained rats showed cardiac hypertrophy and an increase in heart to body weight ratio. There was also an increase in total LDH and pyruvate kinase activity and a decrease in phosphofructokinase of cardiac and skeletal muscle.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1977

David P. Mork, Chairperson

#### A SURVEY OF THE ENTERIC BACTERIA OF THE PAINTED TURTLE *Chrysemys Picta Bellii* (GREY)

Robin D. Monroe

PROBLEM: In recent years, salmonellosis has been associated with pet turtles. There has been considerable study on the relationship of the bacteria *Salmonella* sp. to captive turtles but little work on wild turtles. This study deals with the association of wild turtles and *Salmonella* sp. Since little research has been done on any enteric bacteria of the turtle, I also included identification of other enteric bacteria present in these turtles.

PROCEDURE: Turtles were captured and placed in aquaria until droppings were deposited. These droppings were then subjected to various growth media in order to isolate species of the family Enterobacteriaceae. These were then identified with the Enterotube system of identification.

FINDINGS: *Salmonella* sp. was found in only two turtles out of 28 tested. Since the likelihood of these being pathogens to man is small, the possibility of these turtles transmitting salmonellosis to humans is also small.

The other enteric species identified were *Escherichia* sp., *Citrobacter freundii*, *Proteus vulgaris*, *P. mirabilis*, *P. morgani*, *P. rettgeri*, *Enterobacter aerogenes*, *E. agglomerans*, *E. cloacae*, *Serratia liquefaciens*, *Providencia* sp., *Klebsiella pneumoniae*, *Edwardsiella* sp. and *Arizona* sp.

APPROVED BY RESEARCH COMMITTEE, JUNE 1978

David C. Kramer, Chairperson

#### CAPTURING, TAGGING AND RADIO TELEMTRY MONITORING GREAT BLUE HERONS (*Ardea herodias* L.) IN CENTRAL MINNESOTA

Richard W. Feifer

Methods for capturing, marking and monitoring herons were developed and evaluated. Baiting herons to a terrestrial site was successful in only one out of three years. Four male great blue herons were rocket-net captured at an aquatic capture site, and were radio and wing streamer tagged. Streamers were readily visible and did not deteriorate significantly. Some secondary wing feathers were damaged by the streamers. Feeding territories ranged 13.7 to 34.1 km southeast from their colony. Two of the four marked herons terrestrially foraged for about three weeks and were observed capturing

mammals almost exclusively. Mammals observed captured included thirteen-lined ground squirrels, eastern chipmunks, prairie pocket gophers, eastern fox squirrel and cottontail.

A comparison of the times spent at the colony by individual birds based on intermittent mobile-tracking data showed no significant variation ( $P=0.999$ ). The same type of comparison but based on continuous stationary remote scanning data showed a significant variation ( $P=0.011$ ). Radio-tagged herons were more often observed at the colony between 0700-0900 and 1700-1900. Diurnal feeding intervals by adult herons at the colony during the post-guardian period appeared to be 5.0 hours. A short occipital plume late in the breeding season may indicate a bird that has been feeding nestlings. Black or grey feathers scattered throughout the forehead may be diagnostic for three year olds.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1977

Alfred H. Grewe, Jr., Chairperson

A UNIALGAL BIOASSAY OF THE WASTE WATER EFFLUENT FROM A COAL-FIRED ELECTRICITY GENERATING PLANT AT BECKER, MINNESOTA

Barry E. Rosen

A static unialgal bioassay was conducted on the waste water effluent of a coal-fired electricity generating plant (Northern States Power Company, Becker, Mn.) to determine the effects of the growth of *Nitzschia palea* (Kutz.) W. Smith (Bacillariophyceae) and *Selenastrum capricornutum* Printz. (Chlorophyceae). Algal growth was measured as doublings per day using cell numbers and chlorophyll "a" fluorescence.

The maximum growth rate during the exponential phase and the final population size per unit volume showed two trends in algal growth due to effluent treatments. Maximum growth rates based on cell density were stimulated in the 25 and 50% effluent, while the 75 and 100% effluent treatments were inhibited. This inhibitory effect was more pronounced in the growth rates based on chlorophyll "a" fluorescence, which were suppressed in the 50, 75 and 100% effluent treatments. In contrast, the maximum population size, based on density and fluorescence during the stationary phase, was greatest in the 75 and 100% effluent treatments. The growth rates slowed sooner in the control, 25 and 50% effluent treatments as nutrients became limiting. However, the 75 and 100% effluent treatments continued to grow, using the effluent as a nutrient, which supported the higher population.

The inhibitory effects of the effluent on algal growth appeared to be dissipated by the increase in algal density, possibly through absorption, adsorption or adaptation by the test organisms. Therefore, the overall pattern of algal growth was not greatly influenced by the effluent.

APPROVED BY RESEARCH COMMITTEE, JUNE 1978

Keith M. Krutson, Chairperson

PRODUCTION OF A STREAM CADDISFLY (*Hydropsyche Phalerata* HAGEN, TRICHOPTERA: HYDROPSYCHIDAE) IN THE MISSISSIPPI RIVER NEAR MONTICELLO, MINNESOTA

Wayne F. Sarappo

Production estimates were obtained by the Allen curve method and the

modified Winberg method for *Eudropsyche phalerata* larvae in the Mississippi River from 25 May to 22 November 1976. A total of 45,759 larvae were examined, after subsampling, to determine the head capsule size of instars 2 to 5, mean individual weight of each instar, and mean standing crop of each instar.

The Allen curve method yielded a production estimate of  $39.61 \text{ gm}^{-2}$  for the 24 June - 22 September sampling period, and the modified Winberg method gave an estimate of  $16.59 \text{ gm}^{-2}$  for the same time period. The coefficient of determination ( $r^2$ ) obtained from Pearson correlation coefficients for the two methods was 0.6022. The low river flow in 1976 affected the production estimates by concentrating the larvae in the river because of decreased available substrate for colonization, and by raising the ambient temperature of the river. Statistical analyses to determine the effect of the thermal effluent from the Northern States Power Company Monticello Nuclear Generator were based on production estimates from the nonheated and heated zones. The heated effluent did not affect the number or biomass of the *Eudropsyche phalerata* population.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1977

Alfred J. Hopwood, Chairperson

#### DIATOM POPULATIONS OBSERVED ON ARTIFICIAL AND NATURAL SUBSTRATES IN THE MISSISSIPPI RIVER NEAR MONTICELLO, MINNESOTA

Orbbie Keith Webber, II

Diatom algae in the Mississippi River near Monticello, Minnesota were studied during 1976. Three basic objectives of the study were: (1) to develop a comprehensive listing of the diatom flora of this region; (2) to study the variation of the artificial substrate communities; (3) to compare artificial and natural substrate communities.

During 1976, 143 taxa of diatoms were observed. Surface sample counts showed dominance percentages of individual species which could be separated into four categories. One category included species having a unimodal peak of occurrence. *Cocconeis placentula* var. *euglypta* dominated the first four months of the study, June through September. *Diatoma vulgare* dominated the October sample. Other species displaying a unimodal peak of occurrence included *Navicula gracilis* and *Achnanthes linearis*. Another category included those species having a bimodal peak of occurrence. These included *Gomphonema parvulum* and *Achnanthes minutissima*. The next category consisted of those species of consistent occurrence, but having no obvious peaks in their populations. The last category were those species of rare occurrence. These included two unknowns, *Gomphonema* sp. and *Nitzschia* sp.

Comparison of natural and artificial substrate communities showed significant differences between the two types of populations. High dominances of *Cocconeis placentula* var. *euglypta* and *Diatoma vulgare* on the artificial sampler indicated a preference for the artificial substrate over the natural substrate. However, considering the environmental optimum ranges of the individual species and the relatively short exposure time of the artificial substrates, the floating periphyton sampler achieves a population representing a young, newly established community.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1977

Keith M. Knutson, Chairperson

THE RELATIONSHIP OF LEAF PROCESSING RATES AND INVERTEBRATE  
FUNCTIONAL GROUPS TO STREAM ORDER IN NORTHEASTERN  
MINNESOTA

Steven Norman Williams

Processing rates for aspen (*Populus tremuloides*) and red pine (*Pinus resinosa*) leaves were measured in first through fourth order streams in 1977. The purpose was to investigate the relationship between leaf processing rates and stream order designations.

