

St. Cloud State University

theRepository at St. Cloud State

Master Theses Abstracts

University Archives

2000

Master's Thesis and Field Study Abstracts, July 1998-June 2000

St. Cloud State University

Follow this and additional works at: <https://repository.stcloudstate.edu/mta>



Part of the [Education Commons](#)

Recommended Citation

St. Cloud State University, "Master's Thesis and Field Study Abstracts, July 1998-June 2000" (2000).

Master Theses Abstracts. 15.

<https://repository.stcloudstate.edu/mta/15>

This Research Study is brought to you for free and open access by the University Archives at theRepository at St. Cloud State. It has been accepted for inclusion in Master Theses Abstracts by an authorized administrator of theRepository at St. Cloud State. For more information, please contact tdsteman@stcloudstate.edu.

Master's Thesis
and
Field Study Abstracts

July 1998/June 2000

St. Cloud State University
St. Cloud, Minnesota

MASTER'S THESIS AND FIELD STUDY ABSTRACTS

FORWARD

This publication, the fifteenth 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 1998 through June of 2000.

A bound copy of each thesis or field study is on file in the James W. Miller Learning Resources Center, 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.

Copies of this bulletin may be obtained from the Office of Graduate Studies, 121 Administrative Services, St. Cloud State University, 720 S. 4th Avenue, St. Cloud, MN 56301-4498.

ADMINISTRATIVE STAFF

Roy Saigo, President

Nathan Church, Vice President for Student Life and Development

Steven Ludwig, Vice President for Administrative Affairs

Richard Lewis, Dean, College of Social Sciences

Ruth Meyer, Vice President for Academic Affairs

Joane McKay, Dean, College of Education

Ali Malekzadeh, Dean, College of Business

A. I. Musah, Dean, College of Science and Engineering

Dennis Nunes, Dean, School of Graduate Studies; Director of Summer Sessions

Roland Specht-Jarvis, Dean, College of Fine Arts and Humanities

Kristi Tornquist, Dean, Learning Resources Services and Center for Information Media

St. Cloud State University (SCSU) acknowledges its legal and moral responsibilities to ensure equal employment and educational opportunities without regard to race, creed, color, religion, national origin, sex, age, reliance on public assistance, physical disability, marital status, or inclusion in any group or class against which discrimination is prohibited by state or federal law, including Vietnam Era veterans. Furthermore, SCSU will continue to develop and implement timely and comprehensive affirmative action procedures aimed at removing barriers to equal employment opportunity.

CONTENTS

COLLEGE OF EDUCATION

APPLIED PSYCHOLOGY: BEHAVIOR ANALYSIS

Use of Self-Directed Dating Manual By Divorced Males by Robert A. Gruber, M.S	1
The Effects of Peer-Mediated Interventions on Work Production Levels by Craig S. Humphrey, M.S	1
Timeout Behavior Under Conditions of Signaled and Unsignaled Reinforcement Delay by Todd W. Knealing, M.S	2
The Determination and Use of Critical Periods to Optimize the Ease of Handling in Laboratory Animals by Annette J. McMahon, M.A	2
Choice Behavior When the Alternative to Cooperation is a Second Cooperative Task by Bryan K. Saville, M.S	3

CHILD AND FAMILY STUDIES

The Strengths of American Indian Families by Layna L. Cole, M.S	3
A Comparison of Learning in Full-Day and Half-Day 5's Alive by Greta Evan-Becker, M.S	4
An Analysis of On-Site Employer Sponsored Child Care in St. Cloud, Minnesota by Ann Marie Gutteter, M.S	5
Teachers' Perceptions of Full Inclusion for Children with Severe Needs by LuAnn Kasper, M.S	5
Resources and Computer Use of Parent Educators in Minnesota by Renee Ann Archambault Lach, M.S	6
Gross Motor Development and Environmental Quality: An Analysis of the Effects of the Early Care Environment of Infants and Toddlers by Kirsten L. Minnerath, M.S	6

Best Practices in Parent Involvement at the Elementary School Level by Linda Schulzetenberg, M.S	7
Participating in Parent Involvement Activities in Early Childhood Special Education Programs: A Qualitative Study by Camryn J. Shaw, M.S	7
Case Studies of Four Early Childhood Family Education Programs in Rural Minnesota and Practice Concerning Single Parents by Cynthia A. Wendorff, M.S	8

EDUCATIONAL ADMINISTRATION

Identifying Characteristics Associated with Improved Learning Environments: Three Educational Factors by Jennifer L. Meagher, Specialist	9
A Look at Leadership Style and Various Other School Demographics and How They May Relate To Student Achievement by Lori C. Olson, M.S	9
Public School Superintendents' Perceptions of Cooperative Sponsorship with Home Schools for Extracurricular Activities in Minnesota by Kevin M. Ricke, M.S	10

EXERCISE SCIENCE

Aerobic Fitness and Physiological Reactivity to a Mental Stressor by Kiralee K. Camp, M.S	11
A Kinetic Comparison of the Volleyball Spike Jump Performed on Hard-Court and Sand Surfaces by Joel P. French, M.S	11
The Effects of an Herbal Compound on Lactic Acid Clearance by Jason R. Lahr, M.S	12
The Effects of Three Weeks of Deep Water Running on the Maintenance of VO_{2max} and Aerobic Endurance by Kirk P. Lewis, M.S	12
A Comparison of High Intensity and Conventional Strength Training Programs for High School Football Players by Kirk M. Olson, M.S	13

Effect of Breathe Right Nasal Strip on Lactate Threshold During Steady State Running by Debbi R. Paulson, M.S	13
The Influence of Endurox and Carbohydrate Ingestion on Muscle Tissue Stress and Duathlon Performance by Shannon Lee Ready, M.S	14
INFORMATION MEDIA	
Media Literacy Education for the Information Age by Susan M. Olson, M.S	15
Analysis of Patient Reading Ability and Its Correlation to Highest Grade Completed by Sandie M. Yeager, M.S	15
PHYSICAL EDUCATION	
The Influence of Culture and Family Expectations on Physical Fitness Levels of Hmong Children by Anita P. Chavez, M.S	16
Are Track and Field Athletes Getting Younger? A Study of Minnesota High School Girls by John Hertwig, M.S	16
SOCIAL RESPONSIBILITY	
A Feminist Analysis of the Effects of Consciously Experiencing Non-Traditional Gender Roles by Julie Schutt Cartwright, M.S	17
Are Teachers Teaching Human Relation Issues To Sixth-Graders by Gary W. Cheeseman, M.S	17
Identity Formation, Social Support, and the Safer Sex Decisions of Lesbian and Gay Adolescents by Tonya A. Faundeen, M.S	18
New Portrait of Japanese Woman: Young Educated Women's Attitudes Towards Traditional Family Roles by Yukie Kodama, M.S	18
Planting Seeds for Change: Assessing the Impact of the Citizenship for Diversity Project in Promoting Attitudinal and Behavioral Changes by Roxann Storms, M.S	19

The Effects of Racism on Black Student Retention on Predominantly White College Campuses by Tanisha Zeigler, M.S	20
--	----

SPECIAL EDUCATION

A Study of Minneapolis Public Schools Due Process Compliance by Amie H. Anderson, M.S	20
---	----

Effects of Implicit and Explicit Teaching Methods on Elementary Students in Regular and Special Education by Lawrence A. Berg, M.S	20
--	----

Adaptations for Mainstreamed Students in the General Classroom: Desirability and Feasibility by Tamara McBride Nelson, M.S	21
--	----

SPORTS MANAGEMENT

Determining Factors of College Football Freshman Regarding the Student-Athletes' College Choice by John R. Auer, M.S	21
--	----

Successful Offensive and Defensive Efficiency Ratings of Men's Division II College Basketball Teams by Kelly M. Boe, M.S	22
--	----

Creative Use and the Incidence of Muscle Cramps Among North Central Conference Football Players by Gary Michael Fasching, M.S	22
---	----

An Examination of Group Differences Among High School Athletes and Non-Athletes on Cumulative Grade Point Average, Discipline Referrals and Days Absent by Marc A. Franz, M.S	23
--	----

Career Advancement and Perceived Characteristics of Success Between NCAA I and Division II Head Men's Basketball Coaches by John Greene, M.S	24
---	----

Experiences of Athletic Training Program Directors with CAAHEP Accreditation by Timothy J. Kreidt, M.S	24
--	----

Relationship of Bat Performance Factors to North Central Conference Batting Averages 1959-1999 by Michael H. Jensen, M.S	25
--	----

The Effect of Employing a Certified Athletic Trainer on Injury and Re-Injury Rates in Minnesota High Schools by Lana M. Lienemann, M.S	26
A Survey of Staffing Practices Among NCAA Division Football Programs by Robert G. Pagel, M.S	26
Time Management for Division II Head Football Coaches by Matthew J. Pawlowski, M.S	27
Self-Esteem and Its Correlation to Level of Competition by Lisa Quednow-Bickler, M.S	28

TEACHER DEVELOPMENT

A Study of How Home Environment and Student Attitudes Effect Reading by Theresa A. Bednarczyk, M.S	28
The Complexities of Studying National and International Issues in A Society Whose Mass Media are Corporate Owned by Michael N. Falcon, M.S	29
The Effects of Classroom Use of a Daily Newspaper by Steven D. Folkerds, M.S	30
Learning Lab: Meeting the Diverse Needs of Students At-Risk of Academic Failure by Jennifer J. Haller, M.S	30
An Authentic Writing Curriculum in a Kindergarten Classroom by Jeanne L. Johnson, M.S	31
The Effectiveness of Journaling in High School Physics by Christine Ann Johnson, M.S	31
Team Teaching Versus Traditional Teaching in Elementary Mathematics by Chad J. Krauel, M.S	32
Democracy in Education: A Necessity for South Africa by Siphokazi Florence Mbotya, M.S	32
Partner Reading in a Primary Multiage Classroom: A Study of Children's Interactions and Strategies by Patricia J. McDonald, M.S	33
The Impact of Gender Inequities in a Fourth Grade Classroom by Tracy L. Reimer, M.S	34

Exploring Minnesota: An Alternative Learning Model by Glenn R. Witte, M.S	34
--	----

COLLEGE OF FINE ARTS AND HUMANITIES

COMMUNICATION DISORDERS

Assessing the Vocabulary Definitions of Normally-Developing Children: A Comparison of Three Scoring Methods by Sarah M. Bersie, M.S	35
Correlation Among Demographic Estimates of Intellectual Abilities, Performance IQ Scores, and Verbal IQ Scores by Jan M. LaFavor, M.S	36
Documenting Treatment Outcomes in Courage Center's Community Reintegration Program by Michelle M. Schierts, M.S	36

ENGLISH

"Welcome the Sixte": The Wife of Bath's Prologue in a Rhetorical Weave of Style, Performance, and Intertext by Shannon M. Anderson, M.A	37
Seeking a Realistic Model for an English Teacher Training Program by Lily Arifin, M.A	38
Readability and Phrasal Verbs in Texts Written by German and American Writers by Kai-Sven Beckert, M.A	39
Servicing the ESL Student: Collaborative vs. Pull-Out Approach by Judy A. Croegaert, M.A	39
The Transition From German to English in the Lutheran Church-Missouri Synod: A Study in Fear by David N. Emmrich, M.A	40
Learner Styles and Foreign Language Learning by Jennifer Ersland-Beckert, M.A	40
Achieving Gender Equity in the English Literature Classroom by Lynette Frohrip-Meyer, M.S	41
Interdisciplinary Applications of Mary Shelley's Frankenstein by Christine J. Grossman, M.A	42

Multigenre: An Alternative Form of Research Writing by Mary C. Gusaas, M.S	42
Cultural Identity and Second Language Acquisition: A Case Study of Cultural Identity Transformation and SLA by Todd P. Huber, M.A	43
Literature Censorship: Implications on Public School Students and Teachers by Christine Marie Hollerman, M.S	43
History and Narrative: Challenging the Power of the Official Record in <i>Midnight's Children</i> and <i>Creation</i> by Eugene Scott Launier, M.A	44
The Evolution of Criticism on Ernest Hemingway's <i>The Garden of Eden</i> and <i>True At First Light</i> by Jeffery L. Ludwig, M.A	45
Novel Research Collaboration: Teaching Assistants and First Year Composition Students Writing the Book on Cooperative Learning by Les Paul (Jake) Oetting, M.S	45
The Effect Portfolios Have on Writer Attitude by Joy M. Sjoberg, M.A	46
First and Second Language Use in Personal Diary by Kaaren St. George, M.A	46
Japanese Students in American Classrooms and Cultural Discontinuities by Erina Tateyama, M.A	47
Evaluating the Curriculum for an ESL, High-Intermediate, Reading and Writing Course by Kevin Wahl, M.A	48
A Proposal for Expanding Critical Thinking in Composition Curricula at Minnesota Technical Colleges by Harold Weseloh, M.A	48
The Proximity Principle: A Study of Native and Non-Native Speaker Usage by Kasya L. Wilhite, M.A	49
Catharsis in John Donne's Sermons by Roseann Wolak, M.A	49

COLLEGE OF SCIENCE AND ENGINEERING

BIOLOGY

Northern Great Plains Grassland: An Investigation of Early Scientific Renewal Efforts by Nancy R. Klapotz, M.A	50
Effect of Retinoic Acid on XGBX-2 Expression by Xiaodong Li, M.A	50

COMPUTER SCIENCE

Using a Genetic Algorithm for Rectilinear Picture Compression by Sameer O. Abufardeh, M.S	51
--	----

ENVIRONMENTAL AND TECHNOLOGICAL STUDIES

A Study of Cooperative Learning and Its Effect on Ninth Grade Elective Electronics by Michael M. Beseres, M.S	51
A Pilot Study for Predicting Indoor Air Quality in the Home by David D. Danforth, M.S	52

MATHEMATICS

Teachers' Perceptions of How Block Scheduling Affects Academic Achievement by Linda S. Kingston, M.S	53
The Function Concept: Building a Foundation in the Middle School by Steven R. Larsen, M.S	53
Internet and Mathematics Education: How Has the Internet Impacted the Way in Which Mathematics is Being Taught? What Will be the Math Teacher's Role? By Michael E. Vander Berg, M.S	54

COLLEGE OF SOCIAL SCIENCE

CRIMINAL JUSTICE

The Social Structure Context of Minnesota's Juvenile Justice System: Urban and Rural Variations in Youth Intervention by Marco Dinzeo, MS	54
--	----

An Identification of the Types and Characteristics of False Security Alarm Producers in the City of Saint Paul, Minnesota by Troy A. Gilbertson, M.S	55
Profiling Serial Murderers by Christopher E. Hage, M.S	56
A Comparison of Police School Liaison Officer Programs in Minnesota and Northumberland County, England, as a Prevention of Youth Violence by Rozanne Hansen, M.S	57
Completing the Circle: Statistical Analysis of Variables in Residential Treatment by Anine P. Jensen, M.S	57
An Evaluation of the Impact of Ten-Hour Work Shifts on St. Cloud Patrol Officers' Performance and Perceptions by Jeffrey J. Oxtan, M.S	58
Victim Offender Mediation Used in a Probation Setting by Rochelle L. Peterson, M.S	59
Criminal Profiling: The Expansion of Law Enforcement Education by Nicole Wimberger, M.S	59

GEOGRAPHY

Integrating CAD and GIS by Sonia T. Dickerson, M.S	60
Rail Line Abandonment to Trail Corridor: A Study Using the Rail-Trail Concept to Convert Abandoned Rail Corridors into a Regional Trail System in Central Minnesota by Tammy L. Haakonson, M.S	60
An Analysis of the Ethnic Distribution of Settlers to Sherburne County in 1880 by Banette R. Kritzky, M.S	61
GIS Use in Nonprofit Organizations: Models for Technical Support by Kim A. Lieberman, M.S	62
Relating Landscape Indices of Forest Fragmentation to Large Scale Forest Assessment Data by Daniel G. Wendt, M.S	62

HISTORY

The Southern Front of the Great War for Mother Russia World War II by Robert A. Bos, M.A	63
Men Talking by Sean Philip Faulk, M.A	64
Victorian Interior Decoration in Rural Sherburne and Wright Counties of Minnesota, 1870-1910 by Rebecca Jacobson Hagen, M.A	65
Homesteads and Land Evolution at Mille Lacs Kathio by Sara Markoe Hanson, M.A	66
St. Cloud's Munsinger and Clemens Gardens: A Public Legacy by Ann Marie Johnson, M.A	66
Common Valor: A History of the Twelfth Wisconsin Infantry by Kerwin C. Kilian, M.A	67
The Most Beautiful Resort in Iowa: The Development of Waterloo's Sans Souci Island by Jeffrey J. Kurtz, M.A	67
Newspapers and the Spanish American War: Effects on a Midwestern Community by Steven C. Penick, M.A	68
The Historical and Architectural Significance of the Proposed Southside Historical District in St. Cloud, Minnesota by Emily B. Schill, M.A	68
The Minneapolis Street Railway Emergence to Disappearance by Edward W. Solberg, M.A	69
The 13th Minnesota Volunteer Regiment and the Spanish-American and Philippine-American Wars, 1898-1899 by Kyle Ward, M.A	69

SPECIAL STUDIES

From Mountains to Prairies: A Case Study of Rural Ethnic Community Formation by Susan J. Brekke Benson, M.A	70
---	----

Metabolic Characteristics of Bench Stepping with and Without Hand Weights by Dean E. Birchfield, M.S	71
A Theoretical and Strategic Analysis of Three Community Development Case Studies by Brigette G. Biesi, M.A	71
The Cold Spring Brewing Company, 1874-1997: A History and Analysis of a Regional Brewery by Jason J. Budnick, M.A	72
Influence of Pat Robertson's Christian Broadcasting Network in American Times News Programming by Brandi L. Canter, M.A	73
The Relationship Between First Language Oral, Proficiency and Second Language Acquisition by Mary Catherwood, M.A	73
Creatine and Androstenedione Use Among Baseball Players of the North Central Conference by Joshua CR Davis, M.S	74
The Performance & Recovery Effects Attributed to the Breathe Right® Nasal Dilator During a Simulated Hockey Task by Julie A. Deyak, M.S	75
Teacher-Student Interactions: Are They Gender Biased in Middle School Science Classrooms? By Rhonda J. Erdmann, M.S	75
An Investigative Study in the Chemical and Physical Evaluation of Different Aged Restored Wetlands and the Return of Their Natural Functions by Todd H. Giffrow, M.S	76
Effect of Step Rate and Choreography on the Metabolic Cost of Step Aerobics by Sonya Hanson, M.S	77
What Should be Taught and When: A Comparison on Views of Sexuality Education Between Senior High Students and Parents in One Minnesota School District by John R. Huber, M.S	77
Status of Athletic Training Services in Minnesota High School Athletics by Jeffrey T. Johnson, M.S	78

A Case Study Analysis: Evaluation of Diversity Training Programs by Elizabeth A. Kane, M.S	78
Analysis of the Predictive Poisson Process Request-Response Modeling in a Hypermedia Environment by Kim Edward Krenski, M.S	79
Carrie Coleman Rogers: A Victorian Lady Who Went Her Own Way by Julie Coleman-Lindquist, M.A	79
An Evaluation of Outcome Based Education: How to Make it Work for South Africa by Andile Milton Mbeki, M.S	80
Rhetorical Responses to the Unimaginable: The Holocaust and Dialogue with G-D by Stephanie McMahon-Kaye, M.A	81
Television Viewing and Physical Fitness in Children by Deborah A. Meierhofer, M.S	81
Gender and Language by Nicole T. Meierhofer, M.S	82
Job Responsibilities of the NCAA Division III Athletic Director at Schools with Varsity Football by Clayton J. Moose, M.S	82
A Study of Effectiveness of the Reading Recovery Program by Lisa Morgan, M.S	83
A Study of Audio Cassette and Short-Term Seminar Style Sales Training at Cellular One of Northern Minnesota by Jeffrey J. Parris, M.S	83
Increasing Participation in Eclectic Utility Conservation Improvement Programs in Rural Minnesota by Carol Russell Phelps, M.S	84
Neutral Network's Applicability for Predicting College Football Plays by David W. Prather, M.S	85
Newcomer's Stories: An Analysis of Informal Organizational Storytelling and Employee Socialization at St. Cloud State University by Collette S. Rubel, M.A	85
The Effects of Calculator Use in Pre-High School Mathematics by Joyce E. Schneider, M.S	86

Comparison of the Performance of Switched 10 Megabits per Second Ethernet with Shared 100 Megabits per Second Fast Ethernet by David M. Schons, M.S	87
The People's Fair a Barter Fair for Greater St. Cloud, Minnesota by Michael Sharp, M.A	87
Amae and the Reticent Japanese Student in the ESL Classroom by Jay C. Stocker, M.A	88
An Examination of the Effects Today's Technological Wave Will Have on Tomorrow's Writing Instructors and Students by Kellie A. Tatge, M.S	89
A Comparison of the Stand-Up Start Using Moyer Block vs. The Crouch Start for Small-College Varsity Women's Sprinters by Kurt Threinen	89
Marketing Practices of Social Service Non-Profit Organizations by Rhonda D. Van Hale, M.S	90

COLLEGE OF EDUCATION

APPLIED PSYCHOLOGY: BEHAVIOR ANALYSIS

USE OF SELF-DIRECTED DATING MANUAL BY DIVORCED MALES

Robert A. Gruber

This study was designed to examine the effectiveness of using a self-directed dating manual to increase dating frequency in a divorced male population. A multiple baseline across individuals design was used with two experimental groups. Ten divorced men were selected and randomly assigned to two groups (A and B). The treatment was contained in the manual Overcoming Dating Anxiety (Grossman & McNamara, 1991). The treatment objective was to increase dating by initiating one date each week with a female the male had not dated previously. All five males in Group A completed the treatment. Only three in Group B completed. Although not all eight subjects initiated dates each week the results indicated that a self-directed behavioral change program can assist in increasing dating behavior in this population. Subjects evaluation of the treatment manual which was written as an experimental manual for a college age population, indicated it would possibly be more effective with extensive revision and additions designed for the divorced middle aged population.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1998

Eric Rudrud, Chairperson

THE EFFECTS OF PEER-MEDIATED INTERVENTIONS ON WORK PRODUCTION LEVELS

Craig S. Humphrey

This study was conducted to evaluate the efficacy of teaching individuals with developmental disabilities to provide verbal prompt and reinforcement to target subjects with developmental disabilities and its subsequent effect on work production. Four pairs, each comprised of an experimental tutor and a peer subject, participated in the multiple baseline study. Following baseline, tutors were taught to implement appropriate prompt/reinforcement statements towards specific peer subjects when cued by an audio beep. During intervention, audio beeps were systematically faded and combined with positive reinforcement and performance feedback to guide the tutor towards independent intervention. Results indicated that tutors were able to correctly provide verbal prompts and reinforcements to their respective peer subjects. Additionally, verbal prompts and reinforcements were correlated with increased and/or stabilized work production levels in three of the four peer subjects, and in all three of the four tutors. Methodological and procedural issues related to these results as well as recommendations for extended use of peer-mediated interventions within work settings were addressed and discussed.

APPROVED BY RESEARCH COMMITTEE, MAY 1999

Eric Rudrud, Chairperson

TIMEOUT BEHAVIOR UNDER CONDITIONS OF SIGNALLED AND UNSIGNALLED REINFORCEMENT DELAY

Todd W. Knealing

A time-out (escape) response, along with a multiple schedule, was utilized to study whether or not the usual preference for signaled over unsignaled delay of reinforcement is due to aversive properties of the unsignaled delay. Different delay intervals (5 s, 10 s, and 30 s) were employed to probe for any temporal differentiation in aversiveness. Those delay values, with an accompanying time-out response being available were examined in comparison to an immediate reinforcement schedule and a 10-s delay schedule without a time-out response being available. Higher response rates on the food key were found for the signaled delay condition compared to the unsignaled condition in 11 of 16 conditions where there was a delay value. In only one of those 16 conditions was the reverse true. Time-out response rates for both signaled and unsignaled delay followed an extinction curve during the first condition in which the time-out response was introduced to the subjects, suggesting that aversiveness is likely not a factor in the preference for a signaled delay of reinforcement. Other possible factors and explanations are discussed.

APPROVED BY RESEARCH COMMITTEE, SEPTEMBER 1998

Anthony Marcattilio, Chairperson

THE DETERMINATION AND USE OF CRITICAL PERIODS TO OPTIMIZE THE EASE OF HANDLING IN LABORATORY ANIMALS

Annette J. McMahon

The purpose of this experiment was to determine the existence of a critical handling period in order to obtain decreased emotionality in domestic rabbits (*Oryctolagus cuniculus*). Rabbits were handled in 5 day increments, beginning on the first day of life and up to day 15, ending before eye opening. Control groups included a nonhandled group and a group handled throughout days 1-15. A variation of the handling procedure was also performed on a single group for days 1-15 of life to address quality of handling. Emotionality was measured in terms of approaching the handler, latency to approach the handler, duration within the approach zone (next to the handler), and duration of freeze responses to two recorded low level sounds. Cage retrieval (escape attempts, bit attempts, kicking after pick-up) were also examined as dependent variables, as well as defecation rate. The results of the experiment indicated that there were no statistically significant differences between groups for approach variables, nor for duration of freeze when using the Mann-Whitney U test. Cage retrieval response rates between groups were also insignificant. There were no biting attempts for any subject on any retrieval. Defecation rate appeared to indicate and substantiate a fear response, or increased emotionality, as reported in other research. The type or quality of handling is discussed as relating to results and implications of this experiment and other handling research.

APPROVED BY RESEARCH COMMITTEE, MAY 2000

Anthony Marcattilio, Chairperson

CHOICE BEHAVIOR WHEN THE ALTERNATIVE TO COOPERATION IS A SECOND COOPERATIVE TASK

Bryan K. Saville

Past studies of social behavior have examined cooperation, competition, sharing, trust, and individual responding. In addition, several studies have examined choice behavior including choice for cooperation vs. competition, cooperation vs. individual responding, and two different types of cooperation vs. competition. However, there has not been a systematic study that has examined choice behavior when the alternative to one type of cooperation is a second type of cooperation. In the present study, pairs of pigeons were given the opportunity to choose between two types of cooperative tasks. For the Simultaneous Cooperation choice, subjects were able to respond in any fashion and at the same time to complete a fixed-ratio schedule of reinforcement. In the Alternating Cooperation choice, subjects were required to alternate series of responses up to the ratio requirement. Results showed that subjects had a strong preference for the type of cooperation that produced the shorter delay to reinforcement. In addition, there was a noticeable inequity in the division of responses suggesting that true cooperation may not have occurred during the Simultaneous Cooperation choice. Finally, suggestions for further research are considered.

APPROVED BY RESEARCH COMMITTEE, DECEMBER, 1999

Anthony Marcattilio, Chairperson

CHILD AND FAMILY STUDIES

THE STRENGTHS OF AMERICAN INDIAN FAMILIES

Layna L. Cole

Most research on American Indian families is deficit based. Identifying the weaknesses and problems found in American Indian families. The American Indian family is viewed very negatively, even though it has survived centuries of oppression. A small body of research has identified the common traits found among American Indian families that are their strengths. It is essential that people working with American Indian families take the time to understand the strengths found within these families. This paper looks at healthy Ojibwa families of northern Minnesota and attempts to identify their strengths. The research question is what are the strengths or positive characteristics that professionals believe healthy American Indian families of Ojibwa heritage in northern Minnesota possess?

A checklist of healthy family traits was developed using research on healthy families and research specific to American Indian families. This checklist was presented to professionals working with American Indian families in northern Minnesota. The professionals were asked to identify the 10 most common traits found in healthy American Indian families with whom they worked. A total of 36 professionals in five different tribal areas participated.