Artificial leaf packs weighing 10 g were used to measure weight loss during two eight week periods; one during June and July the other during October and November. Processing rates between stream orders were not significantly different ( $P > .05$ ) except for aspen leaves during the summer. Processing rates of aspen and red pine leaves were significantly more rapid ( $P < .05$ ) in the summer than in the fall. Average processing coefficients for all stream orders combined were: aspen - 0.0212 in the summer and 0.0082 in the fall; red pine - 0.0026 in the summer and 0.0008 in the fall.

The invertebrates associated with the leaf packs were evaluated on a functional group basis. Collectors and filter feeders were the dominant functional groups at all stream orders on all dates. During both seasons shredders generally decreased with increasing stream order. In the summer, the ratio of shredders to collectors decreased with increasing stream order. In the fall the ratio was highest in first and third order streams; lowest in second order streams.

KEY WORDS: Decomposition; detritus processing, leaf litter, stream order, *Populus*, *Pinus*, shredder, collector.

APPROVED BY RESEARCH COMMITTEE, MAY 1979  
Ralph W. Gundersen, Chairperson

ENGLISH

CHARACTER AND THEME IN J. R. R. TOLKIEN'S *The Lord of the Rings*:  
AN EXAMINATION OF TOLKIEN'S USE OF MINOR AND NON-HEROIC  
CHARACTERS TO DELINEATE FOUR MAJOR THEMES

Jane L. Bergstaler

J. R. R. Tolkien's *The Lord of the Rings* has become one of the best known works in modern literature, perhaps because the fantasy's messages concern not some fairy-tale land of the past but our own world, for all time. The story Tolkien created is not a simplistic fairy story, but an illustration of all he felt to be true in the world: many interweaving themes, all dealing in some way with mankind. Four of his most significant themes find their greatest expression in certain non-heroic or minor characters and groups of characters.

These themes involve Tolkien's concept of good and evil in man's nature, the effect of power, the importance of nature and the environment, and the

movement of history and destiny. The belief concerning good and evil that are expressed through the minor and non-heroic characters and races is that nothing is created evil, but that man can become corrupt because of his free will, by choosing to serve his own selfish desires above the good of all. The message Tolkien's characters give concerning power is that it is inevitably corrupting because power itself is basically self-centered. Through his minor characters Tolkien calls for the appreciation and preservation of nature and the environment from the horrors of industrialization. Finally, his characters help to show Tolkien's belief in the importance of history as a force constantly influencing the present and in the concept of destiny, the belief that there is a guiding force in the universe.

All four of these themes can be found first in Tolkien's races. Those which bring out a variety of aspects of each theme are Elves, Dwarves, Orcs, and Hobbits. Among the hobbits, the minor character Bilbo illustrates how even the humble can be affected by power, and how just one individual affects history. The clearest examples of power's corruption are the non-heroic characters Boromir, Denethor, and Saruman. Characters whose primary function seems to be to delineate Tolkien's beliefs concerning nature and history are Tom Bombadil, Treebeard, and Gân-buri-Gân. All four themes are found again in Tolkien's most intriguing non-heroic character--Gollum--who shows the conflict between good and evil in man's nature, the destructive effects of power, the need for a good relationship between man and nature, and the importance of the individual in the scheme of history and life.

APPROVED BY RESEARCH COMMITTEE, OCTOBER 1978

Jonathan H. Lawson, Chairperson

### C. S. LEWIS'S TRILOGY: MODELS—MODERN AND MEDIEVAL

Johr.T. Haugen

Unlike more representative writers of science fiction, C. S. Lewis disagrees that man's hope lies in man alone. His perspective is based in part on his studies in literary history and on his Christian beliefs, both of which contribute to his critical view of modern Western culture. This study of Lewis's *Out of the Silent Planet*, *Perelandra*, and *That Hideous Strength* approaches the trilogy as a fiction of ideas, focusing on Lewis's comparison of scientism and the medieval universe of his trilogy.

The trilogy is Lewis's response to scientism, an informal but influential belief that Lewis detected in popular works by writers such as H. G. Wells, G. B. Shaw, and Olaf Stapledon. In the trilogy, the beliefs of these writers are presented through the characters of Weston and the members of N.I.C.E., who hold that the ultimate good is the perpetuation of man as a species and that moral judgments must be rooted in scientific data. Basing his own position on natural law, Lewis argues that by reducing morality to chance, scientism offers a moral system that is itself immoral.

Lewis opposes scientism in the trilogy by constructing a universe that is medieval in content and structure. From the chain-of-being model, Lewis adapts the principles of the triad and of plenitude. Within the settings and situations of his novels, these principles contribute to the contrast between the sterile, chaotic universe of scientism and the fertile, ordered space of Lewis's own fictional universe. On a moral level, the application of the medieval model supplies an objective standard for distinguishing between good and evil. Integrated with the space-voyage theme, the medieval model provides an intellectual perspective on scientism by removing both characters and readers from familiar spatial and historical contexts.

As a fiction of ideas, the trilogy presents the problem of determining how seriously to accept Lewis's medieval universe, for through characters in the fiction, Lewis suggests that his fiction may be fact. Lewis's writings on the nature of models, however, indicate that the trilogy might best be read not as a defense of the medieval model but rather as a defense of a medieval attitude. Through such an attitude we are reminded that we must not mistake descriptions for the reality which they describe.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1979  
John Melton, Chairperson

*Lubābat Dīwān Al-ṣabāba Wa Mawā'd Al-ʿiṣāba: A TRANSLATION  
WITH AN INTRODUCTION ON ITS PLACE IN THE PROFANE LOVE GENRE  
AMONG THE ARABS*

Rima Karam Haugen

The introduction provides a general discussion of the profane love genre among the Arabs from the pre-Islamic *qaṣīda* to the highly cultivated prose and poetry of the Islamic Middle Ages; and, secondly, indicates the significance of the fourteenth-century anthology *Dīwān al-Ṣabāba* in Arabic literary tradition in particular, and in medieval courtly love in general. The *Dīwān's* theme of *al-ṣabāba*, ardent profane love, stresses the ennobling power of love, thus continuing the spiritualized doctrine of courtly love which appeared in the Arab world long before the existence of Provençal poetry.

The translated text, *Lubābat Dīwān al-Ṣabāba wa Mawā'd al-ʿiṣāba*, is a representative fifteenth-century Arabic condensation of the *Dīwān*. The *Lubābat* consists of the compiler's Introduction, a brief prologue, and five chapters treating ardent profane love: first, its definition; second, its degrees and etymologies; third, its psychological causes and physiological symptoms; fourth, whether it is voluntary or involuntary; and finally, blame and praise of love. The translation contains brief notes and a selective bibliography.

APPROVED BY RESEARCH COMMITTEE, MARCH 1979  
John Melton, Chairperson

*THE STRUCTURE AND FUNCTION OF IRONY IN Giants in the Earth*

Karen E. Maki

*Giants in the Earth* is primarily ironic in mode, and that irony lies in the incompatibility between Beret's and Per Hansa's imagined roles and the reality of their situations. Per Hansa imagines himself to be the *askelaad* of the Norwegian fairy tale who performs the impossible task and thus wins the princess and half the kingdom. Beret sees the horizon as a magic ring within which everything is corrupt and dying, and in her pietistic attitude she imagines she must save the settlement by convincing the others of the prairie's evil.

The irony of Per Hansa's situation is that in the American fairy tale winning the princess is the task, not the reward, and he cannot win Beret;

she can only retreat further into her sense of sin as Per Hansa unknowingly drives her there with his insistence on the glory of his kingdom. Beret's irony is that she does indeed save the settlement, but she does so by giving birth to a son named "Victorious," whose presence gives the settlers renewed strength to battle the hardships of prairie life.

This specific irony reflects a more general irony, the conflict between freedom and fate that Rølvaag saw in the immigrant experience: if one has the complete freedom to cut the ties to the past, one will be fated to lose that past forever. Rølvaag saw that the immigrant's tendency was to see either the promise of the new land, as Per Hansa does, or else the pain of breaking with the past, as Beret does. What Rølvaag emphasizes is the necessity of a choice between these two extremes, and thus by drawing his ironic contrast he provides the subject to be explored in the succeeding volumes of his trilogy. By dramatizing the tragic consequences of total freedom in *Giants in the Earth*, Rølvaag emphasized the limited freedom that Peder Victorious must choose in the final volume--the freedom to pursue the American dream as Per Hansa did while preserving, rather than destroying, the cultural heritage of Beret and her kind.