The most commonly found traits found in healthy Native American families were: participates in tribal activities; views extended family as support, values and honors elders, has a sense of play and humor, shares responsibility of children, views tribe as primary unit of belonging, practices Native American spirituality, is private, and uses stories to pass on history and values. These traits were very similar to those identified in the research on American Indian families.

These findings were compared to the findings on healthy families in general. The traits identified by this research were very different than those identified to be the strengths in families in general. The traits identified by this research were much more focused on extended family, community, and elders.

There were differences between how Native American professionals viewed the families they were working with and how non-Native Americans viewed them. Non-Native Americans did not seem to value the importance of extended family as much as Native Americans did. Rather, they identified specific behaviors, such as storytelling and practicing Native American spirituality.

This research verified that there is a set of strengths or positive traits common to healthy Native American families in northern Minnesota. These traits are similar to the ones identified by previous research on healthy American Indian families, but different than those traits identified to healthy families in general. This research also showed that there are differences in the perceptions of the strengths of American Indian families on ethnicity.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1998

Glen Palm, Chairperson

A COMPARISON OF LEARNING IN FULL-DAY AND HALF-DAY 5'S ALIVE

Greta Evans-Becker

PROBLEM:

In the Robbinsdale Area Schools, some students have been placed in full-day everyday developmental kindergarten called 5's Alive, and some have been placed in half-day sections. Questions have been raised as to the effectiveness of the full-day everyday program compared to the half-day classes.

PROCEDURE:

Students were pretested and posttested in upper case letter recognition and naming, lower case letter recognition and naming, and numeral recognition and naming. Student improvement was compared on the basis of time spent in school, full-day or half-day.

Developmental Checklists from the Work Sampling System were examined for improvement in the areas of Language and Literacy and Personal and Social Development. Improvement was compared on the basis of time in school, full-day or half-day.

FINDINGS:

There were statistically significant differences in student improvement in upper case letter recognition and naming, lower case letter recognition and naming, and numeral recognition and naming. Improvement in these readiness skills is related to the amount of time spent in the classroom. Full-day every day students improved more than half-day students in all three of these readiness areas.

All students improved in personal and social development and in language and literacy as rated by teachers on the Work Sampling System Developmental Checklist. Differences in improvement were not statistically significant possibly due to the fact that results were based on teacher perception rather than actual student performance.

For greater improvement in readiness skills, this researcher recommends full-day every day 5's Alive classes for students coming to school at an educational disadvantage.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1998

Jack Mayala, Chairperson

AN ANALYSIS OF ON-SITE EMPLOYER SPONSORED CHILD CARE IN ST. CLOUD, MINNESOTA

Ann Marie Gutteter

The purpose of this study was to determine if it was advantageous for employers to provide on-site child care programs for families employed within their organization. It was designed not only to report the advantages of on-site child care centers, but also the disadvantages that were associated with this growing trend. The study utilized a survey that was distributed to the entire family population, consisting of 55, at one on-site employer sponsored child care facility--Children's Home Society of Minnesota at the St. Cloud Hospital's Child Care Center. Of the 55 families surveyed, 40 of the families (73%) volunteered to participate.

The results of this study indicated that several advantages were associated with the concept of on-site employer sponsored child care. A large percentage of families (95%) indicated that the child care center's hours met their demands. More than 90% of the families agreed that a variety of scheduling options were available. With regard to employee productivity level at work, 77.5% of the surveyed families believed that this level was enhanced through this particular on-site child care center. Families unanimously agreed that the proximity of the center allowed them to visit their children throughout the day and also that information and/or advice regarding their child was readily available.

It was also cited that not all of the survey results were in agreement with current published research on the topic of on-site employer sponsored child care. Two such areas of dispute were the reduction of absenteeism and recruitment. Several families (42.5%) felt that this child care center did not reduce their rate of absenteeism. Over half (52.5%) of the surveyed families were not attracted to this particular job because of their employer sponsored child care center.

APPROVED BY RESEARCH COMMITTEE, DECEMBER, 1999

Jack Mayala, Chairperson

TEACHERS' PERCEPTIONS OF FULL INCLUSION FOR CHILDREN WITH SEVERE NEEDS

LuAnn Kasper

PURPOSE

The purpose of this thesis is to determine teachers' perceptions of full inclusion for students with severe needs, and if those perceptions are the same in different school districts. This will provide valuable information for future placement of these students.

POPULATION

For the purpose of this study, respondents included specialists, special education teachers, and classroom teachers. Two different districts were included, one that has a classroom within its building for children with severe needs and one that transports those children to a different district. All responding served children in Grades K through 5.

RESULTS

Overall, teachers felt children with severe needs should be included in the regular classroom at some level with the appropriate support. They also seemed to have a positive attitude toward full inclusion. The biggest difference between districts was how much time the teachers felt children should spend in a regular classroom. Essential support for a successful inclusion program was identities. Obstacles and parental concerns are also discussed.

APPROVED BY RESEARCH COMMITTEE, OCTOBER 1998

Jack Mayala, Chairperson

RESOURCES AND COMPUTER USE OF PARENT EDUCATORS IN MINNESOTA

Renee Ann Archambault Lach

The purpose of this study was to survey parent educators to determine the resources and computer technology they currently use as parent educator in the Early Childhood Family Education (ECFE) programs. Parent educators have the responsibility to provide accurate, helpful, current, and professional information to the parents they serve in their communities.

The majority of parent educators reported they would consider using the Internet as a resource if training were provided. Although there were some barriers to using the Internet, the overwhelming response was positive and supportive of this resource.

The researcher recommends that parent educators should be trained to use computers and the Internet. The use of the Internet as a resource in parent education could benefit the families parent educators are serving through support and education.

APPROVED BY RESEARCH COMMITTEE, APRIL 2000

Glen Palm, Chairperson

GROSS MOTOR DEVELOPMENT AND ENVIRONMENTAL QUALITY: AN ANALYSIS OF THE EFFECTS OF THE EARLY CARE ENVIRONMENT ON INFANTS AND TODDLERS

Kirsten L. Minnerath

The purpose of this study was to determine whether the ages at which infants and toddlers attain specific gross motor milestones is associated with day care quality as measured by the Infant/Toddler Environment Rating Scale or ITERS (Harms, Cryer, & Clifford, 1990). A secondary purpose was to determine whether the quality of care differentially affects the attainment of gross motor milestones in female and male infants and toddlers. The study utilized a survey which was distributed to parents of eligible children who attended one of the 17 family day care homes that had been evaluated with the ITERS.

Results of the study indicated that children's gross motor development is affected by the quality of their early care environment. Contrary to the hypothesis, as quality of the early care environment increase, so did the ages at which infants and toddlers began walking and crawling.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1999

Cheri Gilman, Chairperson

BEST PRACTICES IN PARENT INVOLVEMENT AT THE ELEMENTARY SCHOOL LEVEL

Linda Schulzetenberg

The purpose of this study was to identify best practices in the field of parent involvement at the elementary school level in the research as well as in the field of education. Twelve elementary school practitioners were interviewed by the researcher and those interviews were later transcribed.

The results of the interviews and a review of the research identified similar best practices in the areas of Parenting, Communicating, Volunteering, Learning at Home, Decision Making, and Collaborating with the Community. In addition, common major barriers were cited: Problem Centered Communication, Time Constraints, Transportation, Previous Negative Experiences of Parents, Unmet Basic Needs of Parents, Child Care, and Lack of Administrative and/or Staff Support. Practitioners also identified Limited Language/Literacy Proficiency, Transience of Families, and Time as being major barriers to parent involvement.

The interviews with the practitioners yielded an emphasis on the following key themes: Relationships with Parents, Students, Administrators/Other School Staff and with the Community Must be Formed and Strengthened; Prior Experiences of Practitioners Greatly Affect Their Practices; Take the Time to Do It Right (i.e., the importance of realizing the hours worked by parent involvement practitioners, the time needed for collaborating and also that time is precious to families, too), and Take the Time for Ongoing Programming. The practitioners' interviews most specifically stressed the Key Theme of Building Relationships. That was the greatest "intangible" that was voiced in the interviews yet not given equal emphasis in the research.

After reading the literature, completing the interviews, and comparing the results of both, the researcher made these major recommendations: Expand Collaborative Efforts, Implement Ongoing Evaluation, Network with Other Parent Involvement Practitioners, Support Initiatives to Hire More People of Color, and Take Care of Yourself.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1998

Glen Palm, Chairperson

PARTICIPATING IN PARENT INVOLVEMENT ACTIVITIES IN EARLY CHILDHOOD SPECIAL EDUCATION PROGRAMS: A QUALITATIVE STUDY

Camryn J. Shaw

This study explored parent participation in parent involvement activities in the Early Childhood Special Education (ECSE) Program in one public school district. This researcher hypothesized that there were limited levels of parent participation due to a lack of available opportunities and information regarding those opportunities, and that parents were too overwhelmed with other responsibilities to participate when opportunities were available.

This study sought to answer:

1. Were optimal parent involvement opportunities being offered in the surveyed district?
2. To what level were families participating in parent involvement activities including due process rights?
3. Was the district surveyed utilizing parent involvement to the fullest extent that parents might choose to participate.
4. What were barriers to participation in parent involvement activities?
5. What were reactions of parents to invitations to participate in parent involvement activities?

Eleven parents and seven professionals from an ESCE program in a central Minnesota school district were surveyed. This researcher created a Parent Participation Survey and an ESCE Professional Survey which listed 12 main categories and 35 subcategories of parent involvement activities and included open-ended questions regarding parent participation and barriers to participating. Surveys were completed during face-to-face interviews with parents and professionals.

Data showed that most of the opportunities for parent involvement were available in the district surveyed. Only two of the 35 subcategories were not available. Data showed inconsistency in both parents' and professionals' knowledge of these opportunities. Results showed that parents were involved with IEP/IFSP activities with scattered involvement in other activities. Parents reported interest in all of the opportunities for involvement. Parents and professionals identified barriers to participation that included time, parent's feelings, lack of awareness, finances, and child care. Parents reacted positively and expressed interest in invitations to participate in all involvement activities.

Overall, data indicated that most of the opportunities for parent involvement were available although both parents and professionals reported a lack of awareness of some of those opportunities. Parents were interested in many of the opportunities for involvement, but needed to choose activities that worked with their families' needs, time, and interests.

Overall, parents were interested in participating in parent involvement activities. The district surveyed had many of the opportunities available but needs to outline those opportunities in a written form and disseminate to parents on a consistent basis.

APPROVED BY RESEARCH COMMITTEE, MAY 2000

Joan Blaska, Chairperson

CASE STUDIES OF FOUR EARLY CHILDHOOD FAMILY EDUCATION PROGRAMS IN RURAL MINNESOTA AND PRACTICE CONCERNING SINGLE PARENTS

Cynthia A. Wendorff

The purpose of this study was to determine how the Early Childhood Family Education program in Hutchinson, Minnesota, could best serve single parents in their community. Case studies of four ECFE programs and their practices concerning single parents in rural Minnesota were conducted. Analysis of the case studies identified possible barriers in serving single parents. It also identified promising and effective practices of other ECFE programs used for recruitment, service, and retention of single parents in their classes. Implications for practice within the researcher's ECFE program involved strategies in marketing, advisory board member placement, staff training, increased scheduling options and increased community collaboration.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1999

Glen Palm, Chairperson

EDUCATIONAL ADMINISTRATION

IDENTIFYING CHARACTERISTICS ASSOCIATED WITH IMPROVED LEARNING ENVIRONMENTS: THREE EDUCATIONAL FACTORS

Jennifer L. Meagher

PROBLEM:

A recent study of the condition of America's schools indicates that Minnesota is struggling in educating its youth. Contradictory information exists indicating scores on standardized test achievement at good levels, teacher effectiveness rated high, and graduation and outcome standards listed as incomplete or non-existent. Minnesota schools need to be refocused or restructured on the processes and products of education. With contradictory information on the state of the state, further examination must be done to determine the validity of these claims.

The purpose of this study was to review various scheduling options that promote teaching and learning, develop the characteristics of effective teaching, and implementation of the Minnesota graduation standards as the impact student achievement.

FINDINGS:

Review of the available literature and responses from Minnesota's secondary school principals were contradictory. Although the Profiles of Learning in the graduation rule are unclear, the intent is to improve student achievement. That is not the only way to cause improvement. Attention to school schedules and teacher effectiveness can also improve the performance of students.

RECOMMENDATIONS:

1. Identify clear indicators of student achievement.
2. Recognize, develop, and evaluate observable characteristics of teacher effectiveness.
3. Implement a block schedule in secondary and high schools.
4. Provide time and financial support for implementation of the graduation rule.
5. Review the Profiles of Learning in the Minnesota graduation rule to include high levels of active learning.

APPROVED BY RESEARCH COMMITTEE, JUNE 1998

Bruce Miles, Chairperson

A LOOK AT LEADERSHIP STYLE AND VARIOUS OTHER SCHOOL DEMOGRAPHICS AND HOW THEY MAY RELATE TO STUDENT ACHIEVEMENT

Lori C. Olson

The purpose of this study was to examine the relationship of the set of highest scoring and lowest scoring principals of transformational leadership as rated on the Lori C. Olson survey of leadership styles and various school demographics on student achievement. This was a non-experimental study, which was designed at St. Cloud State University during the fall of 1996. The Lori C. Olson survey was self-developed and consisted of 12 questions, six relating to transformational leadership style and six relating to transactional leadership style. The research was done to address the research questions that there would be a positive relationship or contribution between leadership styles and student achievement and other school demographics and student achievement.

There are three significant conclusions drawn from the study. One, a stepwise regression analysis was conducted at the .05 confidence level. The results generated indicated that there is a significant contribution or relationship between junior high/middle school principal's gender and the math scores for student achievement. It appears that males produce less of a decrease or in fact an increase in the math scores. Two, a stepwise regression analysis was conducted at the .05 confidence level. The results generated indicated that there is a significant contribution or relationship between per pupil expenditure and the reading scores for student achievement. It appears that the higher the expenditures the less of an increase in reading scores. Finally, a stepwise regression analysis was conducted at the .05 confidence level. The results generated indicated that there is a significant contribution or relationship between the principal's number of years in administration and math scores for student achievement. It appears that newer administrators are producing most of the increases in math scores.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1998

PUBLIC SCHOOL SUPERINTENDENTS' PERCEPTIONS OF COOPERATIVE SPONSORSHIPS WITH HOME SCHOOLS FOR EXTRACURRICULAR ACTIVITIES IN MINNESOTA

Kevin M. Ricke

PURPOSE:

The purpose of this study was to explore to what extent Minnesota public schools had policies (or agreements) and procedures for Minnesota State High School League (MSHSL) cooperative sponsorships with home schools for extracurricular activities. Specifically, the study gathered data (facts, opinions, and suggestions) from the superintendents that were governing these programs.

PROCEDURE:

The Department of Educational Administration and Leadership at St. Cloud State University supervised this study in partial fulfillment of the degree of the Master of Science in Educational Administration. The study was limited to superintendents of 56 Minnesota public schools that had MSHSL cooperative sponsorships with a home school for extracurricular activities. Questionnaires were sent to the superintendents plus a request was made for them to forward any relevant documents with inclusive details about their school district's cooperative agreement with a home school.

CONCLUSION:

Survey results indicated that there is minimal cooperation taking place. Reasons include lack of funding, administrative burdens, no legal obligation to provide access to home schoolers, public school community opposition, and/or a perceived lack of need.

Future research in the area of cooperation agreements would provide interesting results. Repeating this survey in the future would allow researchers to determine if cooperative agreements with home schools in Minnesota have increased and if the public receptivity is more positive.

APPROVED BY RESEARCH COMMITTEE, MAY 1999

Charles Moore, Chairperson

EXERCISE SCIENCE

AEROBIC FITNESS AND PHYSIOLOGICAL REACTIVITY TO A MENTAL STRESSOR

Kiralee K. Camp

Subjects possessing either below average (n=10) or above average (n=10) aerobic fitness were subjected to a laboratory stressor to test the hypotheses that increased aerobic fitness is associated with decreased physiological reactivity to mental stress. Heart rate, blood pressure, norepinephrine levels, and epinephrine levels were measured before, during, and after a modified version of the Stroop Color-Word conflict test. Absolute heart rate, systolic blood pressure, and diastolic blood pressure responses during all stages were significantly lower in fit subjects compared to less fit subjects. No relative differences were found, indicating the two groups responded similarly. No significant difference in relative or absolute values were observed in norepinephrine and epinephrine between fit and less fit males during stress and recovery. Fit females had significantly lower absolute values for norepinephrine during both stress and recovery compared to less fit females, but no relative differences were observed. Absolute and relative epinephrine levels were significantly lower in fit females than less fit females during stress. There were no significant differences in epinephrine levels during recovery between fit and less fit females. Significant patterns were also observed for catecholamine levels. Both fit and less fit males had very little change in norepinephrine levels throughout stress and recovery. Norepinephrine levels for fit and less fit females increased gradually throughout stress and peaked during recovery. Fit males and females had virtually no change in epinephrine levels throughout stress and recovery, while epinephrine levels for less fit males and females increased during stress and decreased during recovery. Overall, the Stroop test appeared to elicit significant cardiovascular responses, but hormonal responses were minimal. There were some indications to support the proposed fitness effect on physiological reactivity to mental stress, but more research is needed utilizing strong stressors to better understand this relationship.

APPROVED BY RESEARCH COMMITTEE, JUNE 1998

John Seifert, Chairperson

A KINETIC COMPARISON OF THE VOLLEYBALL SPIKE JUMP PERFORMED ON HARD-COURT AND SAND SURFACES

Joel P. French

In many sports an athlete's vertical jump height is important. In volleyball, a superior vertical jump is mandatory. Vertical jump height is associated with an increase in ball velocity and an increase in the ball's angle of trajectory during the volleyball spike and jump serve, as well as an increase in over-the-net penetration during the block. Therefore, one could say that those players who excel at the art of jumping will have an edge on the volleyball court. Because of its importance in volleyball and other jumping sports several studies have attempted to correlate kinetic and temporal variables with countermovement vertical jump height in order to isolate the characteristics and techniques associated with superior jumping ability. However, very little research has been conducted on the volleyball approach jump and no research has been conducted on sand-court jumping.

The purpose of this study was to determine the kinetic and temporal differences between hard-court and sand-court jumping, as well as the differences between groups of "skilled" and "less skilled" sand-court jumpers. Eight kinetic and temporal variables were examined: vertical jump height, peak power, maximum force, incoming vertical velocity, the duration from maximum force to take-off, and the duration from peak power to take-off, early impulse production, and ground-contact time.

Eighteen proficient, male volleyball players were used as subjects for the study. Each subject performed several vertical jumps off of hard-court and sand-court surfaces while kinetic data were collected with an AMTI force platform.

No significant differences were found in the eight variables measured between the "skilled" and "less-skilled" jumpers.

Significant differences were found between hard-court and sand-court jumping. Mean jump height was 2.3 inches higher for the hard-court surface and peak power, maximum force, and incoming vertical velocity were significantly higher for the hard-court condition

Proficient jumpers' do not jump as high off of the sand due to decreases in force, power, and velocity. Although some sand-court jumpers are able to maintain higher vertical jump heights, the exact techniques and variables which allowed them to do so are unknown.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1998

Glen Street, Chairperson

THE EFFECTS OF AN HERBAL COMPOUND ON LACTIC ACID CLEARANCE

Jason R. Lahr

The purpose of this double blind, one within one between-groups study was to compare the effects of ingesting an herbal formulation (HF) to a non-caloric placebo (PL) during high intensity exercises. Subjects were paired by a lactate threshold test. Subjects were randomly assigned to receive HF (1350 mg/d) or a PL. Treatments were ingested daily for 5 weeks. At the end of the 5 weeks, all subjects cycled at their threshold for 20 minutes, followed by two 15,000 J sprints, then sat quietly for 12 minutes, and then completed a 60,000 J performance ride as fast as possible. Venous blood samples were obtained at 3-minute intervals throughout the 12 minute recovery period.

RESULTS:

Two data sets were used: All 34 subjects and the last six from each group. Analysis indicated that HF ingestion led to significantly less lactic acid accumulation during recovery than PL for the last six subjects (treatment effect $p = .011$; -0.249 vs. 2.41 mM/l). Significant differences were also found across time for the last six LA (time $p = .01$) and all subjects for HCO₃ (time $p = .005$) and LA (time $p = .003$). Although the HF group finished the 60,000 J ride 56.2 seconds faster than PL, this difference was not significant, however moderate and strong effect sizes were found for HCO₃ (ES = .44) and pH (ES = 4.45), respectively.

CONCLUSION:

Compared to a PL, ingestion of an herbal product leads to: 1) less lactic acid accumulation following intense cycling, 2) less stress placed upon the HCO₃ buffering system, and 3) there is a strong trend/effect size toward improvement in high intensity cycling performance.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1999

John Seifert, Chairperson

THE EFFECTS OF THREE WEEKS OF DEEP WATER RUNNING ON THE MAINTENANCE OF VO_{2max} AND AEROBIC ENDURANCE

Kirk P. Lewis

The purpose of this study was to examine the effects of a three week deep water running (DWR) program on the maintenance of VO_{2max} and aerobic endurance. Fifteen recreationally active people (9 women, 6 men) were tested pre and post training for VO_{2max} and aerobic endurance. Following all pre tests subjects were randomly assigned to

either the treatment or control group. Training/treatment consisted of deep water running three times a week, alternating workouts 1.) 30 minutes @ 80% of VO_{2max} and 2.) 45 minutes @ 70% of VO_{2max} . The control group refrained from all exercise during the three week training period. Although the treatment group improved their VO_{2max} and aerobic endurance time by 5.08 ml/kg/min and 5.12 minutes, respectively and the control group decreased by 3.08 ml/kg/min and 3.36 minutes, respectively statistical analysis using a repeated measures ANOVA (one with-in, one between) revealed no significant differences ($P>.160$). Furthermore, statistical analysis showed no differences between the two groups ($P>.123$). These data suggest that DAR and remaining sedentary are equal in maintaining VO_{2MAX} and aerobic endurance for recreationally active people. Effect size (ES) of the treatment data were calculated as 1.01 for VO_{2max} and .56 for aerobic endurance indicating that the treatment had an effect. To learn more about DAR and its effects on VO_{2max} and aerobic endurance additional research with longer training/detraining periods and more subjects per group is needed.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1998

David Bacharach, Chairperson

A COMPARISON OF HIGH INTENSITY AND CONVENTIONAL STRENGTH TRAINING PROGRAMS FOR HIGH SCHOOL FOOTBALL PLAYERS

Kirk M. Olson

The purpose of this study was to compare two strength training programs used in the training of football players. Twenty six high school football players were randomly assigned to either a high intensity (HIT, n=14) or a conventional (CONV, n=12) strength training program. The two groups completed a 10 week strength training program, of which the initial two weeks were designated as an introductory period, and the final eight weeks were considered the training-for-record period. Just prior to, and immediately following the eight week training-for-record period, each subject was tested on the Trap Bar deadlift, the bench press, and had their body composition determined using skinfold analysis. The following five dependent variables were analyzed: 1) volume of work differences between the two training protocols, 2) differences in time required to complete an individual training session between the two training protocols, 3) strength level improvements within the individual training protocols, 4) strength level improvements between the training protocols, and 5) body composition changes that occurred during the training period. Results indicate that while strength increases by the CONV and HIT groups are similar (the strength improvements for the upper body were 14% for both the CONV and HIT groups; the strength improvements for the lower body were 21% and 19% for the CONV and HIT groups, respectively), the CONV group (~90 minutes) requires a significantly greater amount of time to complete a typical training session than the HIT (~40 minutes) group. This finding indicates that the HIT strength training method appears to be more efficient in training high school football players. The evaluation of the body composition measurements indicate that both the CONV and HIT methods of training produce an increase in lean body mass (LBM) with no change occurring in percent body fat (%BF).

APPROVED BY RESEARCH COMMITTEE, SEPTEMBER 1998

David Bacharach, Chairperson

EFFECT OF BREATHE RIGHT NASAL STRIP ON LACTATE THRESHOLD DURING STEADY STATE RUNNING

Debbi R. Paulson

This study determined the effects of the *Breathe Right* nasal strip on heart rate (HR), rate of perceived exertion (RPE), oxygen consumption (VO_2), ventilation (V_E), and blood lactate during steady state treadmill running at

lactate threshold. Ten subjects (mean age=27.1 year), all responders to the *Breathe Right* nasal strip were tested on four different occasions. The first session was a maximal treadmill test to determine lactate threshold, maximal HR, and peak VO_2 . The second treadmill test was a verification of the subject's lactate threshold which was determined from the maximal treadmill test. For the next two submaximal treadmill tests, subjects were randomly assigned in counterbalanced order to run for 30 minutes at their lactate threshold pace. Measurements of HR, RPE, VO_2 , V_E , and blood lactate were taken every five minutes for 30 minutes. MANOVA values, showed no interaction between condition and time with a significant difference for condition ($P<.04$) and over time ($P<.003$). A two factor ANOVA (condition x time) was then used to test for differences between condition and over time for each of the five dependent variables. Blood lactate was the only significant variable for the *Breathe Right* nasal strip trial ($P<.02$). Heart rate ($P<.04$) and RPE ($P<.0001$) were statistically significant over time. A Games-Howell Post Hoc Test showed HR at five minutes was different from 20, 25, and 30 minutes. Rate of Perceived Exertion at five minutes was different from 15, 20, 25, and 30 minutes. While wearing the *Breathe Right* nasal strip, blood lactate values are lower at an individual's predetermined lactate threshold pace. However, research is still needed to determine if running pace can be increased to match lactate threshold while not wearing the *Breathe Right* nasal strip.

APPROVED BY RESEARCH COMMITTEE, JUNE 1998
David Bacharach, Chairperson

THE INFLUENCE OF ENDUROX AND CARBOHYDRATE INGESTION ON MUSCLE TISSUE STRESS AND DUATHLON PERFORMANCE

Shannon Lee Ready

Creatine kinase (CK) and blood urea nitrogen (BUN) levels are frequently used as indicators of muscle tissue stress. BUN levels are also an indication of utilizing protein as an energy source. The purpose of this study was to compare muscle tissue stress and performance time differences of a moderate-intensity duathlon while ingesting 15% CHO, BCAA, arginine and glutamine, and vitamins C and E (CPA) and 6% CHO and electrolytes (CE). The double blind and counterbalanced study examined ten-college age males and females one week apart. The subjects performed a 45 minute run/10-minute transition/90-minute bike/90KJ sprint protocol. CHO drinks were ingested twice, once during the transition, and once at 30 minutes into the bike. Five blood samples (pre-run, transition, 45 minutes into bike, pre-sprint, 24 hours post) were taken for each trial and analyzed CK, BUN, lactate (LA), and glucose (GL). Heart rate (HR), VO_2 , and RPE were also measured seven times during the protocol. Seven out of 10 subjects enhanced their performance time by 0.1 minutes or more when ingesting CPA. However, an ANOVA revealed no statistical difference for performance time between the two drinks (CPA mean = 6.59 +/- 1.5 minutes; CE mean = 6.81 +/- 1.41 minutes). GL was statistically increased ($p = .00$) while ingesting CPA. LA was not statistically different ($p = .75$) between the two drinks, yet pre-sprint LA decreased two-fold while ingesting CPA. No statistical differences were observed between drinks for HR, VO_2 , or RPE. A MANOVA determined a statistical interaction ($p = .019$) between drinks and blood samples (CK and BUN). While ingesting CPA, subjects experienced a statistical ($p = .01$) decrease in CK levels at 24 hours post exercise compared to CE. BUN levels were elevated for every exercising blood sample while ingesting CPA. The results of this study suggest that ingesting the CPA drink during exercise may provide the additional CHO and amino acids necessary to decrease muscle tissue stress and reduce CK levels 24 hours post exercise, possibly due to maintaining cell integrity and promoting tissue recovery.

APPROVED BY RESEARCH COMMITTEE, JANUARY 2000
John Seifert, Chairperson

INFORMATION MEDIA

MEDIA LITERACY EDUCATION FOR THE INFORMATION AGE

Susan M. Olson

Years of scientific studies have led researchers to conclude that the mass media significantly contributes to the behavior and attitudes of children, adolescents, and adults. Since the media and especially television is such a pervasive part of American children's lives, media literacy is no longer an option for education. This study evaluates the effectiveness of teaching a television literacy curriculum to elementary school students.

Two sixth grade classes were chosen to participate in this study over a seven week period of time. Each class was given a survey at the beginning to determine their habits and attitudes concerning television. At this point, the experimental group began a television literacy unit with seven lessons. At the end, a survey was administered to determine whether there had been a change in the experimental group's television viewing habits and attitudes that could be attributed to the intervention.

Results of the study support media literacy education. The surveys revealed significant areas to be considered for a television literacy unit. First, this sample group is watching programs containing adult material. Second, the majority of these students believe that television does not influence or affect them. Third, the majority of this sixth grade group do not have involvement from their parents in terms of discussing what they watch or setting rules for their television viewing. In a comparison of the two surveys, the experimental group showed a change in their personal decision-making concerning their television viewing. A majority of the students agreed that watching television is **not** their favorite thing to do in their free time. Also, the majority of this group reduced the number of hours of television watched to less than 10 hours per week.

Based on the literature and the results of this study, a unified approach to media literacy education is recommended. Teachers, media specialists, and parents should all play a role in this area of a child's growth and development. Critical viewing and thinking skills for television and other media are essential for children of the "Information Age."

APPROVED BY RESEARCH COMMITTEE, AUGUST 1998

Doreen Keable, Chairperson

ANALYSIS OF PATIENT READING ABILITY AND ITS CORRELATION TO HIGHEST GRADE COMPLETED

Sandie M. Yeager

Patient education is an integral component of care received by individuals in a health care setting. Health professionals frequently use printed materials in teaching and reinforcing the verbal message. Printed materials are useful when patients are able to read and understand them. This study was designed to test patients' reading levels to determine the average reading level of patients served by the St. Cloud Hospital, if a significant variance exists in the literacy level of patients served by different departments within the St. Cloud Hospital, and if a correlation can be made between the stated highest grade completed and the tested reading level. A total of 104 patients from 8 different Care Centers were studied. The data collection process was comprised of two parts: demographic data and scores from the Rapid Estimated of Adult Literacy in Medicine (REALM) tool. The results from this study indicated an unfavorable difference between the highest grade completed and the grade level tested by two years on the average. While the results show a two-year disparity, we need to recognize the fact that 21% of the original subjects refused to participate. This research indicated that as the age of the patient increases, both the average highest grade completed and the tested grade level decrease. Those departments that tend to serve a younger patient

population have average values above those of the total population averages. While taking all factors into consideration, it is my suggested that materials for patient education at the St. Cloud Hospital be developed at a seventh grade level. Materials designed at this level will encompass 95% of the patient population.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1999

Jeanne Hites, Chairperson

PHYSICAL EDUCATION

THE INFLUENCE OF CULTURE AND FAMILY EXPECTATIONS ON PHYSICAL FITNESS LEVELS OF HMONG CHILDREN

Anita P. Chavez

Upon leaving their homelands, the Hmong children and their families were thrust into a culture, unable to understand the English language and into an education system far different from the family-oriented one which they left behind. Although Hmong families value education in the traditional academic disciplines (math, geography, etc.), it was uncertain whether physical education, and more specifically physical fitness, had the same value. Therefore, physical fitness levels of 53 fourth and fifth grade, Hmong inner-city children (18 males and 335 females) were tested using the Presidential Physical Fitness Challenge Test. The test consisted of: (a) sit-ups, (b) push-ups,

© pull-ups, (d) flex-arm hang, (e) v-sit, and (f) shuttle run. Children were tested prior to and at the end of an eight-week fitness-related unit. Parental expectations were included by using a questionnaire which asked five questions; 100% of the questionnaires were returned. Subjects were grouped according to the differences found between the pretest and the posttest fitness scores. Three groups were formulated and included (a) those children whose scores showed a positive improvement (increased); (b) those children whose scores showed no increase or decrease (maintained); and © those children whose scores regressed (decreased). Results indicated that 90% of the parents/guardians expected their children to exercise and expected their children's fitness scores to improve at the end of the eight-week unit. The results also suggested that the majority of Hmong parents/guardians whose children participated in this study believed that physical fitness is an important component in their child's overall education.

APPROVED BY RESEARCH COMMITTEE, JULY 1998

Susan Abecker, Chairperson

ARE TRACK AND FIELD ATHLETES GETTING YOUNGER? A STUDY OF MINNESOTA HIGH SCHOOL GIRLS

John Hertwig

This study investigated whether the average school grade level of the females athletes at the Minnesota State Track and Field Meet was decreasing between the time period of 1987-1998. In conjunction with the investigation of the data from the state track and field meets, research was conducted in two other areas. One area of research addressed individual sports that recently experienced an increase in the number of young elite athletes. The other area of research included the psychological, social and physical implications of intense training on young athletes.

There were two sets of subjects in the study. One group of subjects consisted of the competitors and place winners in the Minnesota State High School Track and Field Meets over the past 12 years. The other set of subjects were six coaches, four parents, and three athletes who agreed to be interviewed for the purpose of gathering information on young athletes competing on high school teams.

Based on the interviews, it was concluded that athletes and coaches did not feel that athletes were getting younger; however, the parents disagreed. Other than gymnasts who put themselves at risk for stress fractures and degenerative spinal conditions, research determined that intense training did little harm to athlete's bodies. Psychologically, coaches of young athletes play a large role in how the athletes perceived themselves. The coach can either help or hinder the overall development of the athlete by how they handle an athlete's success and failures.

Finally, the data from the state track meets suggested that there was no pattern in the average grade of the place winners at the state meet. However, there was a trend toward younger competitors at the state meet which pointed to more seventh, eighth, and ninth grade athletes qualifying for, and competing at the state track and field meets in recent years.

APPROVED BY RESEARCH COMMITTEE, SEPTEMBER 1998

Ruth J. Nearing, Chairperson

SOCIAL RESPONSIBILITY

A FEMINIST ANALYSIS OF THE EFFECTS OF CONSCIOUSLY EXPERIENCING NON-TRADITIONAL GENDER ROLES

Julie Schutt Cartwright

From birth human beings are socialized to behave consistent with socially acceptable gender roles. Those who do not conform to these social norms are usually sanctioned in some way by society. Adhering to rigid gender roles is limiting to both males and females in that our efforts to conform keep us from fully developing all aspects of ourselves.

A university class assignment to take on one or more behaviors which the student would expect to be fulfilled by the other gender offered the opportunity to experience behaving outside of traditional gender roles. After completing the projects, a survey measured students' levels of internal and external resistance experienced in carrying out the project; the levels of feelings of liberation upon completing the project; and, the level of preference for maintaining traditional gender roles. These variables were cross-classified or correlated with other variables such as gender, type of project chosen and type or source of resistance affecting students' choices of levels of resistance, liberation, and preference of traditional gender roles. Project types were categorized into four areas: Projects involving an intimate partner, house/vehicle care, changing personal habits, and confronting stereotypes. The type or source of resistance was separated into six areas: Internal resistance, or resistance from a intimate partner, relatives, friends, co-workers, and acquaintances/strangers.

The findings show that males reported somewhat lower levels of internal and external resistance overall than did females. Females had consistently higher mean scores for amounts of both internal and external resistance. Females were much more affected by internal resistance as a type of resistance, while males were more affected by external resistance as a type of resistance. Females reported experiencing a higher level.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1998

John Alessio, Chairperson

ARE TEACHERS TEACHING HUMAN RELATION ISSUES TO SIXTH-GRADERS

Gary W. Cheeseman

The purpose of this study was to determine whether an adequate level of human relations curriculum is being taught to sixth-grade children. Secondly, this study will determine whether sixth-grade teachers possess the knowledge to adequately teach human relations issues.

PROBLEM:

As the twenty-first century approaches, we, as a society, need to realize that we have become a land of increasing diversity represented by rich cultural enclaves located in every state, county, and city in this country.

School systems do not seem to be prepared to accommodate the influx of racial and cultural diversity that is rapidly growing throughout the United States. Teachers are not adequately prepared to teach issues of human relations in the public schools and are not supported by the administration. Consequently, children are not being educated properly and we, as a society, are jeopardizing our future.

FINDINGS:

The study revealed that teachers are neutral on many human relations issues. Most teachers indicated that they are not prepared to teach human relations to sixth-grade children. However, they indicated that they were willing to take continuing education classes to enhance their knowledge. The results of the survey pointed out that teachers did not think the level of human relations curriculum in the public schools, was at an adequate level. Lastly, the survey pointed out that women are more sensitive to human relations issues and the teaching of human relations issues than men.

APPROVED BY RESEARCH COMMITTEE, MAY 1998

Julie Andrzejewski, Chairperson

IDENTITY FORMATION, SOCIAL SUPPORT, AND THE SAFER SEX DECISIONS OF LESBIAN AND GAY ADOLESCENTS

Tonya A. Faundeen

The past and present social support and identity formation processes of lesbian and gay college students were examined to find how these interactions affected the individuals' perceived senses of risk for exposure to HIV (Human Immunodeficiency Virus) or another STD (Sexually Transmitted Disease) and their senses of self-efficacy to perform safer sex behaviors.

Seven qualitative, semi-structured interviews were conducted of students, ages 18-25, identifying as lesbian or gay and attending a moderate-sized, mid-western university. As a part of the interview, the subjects also created a sociogram of their support systems in high school and college that were used in the interview process.

Findings suggest a relationship between 1) strong association with the lesbian, gay bisexual and transgendered community and a higher sense of self-efficacy to perform safer sex behaviors and a lower perceived sense of risk for exposure to HIV or STD and 2) higher acceptance and support of immediate family members and a higher sense of self-efficacy and lower perceived risk. Implications for this research are in safer sex education and curriculum development as well as in designing services to meet the needs of GLBT adolescents, their families and peers.

APPROVED BY RESEARCH COMMITTEE, MAY 1999

Elizabeth Scheel, Chairperson

NEW PORTRAIT OF JAPANESE WOMAN: YOUNG EDUCATED WOMEN'S ATTITUDES TOWARDS TRADITIONAL FAMILY ROLES

Yukie Kodama

The purpose of this study was to examine the opinions and attitudes of Japanese young women towards family values, and to find out whether there is any ideological change of the values among younger women.

SUMMARY:

The results of this study were obtained from face-to-face or phone interviews from February 10 to March 8, 2000. Subjects were 10 young single Japanese female students attending five different universities in the Midwest of the United States.

Results indicated that parental background of the female students was the primary source of the elements that helped construct their family values, and their interactions with American cultures and education were the next main source of their family values. Most of the students were against the traditional family roles based on gender division of labor carried by their parents. They resented the imbalance of responsibilities that each of their parents carried out. They argued the necessity of keeping this balance between spouses for the creation of a healthy family life. Equal share of housework and child-rearing between spouses were mentioned in their discussions, and gaining of understandings and respects towards each other's jobs outside and inside the home was raised as the most necessary element for the sustenance of a healthy family life. While new attitudes towards traditional family roles were found among the female students, a little contradiction in their attitudes was also found.

APPROVED BY RESEARCH COMMITTEE, APRIL 2000

Jiping Zuo, Chairperson

PLANTING SEEDS FOR CHANGE: ASSESSING THE IMPACT OF THE CITIZENSHIP FOR DIVERSITY PROJECT IN PROMOTING ATTITUDINAL AND BEHAVIORAL CHANGES

Roxann Storms

Occurrences of harassment and hate crimes are becoming epidemic generally in society and specifically on college and university campuses. Research states that as campuses become more diverse, incidences of harassment and discrimination increase, and the perpetrators are generally below the age of 21. St. Cloud State University has experienced this trend toward more acts of discrimination and violence based on social group status.

Acts of verbal rejection through words, jokes, and comments are often the first level of escalating violence. Multicultural education formats have proved to be effective in teaching diversity issues and reducing prejudicial beliefs, as well as creating a positive change in overt behaviors. The Citizenship for Diversity Project was an innovative program established in the fall of 1997 at St. Cloud State University. The program sought to combine educational and environmental supports for a select group of first year, first quarter students in order to educate them on the issues of harassment and hate crimes and teach them effective intervention strategies to challenge discriminatory behaviors.

Selected components of the Citizenship for Diversity Project incorporated experiential learning strategies to best introduce knowledge, affective, and behavioral elements. At the end of fall quarter, participants in the Project indicated significant increases in their level of awareness regarding the issues of oppression. They also reported an increase in actively challenging discriminatory words and actions.

Results from a qualitative survey conducted five months after exiting the Citizenship for Diversity Project revealed that the majority of those surveyed either maintained the level of awareness and behavioral changes reported at the end of fall quarter, or increased their commitment to social action. Students evaluated the various elements of the Project according to their effectiveness in helping them understand the issues of oppression.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1998

Julie Andrzejewski, Chairperson

THE EFFECTS OF RACISM ON BLACK STUDENT RETENTION ON PREDOMINANTLY WHITE COLLEGE CAMPUSES

Tanisha Zeigler

SUMMARY:

This study examines the effects of racism on the retention of African International students and African American students on predominantly white college campuses. The results from this study include four significant findings. First, black students are less happy the longer they are enrolled at a predominantly white college. Second, racism that is projected from white faculty members have a negative effect on black students' happiness. Third, black students' happiness is affected by the way racist incidents are handled on campus. The fourth and final finding is that black students who are victims of racism are not satisfied with the services that are provided in dealing with racism. Overall, this study points to a need to look more closely at student happiness and its effects on the retention of Black students at predominantly white colleges.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1998

Semya Hakim, Chairperson

SPECIAL EDUCATION

A STUDY OF MINNEAPOLIS PUBLIC SCHOOLS DUE PROCESS COMPLIANCE

Amie H. Anderson

This study was conducted to identify and examine areas of procedural due process compliance in the Minneapolis Public School District. Seventy-five of 100 Special Education Resources Teachers replied to a 62 question survey on areas of due process. Results indicated the majority of SERT's comply to state requirements for due process procedures.

With a clear interpretation of laws, site based support, consistent changes in due process procedures, and models of all due process procedures, compliance may not be as difficult to achieve in the Minneapolis Public School District.

APPROVED BY RESEARCH COMMITTEE, MAY 2000

Eva Gadberry, Chairperson

EFFECTS OF IMPLICIT AND EXPLICIT TEACHING METHODS ON ELEMENTARY STUDENTS IN REGULAR AND SPECIAL EDUCATION

Lawrence A. Berg

The purpose of this study was to examine the effects of three different approaches to reading instruction in the primary grades and determine if there were significant differences in test scores between the groups.

A continuous two-year study examined the reading achievement and school reading instructional profiles in three different elementary schools. School A implemented Direct Instruction with all students, school B implemented a balanced reading basal series for the top three quartiles while implementing Direct Instruction for the bottom quartile. School C utilized a basal reading program based on whole language philosophy for all students.

CBM measures of basic reading skills were taken at all schools, and the results are included in the discussion section. The three schools were compared based on CBM measures, reading philosophy, and instructional methodology.

The findings revealed that Direct Instruction was more effective on raising CBM measures of reading achievement at the first grade level, but that these effects diminished by the end of second grade. It was also determined that CBM measures at one school showed no significant gains or losses in mean scores for the entire grade when comparing a phonics based vs. whole language basal reading instructional system. Further study was indicated to determine effects of Direct Instruction following curriculum changes at two of the schools for the coming year.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1999

Joan Kellett, Chairperson

ADAPTATIONS FOR MAINSTREAMED STUDENTS IN THE GENERAL CLASSROOM: DESIRABILITY AND FEASIBILITY

Tamara McBride Nelson

With the placement of special education students into the regular education classroom, the regular classroom teachers will need to deal with a wide variety of learning styles and special needs of students. This descriptive study focuses on teachers' willingness to make adaptations for special learners who are placed in their classrooms.

Twenty-five elementary teachers, 15 middle school teachers, and 15 high school teachers participated in the study. Each teacher completed a survey titled Adaptations for Mainstreamed Students in the General Classroom: Desirability and Feasibility.

The results of the study reported that all levels of teachers found adaptations to be more desirable than feasible, and that by grade grouping, no differences were seen.

APPROVED BY RESEARCH COMMITTEE, JUNE 1998

Marc Markell, Chairperson

SPORTS MANAGEMENT

DETERMINING FACTORS OF COLLEGE FOOTBALL FRESHMEN REGARDING THE STUDENT-ATHLETES' COLLEGE CHOICE

John R. Auer

The purpose of this study was to gain more insight pertaining to the recruiting process in college athletics. This paper looked at certain variables and examined their importance relating to Division I, II, and III.

Forty-five universities, 15 in each division, were sent 10 questionnaires each to be filled out by the student athletes, asking them to rate 15 multiple choice and three short answer questions.

The data of this study indicated that Division I players think most about athletics when choosing a college. Division II athletes display the widest range among school choice variables. Education is most on the minds of the Division III player.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1998

Ray Collins, Chairperson

SUCCESSFUL OFFENSIVE AND DEFENSIVE EFFICIENCY RATINGS OF MEN'S DIVISION II COLLEGE BASKETBALL TEAMS

Kelly M. Boe

The purpose of this study was to determine what rating is a true measure of efficient offense and defense using efficiency ratings.

Concepts for offensive and defensive efficiency ratings have been around since the mid 1960s. It has been long thought that one point per possession is considered efficient offense and that less than one point per possession would be considered efficient defense. This research analyzed data to see if the concept was really a true measure.

Data were collected over four consecutive seasons of St. Cloud State University Men's Basketball, an NCAA Division II University in Minnesota from 1995-1999. During this span, 108 games were researched. Offensive and defensive formulas were formulated from game statistics that were collected. These ratings were noted and recorded for each game studied. Statistical analyses were made across three sections. The first section of study attempted to determine if there is a correlation between an offensive rating of above 100, which is one point per possession, and that team's success rate. The final section attempted to determine, by using a range of 75% of the ratings, what would be an accurate rating of offensive and defensive efficiency for coaches to focus on.

Using valid percentages, standard deviation, frequencies, and mean, the data revealed that there is a correlation of an offensive rating of above 100 offensively and that team's success rate. In the second section, data revealed that there is no correlation of a defensive rating below 100 and that team's success rate. In the final section, 75% of the offensive efficiency ratings were above 108 and 75% of the defensive efficiency ratings were below 107.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1999

Lori Ulferts, Chairperson

CREATINE USE AND THE INCIDENCE OF MUSCLE CRAMPS AMONG NORTH CENTRAL CONFERENCE FOOTBALL PLAYERS

Gary Michael Fasching

The purpose of this study was to determine if a relationship existed between the use of a creatine supplement and the incidence of muscle cramps during the course of spring practice. The research hypothesis was that the use of a creatine supplement would not cause muscle cramps in North Central Conference football players during the course of spring practice.

Surveys were sent to the head football trainer at each of the ten North Central Conference institutions. All ten schools responded to the survey, although one school refused to answer the questionnaire because they do not promote the use of any kind of supplements. The survey consisted of seven questions relating to the number of people using a creatine supplement, incidences of muscle cramps by those players using or not using a creatine supplement, and the athletic trainer's opinion on the use of creatine supplements.

The findings from this study indicated that there was no relationship between the use of a creatine supplement and the incidence of muscle cramps. Of the nine schools responding to the questionnaire, 305 football players used a creatine supplement, and there were no incidences of muscle cramps. In contrast, of the 405 players who did not use a creatine supplement, eight reported incidences of muscle cramps.

Results from this study indicated that creatine supplementation is safe when athletes are properly hydrated and educated about the use of supplements. It is recommended that athletic trainers become more involved in the education and monitoring of athletes who take creatine supplements.

APPROVED BY RESEARCH COMMITTEE, MAY 2000

Robert G. Waxlax, Chairperson

AN EXAMINATION OF GROUP DIFFERENCES AMONG HIGH SCHOOL ATHLETES AND NON-ATHLETES ON CUMULATIVE GRADE POINT AVERAGE, DISCIPLINE REFERRALS AND DAYS ABSENT

Marc A. Franz

In recent years, considerable attention had been given to the dilemmas faced by students, schools, and the entire educational process such as falling tests scores, increasing violence, rising teenage pregnancy rates, declining attendance, as well as increasing drug and alcohol use. Athletics are seldom included as possible solutions in these discussions athletics and academics in schools.

A questionnaire requesting a stratified, random sample of 20 high school seniors was sent out to 438 schools in the state of Minnesota. School officials were asked to complete the questionnaire on athletes and non-athletes' cumulative GPA's, days absent and disciplinary referrals. A MANOVA and follow-up univariate tests were conducted to examine group differences between athletes and non-athletes. A secondary analysis was conducted to examine the effect school size had within these variables.

RESULTS:

The results revealed that both male and female student-athletes did significantly better than their non-athlete counterparts in terms of cumulative GPA, attendance, and behavior. The mean GPA for the athletes was 3.32 while the non-athletes had a mean GPA of 2.86 ($t=10.90$; $p < 0.001$). With respect to attendance, athletes missed an average of 6.09 days of school, while non-athletes missed 9.33 days of school ($t= -6.14$; $p < 0.001$). The mean number of disciplinary referrals for athletes was 0.85 while the non athletes had a mean number of 1.88 ($t= -.84$; $p < 0.001$) disciplinary referrals.

Since athletes and non-athletes were determined to be significantly different in terms of GPA, attendance, and disciplinary referrals, the next step was to examine if these differences held true for males and females, separately. The female athletes had a mean cumulative GPA of 3.48, while the female non-athletes had a mean cumulative GPA of 2.99 ($t=9.66$; $p < 0.001$). The mean number of disciplinary referrals for female athletes was 0.50, while female non-athletes had a mean number of disciplinary referrals of 1.46 ($t= -3.59$; $p < 0.001$).

The results for the boys were similar to that of the girls in that the male athletes were significantly different from the non-athletes had a mean cumulative GPA of 2.72 ($t=7.22$; $p < 0.001$). The male athletes were absent a mean of 6.13 days, and the male non-athletes were absent a mean of 8.65 days ($t= -3.99$; $p < 0.001$). In regard to the number of disciplinary referrals, the male athletes had a mean of 1.19 referrals, and the non-athletes had a mean of 2.31 referrals ($t= -2.41$; $p < 0.02$).

More work must be done to examine the relationships and significance among athletic participation and high school education. However, it is clear that athletics activities need to be considered as one possible mechanism to be used in improving our schools and developing our children.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1998

Susan Becker, Chairperson

CAREER ADVANCEMENT AND PERCEIVED CHARACTERISTICS OF SUCCESS BETWEEN NCAA DIVISION I AND DIVISION II HEAD MEN'S BASKETBALL COACHES

John A. Greene

The primary purpose of this study was to determine characteristics needed to become a successful head coach and give insight on career advancement in the basketball coaching profession. The second purpose was to provide a reference that young coaches could use to self-reflect on their own philosophies as they strive to move up to a higher level.

The population for the study was comprised of 93 head men's basketball coaches from NCAA Division I and Division II colleges and universities across the United States.

Statistical analyses were made across four sections in the study. The first section of this study compared the demographics and career paths of NCAA Division I and Division II head men's basketball coaches. The second section compared the variety of levels and the total years of experience in the collegiate careers of the NCAA Division I and Division II head men's basketball coaches. The next section attempted to determine what head coaches perceive to be the most important characteristics of a successful head coach. The final section attempted to determine what head coaches perceive to be the best strategies for career advancement in the coaching profession.

Using valid percentages, standard deviation, frequencies, and mean, the data revealed that there were significant differences found in five areas in section one. These five areas were: ethnic background, high school experience, highest educational degree attained, women's coaching experience, and collegiate playing experience. In section two, the only statistic of significant value was found in the comparison between the two divisions in the number of coaches who have National Association of Intercollegiate Athletics (NAIA) experience. The research found that the majority of subjects believed that passion and a person's experience/background were by far the most important characteristics of a successful head coach. According to the coaches surveyed, the results also showed that networking and experience working for a successful program were the best strategies offered to young coaches for career advancement.

APPROVED BY RESEARCH COMMITTEE, JUNE 1999

Lori Ulferts, Chairperson

EXPERIENCES OF ATHLETIC TRAINING PROGRAM DIRECTORS WITH CAAHEP ACCREDITATION

Timothy J. Kreidt

The purpose of this study was to compile experiences and suggestions from CAAHEP accredited program directors to show what they perceived would make the present accreditation process easier for programs seeking accreditation. This study specifically focused on program directors from CAAHEP accredited programs of Division I, II, and III schools of the NCAA and Division I and II schools of the NAIA that achieved CAAHEP accreditation in the past five years. The data collected detailed the positive and negative issues that have affected CAAHEP program directors when applying for accreditation.

The Delphi method of research was used in this study and determined the experiences with the CAAHEP accreditation process, suggestions for program directors applying for CAAHEP accreditation, and suggestions on how to improve the CAAHEP accreditation process.

The results of the study showed that program directors thought the most positive experience were the CAAHEP accreditation process was that the self-study identifies areas of strengths and weaknesses in a program. Program directors suggested that those seeking CAAHEP accreditation should delegate responsibilities to their staff. Program directors also made the suggestion of decreasing the amount of material duplication in the accreditation process.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1998

Robert G. Waxlax, Chairperson

RELATIONSHIP OF BAT PERFORMANCE FACTORS TO NORTH CENTRAL CONFERENCE BATTING AVERAGES 1959-1999

Michael H. Jensen

PROBLEM:

The primary purpose of the study was to investigate if a relationship exists between the advances in bat performance factors and batting averages in the NCC during the years 1959-1999.

METHODOLOGY:

The member institutions of the North Central Conference, a Division II NCAA athletic conference, served as participants of the study. The study concentrated on the NCC team batting averages from a total conference perspective for the years 1959-1999.

North Central Conference team batting averages were used. Known bat performance factors (BPF) from the years 1959-1999 were also employed. The batting averages for each year in the 1959-1999 study were grouped into three separate categories: The North Central Conference champion team batting average, the mean conference batting average, and the last-place NCC team batting average. Bat performance factors were broken down into limits set by the NCAA or by simply what was available to players in the time period of the study.

Three methods of comparison were employed to provide the analysis of data. First, a simple statistical analysis was performed for each of the batting average categories in comparison to the bat performance factors. The data resulting from the statistical analysis produced an observable result. Second, a statistical analysis comparison of pre-aluminum bat (1959-1973), and post-aluminum bat (1974-1999) was performed. The data resulting from the statistical analysis produced an observable result. Third, a standard t-test was implemented to investigate differences between the three batting averages in relation to the four bat performance factors.

FINDINGS:

The statistical data of the three categories were compared to the respective bat performance factors of each year. The BPF of 1.0, or the wood bat, was compared to the three NCC batting averages categories. The mean average of the NCC Champion was .303, the mean NCC average was .244, and the last place mean team average was .174. The bat performance factor of 1.065 was compared to the three NCC batting averages. The mean average for the NCC champion was .321, the overall NCC mean was .255 and the last place team was .201. During the 16 seasons with a bat performance factor of 1.12, the mean average for the three NCC categories was .334, .276, and .207. The seasons with a bat performance factor of 1.14: the NCC averages were .358, .298, and .250.