Finally, the title of the novel emphasizes its irony. The "giants in the earth"--God's chosen, whom Beret and Per Hansa believed themselves to be--are finally crossed by another giant: Beret's God of wrath, without whom she cannot live and with whom Per Hansa cannot share his kingdom.

APPROVED BY RESEARCH COMMITTEE, MAY 1978  
John R. Bovee, Chairperson

#### THE TECHNIQUE AND TIME OF PRE-WRITING A VIEW OF THE COMPOSING PROCESS

Carol J. Moeglein

Too often, freshman composition instructors attempt to teach students how to write by focusing only on the sentence and the paragraph, on style and expression, on grammar and mechanics. During the mid-sixties, a small revolution took place among educators who realized that who a student is, how he discovers ideas, how he thinks, and how he feels are often the determining factors in the quality of the writing he produces. In other words, these educators focused their efforts on exploring both the period of time before a student begins to outline and write his paper and the methods which could make this important time-period both more concrete and more productive. This time and this technique are called "pre-writing."

It is impossible to talk about writing without talking about thinking. Creativity and order, structure and choice, memory and time all must be considered by instructors who wish to stress the principles underlying the concept of pre-writing. Students need to understand that the mind does function in predictable patterns and that by actively using their minds, they may be able to strengthen their ability to examine, interpret, assimilate, and categorize the information they have received.

A student cannot be expected to think if he does not have concrete material to think about. Aristotle was the first rhetorician to systematically study the art of invention; this word is often used synonymously with the term "pre-writing." During this period, the use of topics (in the classic as well as the classical sense), tape-recorders, and free-writing may help students discover new insights, arguments, and information. The method of pre-writing promotes the use of personal experience, journal writing, and



meditation to achieve the same goal.

Since thinking and exploration may be exhausting and frustrating endeavors, some way must exist for instructors to motivate students to want to communicate their findings. Man's innate sense of curiosity, his need to create order in the universe, his fear of rejection and humiliation, and his drive for self-expression and self-development may influence a student's desire to create expository prose.

Composition instructors cannot teach inspiration; they cannot give assignments "to think" or "to feel." They can, however, foster in students an awareness of the importance of experiencing the complexities within and around them while simultaneously increasing their potential ability to think, to explore, to create--and finally to communicate--with greater keenness, depth, and perception.

APPROVED BY RESEARCH COMMITTEE, MAY 1978

Jonathan N. Lawson, Chairperson

### VOYAGE THROUGH THE DARK: THE WORLD OF JEAN RHY'S' NOVELS

Jane Z. Opitz

**PROBLEM:** The purpose of this study was to assess the quality and identify the theme of Jean Rhys' novels.

**PROCEDURE:** After a general discussion of all her fiction in the context of her literary and personal background, this study focused on Jean Rhys' novels: *Quartet*, *After Leaving Mr. Mackenzie*, *Voyage in the Dark*, *Good Morning, Midnight*, and *Wide Sargasso Sea*. Each novel was synopsisized and examined critically with special emphasis on character development, use of description and imagery, and expression of thematic concerns. Finally, the quality and message of Rhys' novels were examined via the cumulative effect of these same elements.

**FINDINGS:** Jean Rhys' writing reflects her biography and expresses her biased viewpoint; both are seen clearly in her composite heroine who epitomizes woman in the role of victim.

Through precise manipulation of "descriptive matter," Rhys implies statements about the societies, the situations and the motifs of her novels: her descriptions are reserved for the warm, lush West Indies of her childhood and her lack of description characterizes the cold, restrictive, masculine society of England and Europe; her imagery either expresses the situation in which the heroine finds herself or exemplifies a thematic concern.

Several motifs recur within each novel--female vulnerability, male dominance, a need for money, a woman's desire for sexual love, the predominant role of luck/fate in human life. These, however, are not static ideas; they develop within and between novels, and their relative importance fluctuates from one novel to the next. Cumulatively, they express Rhys's basic concern for society's victims who, although they include all impoverished members of society, are usually women.

**CONCLUSIONS:** Despite her lack of literary reputation, Jean Rhys' novels are carefully crafted artistic works that show a tight unity of expression and idea. She reworks the same elements--character, description and imagery, motifs--over and over, each time refining their relationships until the various

combinations express, more explicitly than could any single working, her basic theme that modern European society victimizes those who have no economic or social power.

APPROVED BY RESEARCH COMMITTEE, MAY 1979  
*Marcia Summers, Chairperson*

## THE ARTHURIAN LEGEND IN MALORY AND THE 1970'S: A COMPARISON

*Marion R. Rengel*

The 1970's Arthurian fiction represents the latest step in the legend's growth; Sir Thomas Malory's *Le Morte Darthur* represents a landing five-hundred years down the staircase. The comparison of Malory and these 1970's authors in their handling of Arthur's and Merlin's characters, of magic, and of violence, not only distinguishes between authors and times, but explores the aspects of the legend which future writers will need to consider.

In working with Arthur's story, modern authors return the king to his place of prominence and work with explaining the inconsistencies in his character which they found in Malory--his abdication of power and fame to his knights, and his reaction to Guenever and Launcelot's affair. Merlin's enigmatic character in Malory also presents a challenge to modern authors and they attempt to discover the source for his concern over Arthur's kingdom. In the 1970's Arthur and Merlin regain their dominant roles in the legend and begin emerging as fully developed characters.

Fantasy plays an integral part in Arthur and Merlin's world; the legend was born when the marvelous was a natural part of everyday life, and Malory's tale is itself fantasy, filled with giants, wizards, and miracles. The modern authors, somewhat estranged from the marvelous, do not deal with magic as naturally as does Malory, yet they do not sever fantasy from the tale. While they struggle to explain their magic, modern authors show future writers that the marvelous must shape and influence the entire tale.

In Arthur's world, war is assumed. Two aspects of violence control its use by Malory and the modern authors: relevance to the story, and distance between the reader and the violence. The appropriateness of violence is determined by purpose and the author's efforts to give man an example of a life he must rise above. Malory achieves a delicate balance between distance to the reader, relevance to the story, and providing his characters with a purpose; the modern authors do not achieve that same balance and it remains the task of a future writer to do so.

The differences between Malory and the modern authors show what might come next in the legend: Arthur's character will continue to develop as the modern authors have struggled to develop it; the elements of fantasy and violence will also be carefully considered and explored in order to achieve a modern effort comparable to Malory's work.

APPROVED BY RESEARCH COMMITTEE, MAY 1980  
*John L. Melton, Chairperson*

DRAMA AS MUSICAL THEATRE: A COMPARISON OF LYNN RIGGS' *Green Grow the Lilacs* WITH RODGERS' AND HAMMERSTEIN'S *Oklahoma!* AND FERENC MOLNAR'S *Lilium* WITH RODGERS' AND HAMMERSTEIN'S *Carousel*

Arnette E. Schneider

PROBLEM: This thesis analyzes two of Rodgers' and Hammerstein's musicals, *Oklahoma!* (1943) and *Carousel* (1945), by comparing them to the original dramas upon which they were based, namely, Lynn Riggs' American folk play, *Green Grow the Lilacs* (1930), and Ferenc Molnar's Hungarian fantasy, *Lilium* (1909). Its purpose is threefold: to identify what plot, script, and character changes were made in the original plays, to determine why these changes may have been made, and to ascertain what role such adaptation played in their success.

FINDINGS: In adapting *Green Grow the Lilacs*, Rodgers and Hammerstein chose to retain its folk characters and idioms, but they made slight changes in plot, script, and characters so as to develop more completely the story of Riggs' play. In addition, the musical team incorporated numerous theatrical and musical innovations that significantly influenced American musical theatre. A comparison of *Green Grow the Lilacs* with *Oklahoma!*, therefore, suggests that successful adaptation of Riggs' play resulted from few major plot, script, or character changes but several remarkable innovations related to the music, dance, and drama of musical comedies in 1943.

*Carousel* carried on many of the innovations begun in *Oklahoma!*; however, it also incorporated significant innovations of its own, including an expanded orchestra and numerous extended musical passages which gave the score of *Carousel* operatic stature. The collaborators made minor changes to plot, script, and characters so as to transform the pessimistic Hungarian fantasy into an optimistic American musical comedy. A comparison of *Lilium* and *Carousel*, therefore, suggests that successful adaptation of Molnar's play resulted primarily from the incorporation of innovative, operatic music, from the change in locale from Budapest to New England, and from the creation of a more optimistic philosophy throughout the play.