The North Central Conference batting averages were analyzed with a standard t-test at both the .01 and .05 confidence levels. The means for the three NCC batting averages all increased, but the overall range of batting averages did not increase from the 1.0 to the 1.065 bat performance factors. The other batting averages did show increases from each BPF. In the t-tests of wood and non-wood bats there was a significant change in averages for both the .01 and .05 levels of confidence.

CONCLUSIONS:

Within the limitations of the study, the investigator concluded the following: (1) The increases in bat performance factors seem to have a direct relationship to the increases in batting averages of the team-champion within the North Central Conference during the years studied. (2) The increases in bat performance factors seem to have a direct relationship to the increases in mean batting averages within the North Central Conference during the years studied. (3) The increases in bat performance factors seem to have a direct relationship to the increases in batting averages of the last place team within the North Central Conference during the years studied.

APPROVED BY RESEARCH COMMITTEE, MAY 2000

Robert G. Waxlax, Chairperson

THE EFFECT OF EMPLOYING A CERTIFIED ATHLETIC TRAINER ON INJURY AND RE-INJURY RATES IN MINNESOTA HIGH SCHOOLS

Lana M. Lienemann

The purpose of this study was to determine if a relationship existed between the employment of a certified athletic trainer and the injury and re-injury occurrence in high school athletics. The following is a presentation of the statistical data along with a discussion of the impact of these results on the research hypothesis and future employment of certified athletic trainers.

Surveys were sent to the certified athletic trainer or the faculty member responsible for the recording of athletic injuries and re-injuries within one hundred-twenty (120) Minnesota high schools. Of the 120 Minnesota high school surveyed, a majority of 63% (76/120) schools responded. The survey consisted of 17 questions relating to the employment of a certified athletic trainer, and the number of injuries and re-injuries in those schools without an athletic trainer, and the number of injuries and re-injuries sustained during the 1997-1998 school year. Data on injuries was limited to those that occurred in practice and those that occurred during athletic competition.

The relative frequency of injuries and re-injuries for high school athletes in Minnesota schools that employ a certified athletic trainer was compared to those not employing a certified athletic trainer by means of the chi-square test statistic ($p < .05$). Employing a certified athletic trainer was found to be statistically significant toward reducing injuries and re-injuries in Class A during the 1997-1998 school year. Reduction in Class AA and in the overall data was not found to be statistically significant. Even though the overall results were insignificant, the contrasting data between classes shows a need for more study.

Results from this study suggest that more study is needed to determine if a need exists within Minnesota high schools for full-time injury management, and if the need does exist, what type of personnel would best suit the schools' needs.

APPROVED BY RESEARCH COMMITTEE, JULY 1999

Robert G. Waxlax, Chairperson

A SURVEY OF STAFFING PRACTICES AMONG NCAA DIVISION II FOOTBALL PROGRAMS

Robert G. Pagel

The purpose of this study was to examine and describe selected staffing practices of NCAA Division II football programs. Special attention was placed on the number of coaches that were on staff, primarily identifying how many were full-time employees of the institution. How football coaching staffs at Division II were formed based on the amount of time spent coaching football, as well as time spent fulfilling other responsibilities was also looked at.

The research gathered from this study was used to identify successful programs based on a winning percentage. These data were then compared by frequencies, percentages, and means to determine any differences between coaching staff structure in programs that had a higher winning percentage compared to the entire Division II population.

A questionnaire was sent to all 148 programs who participated in NCAA Division II football during the 1998 season. A total of 104 institutions completed surveys and were returned. The questionnaire generated specific information regarding program staffing, enrollment, and scholarship equivalents.

FINDINGS:

The study showed that there was considerable variability among NCAA Division II football programs and staffing practices. Some of the greatest differences were found in the number of assistant coaches and the amount of their time committed to coaching football. It was also noted that there was considerable difference between staffing practices of programs winning over 70% of their games compared to the Division II national average.

The most interesting contrast found between the Division II average and programs winning over 70% of their games was in the total number of full-time assistant coaches, and the amount of their time spent coaching football. Programs winning over 70% of their games had almost one more full-time assistant coaching position more than the Division II average. A difference was easily seen in the amount of time that the assistant coaches in winning programs had allotted for coaching football. Programs winning over 70% of their games had four coaches spending over 73% of their time coaching football. The Division II average has only one assistant coach spending over 70% of this time coaching football, with the three remaining full-time assistants following at 67% of his time coaching football, with the three remaining full-time assistants following at 67%, 55%, and 33% of their time coaching football, respectively.

A slight difference was also seen in the number of football scholarship equivalents available with successful programs having four more scholarships than the rest of the Division II football programs. The percent of successful programs that offered the maximum number of scholarships was higher than the Division II average. General student enrollment was also higher in colleges and universities with football teams that won over 70% of their games.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1999

Robert G. Waxlax, Chairperson

TIME MANAGEMENT FOR DIVISION II HEAD FOOTBALL COACHES

Matthew J. Pawlowski

The following thesis study is to determine time management practices of Division II head football coaches. This study attempts to determine what aspects of time management might relate to coaches being successful or unsuccessful. A survey consisting of nine major areas including a) recruiting, b) in-season football, c) time spent in contact with persons, d) individual effort, e) major responsibilities, f) professional growth, g) public relations, h) personal family time in-season, and I) personal family time out-season. The study was sent to 151 Division II head football coaches, with 78 coaches (52%) returning the survey. The participating coaches are divided into two categories: successful and unsuccessful based on win-loss records during their careers. Based on related literature, head football coaches are like managers in other professional fields. Time and its allocation reveals the preference and the demands of the job. Managers have a tendency to work long hours. A football coach must have sound principles of time management. Those principles must be integrated into administrative strategies when dealing with recruiting, in-season football, professional growth, family time, and public relations.

Statistics showed significant differences in every major category between successful and unsuccessful coaches. Successful coaches were less discontent and were more satisfied with the organization of their time. The long time myth that more hours in the office equaled success was not supported in this study. The more success really means being more time efficient.

APPROVED BY RESEARCH COMMITTEE, JANUARY 2000

Robert Waxlax, Chairperson

SELF-ESTEEM AND ITS CORRELATION TO LEVEL OF COMPETITION

Lisa Quednow-Bickler

The purpose of this study is to identify the relationship between level of competition and self-esteem in female athletes. This study focused on intercollegiate female athletes and their experience at four different age levels.

Frequencies, correlations, and percentages were used in this study to determine the effect of the level of competition on a female athlete's self-esteem.

The results of the survey determined that there is a direct positive correlation between self-esteem and level of competition. The strongest positive correlation is at the collegiate level. Other correlations discovered relate to team sport athletes in comparison to individual sport athletes. Individual sport athletes display a higher level of self-esteem at the collegiate level. Team sport athletes display higher self-esteem at the high school, junior high school, and grade school level. It is proven that athletic experience is related to self-esteem. The strongest correlation is during college. There was also a strong correlation between athletic experience and self-esteem at the junior high school level.

It was concluded that self-esteem is positively correlated to self-esteem at the collegiate and high school level. Therefore, females who stay in organized sports throughout their high school and collegiate years will have higher self-esteem.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1999

Lori Ulferts, Chairperson

TEACHER DEVELOPMENT

A STUDY OF HOW HOME ENVIRONMENT AND STUDENT ATTITUDES AFFECT READING

Theresa A. Bednarczyk

This study examined factors in the home environment and in student attitudes that could possibly affect the student's ability to read and comprehend. Participants of this study were seventh grad students and their parent/guardians in this researcher's low ability English/Reading class at North View Junior High in Brooklyn Park, Minnesota. All students participating were identified as reading below seventh grade reading level.

The questions researched were:

1. Do factors in the home environment affect student's ability to read and comprehend?
2. Do students' attitudes which may be affected by the home environment, affect their ability to read and comprehend?

Data were collected pertaining to demographics, parental influence and involvement, exposure to literature, and student attitudes.

The results of this study found this particular group of students to fit somewhere in the middle of what other research has concluded. Some of the students met the high at-risk demographic red flags, but not a substantial percentage. The parent/guardians of this group all believed that reading was an important skill and made attempts to be positive role models and influences. All students and parents felt that the students were exposed to literature during their formative years. The overwhelming majority of students had a good attitude about reading and saw the importance of being able to read and comprehend now and in their future.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1999

Linda Scott-Halverson, Chairperson

THE COMPLEXITIES OF STUDYING NATIONAL AND INTERNATIONAL ISSUES IN A SOCIETY WHOSE MASS MEDIA ARE CORPORATE OWNED

Michael N. Falcon

This study attempts to answer the following questions: what fundamental conceptions must high school graduates consider when studying national and international issues in a corporate owned mass media society to make their participation within a democratic society in an informed and thoughtful one, and what possible methods might teachers use to help students understand and practice the fundamental conceptions. The study began by examining literature concerning the media, national and international issues, and belief systems. Three general concepts were identified and supported by literature and research. Then activities and methods that could help students consider these conceptions while examining national and international issues were identified using the electronic ERIC catalog.

FINDINGS:

Three general conceptions that students need to consider when studying national and international issues were identified during the literature review. They are as follows: the historical background of the issue from various perspectives; one's beliefs, stereotypes and generalizations, as well as others; and the institutional, social, and economic factors that define and shape the mass media system.

The ERIC search found that there was very little research that pulled together the concepts necessary to study national and international issues in a holistically critical manner. However, many of the activities found, when used together during the course of issue studies, could help students develop an understanding of the importance and use of the three major concepts.

In conclusion, more research needs to be conducted to develop techniques and methods to assist students in learning how to critically examine national and international issues. This will involve development holistic methods that consider numerous variables that need to be considered while studying an issue.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1999

Stephen Hornstein, Chairperson

THE EFFECT OF CLASSROOM USE OF A DAILY NEWSPAPER

Steven D. Folkerds

PROBLEM:

The purpose of this study was to investigate the relationship between classroom use of the newspaper as an instructional tool and the continued use of the newspaper when not a part of a school assignment. Research indicates that use of newspapers in the classroom positively effects attitudes towards reading the newspaper. There is some evidence that classroom use can lead to continued use of the newspaper later in life. It was hypothesized that introducing the newspaper through daily lessons will lead to increased use at times other than during instruction.

PROCEDURE:

Twenty-four sixth grade students at Fernbrook Elementary School were involved in an eight week experiment to study newspaper use. During the first week of the study a pretest was given to establish current newspaper use. Students also recorded any use of the newspaper during class time.

During week two a newspaper unit was taught introducing all sections of the newspaper. All student use of the paper that was not part of the instruction was recorded. A posttest was given to determine changes in newspaper use at home.

Weeks three through eight had the students recording any classroom use of the newspaper during quiet reading times. Information regarding sections read and male and female difference was collected. A final posttest was given at the end of week eight.

The experimental study analyzed student use of the newspaper before and after a unit using the newspaper as a primary source was taught. The pretest and posttests were used to monitor changes in newspaper use outside of school hours.

RESULTS:

During the initial part of the investigation, student use of the newspaper was minimal. The girls demonstrated a stronger interest in choosing the newspaper. While the newspaper unit was being taught in week two, changes began to happen.

For the six weeks of the study following the newspaper unit, 41% of the students chose the newspaper to read during designated reading times. Students also chose to read a wide variety of sections of the newspaper during this time. Throughout the study, the girls consistently read the newspaper more than the boys.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1998

Nancy Bacharach, Chairperson

LEARNING LAB: MEETING THE DIVERSE NEEDS OF STUDENTS AT-RISK OF ACADEMIC FAILURE

Jennifer J. Haller

Eighth grade students across the state of Minnesota take the Minnesota Basic Requirements Test, which involves reading and mathematics. Likewise, tenth grade students take the Minnesota Basic Requirements Test in written composition. The tests are assessments of basic skills and a score of 75% is required to earn a high school diploma. The St. Michael-Albertville Senior High Learning Lab was developed in 1998 as an innovative approach to help ninth through twelfth grade non-special education students who had not passed the Basic Requirements Test and/or are in need of support in the area of basic skills. The goal of the program is to provide a strong community atmosphere where students will enhance their grasp of basic skills and improve organization and study habits as well as increasing their self-confidence.

A holistic curriculum framework based on a workshop format was developed for this high school program focusing on reading, writing, and mathematics. Development of positive interpersonal relationships within the classroom is emphasized and defined as creating a caring community of learners. A review of literature, program layout, sample lessons, and a list of program materials and resources are included. Exit surveys given to students after a nine-week experience in the program show students perceptions of the course.

APPROVED BY RESEARCH COMMITTEE, APRIL 1999

Steven Hornstein, Chairperson

AN AUTHENTIC WRITING CURRICULUM IN A KINDERGARTEN CLASSROOM

Jeanne L. Johnson

This thesis was based on the question; "How does an authentic writing curriculum support writing development in kindergartners?" The research spanned the period between September and February of the 1997-1998 school year. This paper focused on four indicators of growth for research. The first indicator involved observing children's progress in the conventions of writing. The second measure of growth required documenting the children's increase in the recognition of alphabet letters and sounds. The third indicator was an observation of the students to see if they were using the structures of writing used in the classroom and showing an understanding of their functions. The final indicator of growth examined whether the children were writing spontaneously and developing a voice in their writing. A basic examination of the entire class was done, and then five students were chosen as case studies.

In order to create an authentic environment, both school and home needed active participation. Centers were set up around the room to encourage spontaneous writing. Guided writing included journals, class books, language art projects, semantic webbing, morning news, shared writing and dialogue journals. These journals were the link between home and school. The journals were concluded by sending a survey asking parents' feedback.

I hoped to find that children would leave my classroom with a strong foundation in writing. Over half of the children chose to engage in spontaneous writing at school and/or at home. Two-thirds of the students had parents who were involved with guided writing at home. Most of those children whose parents were involved showed significant progress in their writing over the course of this study. Parents proved to be a vital component of an authentic writing curriculum.

Five students were chosen as case studies for this research. Even though each child was in a different stage of writing at the beginning and ending of this study, each made significant progress which met school requirements and my expectations.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1998

Patricia Heine, Chairperson

THE EFFECTIVENESS OF JOURNALING IN HIGH SCHOOL PHYSICS

Christine Ann Johnson

PROBLEM:

Traditional physics instruction places an emphasis on selecting the right equation to solve a problem and assumes that students will be able to apply the basic concepts to any situation.

PROCEDURE:

During the 1999 fall trimester at St. Cloud Apollo High School, physics students were divided into two groups. One group received traditional physics instruction while the other group received traditional physics instruction which included the use of journaling. Students' scores on conceptual posttests were compared and students completed an evaluation including the effects of journaling at the conclusion of the study.

CONCLUSIONS:

It was found that the use of journals in high school physics increased students' conceptual understanding of force and motion.

APPROVED BY RESEARCH COMMITTEE, MAY 2000

Kenneth Kelsey, Chairperson

TEAM TEACHING VERSUS TRADITIONAL TEACHING IN ELEMENTARY MATHEMATICS

Chad J. Krauel

The study evaluated 126 fifth grade mathematics students in a learning unit on addition and subtracting fractions and mixed numbers. The test group comprised of 50 students whose instruction was given through a team teaching approach. The students in the team taught class were of mixed abilities. The control group included the remaining 76 students who were placed in a traditionally taught classroom that groups students by ability for mathematics. These students were placed in ability groups based on Iowa Test Basic Skills (ITBS) and teacher recommendation. The study examined the difference in mean test point gains for the two groups between pretests and posttests. Mean scores were compared for similar ability levels between the test group and the control group. Results were examined to determine if students in any of the different groups achieved significantly higher scores.

Statistically significant differences occurred in five of the eight comparisons performed by t-tests. In all cases where there were statistically significant differences between the groups, the higher mean values were found in the team taught classroom. In the comparisons where there were no significant differences between the groups, the mean scores for the team taught classroom were consistently higher than the traditionally taught classrooms.

This study focused on the academic achievement in the computation of fractions using team teaching or traditional teaching methods. The team taught class was heterogeneously grouped. Therefore, the researcher may not determine whether the differences were due to the team teaching approach used or the way the students were grouped. Evaluation of the data shows that fifth grade students team taught in a class of heterogeneously ability in a unit on adding and subtracting fractions and adding mixed numbers can achieve at the same level and, in some cases, at a significantly higher level than fifth grade students in a traditional class based on ability group. Although this study was limited to one unit, the results from this study can be used to demonstrate that team teaching in a class of heterogeneously mixed students can be a viable alternative to traditional methods of teaching for elementary mathematics.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1999

Beverly Kochmann, Chairperson

DEMOCRACY IN EDUCATION: A NECESSITY FOR SOUTH AFRICA

Siphokazi Florence Mbotya

South Africa is in a transformation stage in which education is restructured and perceived in a different light by its citizens. Most of the injustices of the past steered by apartheid were imposed through education. Education,

therefore, served as indoctrination and an enslavement instrument for many. As South Africa is faced with this paradigm shift, it is crucial to restructure education so that it could serve as a mind opener that could emancipate people from mental slavery. South Africa, as a society, has accepted democracy as its philosophy and it is therefore crucial for schools to be democratized as well. We cannot talk about democracy in our society and yet practice a different philosophy and it is therefore crucial for schools to be democratized as well. We cannot talk about democracy in our society and yet practice a different philosophy in our schools. If we claim to be democratic, we have to democratize all our institutions.

John Dewey (1903) described democracy as the freedom of the intellect for effective independence and also as a way of life. The education system needs to be effective enough so as to cater to our students and free their intellect so that they could be independent and responsible. Teachers and students can be empowered and given control over what they are doing by being given the opportunity to participate in their teaching and learning respectively.

Empowerment of teachers and students can be achieved in schools through having a healthy school climate. The hidden curriculum is part of the school climate and involves the unsaid rules, the organization and composition of the school. The school curriculum needs to be representative of students that it aims at educating and be inviting to teachers and school administrators in its planning and implementation.

For South Africa to achieve this, it should be remembered that the past government has left behind a school system that needs thorough transformation from school buildings to classroom facilities, from teacher training to school funding, and the like. Irrespective of these major necessities, it is crucial for South Africa to democratize its education. It would be of no use to have beautiful school buildings and all the teaching facilities when students are

still taught to be passive, empty vessels who receive information without reasoning. Students need to be able to understand for themselves and be able to critically analyze data and interpret it without the fear of being penalized.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1999
Bruce Romanish, Chairperson

PARTNER READING IN A PRIMARY MULTIAGE CLASSROOM: A STUDY OF CHILDREN'S INTERACTIONS AND STRATEGIES

Patricia J. McDonald

This study was designed to document the effectiveness of partner reading as an instructional strategy in a primary multiage classroom through an explicit portrayal of children's interactions and the strategies they utilized while partner reading.

The data for this study were collected over a school year in a multiage first and second grade classroom. Students were observed and audio taped while engaged in partner reading. Student interviews, written responses, and class discussions provided additional data.

Analysis of the data revealed partner reading interactions focused on reading. Further analysis of the data identified three distinct role sets.

Tutor/tutee: One child acted as the tutor helping the other read. The tutor assumed a position of leadership. In cross-age partnerships the older child assumed this role regardless of reading ability. This was the most common role set.

Co-readers: Children were individuals engaging in parallel reading, serving personal needs. Co-readers often became competitive and were usually in the same grade.

Collaborators: Both children worked together to read. Leadership shifted between partners as needs arose. This role set was the rarest.

This study confirmed partner reading as an effective instructional strategy. Children spent an extended period of time focused on and engaged in reading. A factor in its effectiveness was the inherent opportunity for cross age collaboration and tutoring multiage classroom.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1999

David Heine, Chairperson

THE IMPACT OF GENDER INEQUITIES IN A FOURTH GRADE CLASSROOM

Tracy L. Reimer

This paper describes a one month qualitative study investigating the impacts of gender inequities on females in a fourth grade classroom.

The author surveyed students, attained journal entries and anecdotal records. In addition to collecting these data, the author also videotaped students' interactions and audio taped student-teacher individual interviews and group discussions. The purpose of this investigation was to study the impacts of gender inequities on females in a fourth grade classroom. The author then intends to use these findings to create the optimal learning experience for students.

Data collection indicated females as having low self-esteem in science and technology. Gender separation existed within the class when students were given the opportunity to choose groups or partners. More teacher attention was given toward male students in order to maintain classroom management. Female students exhibited a preference for collaborative work.

APPROVED BY RESEARCH COMMITTEE, APRIL 2000

Paula Bradfield-Kreider, Chairperson

EXPLORING MINNESOTA: AN ALTERNATIVE LEARNING MODEL

Glenn R. Witte

This paper describes a two-month qualitative study investigating what students learn in a self-directed learning model where they are engaged in activity centers established under the theme of Minnesota. Students in this third grade classroom research, write, read, and draw maps about Minnesota. They form groups to study a town in Minnesota. The students build store fronts, make products, and form a government with elective officials and rules.

The author recorded conferences with the students, kept a journal, and video taped the students while engaged in the activities of the centers. The students kept a journal and produced work which included writing reports, drawing maps, and creating a diorama. The purpose of this investigation was to study what students learned while being engaged in the centers and whether it met the outcomes stated by the district.

FINDINGS:

Students were able to meet district requirements in the areas covered by the study of language arts, math, and social studies. In addition, students demonstrated their ability to manage their time and work on center activities without direct supervision. The students engaged in a large amount of problem-solving, especially in building their stores and forming the town government. It was also observed that students valued having choice in their activities and were able to learn from their peers. The author found that this alternative classroom model allowed students to be active participants and enthusiastically engaged in their learning.

APPROVED BY RESEARCH COMMITTEE, JULY 1999

Stephen Hornstein, Chairperson

COLLEGE OF FINE ARTS AND HUMANITIES

COMMUNICATION DISORDERS

ASSESSING THE VOCABULARY DEFINITIONS OF NORMALLY-DEVELOPING CHILDREN: A COMPARISON OF THREE SCORING METHODS

Sarah M. Bersie

PROBLEM:

The most commonly used standardized tests which assess vocabulary definition performance employ a binary scoring system, either 1 or 0. This scoring technique offers little information as to the type of definitional errors, nor does it lend itself to planning remediation. This study compared the binary scoring of the Test of Language Development-Primary, 3rd edition (TOLD-P:3) with two alternate scoring procedures designed to analyze definitional features. Each scoring method was examined for the following: assessment information obtained, ease of use, and potential for resulting functional treatment goals.

PROCEDURE:

A word list parallel to that of the TOLD-P:3's was constructed for use with the experimental scoring procedures. Twenty-four normally-developing children in kindergarten through fifth grades were given the TOLD-P:3 subtest and the parallel list to define. Both were scored using TOLD-P:3 protocols. Nouns from the parallel list were scored using Snow's (1990) procedure, rating the syntax of responses as "formal" or "informal". These noun responses were then scored for syntactic form as well as semantic quality using a scale of 0-5, derived for Johnson and Anglin (1995).

FINDINGS:

Results indicated that across the three scoring techniques, the syntactic and semantic scores varied due to the nuances of each method's scoring criteria. Age and grade level effects were found for semantic measures, but syntactic scores were significant for age alone. The difficulty achieving inter-rater reliability on the TOLD-P:3 semantic measure was discussed.

CONCLUSIONS:

The results have clinical implications for descriptive assessment and for planning therapy. Each scoring method poses strengths and weaknesses for describing children's definitions. Scoring time and ease of use for each method was approximately the same. The advantages of each method are discussed and translated into therapeutic goal suggestions. The Johnson and Anglin method is preferable for obtaining the most descriptive informal assessment data, and for measuring treatment efficacy. The age and grade level significance indicate that further research into this area of language acquisition may eventually result in normative developmental data for the semantic content and the syntactic form of vocabulary word definitions.

APPROVED BY RESEARCH COMMITTEE, MAY 1999

Margery M. Whites, Chairperson

CORRELATION AMONG DEMOGRAPHIC ESTIMATES OF INTELLECTUAL ABILITIES, PERFORMANCE IQ SCORES, AND VERBAL IQ SCORES

Jan M. LaFavor

Multiple regression equations based on demographic information are routinely used to estimate premorbid IQ in persons with brain-damage. Although the use of these equations has been studied with various brain-damaged populations, no research has focused on a single specific type of brain-damage, such as aphasia. This study presents an analysis of the relationship between IQ scores obtained on the Kaufman Brief Intelligence Test (K-BIT), the Raven's Coloured Progressive Matrices (Raven's), and estimated IQ scores obtained using multiple regression equations developed by Barona, Reynolds, and Chastain (1984).

PROCEDURE:

Twenty non-brain-damaged adults and ten aphasic adults served as subjects. All subjects had English as their primary language, hearing acuity sufficient to understand the experimenter in a one-on-one situation, were Caucasian, and were between the ages of 50 and 85 years. Subjects completed an audiological examination, answered a series of demographic questions, and completed the K-BIT and the Raven's. Due to their verbal expression deficits, the aphasic subjects did not complete the Verbal subtest of the K-BIT.

FINDINGS:

For both groups of subjects, the Barona estimated IQ scores were significantly correlated with K-BIT scores for Performance IQ (PIQ), suggesting that the Barona Performance Index is a reliable estimate of PIQ in these groups of subjects. For the non-brain-damaged sample, there were no significant correlations between the Barona estimated IQ scores and the K-BIT scores for Verbal IQ (VIQ), suggesting that the Barona Verbal Index is not a reliable method for estimating premorbid VIQ.

CONCLUSION:

These research findings may be due to the nature of the samples used or to the tests used to obtain IQ scores. The current study differs from other studies in that the investigators used a truncated age range, a community-based non-brain-damaged sample, and aphasic subjects as the brain-damaged sample. In addition, this study used the K-BIT, which is a screening test of intellectual functioning, rather than using the Wechsler Adult Intelligence Scale-Revised (WAIS-R), which is a full IQ test battery.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1998

Shelley Brundage, Chairperson

DOCUMENTING TREATMENT OUTCOMES IN COURAGE CENTER'S COMMUNITY REINTEGRATION PROGRAM

Michelle M. Schierts

In order to secure third party reimbursement for treatment in today's managed care systems, speech pathologists and other health care professionals must demonstrate that they provide effective treatments. To do this, they measure and report the outcomes of their treatment. Most treatment outcomes studies conducted for head injury use variables such as employment, independent living status, and community/avocational skills. This study presents an analysis of the improvements achieved by patients participating in the Community Reintegration Program (CRP) at the Courage Center in Golden Valley, Minnesota.

PROCEDURES:

Thirty-four adults with head injury who attended the CRP in 1995 and 1996 served as subjects. Twenty of these subjects were located and interviewed using a telephone protocol based on the Courage Center Questionnaire (CCQ). This questionnaire was designed at the Courage Center specifically to show treatment gains in the later stages of recovery from a head injury. The responses from the follow-up interview along with test scores on selected subtests of the Rivermead Behavioral Memory Test (Rivermead) and the Woodcock-Johnson Psycho educational Test Battery (Woodcock- Johnson) of all thirty-four subjects were analyzed.

FINDINGS:

For the subjects who completed the program as recommended by the treatment team and completed the follow-up interview, 87.5% achieved and maintained significant gains in the areas of vocational skills and/or community leisure skills, suggesting that the program is effective at reducing the level of handicap experienced by individuals with head injury. The analysis of the selected subtests for this same group of subjects indicated that no significant improvements in test scores were observed from the time of admission to the time of discharge, which suggests that the selected subtests are not reflective of treatment gains in the later stages of head injury. Also, these same test scores did not correlate significantly with gains in the area of vocational and community/leisure skills, suggesting that they are not predictors of outcome.

CONCLUSION:

These research findings may be due to the nature of the tests used to assess performance or to a small sample size. The current study differs from other treatment outcomes studies in that the subjects were contacted for long-term follow-up interview interviews and addressed gains in both vocational status and community/leisure skills.