CONCLUSIONS: Adaptation, especially innovative adaptation, played a significant role in the success of both of these musicals. While preserving the integrity of the original, and without seeming ridiculously operatic, Rodgers and Hammerstein succeeded in developing a new kind of drama, one which drew an immediate and favorable response from a popular audience.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1979

Alfred E. Leja, Chairperson

BLACK FOLK CULTURE IN THE FICTION OF THE HARLEM RENAISSANCE

Juáith A. Schreiner

The Harlem Renaissance of the 1920's was a period which fostered the development of a black literature that drew heavily upon the black folk culture. Novels representative of this literature are *Not Without Laughter* by Langston Hughes, *One Way to Heaven* by Countee Cullen, *Home to Harlem* by Claude McKay, *The Walls of Jericho* by Rudolph Fisher, *God Sends Sunday* by Arna Bontemps, and *Jonah's Gourd Vine* by Zora Neale Hurston.

Various aspects of black folk music are presented in the fiction. The traditions of minstrelsy are utilized in characterizations of a city dandy and two endmen. Dance traditions are represented by descriptions of a cakewalk and a jazz dance. References to the circle-dance appear in a presentation of secular dance and in a discussion of dance traditions and religious customs. The fiction emphasizes the diversity of the spirituals and the haunting qualities of the sorrow songs. The novels reflect various forms of the blues, several traditions associated with blues singers, and the instrumentation of the blues. Diversity in blues themes is evident in the blues verses and general themes which appear in the fiction.

Characteristics of black religion are well represented in the novels. Physical manifestations and emotional sensations of religious frenzy are depicted in detail, and the relationship between religion and magic and the distinction between good and evil are accurately presented. Traditions associated with the black preacher are evident in the characterizations of preachers and preaching style. Preacher-congregation conflicts and style-of-worship controversies also appear in the literature.

The oral traditions of black folktales, proverbs, and beliefs are accurately depicted in the novels. The practicality and realism of folk proverbs are apparent, and the presentations of folktale materials stress the psychological functions of the trickster and preacher tales. Black language traditions are reflected in the images and unusual word usages that appear in the speech of a variety of characters in the fiction.

Praise of the Harlem Renaissance authors was the forte of Alain Locke, who astutely assessed the unique qualities of the Harlem Renaissance fiction, and who identified the folk culture as the source of that uniqueness. Locke's opinions are supported by the high degree of correspondence between the literary presentations and the actual black folk culture elements.

APPROVED BY RESEARCH COMMITTEE, OCTOBER 1978

*Elizabeth S. VanFelt, Chairperson*

#### HUNTER S. THOMPSON: MORALIST OR SECOND-RATE ACCOUNTANT

*Charles W. Seefeldt*

Many critics saw Hunter Thompson's work as little more than the ravings of a vicious misanthrope, and he was often written off as a drug-crazed lunatic. But, as an examination of his work shows, Thompson was really concerned with what he saw as a growing amorality in America. He should be read as a moralist, not as a maniac.

And, his effectiveness as a moralist is largely determined by a unique style he developed--Gonzo. Thompson, himself, referred to this style as "bursts of madness and filigree," and it is, perhaps, this Gonzo style that brought critical attention to Thompson in the first place. In its purest form, a Gonzo piece is the story of a journalist covering a fictional (as in Las Vegas) or non-fictional (as on the campaign trail) event.

From the early days of the Free Speech Movement in Berkeley, he had chronicled the growth of the counter-culture. Thompson believed that these people, the Freaks as he called them, represented a massive searching for a more moral, more humane course for this country. In 1965, he quit his job as a reporter and dropped out at the same time the hippies began their chant of "tune in, turn on, and drop out." His first articles on the hippies, the nonstudent left, and the Hell's Angels reflected his sympathy for the plight of the counter-culture.

Through *Hell's Angels: A Strange and Terrible Saga*, he showed the relevance of his outlaw stance. He wrote a book about a subject that could only be honestly covered from the inside. And, in that instance, to be an insider required that the author be an outlaw.

When the counter-culture became political, when the Hippies became the Yippies (Youth International Party), Thompson also became political. The Yippies' delight in the democratic process and its possibilities was reflected in Thompson's unsuccessful bid for the office of Sheriff in Aspen, Colorado.

The loss of the flower child philosophy and the radicalization of the counter-culture were explained by Thompson's *Fear and Loathing in Las Vegas: A Savage Journey to the Heart of the American Dream*. He showed that, to the counter-culture, the American Dream itself had atrophied. The amorality of Americans in general was the cause of the alienation of the youth in the Sixties. Because of the novel and his exposure in *Rolling Stone* magazine, Thompson emerged as one of the spokesmen of the counter-culture.

He had been a cult hero to the readers of *Rolling Stone* from the early Seventies, and *Fear and Loathing: On the Campaign Trail '72* established him nationally as the counter-culture's spy in the straight world. But, by 1972, the counter-culture had begun to crumble and disappear. The "doomfreaks" he had feared had begun to take over. Thompson's constituency was dwindling. Eventually, Thompson himself began to sense the futility of hoping for a political revolution to straighten America out.

Though the Watergate debacle buoyed his spirits briefly, it turned out to be the counter-culture's last battle with the forces of evil and fascism in America. When the last demon of the Sixties had been exorcised, the counter-culture quietly died. Thompson's career died with them. He no longer believed that America could be wrenched from its disastrous course. He saw Nixon's demise as a defeat for the forces of fascism in America, but he also believed that fascism had become so deeply ingrained in the United States that even Nixon's exorcism couldn't relieve it.

In light of this, Thompson's endorsement of Jimmy Carter for President was no surprise. He believed that Carter was a decent man and that America could do much worse than elect him president. Essentially, that endorsement was the logical outcome of his entire career.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1977

James C. Lundquist, Chairperson

## THE INFLUENCE OF CHURCH AND STATE ON SEVENTEENTH-CENTURY ENGLISH BIOGRAPHY

Doris Bogut Simonett

The biography of the seventeenth century reflects in content and style the influences of previous centuries of life writing, such as myth, the Bible, saints' lives and ecclesiastical histories, although these works from earlier centuries were probably not thought of, even by their authors, as being a separate form of literature. Nor did these earlier forms of life writing contain all the elements now considered necessary for a biography, especially the critical element of "detached curiosity." Earlier forms of writing tended to be didactic in purpose and the subject was written about, not as an individual person, but as a representative of a type.

In addition to these influences from the past, there were the influences gathered in the seventeenth century. Two of the most important were religion and politics, Church and state. The development of biography was both nourished and impeded by changes in governmental and Church organizations and by the

events and controversies which brought them about. Yet Church and state were so closely tied together that it is difficult to view one separately from the other. Despite this blurring, religion appears to have had the greater influence on the biographers, influencing choice of subject, style of writing and theme. The state was not a patron of biographers and its influence was primarily the negative one of discouraging critical comment which might invite state disfavor or reprisal.

The important biographers included clergy and laymen, male and female. They wrote of important exemplary men of their time, some of whom were active in the Civil War and especially those active on the religious scene. Abraham Hill wrote the *Life of Dr. Isaac Barrow* (1683); Gilbert Burnet wrote the *Life of the Earl of Rochester* (1680); John Aubrey wrote, among other sketches, the life of Thomas Hobbes; Lucy Hutchinson wrote the memoirs of her husband, Colonel Hutchinson; while Margaret Cavendish, Duchess of Newcastle, wrote the life of her husband, General Newcastle. Isaac Walton, the most important biographer of the seventeenth century, first wrote a life of John Donne in 1640. This was followed by the lives of Sir Henry Wotton (in 1651), of Richard Hooker (in 1665), of George Herbert (in 1670) and of Dr. Robert Sanderson (in 1678). The Church influence is particularly evident in Walton's writings.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1977

Alfred E. Leja, Chairperson

#### A CRITICAL SURVEY OF THE PUBLICATIONS OF THE NATIONAL COUNCIL OF TEACHERS OF ENGLISH PUBLIC DOUBLESPEAK COMMITTEE

Roberta Peirce Trooien

The National Council of Teachers of English formed the Committee on Public Doublespeak in response to two resolutions regarding public lying passed at its 1971 convention. The responsibilities of the committee are to call attention to public misuse of language and to develop classroom exercises for teaching about irresponsible language. The members of the Doublespeak Committee have published books and articles on doublespeak, and Hugh Rank, first chairman of the committee, has, in *Language and Public Policy*, compiled and edited articles on doublespeak by members and non-members of the committee.