APPROVED BY RESEARCH COMMITTEE, MAY 1999

Shelley Brundage, Chairperson

ENGLISH

"WELCOME THE SIXTE": THE WIFE OF BATH'S PROLOGUE IN A RHETORICAL WEAVE OF STYLE, PERFORMANCE, AND INTERTEXT

Shannon M. Anderson

In the first Chapter I identify my thesis, its scope, and the approach used to prove it. I summarize the primary sources and critical methodologies used to support it.

In Chapter II I review the classical and medieval sources for the Wife of Bath's character and for the topics she entertains in her narrative.

In Chapter III I identify the personal and conversational style of the Wife's prologue and how it enables the Wife's claim of experience as her authority. I identify the elements of rhetoric that the Wife employs in order to connect herself and her story to the audience and convince them of her ideas on experience and women's sovereignty. I situate here narrative in its sociopolitical context of the late Middle Ages to provide a backdrop for discussing the Wife's struggle to move beyond antifeminist constraints.

In the fourth chapter I consider the Wife's narrative in terms of the texts it creates with its audience of fictive listeners and living readers in the act of performance. By examining the narrative through feminist and semiotic lenses, I locate the opportunity for feminism outside of the narrative text, existing between it and the audience in the mutual text of performance.

In the final chapter I summarize conclusions from the previous chapters. I review how the Wife's sources, her experience and style, her rhetorical strategies, and the semeiotics and performance of her narrative bring her and her prologue to feminism. I discuss the additions this thesis makes to existing scholarship on the Wife's prologue.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1999

Richard Dillman, Chairperson

SEEKING A REALISTIC MODEL FOR AN ENGLISH TEACHER TRAINING PROGRAM

Lily Arifin

Lembaga Bahasa LIA (a.k.a. Lembaga Indonesia Amerika) has been teaching English to Indonesian students since its establishment in 1959. Lembaga Bahasa LIA accepts English as the lingua franca of the world, and treats English as a badly needed commodity in non-English speaking countries like Indonesia. The result is that LIA needs more and more teachers all the year round. This paper studies teacher-training programs in Indonesia and America. The mission was to formulate a very good teacher-training course for LIA. Some experts from Indonesia and America offered me some pertinent points for a good teacher-training program. The Indonesian experts expressed the wish that some changes could be instituted in the LIA program for pre-service teacher training.

I felt that culture may prevent change in the LIA program. For example, in an Indonesian classroom setting, many teachers exhibit their authority and others try to parent their students by spoon-feeding them with information bites. Many of the students are content to be confined to the teacher's pattern of teaching and others would not dare to speak their opinion. Still, the idea of the individual is itself a cultural concept and individuality has a strong influence on learning and teaching styles. Ultimately, my fears of cultural boundaries have been laid to rest by many experts' opinions. Since the educational system of Indonesia was taken over wholly from the Dutch colonial outrage if the teaching and learning methods should change radically.

One of LIA's most serious problems affecting all others is the low quality of teacher candidates entering the pre-service teacher training program. Even after the four-month course, teachers want to slip back into old-fashioned practices remembered from their youth: teacher talking/student listening. At the onset of teaching practicum, most theories taught during the course are shelved as irrelevant in the face of the classroom reality.

The teacher-candidates have expressed their desire for practical help rather than theory. A new teacher-training course should not totally disregard this wish for study of practical classroom strategies and activities. I am, therefore, dividing every class session into theory, followed by practice. When the teaching practicum begins its four-month term, the teacher-candidates should be armed with a large variety of strategies and activities with which to motivate the LIA student body into participation in their learning process.

Finally, LIA teachers should be routinely monitored to maintain quality. The outcome of evaluation should result in directives for change, penalties for lack of change and reward for exemplary work. With perseverance, the total staff should be gradually upgraded. So far, LIA has an enviable reputation for the quality of its teachers. If the proposal changes take place over the next several years, LIA teachers will be harder to steal away from the program because each staff member will have invested in LIA and have been rewarded for his/her efforts.

Good seeds make good plants; good teachers make good students.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1999

James H. Robinson, Chairperson

READABILITY AND PHRASAL VERBS IN TEXTS WRITTEN BY GERMAN AND AMERICAN WRITERS

Kai-Sven Beckert

PROBLEM:

Contrastive rhetoric shows that non-native speakers (NNS) writing in English do not organize their writing in the same way as native speakers (NS) do. NNS also lack the use of features that NS employ. It is hypothesized that the absence of these features (in this study: phrasal verbs) will make writing by NNS seem less readable to NS.

METHOD:

Texts by German and American writers were analyzed concerning the presence of certain NS features (phrasal verbs). These texts were then subjected to a formula, calculating the readability of these texts, and to human judges, estimating the readability of these texts. In the end, the study correlated the presence of certain NS features (phrasal verbs) with readability scores obtained from a formula and human judges.

FINDINGS:

It was expected that the presence of certain NS features (phrasal verbs) would correlate with the readability scores obtained from formulas and human judges. It was found, however, that the presence of certain NS features (phrasal verbs) correlated with the readability scores obtained from a formula, but not with the readability scores obtained from human judges. It is suspected that the human judges based their decisions on assumed, not actual language proficiency.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1900

James H. Robinson, Chairperson

SERVICING THE ESL STUDENT: COLLABORTIVE VS. PULL-OUT APPROACH

Judy A. Croegaert

PROBLEM:

The traditional pull-out approach for servicing ESL students is a common service delivery system, yet many problems are associated with it. This thesis examines how the collaborative model affected ESL student learning by comparing ESL students in a collaborative model to ESL students in a pull-out model.

PROCEDURE:

The methods used to compare fourth grade ESL students in the pull-out model to fourth grade ESL students in the collaborative model were student interviews and one-minute reading fluency timings. Results of the interviews and timed readings were compared and analyzed to determine the effects of the collaborative and pull-out model on ESL students.

FINDINGS:

The analysis revealed that ESL students' academic reading fluency progress was the same in both groups, but that the students in the collaborative model had more positive social experiences than did the students in the traditional pull-out model. Therefore, it was recommended that when future ESL programming occurs, students should receive an educational program such as a collaborative model that would include the important social factors needed for student learning.

APPROVED BY RESEARCH COMMITTEE, JULY 1998

James Robinson, Chairperson

THE TRANSITION FROM GERMAN TO ENGLISH IN THE LUTHERAN CHURCH- MISSOURI SYNOD: A STUDY IN FEAR

David N. Emmrich

Of all the phobias produced by immigrants and immigration, perhaps the most surprising and virulent of all was Germanophobia. It is surprising because some years prior to World War I, Germans were considered one of the ideal immigrant groups. It is particularly striking that Germanophobia has manifested itself throughout the years in over-reactions to the German language. Although the fears expressed toward German have the root of them legitimate concerns, reactions to the language itself is only a surface reaction related to other more vague fears.

While America struggled with its fear of the German language, the Lutheran Church-Missouri Synod displayed a surface fear of a different language. Not only was there the utmost necessity to keep the German, in the view of some there was also the strongest impetus to avoid English and its assumed tendency for theological errors.

For America, the surface fear was of the German language but beneath the surface, greater fears of loss were present. For the Lutherans, the surface fear seemed to be the English language, but beneath it was the ultimate fear of losing religious orthodoxy. The fears clashed and even though English prevailed, there was loss for both sides.

History suggests that efforts and attention directed to today's surface fears of language might be better directed toward addressing their underlying fears. Somehow, something must happen in America to change the attitude from "Don't speak any language but English in the United States" into "Speak to us so we can get to know you and your language better."

APPROVED BY RESEARCH COMMITTEE, MAY 1999

Suellen Rundquist, Chairperson

LEARNER STYLES AND FOREIGN LANGUAGE LEARNING

Jennifer Erslund-Beckert

All people are different learners just like every human being is unique in personality, likes, dislikes, mannerisms, etc. Do these individual differences that make each person unique affect one's learning? The focus of this research was to look at individual learning styles and to investigate if the students' performance was affected by the instructor's learning style. The informants in this study were university students who took a beginner level foreign language course.

Students and the instructor were administered a learning style inventory. Those students who had the same learning style as that of the instructor and those students who had the opposite learning style to that of the instructor were chosen for the research. Data were collected from all the tests the students took during the semester. The students were also given a questionnaire and were interviewed during the semester the research was conducted. The findings show that one's learning style does not predict one's performance in the classroom. Various other factors, including motivation and anxiety, proved to be equally significant predictors of achievement.

In order to protect the identity of the students and the instructor, the foreign language and the names of all those involved are not mentioned.

APPROVED BY RESEARCH COMMITTEE, SEPTEMBER 1999

Marya Teutsch-Dwyer, Chairperson

ACHIEVING GENDER EQUITY IN THE ENGLISH LITERATURE CLASSROOM

Lynette Frohrip-Meyer

This paper discusses the need for gender equity specifically in the teaching of high school literature. In approaching the teaching of Advanced Placement Literature, I discovered that an overemphasis on feminist criticism was leading to the avoidance of men's issues. This posed a problem in the truly balanced teaching of gender in the classroom. To achieve a gender-balanced classroom, each gender must be given equal time and equal consideration.

Previous literature includes a discussion of feminist study this far and the reality that girls are too often perceived to be shortchanged in the classroom. They are not included in discussion in the same degree as boys and therefore begin to withdraw in classroom participation over the years. This, in turn, results in lost self-esteem and lower grades in some subjects. Teacher influence on this problem is apparent. Because boys often demand more attention or are more forceful in gaining focus, teachers reward this by giving boys their attention and sometimes unintentionally ignore girls.

Because of studies on the apparent problems for girls in American classrooms, feminist study has risen in popularity; however, men's studies has been all but exempt from the classroom. Therefore, studies on the male approach to literature and boys in the classroom have appeared in an attempt to balance teaching approaches. Studies have discovered that men and women alike are placed in damaging stereotypical roles. For men this includes the beast and the gentleman. These stereotypes can be found in literature and merits discussion.

A balance between the inclusion of males and females alike is the answer to a truly gender-balanced classroom. This involves more than equality in terms of male and female authors. An approach which involves a focus on relationships, communication and personal insight creates a learning environment for both males and females which validates individual perspectives.

This can be seen in the study of a canonical British novel of the 19th century: Pride and Prejudice by Jan Austen. A feminist approaches is natural and easily established as the primary protagonist is a strong female: Elizabeth Bennett. In a family full of women, a focus on the female and her stereotypical role is unavoidable.

However, the more minor male characters also offer room for discussion. Because Darcy, Wickham, and Bingley are often placed in the beast or gentleman stereotype, they warrant study as well.

Because this is a novel about marriage, it offers the perfect opportunity for gender balanced study. By studying relationships, communication, and personal realizations through these fictional characters, the student can better understand the characters, the plot, and themselves.

The integration of this novel taught in a gender balanced manner--with additional literature listed in the appendix--received favorable reviews from students and proved worthy of continued study and integration. Male and female students felt valued and included in the process and grew to appreciate the literature regardless of gender focus.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1999

Steven Klepetar, Chairperson

INTERDISCIPLINARY APPLICATIONS OF MARY SHELLEY'S FRANKENSTEIN

Christine J. Grossman

In this study, four things happen.

1. Critical literature discussing feminist readings of the scientific aspect of *Frankenstein* is surveyed to develop understanding of how the novel has been interpreted by previous critics.
 2. The novel is placed between two poles of a metaphysical debate over the existence, or lack of existence, of revolutions in scientific research. The anti-revolution argument asserts that the idea of revolution is a modernist illusion; the pro-revolution argument asserts that evolution is an innate quality of the scientific enterprise. This is connected to Victor Frankenstein in an attempt to discern whether he is a scientific revolutionary, or a misguided modern.
 3. Victor Frankenstein's behaviors as a fictional scientist are compared and contrasted to behaviors of factual *scientists* of the same historical period to determine whether or not he is a reliable representative image.
 4. The above three mini-studies are demonstrated to be pedagogically sound approaches to teaching *Frankenstein* in cross-disciplinary circumstances, as an instance of critique applicable to many different colleges.
- The first three points correspond to chapter divisions, while the fourth point becomes an umbrella concept connecting the chapters together.

APPROVED BY RESEARCH COMMITTEE, MAY 1999

Sharon Cogdill, Chairperson

MULTIGENRE: AN ALTERNATE FORM OF RESEARCH WRITING

Mary C. Gusaas

Research writing needs the availability of some options. In multigenre writing techniques I have found the alternative and opportunity I am looking for to escape the restrictions of standard writing formula. Multigenre research writing is as effective a writing style for research as the standard format is.

In my research I found several related strands of thought; authentic voice, alternate style, creative nonfiction, and multigenre research. The studies in these areas trace back to the 1940s and bring us right up to the present with the works of Ken Macrorie, Winston Weathers, Tom Romano, and others.

I implemented a Holocaust multigenre research project in my advanced composition class to test out the techniques and form associated with alternate style writing. Students needed to learn to break the rules of standard writing before they could develop the multigenre projects. They learned and applied Winston Weathers' "Grammar B" techniques, which include the use of repetition, labyrinthine sentences, lists, double voice, and orthographic sentence variation.

Students researched an area of the Holocaust of interest to them just as they would in a standard research paper. In writing their findings in the project, students used the alternate style techniques instead of the standard writing format, developing projects in which they were heavily invested and very involved with their resources. The alternate style pushed them to take risks that standard research doesn't encourage them to do.

Through the multigenre project, I feel my students were able to look more deeply into their resources, think critically about the best way to deliver that information to a reader, and to connect with research in a manner I had not seen before from a large group of high school students.

APPROVED BY RESEARCH COMMITTEE, MAY 2000

Chris Gordon, Chairperson

CULTURAL IDENTITY AND SECOND LANGUAGE ACQUISITION: A CASE STUDY OF CULTURAL IDENTITY TRANSFORMATION AND SLA

Todd P. Huber

How does one's cultural identity affect language acquisition, or is it the language acquisition that affects one's cultural identity? It is my hypothesis that the two act upon each other, much like what is known as the "snowball effect." This research is a longitudinal case study based on letters sent home from France during a one-year period. The domains designed for analyses include viewpoint, subject matter, identity transformation, language acquisition, cultural assimilation, and affective emotional elements.

The viewpoint analysis shows a transition from viewing the world distinctly based on my past American experiences to that of a French way of thinking and assessing the world. The subject matter discussed in the letters was influenced by the socio-cultural interaction with the host environment. The subject matter analysis indicates an inadvertent augmentation of a cultural transformation. From the examples listed in the cultural identity transformation analysis, there is ample evidence to show a cultural identity transformation. The language acquisition analysis showed evidence of rapid and successful language development. The analysis of various cultural events shows a high level of cultural assimilation. The focus of this domain analysis was based on my feelings within the events, how I felt about the language in the events, and how the cultural situation promoted learning. The affective emotional analysis shows that I felt the host family situation to be highly unpredictable and thereby creating stressful situations. This unpredictable living arrangement, acted like a pendulum with the positive and negative elements in equal harmony. This, thus shows that all events, whether positive or negative, acted as significant contributors in regards to language development and cultural assimilation.

APPROVED BY RESEARCH COMMITTEE, OCTOBER 1999

Marya Teutsch-Dwyer, Chairperson

LITERATURE CENSORSHIP: IMPLICATIONS ON PUBLIC SCHOOL STUDENTS AND TEACHERS

Christine Marie Hollerman

Data collected from the American Library Association (ALA), National Council of Teachers of English (NCTE), National Coalition Against Censorship (NCAC), Minnesota Coalition Against Censorship (MCAC), educational journals, national and Minnesota newspapers, school district policies and procedures for selecting and reevaluating literature, the St. Cloud State University library, the Internet, interviews with teachers and media specialists, interviews with sophomore students and letters to Minnesota government officials provided information for this study.

My findings revealed the most frequently challenged books in public schools across the United States in the 1990s. This literature has been attacked for contradicting community values, use of profanity, use of sexual content, use of homosexual content, promoting racism, promoting Satanism, or use of violence. Also, the challengers of classroom materials tend to be either organized groups, parents, or teachers. Similarly, Minnesota schools have recorded a high number of censorship cases with similar censors and reasoning in the past decade. Parents are concerned that schools are attempting to raise their children, while teachers are trying to provide an education with a variety of subjects and viewpoints.

Public school students are directly affected by the censorship of literature. The minority of high school students interviewed believed censorship deprived them of knowledge and their right to read. In addition, teachers are affected by censorship. Their literature choices are being dictated by parents, community, and other educators.

These groups are also placing some teachers' jobs in jeopardy as a result of their literature complaints. To combat these censorship attacks, teachers can take precautions to avoid any literature challenges. They also need to know and follow their school district's literature selection policy and reevaluation process.

APPROVED BY RESEARCH COMMITTEE, OCTOBER 1999

Chris Gordon, Chairperson

HISTORY AND NARRATIVE: CHALLENGING THE POWER OF THE OFFICIAL RECORD IN *MIDNIGHT'S CHILDREN* AND *CREATION*

Eugene Scott Launier

Salman Rushdie's *Midnight Children* is to some degree a telling of the history of India during and since its independence from Britain, August 15, 1947. The narrator is Saleem Sinai, who casts himself as the center of this history. "Every personal event in the life of Saleem and his family is inextricably linked to the historical and political events that unfold in India" (Price 91).

Price is right to ask the questions: "What precisely is Rushdie saying about history? Does Rushdie present us with a particular philosophy of history? If so, is Rushdie expressing views that other philosophers of history have discussed?" (91-92). Price goes on to present answers to these questions at one point stating, "Rushdie. . . clearly exposes Indira Gandhi's political man oeuvres as being part of a monumentalizing strategy with respect to history" (96).

Clearly, there are social and political implications to challenging the perspective for historical presentation. Emphasizing this is a narrator who possesses the "truth" for correcting historical facts that are transmitted into public, popular knowledge by professional historians with a particular relationship to power. Called into question is the relationship between an understanding of history and the maintenance of established power.

Gore Vidal is concerned with the same critique within his American historical novels. Understanding that these offer a revisionist representation of history critiquing the work of American historians helps to illuminate what Vidal is up to in *Creation*, an historical offering different from the *American Chronicles*. Set in the 5th century B.C., the narrator is Cyrus Spitama, who offers a spirited and "truer" history of the Persian Wars, having heard it recounted by Herodotus.

That Vidal is again challenging the authority of professional historians (as he does in the *American Chronicles*) seems evident. However, the unique setting of *Creation's* narrative suggests an interesting and distinct treatment of Vidal's concern for exposing the power relationships between historians and the structure for which they write.

Edward W. Said's understanding of the politically active literary text seems to speak to both of these authors. Said understands the long history of Western literature dealing with the East to be directly connected with the Western imperialism of the East. Rusdie and Vidal seem to offer works that dispel the notion of imperial power as progressive and advancing. When we include Said into the discussion regarding Rushdie and Vidal, we begin to turn general questions between historical accuracy and historical portrayal into a more specific critique of a stratified western power structure and the structure's use of history as a means of maintaining power.

At the same time, both Rushdie and Vidal use their own narratives in different and interesting ways that offer a deeper understanding of the modern "Oriental" peoples and culture. Said argued that this understanding is dangerously lacking in popular texts produced by the imperial culture. In this light it seems entirely worthwhile to regard the controversial representations of history in these novels as part of a narrative that sets out to challenge the relationships between history, scholarship, and the maintenance of a power system. Finally, it also becomes interesting to consider whether the authors' awareness of the criticism they expect to receive for their controversial work is conveyed through the narrative.

APPROVED BY RESEARCH COMMITTEE, MAY 1999

Sidney Parham, Chairperson

THE EVOLUTION OF CRITICISM ON ERNEST HEMINGWAY'S *THE GARDEN OF EDEN* AND *TRUE AT FIRST LIGHT*

Jeffrey L. Ludwig

Scholarship on Ernest Hemingway has changed significantly since the 1986 publication of *The Garden of Eden*. This thesis traces the changes in Hemingway study since *The Garden of Eden*, and speculates about future scholarly research on *True at First Light* (1999). A close look at the shifts in such scholarship reveals that the literary persona of Ernest Hemingway is being re-evaluated.

The posthumous works, experimental for themes of sexuality, gender, and race, have caused controversy over publishing unfinished Hemingway materials. Chapter 1 outlines this background information.

Chapter 2 analyzes criticism published on *The Garden of Eden*. Initial reviews reveal that the popular media hesitantly embraced the novel. The remainder of Chapter 2 traces scholarly studies of *The Garden of Eden*. Organized categorically, then followed chronologically, this scholarship uses manuscript evidence to study one of Hemingway's most complex fictions in *Garden*. In some cases, these studies also reveal that common assumptions of Hemingway should be re-evaluated.

Chapters 3 and 4 work in conjunction to show that *True at First Light* will spur decades of further re-examination of Hemingway's literary persona. Chapter 3 considers the criticism of *True at First Light*, revealing that Hemingway's description of racial and cultural barriers will offer new directions for future scholarship.

APPROVED BY RESEARCH COMMITTEE, MAY 2000

Constance Perry, Chairperson

NOVEL RESEARCH COLLABORATION: TEACHING ASSISTANTS AND FIRST-YEAR COMPOSITION STUDENTS WRITING THE BOOK ON COOPERATIVE LEARNING

Les Paul (Jake) Oetting

Many theorists point to cooperative learning as an effective way to introduce students to the "discourse communities" of higher education and scholarship. For all of them, cooperative learning and collaboration are seen as something that needs to occur, or be made to occur, among students.

The aim of cooperative learning is to turn control of the students' learning over to the students themselves. Indeed, the teacher's authority in the classroom is seen by these theorists as a hindrance to learning. To them, learning occurs best between groups of peers. No wonder then so many of these theorists argue to minimize the teacher's role in the classroom to one of passive observance.

In the case of English studies, however, a unique opportunity exists, for in no other scholarly field are so many students being taught by students. In colleges and universities across the country, a large proportion of undergraduates are receiving their only required writing instruction from graduate teaching assistants.

Unfortunately, this exciting opportunity for real whole class collaboration, collaboration that includes the graduate teaching assistant as a fellow student and peer in the process of cooperative learning, is being missed by most English departments. Graduate teaching assistants, themselves seeking to become full members in the discourse community of their discipline, are sometimes even advised to not reveal to their students their own status as a student. By not revealing their full identity, or by minimizing it, teaching assistants are creating the very problems proponents of cooperative learning want to do away with.

The results of a recent survey show nearly three quarters of the teaching assistants currently teaching first-year composition in the country have revealed their identities as students to their students. However, a large majority of them see no benefit in their students' knowing it. Other results from the same survey point to the missed opportunity for real cooperative learning in these classrooms.

Graduate teaching assistants should embrace their unique role as both students and teachers rather than diminish it. By acknowledging their own status as students hoping to enter a discourse community, teaching assistants can reduce the perception of their authority in the classroom in order to become active participants in the cooperative learning within it. Furthermore, their active participation will enhance their own learning and the learning of other students in the class. An example of such a classroom is described.

APPROVED BY RESEARCH COMMITTEE, SEPTEMBER 1998

Rex Veeder, Chairperson

THE EFFECT PORTFOLIOS HAVE ON WRITER ATTITUDE

Joy M. Sjoberg

This study looks at how the use of portfolios as an alternative assessment affects the attitudes of seventeen student writers in a technical college freshman composition course. The data sources are Daly/Miller Writing Apprehension surveys, student self-assessments, memo responses, informal and formal student/teacher conferences, peer conferences, and large and small group discussions. The data was analyzed using a recursive and inductive method, beginning during the data collection and continuing through the writing of the thesis. The teacher-researcher's conclusions about the effects of portfolios on writer attitude are reported.

The data analysis is organized around four questions: 1) How apprehensive are students about writing? 2) How confident are students about their writing? 3) How does students' apprehension change using portfolio? 4) How do students' confidence levels change during the quarter?

The findings suggest that students are apprehensive about writing for several reasons which include fear of failure and lack of practice. In addition, the findings suggest that students' apprehension lessens when they are empowered to make decisions about their writing from its development stage to its evaluation stage. However, empowerment alone is not the answer to decreased apprehension. Continuous feedback from peers and the teacher also plays an important role in decreasing writers' apprehension; as does the opportunity to revise. Students become empowered, and their attitudes become more positive toward their writing ability.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1998

Donna Gorrell, Chairperson

FIRST AND SECOND LANGUAGE USE IN A PERSONAL DIARY

Kaaren St. George

A diary that I kept during a language immersion experience provides insights into the relationship between language use and learner identity. My use of the second language over the first language in various diary entries reveals relationship between the use of the second language and the learner's perceptions of self in a new culture.

This study draws on research from several areas in the field of Second Language Acquisition. Research from diary studies, theories of motivation, and code switching provides a knowledge base that supports the conclusions reached in the analysis.

The language learning situation of the diary is first described in order to understand the learner's background. The diary writing process is also explored to define the characteristics of the language data in the diary. In addition, the learner's acculturation process is analyzed through shifting diary writing styles and emotional records. All of these areas are explored in order to define the language learning setting in which the diary was written.

Finally, the relationship between the language used in the diary entries and the outlook of the learner is compared. Through diary excerpts, a link is established between the learner's identity in the new culture and the language used in the diary. The shifting of languages within the diary is described as a form of functional codeswitching.

The concluding remarks explain how the link between language use and learner identity can be used advantageously in the language classroom through the validation of students' ideas and goals. Also, the diary as a research tool is recommended as a valuable source of language acquisition data, especially when the diary was not intended to be analyzed.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1998

Marya Teutsch-Dwyer, Chairperson

JAPANESE STUDENTS IN AMERICAN CLASSROOMS AND CULTURAL DISCONTINUITIES

Erina Tateyama

This paper is a study of the problem and stereotypes associated with Japanese student in the American classroom as these students are often recognized as discreet and modest, and hardly ever express their true opinions or feelings. The reason of their passive and introverted behavior is examined within the context of the research question and hypotheses which follow.

RESEARCH QUESTION AND HYPOTHESES:

1. Why do Japanese students behave stereotypically in the American classroom while they are here to learn and discover something different?

2. (H1) While Japanese students in the United States are here to learn more about the host culture, the longer they are exposed to the culture, the more reticent they become or fall back on the conservative behavior patterns of their parents.

(H2) Over the time during their stay in the U.S., because of the effects of *amae* (passive, dependent love) in Japanese culture.

My major hypothesis is that young Japanese students become more traditional and conservative on Japanese culture terms the longer they stay in college in the U.S. Evidence for this traditional, conservative cultural attribute will be detailed in the reticence of students in the classroom and in their reliance on *amae* relationships between teacher and student. *Amae*, namely, dependent and passive feelings towards the others might be seen in their attitudes and behavior especially in American ESL classrooms which could be the mutual misunderstandings for both Japanese students and American instructors.

METHODOLOGY:

The research procedures are based on the methods of ethnographic data collection in the ESL classroom, and more specific results were obtained from the questionnaires which were given to Japanese students currently enrolling at St. Cloud State University. In order to see the response differences based on age difference, a questionnaire was also given to a group of high school students who participated in the three-week-summer ESL program at SCSU in 1999. Individual interviews were also carried out after the general questionnaire. There was no video-taping during the observation nor individual interviews, but data were recorded through note-taking by the researcher.

CONCLUSIONS:

Analysis of the data confirm both hypotheses and gives a good account of the passive and conservative attitudes of Japanese students in the American classroom. The responses from questionnaire and individual interviews revealed that the longer the Japanese students are exposed to the western classroom environment, the more they realize themselves becoming traditional, typical Japanese under the concept of *amae*. The data has also shown that their cultural discontinuities encountered in the U.S. are pushing those Japanese students to become more traditionally Japanese than they were before. Their attitude stems from the huge differences in the educational systems between Japan and the United States, but the most prominent difference is that, in Japan, teachers and students are united by strong mutual concept, namely, *amae*. Even though students are fully aware that *amae* would

not work in the American classroom, they are isolated and shocked with the reality of this different culture, and so they eventually turn back to their stereotypical Japanese behavioral patterns. What students have to realize immediately is that *amae* feelings will not work in American classrooms. ESL teachers and university administrators need to help these students adjust, with the knowledge of *amae* feelings of each Japanese, but without being over-sensitive to Japanese culture. Too much care and understanding can eventually spoil students' opportunities and abilities completely.