The work done by the committee is in two areas--advertising and politics--and in both areas the responses are varied. The approaches to advertising range from strict analyses of logic to liberal studies of semantics. Regardless of the approach, most of the Doublespeak writers fail to acknowledge the myriad resources used by ad-writers.

Many of the articles on political language are discussions of the metaphors and euphemisms of Watergate, and like the articles on advertising, they fail to rely on any broader approach to the study of language. The problem in this second area is compounded by the political prejudices of many of the Doublespeak writers.

Of all the different approaches to studying about advertising and political language, the authoritarian purist approach is the least useful. Mario Pei's work is an example of this attitude which, because it encourages the status quo, plays into the hands of the advertisers.

What is needed is a better understanding of how language in general works, rather than articles on specific incidents. However, most English teachers, especially at the high school level, are not prepared to teach about language

manipulation.

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Philip Keith, Chairperson

THE HERMETIC MAGI OF THE RENAISSANCE: THEIR THEORIES AND THEIR  
POSSIBLE INFLUENCE UPON CHRISTOPHER MARLOWE

Kay E. Vaughter

The question of whether Christopher Marlowe's religious thought was basically Christian or atheistic has for a long time presented a problem to students of Elizabethan drama. Generally, because of the numerous unorthodoxies present in his plays, Marlovian critics tend to place him in the atheistic category. However, when his dramas are studied in conjunction with the Hermetic religion, one is able to examine Marlowe in a different light, and new and more positive facets appear in his religious thought.

The *Hermetica*, the ancient account of the Hermetic religion, is a record of individuals seeking revelation, intuition into the divine, personal salvation, and gnosis through a religious approach to the universe. The original Hermetic manuscripts were first translated into Latin in 1463 by Marsilio Ficino, who, through the influence of the *Hermetica*, worked out a system of "natural magic" whereby he believed a magician could influence the celestial spheres in a desired direction to benefit one's life.

Ficino's friend, Pico della Mirandola, extended the powers of this natural magic to include tapping the powers of angels, archangels, the ten sepiroth, and God himself.

In Elizabethan England, the Hermetic tradition was carried on by Dr. John Dee, a noted scholar and Magus, and Giordano Bruno, the Italian Magus who visited there from 1583 to 1585.

All of these Hermetic Magi had published works that would have been available to Marlowe, who had an interest in the occult, and he may even have known Dee and Bruno personally. In *Tamburlaine*, he portrays his hero as a Magus, as defined and described by the Hermetic writers. Examined within a purely Hermetic framework, Tamburlaine is neither a blasphemer nor an atheist, but a demigod, or Magus.

Tamburlaine, viewed as a celebration of man as Magus, is in obvious contrast to *Dr. Faustus*, wherein we are shown the futility of a mortal striving to become divine within the framework of Christian theology.

In a world which was searching for alternatives to the existent religious sects in order to end religious strife, Hermeticism was one such alternative; Marlowe was apparently aware of this, and used it as the basis for the contrast between the fortunes of Tamburlaine and Faustus.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1977

Marvin Thompson, Chairperson

A COMPARISON OF THE HEMINGWAY AND BELLOW PROTAGONIST

Patricia A. Welter

Although Ernest Hemingway and Saul Bellow stand in time at opposite ends

of twentieth-century American literature, both are placed high in the major tradition of American novelists, in large part because of their successful treatment of the protagonist. The protagonists of each affirm the dignity of the self in the face of contemporary experiences which seem to annihilate it. Both protagonists are alienated and alone, but the Bellow protagonist comes to reject alienation and seek community. The crucial difference between the two is the willingness of the Bellow protagonist to admit the free play of the intellect and the emotions as guides for dealing with reality. This may be viewed when the two protagonists are examined as they participate in the role of the contemporary literary hero: the victim-rebel.

This role is adopted by literary protagonists in modern literature as a means to affirm the value of human life. This may be termed radical innocence, and causes the literary protagonist to be sensitive to the destructiveness of experience and to be victimized by it. It causes him to rebel in a stance of alienation and recoil. The danger inherent is that radical innocence may become a self-destructive pseudo-innocence: a refusal to recognize or deal with reality on any but limited terms. In America this danger is intensified by a heritage which arouses grandiose expectations, and the Bellow and Hemingway protagonists reflect this danger as they adopt the role of victim-rebel motivated by pseudo and radical innocence.

The Hemingway protagonist as victim-rebel is viewed in three characters: Nick Adams, Frederic Henry, and Jake Barnes. Each is victimized by shocking experiences which culminate in a near-death war wound, and each develops defense mechanisms which become progressively stronger, but do not provide for introspection or reflection. The latter two characters become more mature, but neither transcends the role of victim-rebel.

For the three Bellow protagonists studied, Joseph Asa Leventhal, and Eugene Henderson, harmony is possible, but if they end in transcendence, they begin as victim-rebels. Dangling between the alternatives of alienation and accommodation, the Bellow protagonist confronts the realities of responsibility and death in a reflective and introspective manner. In addition each succeeding character allows his emotions fuller reign, thus permitting a fuller life experience. In his journey the Bellow protagonist transcends his own ego-centric concerns without a loss of dignity and becomes reunited with life.

The crucial difference between the Hemingway protagonist and Bellow protagonist can be seen in the reality of death. To deal with this reality the Hemingway protagonist requires action, courage, and self-discipline. Thoughts and emotions are controlled and never allowed free reign. The Bellow protagonist confronts death with all his faculties and thus discovers that to protect the self, one must ultimately lose the self. This allows him to transcend the role of victim-rebel and achieve harmony with life.

*APPROVED BY RESEARCH COMMITTEE, MAY 1979*  
*John L. Melton, Chairperson*

## GEOGRAPHY

### *THE PROMINENT ROLE OF THE STREETCAR IN THE DISPERSAL OF POPULATION IN THE TWIN CITIES FROM 1870 TO 1920*

*Neil Chamberlain*

Minneapolis and St. Paul, following the Civil War were growing in size and population largely due to the influx of north and central European immigrants. As both population and size of the cities grew, need arose for better means of



Internal transport, which could reduce the tight yet swelling urban cores. Several short-term transport modes were introduced, namely the horse-drawn omnibus and streetcar, cable car, but the electric streetcar or trolley was probably the most instrumental in relieving the constricted urban core.

During the 1880s and 1890s, the urban scene of the Twin Cities was changed dramatically as streetcar lines were rebuilt and extended beyond the limited range of horsecars. The introduction of new electric traction streetcars proved overwhelmingly successful.

The electric streetcar changed the old traditional circular pattern of Minneapolis and St. Paul into a more star-like pattern as streetcar lines stretched population into finger-like increments or nodes.

Several interesting effects were created by the availability of these transportation innovations. These parallel developments were an outgrowth of or directly related to the patterns that existed in each of the cities by the last two decades of the nineteenth century.

First to be seen was the gradual shift of the upper class and later the middle class residents from the core area to the more suburban settings of southwestern Minneapolis and western St. Paul. As the shift became more evident, particularly to real estate speculators, land in close proximity to streetcar lines became increasingly more profitable to buy and sell. To further encourage real estate buying and passenger travel, the TCRTC instituted weekend and holiday service to city parks, including specialized amusement parks and cemeteries to promote suburban real estate. Extensions of lines also evidenced an interesting small business development where streetcar-stops or transfer points were created and where two or more streetcar lines intersected. And finally, the success of the streetcar and its expansion, led visionary city-fathers to extend city limits by the purchase of more city territory.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1978*  
*Philip L. Tideman, Chairperson*

## *ORROCK IN TRANSITION*

*Dori J. Northrop*

This study was a compilation and interpretation of the historical geography of Orrock Township in Sherburne County in the State of Minnesota. The time frame was from 1837 to 1978.

The research data was gathered primarily from personal interviews of former Orrockians. Other source materials were obtained from newspapers, the Sherburne County Historical Society, the Sherburne County Court House in Elk River, and the Minnesota Historical Society.

The study is introduced by a summary of the origin of Sherburne County and Orrock Township. Discussion of the major physical features of the area follows including information on the geological foundations, soil types, precipitation, and terrain. The study also encompasses the flora and fauna in Orrock past to present.