APPROVED BY RESEARCH COMMITTEE, MAY 2000

James H. Robinson, Chairperson

EVALUATING THE CURRICULUM FOR AN ESL, HIGH-INTERMEDIATE, READING AND WRITING COURSE

Kevin Wahl

This study investigates the curriculum for an ESL, high-intermediate, reading and writing course. First, it describes the core elements of an initial curriculum, describes placement procedures for incoming international students, reports on the reflective perceptions of students to an additional curricular element, and reports on instructors' and program directors' reflective perceptions of the curriculum. Second, an independent reading and writing project implemented during the term is described and the substitution of alternative rhetorical forms into the curriculum is discussed. Third, a redesigned independent reading and writing project is discussed, and a revised curriculum is presented. The primary elements of the curriculum were found to be well supported and approved of by the participants in the study, and the minor adjustments to the initial curriculum are discussed as beneficial additions in the revised curriculum.

APPROVED BY RESEARCH COMMITTEE, MAY 2000

Russell Arent, Chairperson

A PROPOSAL FOR EXPANDING CRITICAL THINKING IN COMPOSITION CURRICULA AT MINNESOTA TECHNICAL COLLEGES

Harold Weseloh

The purpose of this thesis is to explore the increasing demand by employers for critical thinking skills among Minnesota technical college graduates, the opportunity to introduce and to enhance those skills via a first-year composition course. In this thesis I also probed the importance of critical thinking skills for the active participation of technical college graduates in society.

Using information gleaned from varied, credible print and electronic courses, complemented by interviews with education personnel, I have built an argument for increasing the exposure of technical college students to critical thinking. In an evolving workplace demanding more flexibility and more lifelong learning of its workers, critical thinking and its accompanying skills.

Chapter 1 introduces the mutating higher education system in Minnesota which is dominated by the 1995 merger of the state's four-year universities, two-year community colleges and technical colleges under a single administration. Chapter 2 explains critical thinking and its accompanying skills.

The third thesis chapter examines what employers are seeking of their new hires and current employees in terms of critical thinking skills such as problem solving, analysis of information and synthesis. Results of national, state and local studies and surveys underscore the rising demand of employers of critical thinking.

Chapter four discusses why a writing course is the optimum venue for developing critical thinking and why writing is the best exercise for critical thinking. Chapter five reveals what has changed in general education since the MnSCU merger and the status of several Minnesota technical colleges and what they offer in composition and critical thinking curricula. Chapter six highlights the modification of pedagogy that will be needed to effect and elevated teaching of critical thinking. Chapter seven, the final chapter, discusses the commitment necessary from MnSCU to increase the critical thinking skills coveted by employers and rewarded by democracies.

APPROVED BY RESEARCH COMMITTEE, APRIL 1999

Donna Gorrell, Chairperson

THE PROXIMITY PRINCIPLE: A STUDY OF NATIVE AND NON-NATIVE SPEAKER USAGE

Kasya L. Wilhite

This study focuses on the verb usage by native and non-native speakers of English with regard to the proximity principle in "either . . . or," "neither . . . nor," and "none. . . of" statements.

According to prescriptive grammar, a verb must match the subject in a sentence. If the sentence contains a singular and a plural subject connected with the coordinating conjunctions "either . . . or" and "neither . . . nor," then the verb must match the subject which is nearest the verb: Either the boys or the girls is smart. Neither the boy nor the girls are smart. The proximity principle also states that when both a singular and plural subject are present, the verb should match the subject nearest the verb. However, the rules differ when the sentence contains the word "none" followed by a prepositional phrase. Prescriptive grammar favors the use of "none" as singular subjects: None of the boys is home. The proximity principle prefers to focus on the noun closest to the verb: None of the boys are home (proximity principle).

This study was performed with a subject-verb usage survey. The participants in the study were comprised of native and non-native speakers of English enrolled in English classes on the St. Cloud State University campus.

Results indicate that non-native English speakers tend to follow the proximity principle. The results for native speakers, although complex, show a preference for use of the plural verb form regardless of the situation.

APPROVED BY RESEARCH COMMITTEE, MAY 1999

Suellen Rundquist, Chairperson

CATHARSIS IN JOHN DONNE'S SERMONS

Roseann Wolak

The sermon serves a dual purpose. First, in its exegetical form it instructs the congregation in the ways of faith. Second, in the hands of a skilled preacher, it encourages the congregation to repent. Ultimately, the sermon is designed to bring man closer to God. The congregation identifies with the preacher and so they desire to change or improve. The sermon experience elicits a range of emotions in the audience--guilt, fear, sorrow, longing, hope and joy. The preacher's words are the catalyst that help encourage the audience to seek correction. In many ways the relationship between the orator and the auditor is similar to the relationship between the actor and the audience. In both situations the listener (or observer) experiences a revelation based on their identification with the orator/actor. Aristotle valued drama and this type of interaction because it served as a method of instruction. Just as the dramatic tragedy provided a means of releasing pent-up emotions (catharsis) the sermon too can provide a cathartic release of emotions. John Donne's sermons are analyzed to reveal his dramatic techniques and his skillful presentations. Just as he has adopted a life of service to God, he encourages his audience to seek forgiveness and salvation.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1998

James B. Anderson, Chairperson

COLLEGE OF SCIENCE AND ENGINEERING

BIOLOGY

NORTHERN GREAT PLAINS GRASSLAND: AN INVESTIGATION OF EARLY SCIENTIFIC RENEWAL EFFORTS

Nancy R. Klapotz

This study examines selected scientific episodes of biological significance during the last half of the 19th and early years of the 20th centuries which directly affected both the indigenous grass species of the North Great Plains as well as the foreign grass imports destined for this region of the United States. Analyzing relevant official federal documents generated by various government agencies and pertinent writings by noted scientists of the day reveal the events and evolving thoughts regarding exotic Poaceae introduction. Such knowledge is critical in understanding the current grass composition of the dry plains drained by the Upper Missouri River.

APPROVED BY RESEARCH COMMITTEE, MAY 1999

Thomas Clapp, Chairperson

EFFECT OF RETINOIC ACID ON XGBX-2 EXPRESSION

Xiaodong Li

Xgbx-2 is a homeobox gene that regulates the formation of the mid-hind brain boundary. It is first detectable by *in situ* hybridization at the midgastrula stage when it is predominantly expressed in the dorsolateral ectoderm, with a gap in expression at the dorsal midline. By the end of gastrulation and during neurulation, *Xgbx-2* expressed dorsolaterally in the neural ectoderm, and laterally and ventrally in the epidermis with sharp anterior expression borders in both tissues. The anterior most expression in the neural ectoderm persists throughout the early stages of development, and was mapped to the region of rhombomere 1, with an anterior expression border in the region of the midbrain-hindbrain boundary. This *Xgbx-2* is expressed anterior to the *Hox* genes, the putative master control homeobox genes required for trunk patterning and development. It is reasonable to anticipate that like the *Hox* genes role in trunk development, *Xgbx-2* may be critical for the development of structures in more anterior regions of animals.

Retinoic acid (RA) is able to alter profoundly primary axis formation in the frog *Xenopus laevis*. In a dose-dependent way, RA acts during gastrula and early neurula stages to truncate progressively the resulting anterior-posterior axis, with anterior structures being most sensitive. Both anterior mesodermal (heart) and ectodermal (cement gland, eyes, and brain) lineages are affected. Anterior-specific gene expression is suppressed with the concomitant increase of at least one posterior-specific RNA. *Xgbx-2* expression is also induced by RA in *Xenopus* embryonic explants, and RA treatment of whole embryos expands and enhances *Xgbx-2* expression in the ectoderm. Thus, to understand the relationship between RA and *Xgbx-2* expression, it is important to reveal the actual effect of RA on homeobox genes. In fact it is likely that an increased understanding of the regulation of homeobox genes such as *Xgbx-2* by RA and other retinoids will help to explain the multiple important effects this class of compounds has on developing animals.

Although many findings provide evidence that RA acts as a posteriorizing agent, there are also some opposite observations. It is important to reveal the actual effect of RA on homeobox genes. We studied the effect of RA on *Xgbx-2* expression in three aspects, including examining the dose response of *Xgbx-2* expression to various retinoids in *Xenopus* animal caps, documenting the developmental timing of *Xgbx-2* expression sensitivity to retinoids in *Xenopus* animal caps, and determining whether RA directly affects *Xgbx-2* expression.

The amount of *Xgbx-2* messenger RNA was measured by using RT-PCR techniques. The results showed RA has positive regulatory effects on *Xgbx-2* expression. *9-cis*-RA is a stronger inducer than *all-trans*-RA, but retinol has no effect on *Xgbx-2* expression. These results are consistent with the function of endogenous RA in *Xenopus* embryos. *9-cis*-RA started to induce *Xgbx-2* mRNA at stage 10, and mRNA reached the highest levels at 16. Utilizing cycloheximide to block protein synthesis, we showed that the effect of RA on *Xgbx-2* expression is direct.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1998
Timothy Schuh, Chairperson

COMPUTER SCIENCE

USING A GENETIC ALGORITHM FOR RECTILINEAR PICTURE COMPRESSION

Sameer O. Abufardeh

Genetic Algorithms (GA's) are search procedures based on natural selection and genetics. GA's have become a useful tool to approximate solutions to difficult search and optimization problems. In this thesis I describe a GA to search for an optimal solution to the Rectilinear Picture Compression Problem (RPC), a combinatorial problem that seeks the minimum number of rectangles (possibly overlapping) needed to cover precisely the entries of a matrix that are 1's.

I describe a generational genetic algorithm for RPC and compare its performance on a set of sixteen test problem instances with that of a simple greedy heuristic.

The GA was able to produce an acceptable solution to most instances of the RPC. Compared to the heuristic, the GA produced better results on most of the test instances. Unresolved challenges include minimizing the number of overlapped rectangles included in the solution, and the ability to handle large-scale problems with less structure.

APPROVED BY RESEARCH COMMITTEE, MAY 2000
Bryant Juhlstrom, Chairperson

ENVIRONMENTAL AND TECHNOLOGICAL STUDIES

A STUDY OF COOPERATIVE LEARNING AND ITS EFFECT ON NINTH GRADE ELECTIVE ELECTRONICS

Michael M. Beseres

In the last century many sectors of American society have experienced unprecedented growth, change and progress, yet within this same society exists an institution that appears locked into the same mode of operation that it utilized at the beginning of this century. The American institution of education has failed to keep pace with the other scientific, economic, and industrial sectors of the country and is now bearing the unfavorable criticism that it is an outdated and outmoded relic of the past. To many within education this criticism has created an urgent need to change their profession into a more efficient and desirable institution. It is through increased emphasis on research and the application of new methodologies that today's educational system can redeem itself in the eyes of society.

This study will research a relatively new teaching method/style called cooperative learning. Cooperative learning, unlike its opposing learning styles of individualized and competitive learning, emphasizes the cooperative efforts of the group in the process of learning. Cooperative learning encourages the sharing of ideas, peer tutoring, and the goal of universal student success. It is believed, and the premise of this study is that cooperative learning, because of its group learning philosophy, will provide the student a better opportunity to achieve greater academic success and better opportunity to achieve greater academic success and obtain a more positive self-concept than if s/he were taught with an individualized learning style.

The need to improve and maintain the quality of the American educational system cannot be overstressed. The very quality of life that we now enjoy and take for granted is by no means a guaranteed lifestyle for the future generations of this country. If the United States is to maintain this advantageous position in the world economy, then we as educators must provide an educational standard that meets or exceeds the educational achievement of the world's best.

The need to improve the quality of the American educational system is extremely important and a detailed inspection of its many aspects needs to be scrutinized and evaluated. In this research thesis, cooperative learning as an alternative learning style will be explored and evaluated in an effort to determine its true educational value.

APPROVED BY RESEARCH COMMITTEE, JULY 1999

Anthony Schwaller, Chairperson

A PILOT STUDY FOR PREDICTING INDOOR AIR QUALITY IN THE HOME

David D. Danforth

The purpose of this study was: (1) to predict a home's indoor air quality through the indicators for a pollutant in the home; (2) to show the need to educate the public on the dangers of poor indoor air quality in the home; (3) to develop a questionnaire that would predict a home's indoor air quality; (4) to make recommendations based on the results of the study.

The population involved in this study was located in an area of east central Minnesota. The survey size consisted of ten homes. A four-part questionnaire was developed and hand delivered to each of the ten residences. The questionnaire gathered information on the homes' mechanical systems; indoor air exchange rates; materials in the home; energy efficiency ratings; and home activities. The questions were used to determine sources of pollutants in the home. The sources are listed in Pollutant Sources, Minnesota Extension Service, University of Minnesota (Minnesota, 1994). The information derived from the questionnaire was compared to an instrument test on the homes' indoor air, and to the Occupational Safety and Health Administration (OSHA) standards for carbon monoxide 35 ppm (8-hr time weighted average); nitrogen dioxide 1 ppm (8-hr time weighted average); and formaldehyde 1 ppm (8-hr time weighted average). Temperature and relative humidity were determined using a Solomat MPM 4000 IAQ meter. Recommendations were based on the results of the study.

APPROVED BY RESEARCH COMMITTEE, JULY 1998

Anthony Schwaller, Chairperson

MATHEMATICS

TEACHERS' PERCEPTIONS OF HOW BLOCK SCHEDULING AFFECTS ACADEMIC ACHIEVEMENT

Linda S. Kingston

Since the reporting of the rather low standings in the Third International Mathematics and Science Study (TIMSS), educators throughout the United States have been searching for a way to improve the scores of students in both science and math. One direction educators have looked to is the area of scheduling time; do we as educators have enough quality time with our students? Scheduling at the high school level has become an issue of great debate. There are those who believe block scheduling is the answer to our low standings in math and science as compared to other nations. There are also those who believe that block scheduling will only hurt students. This research has found that, as of yet, there is no strong evidence to support or refute claims of success in the area of block scheduling. There is still substantial work that needs to be done to determine whether or not block scheduling is the answer to low mathematics test scores.

APPROVED BY RESEARCH COMMITTEE, APRIL 2000

Michael B. Fiske, Chairperson

THE FUNCTION CONCEPT: BUILDING A FOUNDATION IN THE MIDDLE SCHOOL

Steven R. Larsen

PROBLEM:

Functions play an important role in unifying the mathematics curriculum at all levels. However, research indicates that secondary mathematics students have serious misconceptions about the function concept.

PROCEDURE:

A class of eighth-grade students was pretested with items that address various function concepts. Students were then presented with a function unit. Following the unit, students were post-tested. The results of the test were then analyzed.

FINDINGS:

First, students were found to have significantly improved graphical interpretations. Secondly, in contrast to research examples of students in the traditional curriculum, students in this study became much more flexible in identifying and producing functions. Thirdly, students' descriptions of functions improved greatly, whereas research studies indicate that students with limited mathematics experience have much more limited ideas about functions. An important result is that students' conceptual understandings of functions improved, as many students described a function in terms of a correspondence.

CONCLUSION:

The teaching of functions needs to be addressed carefully. Students in the study demonstrated that a stronger foundation for conceptual understanding can be met at the middle school level.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1998

Michael Fiske, Chairperson

INTERNET AND MATHEMATICS EDUCATION: HOW HAS THE INTERNET IMPACTED THE WAY IN WHICH MATHEMATICS IS BEING TAUGHT? WHAT WILL BE THE MATH TEACHER'S ROLE?

Michael E. Vander Berg

Internet technology has had a significant impact on western civilization at the close of this millennium. Although its history dates back to the late 1960s, the Internet did not become a prevalent part of United States society until the mid 1990s. As this technology became more popular, it began to affect the teaching of mathematics. As with any new endeavor in education, this rapid transition has brought on a great deal of debate. Although the benefits of using the Internet in education are obvious, many would argue that the educational costs are too great. Regardless of one's opinions, most would agree that the Internet will have a definite impact in mathematics education. Therefore, it is important that mathematics teachers know and understand their role concerning this technology.

In this paper, I will study the ways in which the Internet has impacted mathematics teaching. Also, I wanted to address the teacher's role in relation to Internet technology. In order to answer these questions, I interviewed five mathematics teachers and one research teacher. The structured interviews consisted of ten questions that were designed to answer my thesis questions.

According to the subjects interviewed, the Internet will provide teachers with another tool to motivate students to learn mathematics. Also, the Internet gave them greater access to find additional teaching resources. These teachers were also encouraged by the motivational impact that the Internet had on their students. However, they emphasized the Internet is another teaching tool and nothing more.

Most of the teachers interviewed felt that the role of the mathematics teacher would not be greatly altered by this technology. Teachers would still need to take an active role in teaching their curriculum. Although the Internet has the potential to change the role of the teacher, they felt obligated to maintain their current curriculum structure.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1998
Michael Fiske, Chairperson

COLLEGE OF SOCIAL SCIENCES

CRIMINAL JUSTICE

THE SOCIAL STRUCTURAL CONTEXT OF MINNESOTA'S JUVENILE JUSTICE SYSTEM: URBAN AND RURAL VARIATIONS IN YOUTH INTERVENTION

Marco Dinzeo

Despite statutes and rules of statewide applicability, juvenile justice administration varies consistently with urban and rural social structural context. In urban counties, which are more heterogeneous and diverse, juvenile justice intervention is more formal and due process oriented. Formality, in turn, is associated with greater severity in pre-petition screening, preadjudicatory detention, and sentencing practices. By contrast, in more homogeneous and residentially stable rural counties, juvenile courts are substantially and procedurally less formal and, as a result, process juveniles less severely.

The purpose of this study was to determine whether a juvenile court's degree of urban-rural composition affects the ways in which juvenile offenders are petitioned, detained, and sentenced in Minnesota. Previous research in both the field of urban-rural sociology and public policy decision making suggested that differences in the location of the juvenile court may result in different dispositional practices imposed on juvenile offenders. Data for this study consisted of a youth-based data file that analyzed 18,235 individual juveniles whose cases were formally petitioned in Minnesota's juvenile courts in 1995.

Results indicate that ostensibly similar juvenile offenders were treated differently depending on whether they were processed in urban or in rural courts. Formal, urban courts petitioned, detained, and sentenced youths more severely than informal, rural courts. The findings suggest that juveniles who appear before one judge will be treated differently than youths who appear before another judge, regardless of who they are or what their present offense and prior record might be.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1998

Richard Lawrence, Chairperson

AN IDENTIFICATION OF THE TYPES AND CHARACTERISTICS OF FALSE SECURITY ALARM PRODUCERS IN THE CITY OF SAINT PAUL, MINNESOTA

Troy A. Gilbertson

BACKGROUND:

A literature review was conducted to establish what was known about false security alarms. Four major topic areas were discussed: the purpose of a security alarm system and sources of false alarms, a profile of the security alarm industry, security alarms in commercial and residential applications, and security alarm regulatory policies. The review suggested that problems of false alarms including high rates of false alarms and substantial costs to government have been similar in jurisdictions across the country.

PROBLEM:

It has been a widely held belief that false alarm fines reduce the number of false alarm calls for service per alarm system. It was not known if types of false alarm producers or their characteristics could be identified; and if so, how those types performed in relation to each other. A unique database of false security alarm calls was available in the City of Saint Paul, Minnesota. The City had a false alarm reduction strategy utilizing permits for alarm systems and fines for police response to false alarms since 1985. However, in 1991 a need was perceived by the City to further reduce the numbers of false alarms and the reduction strategy was changed from a flat fine per occurrence to an escalating fine per occurrence for false alarms. Access to alarm permit data and false alarm calls by permit was available for research.

METHOD AND FINDINGS:

The sample consisted of tracking the false alarms generated between the years 1991 and 1997 by a cohort of the 414 new alarm permits issued by the City of Saint Paul, Minnesota in 1991. Although the numbers of active security alarm systems in the city were increasing by about 300 per year, a trend was established indicating that all false alarm calls for service had dropped by about 100 per year since 1981. Additionally, false alarm calls per alarm system dropped by about 50% during the implementation of an escalating fine reduction strategy; from 1.75 false alarms per system in 1990 to 0.96 false alarms per system in 1996.

A grouped frequency distribution of false alarms was developed which identified the types of false alarm procedures; on average, approximately 20% of this sample were zero false alarm producers, approximately 73% were compliance producers and approximately 7% were problem producers.

Possible casual factors were explored. It was determined that property type of the alarmed premises accounted for 12.9% of the variation in false alarm production. Statistically significant results indicated that residential properties produced fewer false alarm than non-profit properties (e.g., public schools), followed by commercial properties. Permit and no-permit false alarm status was also explored. Although City issued permits were required to be obtained and displayed for all private security systems in Saint Paul, about 35% of the sample generated a false alarm without first obtaining a permit. After permit issuance, this group's performance was then tracked between 1991 and 1997. This status accounted for about 5% of the variation, and was then tracked between 1991 and 1997. This status accounted for about 5% of the variation, and statistically significant results indicated that the no-permit systems generated more false alarms than the permit systems in all years.

An analysis was then conducted on the highest three frequencies of false alarms for each individual year in the data set. Selection of these highest three frequencies approximated the highest 1% of false alarm problem producers and was comprised of 25 individual permits. It was discovered that 11 of these permits were repeat problem producers. No-permit status increased dramatically from the 35% found in the overall cohort to 50% found in the high-end producers. A substantial majority of the permits were commercial property. The City's property maintenance file did not indicate that the outliers were problem properties by any other enforcement standard.

Final evaluation found a reduction in false alarms. However, in any single year between 1985 and 1996 under both the flat fine, and escalating fine reduction strategies utilized in Saint Paul, 7% to 10% of the alarm owners were problem producers. Conclusive evaluation of the reduction strategy was not possible because it was unknown how this sample of system owners would have performed in the absence of the reduction strategy. Available data merely suggested that the City could minimize but not eliminate problem producers through a reduction strategy utilizing an escalating fine.

The study concluded with a recommendation that serious reconsideration of continued public response to non-verified security alarm calls for service be given. Public response to private security alarms was clearly a wasted resource; and law enforcement, like any other bureaucracy, had a limited budget with which to provide its services. The study suggested that if these non-verified callers for service are to be answered in the future, then the cost must either be absorbed or a cost recovery program is necessary. Since continued public response to private security alarms was taken as an administrative constraint in the Saint Paul study, the researcher recommended the elimination of escalating fine reduction strategy and the adoption of an actual cost direct billing strategy.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1998

F. Barry Schreiber, Chairperson

PROFILING SERIAL MURDERERS

Christopher E. Hage

The intent of this research was to survey the purpose, history, and current problems with the profiling of serial murderers. The focus of this research was on problems such as the lack of universal offender typologies, contrasting methodologies (FBI versus Dr. Canter versus Dr. Rossmo), and the question of the ultimate utility of profiling. Analysis of these issues resulted in recommendations to remedy current problems or to improve offender profiling.

Chapter one introduced the topic and described the study's design and limitations. Chapter two examined the existing literature on serial killers and profiling, groups, and analyzed it. Chapter three looked at the various profiling typologies in use and suggested possibilities for synthesis of differing typologies. Chapter four involved a comparison of profiling methodologies. The FBI model, the Canter method, and Rossmo's geographic profiling are all detailed and the strengths and weaknesses of each method were examined. Chapter five addressed and tentatively answered the question of whether profiling is effective. Chapter six pulled together all of the issues about profiling serial murderers and makes recommendations as to how profiling might be improved.

APPROVED BY RESEARCH COMMITTEE, MAY 1999

John Campbell, Chairperson

A COMPARISON OF POLICE SCHOOL LIAISON OFFICER PROGRAMS IN MINNESOTA AND NORTHUMBERLAND COUNTY, ENGLAND, AS A PREVENTION OF YOUTH VIOLENCE

Rosanne Hansen

The purpose of this study was to conduct a comparison of the Police School Liaison Officer Programs in Minnesota and Northumberland, England, as a prevention of youth crime and violence. The purpose of schools is to educate students. Incidents of vandalism, assaults, drugs, and weapons in schools along with fear of being threatened or injured among students and teachers has brought police officers into the schools to deal with youth crime.

This study examined the role and responsibilities of Police School Liaison Officers in Minnesota and England. The evaluation and analysis compared the Liaison Officers' responses of two sites which were obtained from an open-ended survey. The responses from Minnesota were obtained from officers attending the Juvenile Officers Institute Conference in Alexandria, Minnesota, January, 1999. The second set of respondents were obtained from Youth Issue Officers in Northumberland County, England, who completed the same questionnaire, April, 1999.

The design of this comparative analysis was exploratory and descriptive. The results reflected differences in the structure of each site and recommendations were made for the design of a Police School Liaison Officer Program which will build rapport between the officer and students and reduce youth crime and violence.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1999

John Campbell, Chairperson

COMPLETING THE CIRCLE: STATISTICAL ANALYSIS OF VARIABLES IN RESIDENTIAL TREATMENT

Anine P. Jensen

Juvenile crime has been increasing in the United States. Offenses are becoming more violent and more deadly, and offenders are becoming younger. Findings from previous research on correctional and residential treatment were summarized. Additionally, various definitions of "success" in previous research studies are explored.

Data regarding 56 students discharged from residential treatment at Northwood Children's Services between November 1995 and February 1997 were examined. Data collection instruments were standardized questionnaires developed and used by the Minnesota Council of Child Caring Agencies. Demographic features of the sample were reported. The data were analyzed to determine which variables had a significant effect on a student's future success.

A "successful discharge" was defined as: school behavior problems less than or equal to the level at intake; law abiding during the student's stay at the facility; and completion of the program. A "successful outcome" at six month follow up data collection point was defined as: school behavior problems less than or equal to the level at discharge; remaining law abiding; and attending school or employed.

Variables analyzed included:

Independent

age
gender
race
delinquency history
prior adjudications

Dependent

adjudication during treatment
adjudication after discharge
school problems
attending school/employed
completion of the program

services received
(35 therapeutic services)
school problems
family involvement
SW/PO involvement
family support
SW/PO support

There was only one relationship that was statistically significant at the .05 confidence level. Students who had families that were involved in their treatment were adjudicated for fewer status offenses.

The majority of students, 38 (67.9%), completed the program and had a successful discharge. Problems in school had decreased at discharge and adjudication rates increased during treatment. At the follow-up, 47 (84%), had a "successful outcome." The majority, 47 students(84%), were attending school and/or working or had graduated. School related services that were provided had decreased to 21 (37.5%) of the students. Overall, 24 (42.9%) of the students had not been adjudicated since discharge. The number of status offenders dropped, but there was a slight increase in felony level offenders. Although adjudication rates had increased at the six-month follow-up, they did not reach the pre-treatment level.

The following recommendations were made: encourage family participation in and support of the treatment program; plan transition carefully; formalize an aftercare program; make specific recommendations for discharge planning; offer a continuum of care at different service levels; and continue to conduct research.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1998
Richard Lawrence, Chairperson

AN EVALUATION OF THE IMPACT OF TEN-HOUR WORK SHIFTS ON ST. CLOUD PATROL OFFICERS' PERFORMANCE AND PERCEPTIONS

Jeffrey J. Oxtou

PURPOSE:

The purpose of this study was to conduct a non-biased, quantitative evaluation of the current ten-hour work schedule of patrol division officers in the St. Cloud Minnesota Police Department (SCPD) compared to the more traditional eight-hour schedule previously used.

METHOD:

The evaluation of the ten-hour shift was divided into two components. The first consisted of the analysis of routinely collected set of objective departmental statistics for the years 1993 and 1994. Calendar year 1993 was the last year the department utilized the eight-hour shift for patrol officers. The ten-hour shift was then introduced and utilized in the patrol division for calendar year 1994. The second component consisted of patrol officer perception data measured on a survey questionnaire which was administered to 33 SCPD patrol officers and patrol supervisors during calendar year 1995.

RESULTS:

The implementation of the ten-hour shift at the St. Cloud Police Department has appeared to not substantially decrease the effectiveness or efficiency of the department. Some routinely collected departmental data which were expected to decrease during the utilization of the ten-hour schedule reported unexpected increases. Included in these findings were a 25.2% increase in overtime paid and a 17.4% increase in vehicle maintenance expenses. Some departmental data expected to increase during the utilization of the ten-hour schedule reported unexpected decreases. Included in these findings were a 27.7% reduction to injuries on duty, 15.8% fewer citizen complaints, and a 23% decrease in on-duty vehicular accidents with marked squads. Other reported increases such

as a 1% increase in Part I and Part II arrest rates and a 3.2% increase in traffic citations issued, coincided with the expected results as determined through previous studies.

The ten-hour shift did apparently contribute to a substantial increase in morale and job satisfaction among the patrol officers and supervisors. Over 87% of the patrol officers and supervisors indicated that morale increased under the ten-hour schedule and that they did not want to return to the eight-hour schedule. The patrol officers and supervisors also indicated that 97% of their co-workers appeared to have positive to very positive feelings about the use of the ten-hour schedule. The results also identified demographic characteristics among the 3% of patrol officers and supervisors dissatisfied with the ten-hour shift. All of these respondents were veteran officers who were over 30 years of age and were currently married with at least two children.

The St. Cloud Police Department plans to continue utilizing the ten-hour shift due to the apparent strengths, effectiveness and widespread preference among patrol officers of its implementation.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1998

F. Barry Schreiber, Chairperson

VICTIM OFFENDER MEDIATION USED IN A PROBATION SETTING

Rochelle L. Peterson

This study explored the influence of Victim Offender Mediation on victims and offenders. Both were asked how satisfied they were with the process and results of the mediation session. Data were obtained from 242 victims and offenders from a county corrections office in west central Minnesota through the use of a mailed questionnaire. The

findings support a finding that victims and offenders are generally satisfied with the Victim Offender Mediation sessions that take place in the Kandiyohi County Community Corrections office.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1999

Mary Clifford, Chairperson

CRIMINAL PROFILING: THE EXPANSION OF LAW ENFORCEMENT EDUCATION

Nicole Wimberger

The intent of this research was to examine the three major methods of criminal profiling of the former FBI Fellowship Program in an attempt to determine an effective mechanism with which to further educate law enforcement officials both in criminal profiling and in new technologies which would assist in criminal apprehension. The research was designed as background to the formation of such an educational program.

Chapter I discusses the general outline of this program including the limitations of the research and the problems the research was intended to address. Chapter II provided an overview of the three most prominent criminal profiling methods. Chapter III examined the need for criminal profiling and the former mechanism designed to educate law enforcement in this procedure, the FBI Fellowship Program. Chapter IV provided a look to the future with recommendations for the implementation of a new program which would educate law enforcement officials in criminal profiling as well as other crime fighting techniques.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1999

John Campbell, Chairperson

GEOGRAPHY

INTEGRATING CAD AND GIS

Sonia T. Dickerson

Over the past 30 years, CAD (computer aided design) and GIS (geography information systems) have evolved to fulfill the requirements of each specific client base. In many traditional CAD organizations, CAD files have functioned as the spatial data medium and could be used in the initial set up of GIS. However, problems frequently exist with CAD files reducing the usability of the data in a GIS. The CAD file, for most purposes, is used as a way to visualize spatial data. Often, more emphasis is placed on what the printed CAD map looks like than how the data are constructed. As a result, several characteristics emerge. Symbology standards may not be enforced. The file may have been developed inconsistently using project coordinates and other coordinate systems. The polygonal and linear elements are often created for mere appearance. As a result, the elements may be incomplete or constructed using methods that produce data that is unusable in a GIS. Unique key features are only identified with a text label. Generally, the text label's association with the key feature is only proximity. The final difficulty with CAD files is the lack of documentation regarding the spatial data which they contain.

In order to maximize the utility of CAD and GIS, several criteria need to be followed when using CAD files in GIS. Application of CAD standards, element development, feature identification, and metadata capture are the primary procedures that should be followed. Application of CAD standards requires the users to define the data within the CAD file and appropriately symbolize each type of feature. Element development consists of developing the elements or graphic features with awareness of how the data will be used by other application. As a result, shapes should consist of closed polygons and continuous linear segments should be constructed as one segment per unique identification number. The pertinent features should be identified with a unique identification number. Finally, the data capture process should be documented increasing data utility.

APPROVED BY RESEARCH COMMITTEE, APRIL 2000

Benjamin Richason III, Chairperson

RAIL LINE ABANDONMENT TO TRAIL CORRIDOR: A STUDY USING THE RAIL-TRAIL CONCEPT TO CONVERT ABANDONED RAIL CORRIDORS INTO A REGIONAL TRAIL SYSTEM IN CENTRAL MINNESOTA

Tammy L. Haakonson

Central Minnesota is in the process of developing a regional trail system. This network is starting to appear because rail-trail development is creating long distance trails that can be tied in with other smaller, segmented trail systems within the three county area.

In Minnesota, railroad development started as early as the late 1800s. World War II marked the end of railroad construction in Minnesota. In the past thirty years, rail line abandonment has been at an all time high. Railbanking is one way of preserving abandoned corridors for future transportation-related uses. While railbanked, corridors can be converted into multi purpose trails.

Rail-trails are created from abandoned and converted railroad beds and are ideal for a variety of recreational uses. They can be any distance, usually follow a flat or slightly gentle grade, pass through urban, suburban, and rural areas, and can be surfaced with a variety of different materials.

Environmental benefits of rail-trail conversion include preservation of natural history and conservation of wildlife areas. Economic benefits of rail-trail conversion include motivating business relocation and expansion, increased property values, and overall community enhancement. Communities also see a growth in tourism as a result of rail-trail conversion.

Rail-trail development will always create some neighborhood concerns. When developing an abandoned corridor, the issues of privacy, property rights, property value reduction, and crime generation will arise. Most of these issues are just myths. With proper planning, these issues can be alleviated.

APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1999

Robert O. Bixby, Chairperson

AN ANALYSIS OF THE ETHNIC DISTRIBUTION OF SETTLERS TO SHERBURNE COUNTY IN 1880

Banette R. Kritzky

The United States, during the mid-nineteenth century, witnessed enormous numbers of settlers arriving from Europe and Canada. Many of these immigrants, after settling for a time along America's eastern and southern shores, continued to move westward, some eventually arriving in Sherburne County, Minnesota. The primary objective of this study is to analyze the ethnic distribution of these settlers. Secondary objectives include identifying occupations and types of agriculture and industry once practiced in Minnesota, and to briefly ascertain the various push and pull factors influencing decisions to leave homes behind.

Settlers arriving in Sherburne County found a landscape shaped by glaciation including portions of the St. Croix Moraine Complex, Grantsburg Sublobe Till Plan, Anoka Sandplain, Mississippi River Terraces, and Minnesota Tunnel Valley System. Pre-settlement vegetation included oak openings and barrens, prairie, wet prairie, aspen-oak, aspen-birch, river-bottom forest, big woods/hardwoods, and numerous swamps and associations: Milaca-Mora-Ronneby; Hayden-Braham-Emmert; Burkhardt-Chetek-Emmert; Zimmerman-Lino, Isanti-peat; and Hubbard-Estherville-Salida.

Events influencing decisions to emigrate included increases in population, starvation, political unrest, the industrial revolution, inheritance laws, farm foreclosures, social class stratification, religious persecution, and compulsory military service. Many events also occurred in Minnesota and, ultimately, Sherburne County, to pull settlers to this area. These events included the settling of disputes with indigenous Indians, creation of the Department of Immigration, official land surveying, the Homestead Act of 1862, growth of the railroad, and the rapidly growing agricultural and industrial economics.

The ethnic background for each adult settler to Sherburne County was gathered from the Minnesota 1880 census records, and entered into separate spreadsheets for Baldwin, Becker, Big Lake, Blue Hill, Clear Lake, Elk River, Haven, Livonia, Orrock, Palmer, and Santiago Townships. Census information includes the birth state and/or country name for each adult settler and the settler's parents, as well as the adult settler's occupation. Individually created databases include types of agricultural production by township and county, and a listing of Century Farms currently existing within Sherburne County.

Sherburne County was home to 2,118 adults and 1,712 children, resulting in a total county population of 3,830. Of the county's total adult population, 61% were U.S. born. The primary birth states were Maine, New York, Minnesota, Pennsylvania, and Ohio. Foreign-born settlers comprised the remaining 39% of the total population with the primary birth countries listed as Canada, Sweden, Norway, England, and Ireland. The townships with the largest percentages of U.S. born settlers included Elk River, Big Lake, Baldwin, and Livonia; whereas Becker, Orrock, and Palmer Townships included a larger percentage of foreign-born settlers.

Settlers in Sherburne County were primarily farmers followed by farm laborers, railroad workers, lumbermen, school teachers, sawmill workers, and carpenters. Primary agricultural products included wheat, corn, oats, potatoes, butter, and cheese.

APPROVED BY RESEARCH COMMITTEE, MARCH 2000

Benjamin Richason III, Chairperson

GIS USE IN NONPROFIT ORGANIZATIONS: MODELS FOR TECHNICAL SUPPORT

Kim A. Lieberman

There has been tremendous growth in the use of GIS by government agencies, industries, and business over the last thirty years. GIS has moved from its origins with large, federal agencies to include both smaller and more diverse applications. This trickle-down effect has reached a level of use that includes small businesses and local governments. The potential benefit of GIS use by nonprofit organizations and grassroots community groups is great. However, their use of GIS--other than for conservation and environmental purposes--has not yet become widespread. Nonprofit organizations face many limitations of resources--time, money, staff, technology, volunteers, etc. Bringing a GIS specialist into their organization is often out of the question. However, the use of GIS for a particular problem or issue may be very relevant. How can these organizations access this tool for spatial analysis and graphic display, and yet stay within their means?

The environmental arena is the one nonprofit area that has a strong foundation in the use of GIS. This is in large part because many applications developed early on, such as for forestry and land use, were easily transferable to nonprofit organizations working in this field. These models emphasize a strong collaborative atmosphere and the sharing of software applications, along with technical support and assistance. Models of community-based technology assistance centers examined include those that simply provide basic technology skills within a neighborhood to those that collect data and provide GIS services to a large group of member organizations. Several models for GIS use by community nonprofit organizations are identified. These include developing in-house GIS capabilities, partnerships with universities, and the use of public GIS sites, among others. Each model offers possible solutions to accessing GIS, but also has constraints and limitations.

Benefits and barriers in the implementation of GIS within a nonprofit organization are presented through a case study of the Indianhead Boy Scout Council. This study examines issues faced by the nonprofit organization in its initial attempt to use GIS for project development. Significant factors, from communicating a general understanding of GIS for the non-user to development and implementation of the project are discussed. Technical aspects addressed include determining and delineating boundaries, data acquisition and manipulation, as well as data accuracy and software considerations. Additional issues common to many nonprofit and community-based groups include budget constraints and limited technology or GIS expertise.

Recommendations call for collaborative community models and GIS technology support centers. GIS and other appropriate technologies need to be made available and accessible to nonprofit organizations. This can be aided by collaboration, sharing of applications and best practices, and increasing the general awareness of how these tools can aid in fulfilling the goals and mission of the nonprofit organization.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1999

Robert O. Bixby, Chairperson

RELATING LANDSCAPE INDICES OF FOREST FRAGMENTATION TO LARGE SCALE FOREST ASSESSMENT DATA

Daniel G. Wendt

Forest fragmentation in the United States is an important conservation issue. The properties of a fragmented forest landscape (i.e., size, amount of edge, and connectivity between forest patches) affect wildlife habitat and biodiversity. Therefore, quantifying forest fragmentation in a landscape can yield important data for researchers, land managers, and public and private agencies involved in managing our natural resources.

Recent developments in the Forest Service's Forest Inventory and Monitoring (FIM) system make it possible and more feasible to collect forest fragmentation data on a large scale basis and to include this data in the inventory database. This thesis develops a methodology to link forest fragmentation indices to the FIM database.

The study area encompasses most of the states of Illinois and Indiana, for which forest fragmentation indices related to patch numbers and size, core areas, distance-to-forest and edge length are developed. The indice values are sampled by use of the FIM hexagon grid then summarized and presented in tables according to FIM unit and ecological section. Distributions are also mapped and discussed. FIM data is compiled for each hexagon as well as the fragmentation indices.

A Spearman's Rank correlation is performed to discover relationships between the two data sets. Among the FIM variables and fragmentation indices found to be most correlated are the diameter-at-breast-height, basal area and trees per acre variables with edge length and core area indices.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1999
Benjamin F. Richason III, Chairperson

HISTORY

THE SOUTHERN FRONT OF THE GREAT WAR FOR MOTHER RUSSIA WORLD WAR II

Robert A. Bos

At 3:30 a.m. on June 22, 1941, 3.5 million mostly German, along with about 15% of their Rumanian, Hungarian, and Italian satellites started "Operation Barbarossa" which was the invasion of Russia. Shortly after, they were joined by the furious fighting Finns.

The Russo-German War of 1941-1945 was the most awesomely violent war ever fought on such a grandiose level. For over 47 months from June 22, 1941, until early May, 1945, 7-9 million men on both sides were engaged in combat in varying degrees along a front that usually averaged at least 2,000 miles in Russia, as well as another 500 miles on the Russo-Finnish frontier.

To further complicate the drama of this situation, these two great powers were initially controlled by two of the most awful megalomaniacal, egocentric, ethnocentric dictators in world history, Stalin and Hitler, and also probably the to most evil people who ever lived. Some of these battles, especially Stalingrad, ended up partly as tests of egos and wills. Of these two-demagogues, and Hitler was burned badly there.

The fighting started out at about 1,600 miles (nearly the length of the USA's border with Mexico) from the Balkans tot he Baltic. However, this was like a reversed funnel as the German Wehrmacht (army) drove eastward, especially in the Baltic. The fighting boundaries grew much longer as Field Marshal von Liske's Army Group North direction become north by northeast as they approached the Baltic countries and Leningrad. The Germans occupied 650,000 square miles of the USSR and by late 1941, about 800,000 square miles at the maximum when the Wehrmacht occupied Russia's lands east and southward of Rostov on a good part of the Caucasian Isthmus during the later part of 1942. Altogether, about 80 million Soviet citizens were under German occupation and about 17 million of these mostly Slavic civilians were killed.

The German Wehrmacht occupied 42% of Russian croplands, mostly in the Ukraine, which created a situation in which the Russian population was quite hungry during much of the war, but not in general starvation, except for the Sieges of Leningrad and perhaps Sevastopol. Going into 1943, mostly American aid fed the Russian military quite well for the remainder of the war. This food was just a small part of the aid that the Allies were shipping to Russia.

We have overviewed most ingredients of this awful war, while especially focusing on the southern front of this awful Russo-German war.

Fortunately for the Russians, after the disaster of World War I, they had started preparation for a major war in the mid-1920s and they had about one-third of their base coal, steel, and electrical industries scattered in or near Asia, mostly near the Urals. Unfortunately, most of the machine building manufacturing facilities remained in the west until the war started. The Russians also had stockpiled both some raw and finished goods and grains. A good share of these goods that was too far to the west fell into German hands. They were especially in good stead to

generally have enough ammunition stockpiled to get them through the awful initial German thrust eastward, and into 1942, the period when they were most vulnerable. During the summer and fall of 1941, the Russians, who had already moved some of their factories eastward, were frantically moving what they could of their western factories far to the east

Therefore, when three and one-half million of Hitler's barbarian hordes invaded Russia on June 22, 1941, the Russian people were somewhat prepared, except for the fact that Stalin would not allow his forces to be put on alert, even though overwhelming evidence showed that the German Wehrmacht was very soon to invade. Stalin also stacked way too much of his army at the western frontier; and worst of all, he would not allow the Russian Army to withdraw eastward, which probably accounted for 3.5 million casualties of the five million they suffered in the first five months of the war.

After the initial German thrust with the successes and short-lived euphoria of the first five months, things took on somewhat of a different complexion. During the Russian Winter campaign of 1941-1942, the Russians pushed the Wehrmacht westward on a 600-mile front while inflicting heavy losses on the Wehrmacht. The following summer Hitler launched Operation Blau, which he attempted to seize control of much of the southwest Russia including the Caucasus's oil fields. Operation Blau proved to be a disaster for Germany, and a major part of this was when the war reached what proved to be its turning point with the Russian victory of the Battle of Stalingrad, on February 2, 1943, which was confirmed in July of 1943 at the Battle of Kursk. Thereafter, for the next 21 months, the Big Red Mean Russian War Machine pushed the German Wehrmacht backward and westward to Germany. Shortly after the fall of Berlin in late April/early May, 1945, the Allies accepted the unconditional surrender of the Third Reich. Hitler was dead by his own hand, and the Euro-Theater of World War II was over on May 8-9, 1945.

APPROVED BY RESEARCH COMMITTEE, JULY 1998

Richard Lewis, Chairperson

MEN TALKING

Sean Philip Faulk

The Cultural Revolution of the 1960s and 1970s inspired many Americans to stand up for what they believed. For women, that meant protesting the ways in which they had been treated as second-class citizens. Across the country, they came together in what they called *consciousness-raising* groups to uncover the limitations that they faced. After that, those small groups began to reach out to one another and create national organizations based on the oppression that they had identified in the small groups. The focus of the national organizations was to transform the personal struggles of women into a political movement for change. The motto the "personal is political" became the mantra of the highly successful Women's Liberation Movement.

Inspired by the success of the women's movement, men in the 1970s gathered in small groups, much in the same way women had, to investigate the ways in which society's expectations had limited them. Finding that they did, in fact, feel similar pressures, a small percentage of American men began to follow the steps of the women's movement to transform their personal struggles into social change. In spite of their efforts over the past thirty years, the men's movement has failed to produce the same sort of large-scale social change because the men's movement has never been able to make the personal become political in the way that the women's movement had. Their personal remained personal. Yet, in spite of that reality, a small percentage of American men still participate in the men's movement and find personal growth from it.

In the past, historians have investigated the men's movement from a national perspective, yet they have largely ignored the stories of the smaller local organizations. The history of these local organizations is crucial to understanding why the men's movement was never able to make the transition from the personal to the political and how it has managed to survive in spite of that fact. The Men's Center in Minneapolis represents an organization of men who came together to discover the personal effects of society's expectations for men. Realizing their similarities, they created an organization for promoting change in this area. Throughout the 1970s and 1980s, they struggled to maintain themselves as an organization for all men as individual causes threatened to pull them apart.

The fact that they chose not to delve into one specific cause has limited their ability to transform the personal into the political and has made fundraising difficult.

Despite these struggles, The Men's Center survived the seventies and eighties by helping individual men make personal changes. In the nineties, The Men's Center struggled as a new generation of men came of age and reached adulthood. During that decade, the men's center met the challenges, as they always had, by remaining flexible and open to all men's issues.

Unlike the women's movement, the men's movement was never able to transform the personal issues of its members into a political agenda. While this prevented the movement from ever achieving large-scale social change, the men's movement has helped many men make personal changes that have improved the quality of life that they enjoy. The Men's Center of Minneapolis provides an excellent example of this. It reached out to men in an effort to help them make personal change. In doing so, it became and remains an important part of the network of social services within Minnesota.

APPROVED BY RESEARCH COMMITTEE, MAY 2000

Lee Simpson, Chairperson

VICTORIAN INTERIOR DECORATION IN RURAL SHERBURNE AND WRIGHT COUNTIES OF MINNESOTA, 1870-1910

Rebecca Jacobson Hagen

In the 1970s there was an increased interest in the historical community in the Victorian interior. Unfortunately, much of this interest and research focused on urban Victorian homes of the upper middle and upper classes. Little research was done on contemporary homes in small rural communities and farms.

This study seeks to answer a number of questions regarding rural interior decoration: What did the rural interior look like? How did it compare to the Victorian ideals set forth by critics and house plan designers of the day? How did the rural home compare to its urban counterparts? Rural homes of Wright and Sherburne counties of central Minnesota were selected for comparison with the general decorating styles of urban homes as described by critics and plan book authors of the day.

To compare rural and urban interiors, models of each type of interior were created for the periods 1870-1890 and 1890-1910. A review of primary and secondary sources helped create the urban profile, a listing of architectural styles, furniture, textiles, wall treatments, and household technologies. This profile is described in Chapter One.

The rural profile was created in part by analyzing the levels of commerce relating to home decorating in Wright and Sherburne Counties for the periods 1870-1890 and 1890-1910. This information is detailed in Chapter Two. The rural interior is further fleshed out in Chapter Three through an analysis of actual interior furnishings in the counties as determined through extant photographs, newspaper advertisements, probate records, and objects in the collections of local historical museums.

The results of the study indicate that generally there was little resemblance between rural Wright and Sherburne homes of the 1870-1890 period and urban homes of the same period. The difference existed not because rural settlers were unaware of furnishing trends, but because home building and farm establishment took precedence over fashionable home decorating.

By the 1890-1910 period, however, there were great similarities between rural and middle to upper middle class urban homes. Furniture, wall treatments, floor coverings, and the like were shown to be similar. The greatest differences were in the level of household technology, with rural homes much slower to have technological advances such as indoor plumbing and electricity than their urban counterparts.

APPROVED BY RESEARCH COMMITTEE: DECEMBER 1999

Don Hofsommer, Chairperson

HOMESTEADS AND LAND EVOLUTION AT MILLE LACS KATHIO

Sara Markoe Hanson

The area of Mille Lacs Kathio has attracted many people over the centuries who have altered and manipulated the land. The landscape at Mille Lacs Kathio has been changed drastically in the wake of the lumber industry. The residents who have since altered the landscape came on the heels of the logging camps and have made an impact on the area of many ways including the creation of the State Park. Each site has a story: uncovering those stories and how they have changed the landscape was the goal of this work. Through legal documents, photographs, oral history interview, and field examinations these stories were revealed.

American Indians have used the land at Mille Lacs Kathio for centuries. Treaties between the United States Government and the American Indians opened this area for logging and settlement. The arrival of logging at Kathio caused a vast change in the land use. The forests were altered irrevocably causing the need for adaptation. The cutover parcels were available to homesteaders and the transformation of the land to agriculture changed the landscape even further.

By the earlier twentieth century, the area known as Kathio was still sparsely populated. It was within this period that the sites examined were settled. Three sites were chosen for analysis because of their interpretative value and the availability of research materials. The Wilford Site was used primarily as a habitation site with minimal agriculture, while the Asmus Farm and the Moore Farm were used more extensively as farmland.

The Wilford Site and its residents were the least successful farmers in this area due partly to their use of the land. The Swedberg family and the Kvale family at a similar site just north of the Wilford Site either avoided agricultural pursuits or were not very successful at making the land profitable. The location of the Wilford and adjacent sites is, at best, poor farmland.

The Asmus and Moore Farms located farther south from Lake Mille Lacs were more successful farms and allowed the families to profit from their undertakings. The Asmus family was the most successful of the three examined due largely to activities outside of the farm that were used to generate income. Many of the more unsuccessful residents moved out of the Mille Lacs Kathio area and left their land. The state of Minnesota formed Mille Lacs Kathio State Park in 1957 using much of this deserted land.

APPROVED BY RESEARCH COMMITTEE, JUNE 1999

Richard Rothaus, Chairperson

ST. CLOUD'S MUNSINGER AND CLEMENS GARDENS: A PUBLIC LEGACY

Ann Marie Johnson

This thesis describes the history and evolution of the Munsinger and Clemens Gardens, municipal gardens located in southeast St. Cloud along the east bank of the Mississippi River. During the early 1930s, Munsinger Garden was established under the direction of the city's first park superintendent, Joseph Munsinger. Approximately half a century later, the Clemens Gardens were developed as a result of the inspiration of St. Cloud's present nursery supervisor, David Morreim, and the patronage of William Clemens, a local entrepreneur. Since their inception, the Munsinger and Clemens Gardens, two seemingly disparate gardens that are linked by site, design, and spirit, have evolved to become one of the finest municipal gardens in the nation.

St. Cloud's Munsinger and Clemens Gardens have become an important part of the city's heritage. In the same way that pyramids provide data on ancient Egypt and Gothic cathedrals disclose information on the Middle Ages, gardens reveal insights about the cultures in which they were created and maintained. As gardens are considered one of the highest representations of civilization and culture, St. Cloud's gardens represent both the fine arts of horticulture and garden design as well as the community's interest in civic beautification and the dedication

and horticultural skills of their creators. The history of the Munsinger and Clemens Gardens provides a cultural record of the values and beliefs of its community and reflects the trends in American garden design during the twentieth century.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1998

Don Hofsommer, Chairperson

COMMON VALOR: A HISTORY OF THE TWELFTH WISCONSIN INFANTRY

Kerwin C. Kilian

This paper examines the Twelfth Wisconsin Volunteer Infantry, with additional focus placed on the Twelfth's Company C, and traces the men of the regiment from their enlistment and training, through the conflict, and after the war. The Twelfth Wisconsin Infantry was not a notable unit, such as the Wisconsin infantry regiments that comprised the famous Iron Brigade or the First Minnesota Infantry, but that is exactly the way the Twelfth was selected. Although the men of the Twelfth did the typical military duties of marching, camping, and occasionally fighting, for those individuals who lived and died under the colors of the Twelfth Wisconsin, their experiences in the military (and after the war) were far different from what they would have experienced had they not enlisted. Many of these soldiers, the majority of whom were volunteers, died in battle or, more commonly, from disease and would never see Wisconsin and their homes again. For those men who survived the war, life thereafter would never be the same. The Twelfth Wisconsin Infantry may have been an average regiment, yet the men in the Twelfth considered their experiences far from average.

By examining a small portion of the Civil War, such as one regiment, a better understanding of the magnitude of the whole war, and its lasting effects on the men involved, can be achieved. With all of the attention focused on famous generals and decisive battles, it is easy to forget the thousands of men who made up the hundreds of regiments that served during the war. Once the realization is made that the men who served in these oftentimes obscure units were not merely objects to be ordered about by their commanding officers, but rather were living, breathing, caring individuals, the personal side of the Civil War can be better understood.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1999

Don Hofsommer, Chairperson

THE MOST BEAUTIFUL RESORT IN IOWA: THE DEVELOPMENT OF WATERLOO'S SANS SOUCI ISLAND

Jeffrey J. Kurtz

Sans Souci Island, located in Waterloo, Iowa, was incorporated in 1897 for the purpose of establishing a leisure resort. Numerous economic and sociological factors were involved in the resort's formation. The most important factor was the construction of Waterloo's electric interurban line, first known as the Waterloo & Cedar Falls Rapid Transit Company, later the Waterloo, Cedar Falls, and Northern. As proponents of the line knew, the electric interurban was essential to Waterloo's industrial growth, and led to significant city growth.

The electric line resulted in higher property values wherever it was constructed. This was a primary motivation behind the formation of the Sans Souci resort. Developer Charles P. Bratnober was a key player in the real estate game that led to the resort's development and may have been involved in originally bringing the electric interurban line to Waterloo.