Several other topics were researched as well. The development of early institutions in the township are noted in the text as well as in the maps. People on the land is a recurring theme in the paper beginning with Robert Orrock who arrived in 1857. Other profiles of early prominent Orrockians are included. At the turn of the century, the Knowlton and Larson family names dominate the changing Orrock scene.

Commerce and agriculture in Orrock was vital to a study of this region. Special emphasis was given to the local stores and raw fur trade from 1903-1946. The transition in Orrock agriculture from virtually all farm land to minimal acreage today is a basic part of the process of change.

Various historical eras that were not only times of upheaval and change in the nation, but for Orrock as well are discussed. Particularly the Great Depression era affected change in Orrock which became a Minnesota Dust Bowl. The Sand Dunes State Forest grew out of the determination and perseverance of area conservationists and local Orrock citizens, and is contained totally within the township boundaries. The success of the coniferous plantings in the Sand Dunes area also resulted in the origin of commercial Christmas tree farming in Orrock.

In addition to the Sand Dunes area, the creation of the Sherburne National Wildlife Refuge resulted in the most visible land use change in recent years in Orrock. Of the 30,552 total acres in the Refuge, 8,204 are situated in Orrock.

Presently, Orrock Township has a growing population although no major town is contained within its borders. Public lands comprise the greatest share of land holdings. Together the Sand Dunes Forest and the Sherburne National Wildlife Refuge comprise 18,272 acres of state and federal land. Remaining acreage is divided between agricultural useage and residential developments which are primarily located around the township's lakes. Because of the proximity to the Minneapolis-St. Paul metropolitan area, Orrock Township's future will include dividing the land into small plots and/or acreage for home sites along the periphery of the Sand Dunes and the various lakes.

*APPROVED BY RESEARCH COMMITTEE, JULY 1978*

*Philip Tideman, Chairperson*

## HISTORY

### *MINNESOTA PUBLIC OPINION TOWARD GERMANY AS REFLECTED IN MINNESOTA NEWSPAPERS, 1935 - 1945*

*Randall A. Heeringa*

Minnesotans were determined to avoid war. Even when a major war in Europe appeared likely, a majority still continued to hope the United States would stay out of war if it took action to discourage the European interests of its citizens and if it eliminated possible war profits.

Minnesota's major daily newspapers leaned heavily toward non-involvement prior to the outbreak of hostilities in World War II. As German aggression became obvious, opinion shifted somewhat toward intervention and outright involvement with the Allies. As the war ground to a conclusion, Minnesotans were slow to realize that the United States involvement and intervention would continue, and that the nation would assume a leadership role in the postwar world.

Few Minnesotans in the period from 1935 - 1939 tried to justify Nazi persecution. English language Catholic newspapers especially expressed outrage and indignation. Most observers realized that even though there were legitimate criticisms of the Nazi regime; there were still many imperfections at

home, and Americans could not always be justified in criticizing the Germans when there were such obvious prejudicial attitudes toward American minorities.

Two interest groups appeared in Minnesota during the period of 1939 - 1941. The American First Committee promoted the view that the United States should stay out of the war at almost any cost short of losing its independence; while the Minnesota units of the Committee to Defend America by Aiding the Allies was in favor of the United States aiding Britain, France, and all opponents of the Nazis in every way short of war.

Many Minnesotans professed an intense dislike of Adolf Hitler and the policies of Nazi Germany. Yet they found themselves in a paradox: Could the United States provide aid to the Allies while at the same time avoiding war? Most Minnesota newspapers favored an increasing amount of aid, especially to Great Britain. The confusion over what course to take came to an end only with the Japanese attack on Pearl Harbor.

When the Japanese attacked Pearl Harbor, Minnesotans united in support of their country. They were determined to fight until victory had been attained. When victory appeared likely, two leading concerns were expressed: prevention of future German aggression and the growing threat by the Soviet Union and her apparent desire for expansion even into Germany itself.

*APPROVED BY RESEARCH COMMITTEE, JULY 1978*  
*Dale W. Peterson, Chairperson*

### *THE SECURING OF THE ENGLISH THRONE BY EXECUTION 1485 - 1603*

*Linda L. Jude*

**PROBLEM:** When Henry VII claimed the throne of England in 1485 it seemed to be simply another victory by a magnate in the continuing struggle for control of England. Yet Henry VII's descendants held the throne and the crown passed smoothly from him to his son and grandchildren. This paper will attempt to explain how the Tudors secured the succession through the execution of rivals and others who presented a threat.

**PROCEDURE:** Numerous histories and source materials on the Tudor Era were studied and compared to determine if the Tudor sovereigns had secured the throne through the elimination of their rivals.

**FINDINGS:** By the end of Henry VII's reign in 1509 the loyalty of the English lay with the Tudors. Henry VIII succeeded without a struggle and without opposition. In 1547 the crown passed to a nine-year old boy, Edward VI. Although factional struggles developed, the Tudors remained on the throne. In 1553 the Duke of Northumberland vainly attempted to divert the crown to his own family. Despite Mary Tudor's sex and her Catholicism, she had been left the crown in Henry VIII's will and the English populace viewed her as the rightful heir. In 1558 the crown passed to the last Tudor. Elizabeth died without issue in 1603 and the crown passed smoothly to a collateral line, the House of Stuart. The English believed that Elizabeth had named James VI of Scotland as her successor and he ascended the throne without opposition.

**SUMMARY AND CONCLUSIONS:** The Tudors obtained their throne through battle. During their reigns they eliminated rivals who claimed royal descent and those who possessed enough wealth and power to oppose them. The desire for stability

and prosperity on the part of the people of England, their identification of Tudor interests with those of the nation, and their acquiescence in the execution of rivals and rebels, prevented any lasting or dangerous dispute over the succession during the reigns of the Tudors.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1977

*Paul Vaughter, Chairperson*

## MATHEMATICS

### *A STUDY OF THE ENUMERATION OF FINITE SEMIGROUPS*

*Leon J. Schilmoeller*

Semigroups can readily be represented and manipulated using a matrix to express the binary operation products of the algebraic structure. Given order  $n$ , each element of an  $n \times n$  matrix represents a product of two elements of the set of  $n$  elements on which the operation is defined. In fact, every distinct  $n \times n$  matrix, whose elements are values from 1 to  $n$ , represents a unique binary operation.

The task of enumerating all non-equivalent semigroups of a given order  $n$  has been completed for order  $n$ ,  $n \leq 7$ , through the efforts of several mathematicians, with some of the results being produced both by hand and via digital computers. In this work, we discuss the properties needed to produce non-equivalent semigroups. Algorithms for each aspect are carefully explained and developed.

After seeing algorithms which will in fact generate all non-equivalent semigroups of a given order, a new concept is introduced which can use some of the existing algorithms in a different fashion. This concept involves modifying artificial intelligence and heuristic programming techniques to form a new algorithm for enumerating semigroups.

In conclusion, the prospective of combining techniques to form more efficient algorithms is presented, as well as concepts of how these ideas and findings can be implemented into an educational environment.

APPROVED BY RESEARCH COMMITTEE, MAY 1979

*Howard Bird, Chairperson*

## SOCIAL SCIENCE

### *AN INVESTIGATION OF YOUTH INVOLVEMENT AT GENERAL PARTICIPATION FESTIVALS: A CROSS CULTURAL ANALYSIS*

*Barry C. Clough*

PROBLEM: This investigation attempted (1) to find out the extent of youth

participation at local festivals in selected communities of Minnesota, (2) to determine which activities of the festivals involved the greatest youth participation, (3) to put community festivals in a cross-cultural context and (4) to derive conclusions and make recommendations to those seeking additional input into how to manifest youth participation at a community festival.

**PROCEDURE:** The methodology for this study employed both secondary research and primary investigation field research. The secondary research was provided by a cross-cultural analysis of youth participation at general participation festivals available by a review of the literature. Primary data were collected by this investigator and other members of the Festival Behavior Study Program sponsored by St. Cloud State University and The Evelyn Payne Hatcher Museum of Anthropology under the direction of Dr. Hatcher.

A comparative approach to the study of festivals was available since thirteen different festivals were studied. A linear study was achieved since some of the same festivals were studied over as many as six years.

**FINDINGS:** The review of related literature provided a cross-cultural comparison of youth participation during festival events of the past and in present-day non-western and western cultures. Non-western cultures recognize the transition of youth to adulthood in more formal and certain ways than in western cultures. This led to a celebration thus involving youth directly in festival activity. In western cultures, such as the United States today, youth have not proportionately participated in all festival activities.

Youth, defined as thirteen to twenty years old, were well represented in proportion to the general population of the United States, very well represented or a majority of those present when an event of a festival was specifically for them, when the event was hosted or organized by youth, when the event was characterized by action, when youth were allowed to participate actively rather than just to observe the event, when the events were competitive, when the events were characterized by qualities of festiveness or adventure or, in summation, when their involvement was allowed.

**SUMMARY AND RECOMMENDATIONS:** Youth involvement at community festivals is helpful in order to transmit the festival events to future generations. Thus youth stand out as an important group festival organizers need to consider when hosting a festival. How this is accomplished largely depends on what type of events are offered during the festival. Thus organization and pre-festival planning are essential requirements to carry out this task. Full participation of every individual in a community festival is really not a goal of festival organizers, but a proportional number of people from all age groups should be the goal if a true community festival is desired. Youth involvement could be achieved if festival organizers included youth in the planning stage. Since school is in session long before most Minnesota festivals take place, this would be the ideal setting for long term planning.

*APPROVED BY RESEARCH COMMITTEE, MAY 1980*  
*Robert Lavenda, Chairperson*

*MOTHER, FATHER, AND NONPARENT VERBAL INTERACTIVE BEHAVIORS IN ADULT-CHILD DISCOURSE*

*Barbara Elaine Commers*

**PURPOSE:** It was the purpose of the present study to determine the nature and frequency of verbal interactive behaviors in adult speech to children using 13 operationally defined verbal interactive categories, and to determine whether mothers, fathers, female nonparents and male nonparents differ with regard to their verbal interactions with language learning children.

**PROCEDURES:** Four children and 16 adults served as subjects. Each child was paired with four adults: the child's mother and father and a male and female nonparent. Every adult in the group interacted with the child in a play situation for approximately 30 minutes. The spontaneous behavior of the adults and children was audio-video taped. The experimenter obtained verbatim written transcripts of the speech of all adults and children from the audio-video tape recordings. The transcripts were then segmented and coded into 13 categories of adult-child verbal interaction according to procedures described by Germono and Powers (in preparation). All adults utterances were analyzed according to the 13 categories of verbal interaction. The F minimum test was applied to determine whether the variances between: 1) each adult-type group and the total adult group, and 2) each adult-type group, when compared to each other, differed significantly.

**FINDINGS:** Analysis of adult-child verbal interaction clearly indicated that the adult-types (mothers, fathers, female nonparents and male nonparents) provided essentially the same verbal environment to language learning children. The nature of adults' verbal interaction with children indicated that more than half (51%) of all adult verbal interactive behaviors consisted of questioning the child and supplying "fillers." Less than one-fourth (22%) of adult input was comprised of the "typical" language teaching techniques, i.e., requiring verbalizations, providing evaluative feedback of the child's utterance and providing referential or problem solving input. The other 26% of adult utterances were comprised of suggestions which did not require a verbal response from the child and did not relate thematically to the child's preceding utterance.

*APPROVED BY RESEARCH COMMITTEE, FEBRUARY 1979*

*Gerald L. Powers, Co-Chairperson*

*Stanley C. Knox, Co-Chairperson*

*MENTAL AGES AND THE ABILITY OF THE SEVERELY AND PROFOUNDLY RETARDED TO LEARN AMERICAN SIGN LANGUAGE*

*Karen L. Ochsendorf*

**PROBLEM:** The purpose of this study was to investigate the relationship between mental ages obtained on the Arthur Adaptation of the Leiter International

Performance Scale and the ability of Institutionalized severely and profoundly mentally retarded individuals to acquire American Sign Language to express their basic needs and desires.

**PROCEDURE:** Ten randomly selected residents of Glacial Ridge Training Center, Willmar State Hospital, Willmar, Minnesota, were taught American Sign Language. Residents who were physically handicapped, or who had previously been taught sign language were excluded from the random selection. The subjects ability to learn signs was compared with their mental age, as found using the Leiter International Performance Scale, Arthur Adaptation. The Spearman Rank Order Correlation Coefficient was utilized to explore the relationship between mental age and number of signs acquired.

**FINDINGS:** All subjects were capable of learning one or more signs. Those with a mental age below two years were unable to learn more than two signs over twenty sessions. Individuals with a mental age of two years learned more than four, but less than all twenty signs over the twenty sessions. Two individuals who scored above four years learned all twenty signs in less than twenty sessions and continued to learn more in the remaining sessions.

Significant results were found at the .05 level of confidence when all ten subjects were used in the statistical analysis. When the data was analyzed using nine subjects, discounting one with psychotic tendencies, results were found to be significant at the .01 level of confidence.

**CONCLUSIONS:** The results of this study suggest that the Leiter International Performance Scale, Arthur Adaptation, is a good predictor of the severely and profoundly mentally retarded individual's ability to learn American Sign Language. The results suggested that individuals who scored above a mental age of two years on the scale should be given higher priority when selecting candidates for an expressive sign language program. In addition, the results indicate that the higher an individual scores on the scale, the greater his/her probability of learning a functional sign system.

*APPROVED BY RESEARCH COMMITTEE, MAY 1978*

*Gerald L. Powers, Chairperson*

#### *ADAPTATION IN THE INTELLIGIBILITY OF MISARTICULATED SPEECH*

*Jean D. Rolle*

**PROBLEM:** Teachers frequently report an ability to understand a child's misarticulated speech better after a period of time even though there has been no or little change. The purpose of the study was to determine whether adaptation to defective speech occurs.

**PROCEDURE:** Five subjects listened to selected verbal material which was modified in a specific manner and prerecorded. The subjects were chosen on a basis of equality of age, intelligence, and hearing acuity. The material was presented in five separate units or messages. The messages were degraded by omitting the /s/, /z/, /ʃ/, /tʃ/, /dʒ/, /l/, /r/, /ʒ/, and /ʒ/ phonemes. A normal adult female speaker prerecorded the messages simulating defective speech through omission of the sounds thus producing a degraded speech signal. The subjects listened individually to the five messages in a counter-balanced design. An intelligibility score for every message by each listener was determined by the percent of key words correctly written down by the subject.

A Friedman Analysis of Variance was performed on the hypothesis of no difference between subject ability, in message difficulty, in subject listening scores over trials, and in message intelligibility over trials. A simple linear regression line was computed for the listening scores.

FINDINGS: The null hypothesis was not rejected for subject ability, message difficulty, and subject listening scores over trials. The null hypothesis was rejected for message intelligibility over trials. The regression line showed a positive value. The results are discussed and the conclusion drawn that adaptation does occur.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1977  
*Martin A. Kammermeier, Chairperson*

### IDENTIFICATION OF DIFFERENCES IN THE ARTICULATORY SKILL OF NORMAL SPEAKERS

*Judith Ann Werner*

PROBLEM: Measureable differences in the articulatory skill of normal speakers seemed probable although not readily apparent under conversational conditions. The purpose of this study was to determine if a range of articulatory skill, as evidenced by intelligibility scores, could be created under distorted listening conditions, and if the scores along this range would be maintained as the listening conditions became increasingly more detrimental to intelligibility.

PROCEDURE: Thirty-nine college students with normal hearing and no speech defects were selected as the normal speakers. Intelligibility scores derived from Black's *Multiple-Choice Intelligibility Test* served as measurement of each speaker's articulatory skill. Variables which could affect intelligibility scores were identified and controlled.

Tape recordings were made of each speaker under three increasingly severe conditions of low-pass frequency filtering and were presented to five listeners to be evaluated for intelligibility. Intelligibility scores represented the percent of words correctly identified by the listeners. Motivation for accurate scoring was provided by monetary reward for agreement between listeners. To assure reliable measures, each speaker's scores was an average of the scores derived by the five listeners. The range of scores under each listening condition was compared using the Pearson Product-Moment Correlation Coefficient.

FINDINGS: A range of articulatory skill was demonstrated by the spread of scores under each listening condition. The correlations between scores under each condition were positive and statistically significant.

It was concluded that differences in articulatory skill exist among normal speakers and that the differences can be demonstrated.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1977  
*Martin A. Kammermeier, Chairperson*



## SPECIAL STUDIES

### *EVALUATING COLLEGE AND UNIVERSITY ARCHIVES: A MINNESOTA SAMPLE*

*Marie K. Elsen*

**PROBLEM:** The purpose of this study was (1) to identify criteria for evaluating university archival programs, (2) to arrange the criteria in priority order for the development and maintenance of such programs, and (3) to construct a profile of Minnesota university archival programs in relation to the ranked criteria.

**PROCEDURE:** A checklist of criteria items applicable to university archives was developed and distributed to the archivists of public and private four-year universities in Minnesota. Respondents were asked to rank the criteria in the order of their importance to the development and maintenance of an archival program, and to evaluate their institution's program in relation to the criteria. Interviews were conducted with two public and two private university archivists.

**FINDINGS:** Nine basic areas or elements were identified as essential in the organization, development, and implementation of university archives: (1) the archives were officially established as a distinct program of the institution; (2) goals and priorities were identified in writing; (3) adequate funding was budgeted; (4) adequate staffing was provided; (5) adequate facilities and equipment were provided; (6) an acquisitions policy was developed to define collecting goals and limits; (7) processing procedures were developed in accordance with archival principles; (8) a policy was developed to outline reference services and procedures; and (9) official records were controlled by a records management program.

Only one Minnesota institution, a private university, reported that it had achieved or was actively working toward achieving all nine criteria. The overall compliance level for the nineteen reporting university archives averaged less than fifty percent.

**SUMMARY AND CONCLUSIONS:** Comments from the survey and from those made during visits with four archivists indicated that the essential elements of a university archival program had been identified in the criteria. It was evident that many of the programs in Minnesota failed to meet the criteria because they had not advanced beyond the informal beginnings of manuscript collections. The primary archival function was not understood by either the archivist or the university administrators; consequently, the scope of the program and the authority of the archivist were ill-defined, and inadequate staffing, funding, and housing resulted.

*APPROVED BY RESEARCH COMMITTEE, MARCH 1979*

*Anthony C. Schulzetenberg, Chairperson*

*A STUDY ON FINANCIAL EFFECTS OF THE 1976 STATE GMINIBUS EDUCATION  
LAW ON SELECTED MINNESOTA SCHOOL DISTRICTS*

*David J. Erickson*

**STUDY:** Prior to 1976, school districts in Minnesota reported to the state on various versions of cash basis accounting. A 1976 Minnesota law mandated that both cash and non-cash transactions must be recorded and reported. This law, UFARS (Uniform Financial Accounting and Reporting Standards) provided that all school districts in Minnesota must report their financial data on a modified accrual basis effective with the 1976-1977 school year and that all school districts must computerize their financial data by July 1, 1980. It is the purpose of the author to show the financial effects of that bill on selected Minnesota public school districts. The thirty-one Minnesota school districts that have their financial accounting processed by Region III Management Information Services located in St. Cloud, Minnesota, were selected for this study. Region III is interesting because it represented the largest group of out-state schools on a single computer system in Minnesota at the time of this study.

**FINDINGS:** The thirty-one school districts in the sample represent seven percent of the total 440 school districts in the state of Minnesota. Student population in the sample ranges from 409 students to 6,393 with the average being 1,486. Pupil unit weighted enrollment for the two-year period of this study (1975-76 and 1976-77) remained stable with 1976-77 showing a slight increase of .64 percent over 1975-76. General Fund Budgets increased during this period 9.6 percent or \$5,075,636 with a mean budget per district of \$2,077,136. Thirty schools paid a data processing fee of \$3.00 per pupil or a total of \$133,776 with the mean being \$4,459 per school district for 1976-77. The cost of audits reported in this study increased 55.5 percent whereas the General Fund Budget increased 9.69 percent. Six schools switched to having an outside auditor prepare their annual financial report which helps explain the consideration that UFARS was more comprehensive and complicated. Nineteen of twenty-three schools did not switch audit firms. Eight of nine schools that added positions to their accounting and reporting staff did so because of increased reporting requirements or computerization of financial data. Nineteen accountants-bookkeepers, fourteen superintendents, eleven business managers, ten secretaries and nine other titled personnel attended the UFARS training sessions. Cost of overtime wages to make up work lost while attending the UFARS sessions was reported at \$3,371 or a mean of \$241 per district. Twenty-four schools said that UFARS provides adequate financial disclosure. Twenty-six schools indicated that the six day-long training sessions were at least helpful.

**CONCLUSIONS:** There were financial effects caused by the UFARS Act because of the computer data processing fee school districts were required to pay, the increased cost of audits, the additional personnel necessary to effect computerization of records and the overtime wages paid by some school districts to personnel who attended the UFARS training sessions.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1979  
Marvin E. Holmgren, Chairperson*

## BEHAVIOR MODIFICATION TRAINING AND ITS IMPACT ON INDUSTRIAL SAFETY

*John A. Gaylord*

**PROBLEM:** The purpose of this study was to determine if the number of Industrial Incidents could be decreased through the use of behavior modification training.

**PROCEDURE:** The procedure used in this study was to research related literature and to survey the top six companies in the United States with no injury records as well as five companies of similar size and type of manufacturing processes within the state of Minnesota. An effort was made to determine if the use of behavior modification training was financially beneficial to the employer and employee through the use of a self-insured workman's compensation record (Company "A").

**FINDINGS:** The research of related literature revealed that while approximately 15 to 20 percent Industrial Incidents were caused by physical hazardous conditions, approximately 75 to 90 percent were caused by the unsafe behavior of employees. It was found that the indirect costs of Industrial Incidents were anywhere from 10 to 50 times the known costs. No definite "rule of thumb" has been set and there is no known formula by which indirect incident costs maybe computed. The Minnesota Department of Labor reported workman's compensation payments in the United States for 1976 was over \$6 billion. Minnesota workman's compensation payments were over \$275 million. Contact with five Minnesota companies of equal size and similar manufacturing processes, revealed that industrial safety training would make a difference in incident experience. The top six companies with the most safe plants in their particular industry were also contacted. This research illustrated that they used a type of behavior modification training.

**SUMMARY AND CONCLUSIONS:** Industrial safety is both humanitarian and economically beneficial to industry and its workers. With nationwide workman's compensation payments exceeding \$6 billion in 1976 and over \$275 million in Minnesota something must be done to reverse this trend. Major questions:

1. What can be done to effectively affect this rising trend in workman's compensation payments?
2. How will this action make a significant difference in the increasing number of Industrial Incidents?

The top six companies listed by the National Safety Council as the most safe in the United States apparently have the answers, at least for themselves. They use a type of behavior modification safety training program, a particular type of training, different from each other, suitable to their own individual situation.

It was shown that within a 2 year period Company "A" was able to place over \$52 thousand back in the budget due to an effective safety program. Figures from an actual employee accident prove that a safe work attitude and safe working habits pay.

It was concluded that an effective safety training program would:

1. Be an attitudinal or behavior modification type.
2. Be economically beneficial to the company and employee.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1979  
*Howard Matthias, Chairperson*

COMMUNICATION OF ENTERTAINMENT ACROSS NATIONAL BOUNDARIES  
—'ROOTS' IN JAPAN—

*Kaoru Haraoka*

**PROBLEM:** The primary purpose of this study was to describe and compare public reactions arising from the television show "Roots" in both the United States and Japan in order to understand the utilization of a mass medium, particularly television, as an important vehicle of international communication. The study was an attempt to assess how the television drama or "Roots" brought high audience ratings in both countries in spite of the viewers' different national and cultural identities.

**PROCEDURE:** The general method used in this study was a descriptive analysis of several scholarly literature, newspapers, magazines, and periodicals in both countries. The Japanese data about the television show "Roots" were primarily cited from various sources including that of Mr. Akira Ueki, a producer of Television Asahi which televised "Roots" in Japan.

**FINDINGS:** According to this study, the popularity of the television drama of "Roots" was in part due to the following factors:

1. The intensity of the publicity campaigns conducted in both countries prior to the viewing of the television drama created public interest and curiosity.
2. Although the historical backgrounds of Alex Haley's "Roots" were American—the story of an American slave family's struggle for survival—the universal elements of the drama were appealing to both American and Japanese viewers.
3. "Roots" demonstrated the potential of television as a powerful medium of entertainment cutting across international boundaries.

**CONCLUSIONS:** ABC's television drama of "Roots" was accepted in both the United States and Japan bridging national and cultural boundaries. The United States and Japan are two of the most industrialized countries with some similarities apparent in their economic structures. They are also served by similar mass media systems. The author's observation was that the commonalities arising from similar economic and media structures might have contributed to such appreciations by both nations.

*APPROVED BY RESEARCH COMMITTEE, MAY 1979*

*Amie M. Habte, Chairperson*