By 1899, the luxury Sans Souci Hotel was constructed on the island and many of Waterloo's upper classes flocked to the resort. For several years after the hotel opened its doors, Sans Souci was the crown jewel of the growing city of Waterloo. Yet, the constant menace of flooding combined with new forms of entertainment spelled trouble for the resort and the hotel closed its doors in 1907.

Yet, this was not the end for Sans Souci. The cottages were remodeled and now house year round residents. The scenic beauty that attracted visitors over one hundred years ago has resulted in neighborhood pride among Sans Souci residents of today.

APPROVED BY RESEARCH COMMITTEE, MAY 2000
Lee Simpson, Chairperson

NEWSPAPERS AND THE SPANISH AMERICAN WAR: EFFECTS ON A MIDWESTERN COMMUNITY

Steven C. Penick

The Spanish American War had a profound influence on the United States' foreign policy throughout the twentieth century. Stearns County, a midwestern German community in central Minnesota, expressed their reaction to this national occurrence through their local newspapers. Like other communities distant from major media centers, Stearns County newspapers responded slowly to the growing prewar issues in 1989, determining their relevance for the local population. The Democratic *St. Cloud Times*, the German Catholic *Der Nordstern*, and the Republican *St. Cloud Journal Press* were the most influential newspapers in the region. Each St. Cloud newspaper took a different position on the war and its potential political consequences.

This study will prove how these newspapers, with their respective party affiliations, brought Spanish American War issues to the local population by illustrating a variety of interpretations as they followed the Stearns County volunteers during their eighteen months of service.

APPROVED BY RESEARCH COMMITTEE, MAY 2000
Lee Simpson, Chairperson

THE HISTORICAL AND ARCHITECTURAL SIGNIFICANCE OF THE PROPOSED SOUTHSIDE HISTORICAL DISTRICT IN ST. CLOUD, MINNESOTA

Emily B. Schill

St. Cloud is a city that has lost many historical and architectural artifacts over time. The St. Cloud Heritage Preservation Commission (HPC) and concerned citizens are working together to preserve the remaining historic neighborhoods in the city. One such neighborhood is located just south of downtown and north of the St. Cloud State University campus, nestled along the Mississippi River. Since August of 1997, the St. Cloud HPC has been working to establish the first local historic residential district in the city.

In order to prove that this neighborhood is both historically and architecturally significant and worthy of preservation, this study will examine historic preservation on the local and national level, the development of the southside neighborhood, the historical and architectural significance of the properties within the proposed district and the threats facing the area.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1999
William Morgan, Chairperson

THE MINNEAPOLIS STREET RAILWAY EMERGENCE TO DISAPPEARANCE

Edward W. Solberg

From its incorporation in 1873, until Thomas Lowry, real estate investor and promoter was named President of the Minneapolis Street Railway in 1878, the company was in precarious financial condition. Nevertheless, Lowry saw the street railway as having the potential to enhance his real estate investments.

The year 1889 was one of significant change in the company's fortunes. The Company had reached an agreement with the Minneapolis City Council to install a cable system, but at the same time that the agreement on cable had been reached, the company had received authorization to install an electric line as an experiment. The latter was such a success that the company, with the city's authorization, adopted electricity as the motive power for all its transit cars. No cable cars ever saw service in Minneapolis. The Minneapolis Street Railway had been granted an exclusive franchise to operate the streetcar lines in the City of Minneapolis. The franchise, granted in 1875, was not due to Douglas & Co., as invalid. They argued that exclusivity depended on the streetcars being operated by pneumatic power or drawn by horse. As neither cable nor electricity fit the description of the franchise agreement, the claim was made that the franchise should be declared void. The City Council set aside their argument.

In 1921, just two years before the original fifty-year franchise was due to expire, the State of Minnesota intervened with passage of the Brooks-Coleman Act. This legislation allowed transit franchises to be canceled and replaced by state-issued indeterminate permits. The cities could retain control of street railways, with one exception--fares--which would come under the jurisdiction of the Railroad and Warehouse Commission. The intent had been to make rate requests less political; in fact, they had made them more so. In 1949, after a nineteen-year period when only one common stock dividend had been paid, management was replaced. The new leadership of the company had been accused by its predecessors of being more interested in the payment of dividends than in providing transit services. Streetcars were eliminated as a cost-saving measure.

After World War II, the movement of the population to the suburbs quickened, suburbs where mass transit was not an option, and where the transit vehicle of choice had become of automobile.

APPROVED BY RESEARCH COMMITTEE, APRIL 1999

Don Hofsommer, Chairperson

THE 13TH MINNESOTA VOLUNTEER REGIMENT AND THE SPANISH-AMERICAN AND PHILIPPINE-AMERICAN WARS, 1898-1899

Kyle Ward

This thesis describes and analyzes the role of the 13th Minnesota Volunteer Regiment in both the Spanish-American and Philippine-American Wars, 1898-1899. I have done this by looking at the recent literature on this topic along with researching the letters, diaries, government documents, books, and newspapers that were written by the people of that time.

With the onset of war in 1898, many Minnesotans, along with much of the United States, found themselves preparing for a war against Spain. This war was sold to the American people as an opportunity for them to bring their style of democracy to colonized people in Cuba and the Philippines.

For many Minnesotans this was the kind of adventure they felt they needed to lift them out of the mundane lifestyles they believed they were in. Enlisting in order to be part of a great adventure and to prove their manhood, these Minnesotans who became involved in these events, quickly discovered that their actions would not only help change their own, but also a great many other American's impressions of their country.

After a brief period of military training in both Minnesota and California, the 13th Minnesota was assigned to sail to the Philippines in order to help defeat the Spaniards stationed in Manila. After a rather short battle, and one which need not have been fought, the Americans defeated the Spanish.

Due to their bravery in battle, the 13th Minnesota was given the duty of patrolling Manila and its surrounding suburbs. Although not wanting this duty, and often terribly bored, the Minnesotans did it with such professionalism that Manila was soon back to its normal routine.

After seven months of tensions and misunderstandings between Emilio Aguinaldo's troops and the American's, the second war in the islands began on February 4, 1899. Although not officially involved in this battle, the Minnesotans found themselves later in the middle of an attack on Manila only three weeks later.

With the signing of the Paris Peace Treaty, which concluded the Spanish-American War, American officials decided to make the Philippines a possession of the United States. This change of policy not only caused more tensions between the Americans and Filipinos, but also forced the 13th Minnesota to become part of an offensive campaign into northern Luzon. There they were ordered to destroy both Aguinaldo's men and his equipment, thereby hopefully bringing the war to a quick and successful conclusion.

With the Filipinos beginning to rely on guerrilla warfare, and many Minnesotans fearing death, a number of members of the 13th Minnesota began writing letters home in which they both requested to be brought home, and began questioning why the United States was fighting this second war. With enough pressure from the volunteers and people at home, President McKinley began to order these citizen-soldiers home in the summer of 1898. Leaving the Philippines in August and reaching Minnesota in October, the men of the 13th Minnesota's service to their country was over.

After being welcomed home by Governor John Lind and President William McKinley, these soldiers, who 18 months earlier wanted nothing more than to escape the boredom they once knew, now wanted nothing more than to return to it.

Although history has all but forgotten the 13th Minnesota and the wars in which they fought, they did leave an impressive legacy. By both serving the nation when asked, and later questioning both their own and their government's role in fighting the Filipinos, the members of the 13th Minnesota can be remembered as reluctant heroes. Even though they helped bring America into the 20th century as a burgeoning world power, they also must never be forgotten for refusing to blindly follow their government when they felt it was doing wrong.

APPROVED BY RESEARCH COMMITTEE: AUGUST 1998

Alton Wolfer, Chairperson

SPECIAL STUDIES

FROM MOUNTAINS TO PRAIRIES: A CASE STUDY OF RURAL ETHNIC COMMUNITY FORMATION

Susan J. Brekke Benson

This study of rural community formation on the Midwestern frontier is constructed through the lens of a specific immigrant family. It attempts to determine what institutions buttressed the efforts of Norwegian immigrants to defend and transmit their ethnic identity and Old World traditions and what factors ultimately precipitated change.

The story begins in 1814 with a brief synopsis of Norwegian history and life in the community of Vik in the Sognefjord of Norway prior to the emigration of 1854 of Endre and Anna Brekke and the establishment of the Norwegian community at Ridgeway, Iowa. Endre and Anna's children prospered in Iowa. Two of them, John and Laura, sought new land in Dakota Territory where over 75 families from Vik and Central Sogn eventually settled. The formation and continuance of the Dakota Settlement is the focus of this thesis.

Norwegians who settled in relatively isolated, homogeneous rural communities were able to sustain their ethnic identities well into the twentieth century. Most influential in this process were the Norwegian Lutheran Church as the community center and conservator of the Norwegian language, and the retention of family values, especially those that assured the continuance of the family on the land. Partial dissolution of the ethnic community was primarily caused by social and geographic mobility.

APPROVED BY RESEARCH COMMITTEE, DECEMBER, 1999

William Morgan, Chairperson

METABOLIC CHARACTERISTICS OF BENCH STEPPING WITH AND WITHOUT HAND WEIGHTS

Dean E. Birchfield

The purpose of this study was to investigate the oxygen uptake and estimated caloric expenditure of a bench stepping routine using a 20.32 cm step with (W) and without (WO) 0.90 kg hand weights in a randomized counter-balanced design. Thirty female subjects (mean age=21.4±.yrs., Ht=163.22±.8 cm., Mass=62±1 kg.) performed the same 15 minute choreographed exercise video tape W and WO hand weights. The step aerobic session consisted of various arm and leg movements performed at a cadence of 120 steps per minute. Metabolic responses (VO_2 , RER) were taken with the use of an open circuit spirometry system and heart rates recorded from a CIC heart watch throughout the two separate exercise sessions. A repeated measures ANOVA was utilized to determine if there was a significant difference between HR, VO_2 and Kcal-min⁻¹ for each condition. The mean values for the variables that were tested are as follows: VO_2 W 32.38 ml·kg⁻¹·min⁻¹ and WO 29.37 ml·kg⁻¹·min⁻¹, HR W 177 bpm and WO 167 bpm and Kcal W 9.07 Kcals and WO 8.43 Kcals (*p<.05). The addition of 0.90 kg hand weights translates into an approximate 10% increase in relative VO_2 , a 6% increase in HR and a 7.5% increase in caloric expenditure from the no weight condition. This supports the use of 0.90 kg hand weights for individuals interested in increasing intensity and/or expending more calories during exercise. These data are also in agreement with previous studies showing 0.90 kg hand weights can significantly increase metabolic demand and caloric expenditure.

APPROVED BY RESEARCH COMMITTEE: MARCH 1993

David Bacharach, Chairperson

A THEORETICAL AND STRATEGIC ANALYSIS OF THREE COMMUNITY DEVELOPMENT CASE STUDIES

Brigette G. Blesi

Sustainable development improves the quality of life in a community within the carrying capacity of the ecosystem without sacrificing the future. In small, rural, agricultural-based communities, Alternative Development Strategies can create a better economically sustained and more culturally and environmentally sensitive development than conventional large scale attempts have achieved.

Development theories including the modernization, dependency, and world-systems schools enable the researcher to understand the motivations and impact of a development project. Strategic factors important to the success of a rural sustainable development project include a self-proclaimed need or goal, the sustainability in terms of resources and culture, technology transfer, and environmental soundness.

PROCEDURE:

Using these theoretical schools and strategic factors, three development case studies are analyzed. Atarekan, Ghana, is a community where World Vision had a project implementing water pumps and toilets. Nuevo Lima, Peru is a community where a partnership between U.S. A.I.D. and the Peruvian government had a project of land titling, which enabled the farmers to obtain low interest loans. Avon Township, Minnesota, United States is a community where a bioregionalism report was done and adopted as a Comprehensive Plan.

CONCLUSIONS:

Atarekan will probably continue to change or seek change because of some success as a result of this project. The community took part in all steps of the project and has gained skills to set and meet goals on their own.

Nuevo Lima was not strengthened by the project in the long-term, therefore it cannot be considered sustainable. It could have been more effective if the extension workers and titling officers were more informed and involved, so that the strategies promoted would produce sustainable results.

Avon Township's Comprehensive Plan embodies the desires of the community, however, it needs to be promoted so that all recognize that the steps in the plan, although some are unconventional, are required to keep the quality of life in the community.

APPROVED BY RESEARCH COMMITTEE, APRIL 2000

Thomas O'Toole, Chairperson

THE COLD SPRING BREWING COMPANY, 1874-1997: A HISTORY AND ANALYSIS OF A REGIONAL BREWERY

Jason J. Budnick

Beer has been an important consumer product for thousands of years. Commercial brewing in the United States progressed slowly until the mid nineteenth century. General industrial development following the Civil War, coupled with important advances in science and technology, helped lift the production of beer in America to an industry status.

In 1874 a small brewery was opened in Cold Spring, Minnesota, by a Bavarian immigrant. The brewery would change owners several times before being incorporated as the Cold Spring Brewing company in 1900. After incorporation the company grew slowly by continually as it expanded its markets and diversified its products. National Prohibition and World War II would provide unique challenges for the brewery to overcome.

A significant structural change in the United States brewing industry following World War II would prove to be a serious threat to the company's survival. This structural change was characterized by the emergence of a small number of power full national brewing companies that enjoyed significant competitive advantages over other beer producers. While many regional breweries were forced out of the brewing industry in the decades following World War II, the Cold Spring Brewing Company managed to survive.

The purpose of this study was to examine the history of the Cold Spring Brewing Company in order to ascertain the Factors relevant to the company's survival in the brewing industry. The small number of traditional brewers that have survived the pressures of the twentieth-century brewing industry makes this an important investigation. The findings of this study will help to explain how some traditional regional brewers have been able to defy industry odds and survive in the fiercely competitive commercial brewing business.

APPROVED BY RESEARCH COMMITTEE, AUGUST, 1998

Don Hofsommer, Chairperson

INFLUENCE OF PAT ROBERTSON'S CHRISTIAN BROADCASTING NETWORK IN AMERICAN TIMES NEWS PROGRAMMING

Brandi L. Canter

This study examined the impact of Pat Robertson's Christian Broadcasting Network (CBN) on nightly new programming on *American Times*. To ascertain the extent of influence of Pat Robertson's socio-political and religious views on *American Times*, *NBC Nightly News* was used as an example of mainstream network news. This paper presents a study and comparison of four weeks of news programming from these two newscasts leading up to the 1994 Congressional elections.

PROCEDURE:

The author first provides a brief context for the study by discussing theories of ideology and hegemony, the agenda setting function of television news programming and the historical context of Pat Robertson's development of televised news broadcasts.

The author then coded and analyzed newscasts according to characteristics in areas of campaign coverage and non-campaign coverage. Campaign analysis focused on horse-race and issues coverage. Non-campaign coverage analysis dealt with family and community issues, crime, government, business and foreign policy. In depth reading of stories examined symbols, stereotypes and messages used by the newscasts.

FINDINGS:

In regards to campaign coverage, while both newscasts emphasized horse-race details about the midterm elections, and an "anti-incumbent" mentality among political voters, the *American Times* campaign coverage was more biased against Democrats, and more apt to link anti-incumbent stories to a specifically anti-President Clinton viewpoint.

As to non-campaign coverage, *American Times* followed much the same format as that of *NBC Nightly News*, leading to few significant differences in overall numbers or story types. However, stories pertaining to family and community were shown more frequently on *American Times*. Further, *American Times* provided more favorable and positive coverage of community and family issues, education and religion. *American Times* also gave more coverage to dissent motivated crimes and crimes involving family violence. *NBC Nightly News* coverage of foreign policy with regards to Middle East peace talks proved to be more pessimistic and racist than that of *American Times*.

The author found CBN's impact on *American Times* in three areas: social conservatism, the role of domestic government, and mainstreaming conservative Christian activism. While *American Times* showed a conservative Christian bias overall, the underlying ideological themes did not pose a direct threat to the U.S. corporate-capitalist power elites. Moreover, socio-political and religious power holders were predominantly white males. The paper concludes with suggestions for further study.

APPROVED BY RESEARCH COMMITTEE: DECEMBER 1998

Marjorie Fish, Chairperson

THE RELATIONSHIP BETWEEN FIRST LANGUAGE ORAL PROFICIENCY AND SECOND LANGUAGE ACQUISITION

Mary E. Catherwood

In the past decade the demographic changes of many Minnesota towns and cities have brought increasing number of LEP (Limited English Proficient) students into area schools. The experience of one particular school district was investigated in the present study. In this district, standardized test scores showed that, in spite of an ESL instruction program, LEP students were not performing at grade level.

A literature review was conducted to determine the factors influencing second language acquisition. The factors investigated included the interdependence between the student's first language and second language and the importance of the affective domain in second language acquisition.

In order to measure the relationship between the first and second languages, an historical analysis of language proficiency testing in the school district was conducted. For kindergarten through fourth grade ESL students, first language proficiency on entry to school was compared to second language proficiency after one to four years of ESL instruction. The results showed that, regardless of first language proficiency at entry to school, almost all ESL students in the district struggled with cognitive/academic proficiency in their second language.

Based on the literature review and the analysis of the district's language proficiency testing it was recommended that the district launch a preschool intervention program. This program would be designed to reinforce first language proficiency and conceptual development of LEP students.

APPROVED BY RESEARCH COMMITTEE, AUGUST, 1998

James Robinson, Chairperson

CREATINE AND ANDROSTENEDIONE USE AMONG BASEBALL PLAYERS OF THE NORTH CENTRAL CONFERENCE

Joshua CR Davis

The main purpose of this study was to determine the incidence and prevalence of creatine and androstenedione use among baseball players of the NCC. The study also determined if a greater number of starters used creatine or androstenedione, and if creatine and/or androstenedione users had adequate education levels on the use of such supplements.

Surveys were sent out to the baseball players actively participating on the teams of the ten member universities of the NCC during the 1999-2000 season. Eight out of ten schools responded for a total of 200 returned surveys. The survey consisted of 13 questions relating to the use of creatine and/or androstenedione and various aspects of their usage.

Each hypothesis was tested by means of the Chi-square test statistic ($p < .05$). A significant difference was found between those players who have never used creatine and those who have used creatine in the past or present, with a greater number of athletes using the supplement currently or at some point in the past. A significant difference was found between education levels and creatine use, with the absolute numbers showing that while more creatine users have adequate education levels than not, non-users of the supplement are vastly undereducated. A significant difference was found between current androstenedione users and non-users with a non-significant number of baseball players currently using the supplement.

No differences were seen between non-users of androstenedione and those who have used the substance in the past. No significant difference was found between starters and non-starters for creatine use. While not statistically significant, more starters use creatine than non-starters on a 2:1 ratio. No significant difference was found between starters and androstenedione use; however, twice as many users were starters. No significant difference was found between education levels and androstenedione use. However, the absolute numbers show twice as many androstenedione users have inadequate education levels.

Results from this study indicate that while creatine use is widespread in the NCC, androstenedione supplementation is not. The education levels of baseball players regarding the use of creatine and androstenedione should be improved and starters have a higher tendency towards the use of creatine and/or androstenedione compared to non-users.

APPROVED BY RESEARCH COMMITTEE, MAY 2000

David Bacharach, Chairperson

THE PERFORMANCE & RECOVERY EFFECTS ATTRIBUTED TO THE BREATHE RIGHT® NASAL DILATOR DURING A SIMULATED HOCKEY TASK

Julie A. Deyak

The purpose of this study was to examine the effects of a Breathe Right Nasal Strip (BRNS) on the performance and recovery of Division I Collegiate ice hockey players (N=8) during a simulated ice hockey period. It was hypothesized that a BRNS would enhance recovery time between repeated bouts of skating sprints. Subjects were tested with and without BRNS (counterbalanced) on separate days. Acoustic rhinometry was used to assess cross sectional area of the nose with and without a BRNS. Two simulated hockey periods separated by 15 min. rest required each subject to perform two sets of six repeated shifts of 30-40s. skating bursts around a multi-directional course and followed by a ~120s. of rest. Resting HR and RPE were recorded at the end of each 150s. shift. During the 2nd, 4th, and 6th shift, blood lactate (LA) via finger stick was sampled. Time to complete each of the skating bursts was also recorded. Data were analyzed using two-way repeated ANOVA. There were no differences in time trial performance simulating a hockey shift while wearing a BRNS for period 1 [$F(1,14)=.81, p<.38$] or period 2 [$F(1,14)=1.53, p<.24$]. The within comparison over trials was significant for period 1 [$F(2,28)=11.12, p<.0003$], and period 2 [$F(2, 28)=20.24, p<.0001$]. Blood LA response for skating shifts and recovery periods were not significantly different for 1 [$F(1,14)=.38, p<.55$] or period 2 [$F(1,14)=.42, p<.53$]. However, the comparison between trials was significant for period 1 [$F(2, 28)=20.57, p<.0001$], and period 2 [$F(2, 28)=40.79, p<.0001$]. Mean peak HR for periods 1 and 2 indicated there was no significant difference between the conditions for period 1 [$F(1,14)=.49, p<.49$] or for period 2 [$F(1,14)=.73, p<.39$]. There was a significant difference between trials for period 1 [$F(2, 28)=7.33, p<.003$] and period 2 [$F(2, 28)=23.19, p<.0001$]. RPE values for periods 1 and 2 were significant between the conditions with and without a BRNS [$F(1,14)=13.26, p<.003$] for period 1, and for period 2 [$F(1,14)=9.23, p<.009$]. There also were significant differences between trials for period 1 [$F(2,28)=25.91, p<.0001$], and period 2 [$F(2,28)=37.93, p<.0001$]. For 1st period data, the correlation between the difference in nasal cross-sectional area and the trial times while wearing a BRNS was high [$r=.95, p<.003$]. Difficulty with adhesion of the BRNS during the 2nd period prevented further correlational analyses. These data suggest that although no single physiological variable is different between conditions, perceived effort, is less while wearing a BRNS during simulated ice hockey skating. This perceived effort parallels trends in all data along with strong correlation between cross-sectional area improvements and time trial skating performances. Perhaps a larger sample would help elucidate whether these modest changes are psychological in nature of if they are truly physiological.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1998

David W. Bacharach, Chairperson

TEACHER-STUDENT INTERACTIONS: ARE THEY GENDER BIASED IN MIDDLE SCHOOL SCIENCE CLASSROOMS?

Rhonda J. Eardman

The purpose of this study was to assess the prevalence of gender biased behaviors in middle school classrooms by analyzing teacher-student interactions. Questions addressed were: 1) To what extent are seventh and eighth grade science teachers exhibiting gender biased behaviors? 2) If gender biased interactions occur in the classroom, to what extent do male teachers and female teachers differ in exhibiting gender biased behaviors? 3) If gender biased interactions occur in the classroom, to what extent does grade level of the students affect gender biased behaviors? 4) Is there a correlation among teachers exhibiting gender biased behaviors and their perceived awareness of the appearance or absence of gender biased behaviors?

Six middle school classrooms, three seventh grade and three eighth grade (178 students) were identified and video taped to show teacher-student interactions. The interactions were coded using the Brothy-Good Dyadic Interaction System. The teachers were given a survey to obtain their perception of gender bias in their classrooms, as well as to check their familiarity with the subject.

Using statistical analysis of the Effect Size and the Paired-Samples T Test, conflicting results were obtained. Using the Effect Size to analyze the data there was a significance in many of the behaviors identified. However, using the Paired-Samples T Test method of analysis, there was no significance to report. Due to the small sample size of teacher-student interactions, statistical analysis is not appropriate for this study.

Results indicate that gender biased teacher-student interactions were present in middle school science classrooms. Two of the six teachers called on male students more than female students. There were more interactions with boys in the areas of affirming, no response, negation, and giving answers. This suggests that boys are receiving more feedback and time from the teachers. In the areas of praise and behavior warnings, girls received more feedback from teachers.

Two of the six teachers showed a difference in their perception of gender biased interactions in their classroom versus the actual presence of the behaviors in their classroom.

Discussion is presented to account for the lack of statistical significance, to offer suggestions for research design for future projects, and to suggest areas for further research in the area of gender biased teacher-student interactions.

APPROVED BY RESEARCH COMMITTEE: JULY 1998

Patricia Simpson, Chairperson

AN INVESTIGATIVE STUDY IN THE CHEMICAL AND PHYSICAL EVALUATION OF DIFFERENT AGED RESTORED WETLANDS AND THE RETURN OF THEIR NATURAL FUNCTIONS

Todd H. Giffrow

Prairie potholes are seasonal to permanent wetlands found in the depressions of surficial geology deposited and formed by glacial activity in the prairie region of the northern United States and southern Canada. Ground-water seepage recharge and discharge, and basin water storage are natural wetland functions. The area of study had 30 wetlands restored over a period of four years. Eight wetlands were chosen for this study based on relative elevation within the local ground-water flow regime as well as various ages of restoration. The natural functions were compared to investigate the return of these functions. Prairie potholes receive water from precipitation directly on the water surface, from surface runoff, spring melt runoff, and ground-water seepage inflow. Water is depleted from the wetlands by evaporation, transpiration from aquatic plants, and ground-water seepage outflow. An anecdotal water budget was constructed for the wetlands involved in this study, with the ground-water elementary being the unknown factor. Piezometers were placed in relation to the assumed slopes of the ground water surrounding the wetlands for water table measurements and water sampling. Chemical and physical data of the water, the position, and the soils of these wetlands were used to investigate the return of the natural functions of the wetlands. Studies have revealed that the position of a wetland within a local ground-water system will produce certain chemical and physical characteristics in the wetland. The wetlands of this study have correlated with these past studies and have shown that the natural functions return regardless of the age of restoration.

(Key Terms: water budget; ground-water seepage flow; conductivity; watershed; natural functions; soil mottling; prairie potholes; wetland restoration.)

APPROVED BY RESEARCH COMMITTEE, MAY 1999

Jean L. Hoff, Chairperson

EFFECT OF STEP RATE AND CHOREOGRAPHY ON THE METABOLIC COST OF STEP AEROBICS

Sonya Hanson

The purpose of this study was to determine if a difference exists in VO_2 of stepping at 30, 33 and 36 step cycles/min on a 15.2 cm step (6-inch), and to determine how much choreography attributes to changes in VO_2 by measuring the VO_2 of three steps patterns (basic step = BS, alternating knee travel =AKT, alternating straddle hop=ASH) at each step rate. Fifteen female subjects (mean age = 23.20 accustomed to step training, performed each of the step patterns for five minutes at each step rate on three separate days. Expired air was collected with an open circuit spirometry system during the last two minutes of each stepping trail. A repeated measures ANOVA was used to determine if there was a significant difference between all trails. A post hoc Fisher's LSD revealed mean VO_2 at 36 cycles/min > 30 cycles/min ($P < 0.05$). Additionally, mean VO_2 for the Ash is >AKT which is >BS at each step rate ($P < 0.05$). The VO_2 for all step trails ranged from 20.53 ml/kg/min at 30 cycles/in with the BS to 30.06 ml/kg/min at 36 cycles/min with the ASH. The greater percent increase (24.2%) in mean VO_2 was found between the BS and ASH at 30 cycles/min. The results of this study show that choreography and step rate significantly affect VO_2 of step training. As the rate of stepping increases the percent change in VO_2 decreases suggesting that choreography has a greater impact on a typical step aerobic class than step rate.

APPROVED BY RESEARCH COMMITTEE, MARCH 1999

David Bacharach, Chairperson

WHAT SHOULD BE TAUGHT AND WHEN: A COMPARISON ON VIEWS OF SEXUALITY EDUCATION BETWEEN SENIOR HIGH STUDENTS AND PARENTS IN ONE MINNESOTA SCHOOL DISTRICT

John R. Huber

The purpose of this study was to examine and make recommendations regarding sexuality education in one metro school district. A review of related national, regional, and local research was completed to establish a knowledge base. Two main bodies of research were examined in detail. These were a previous survey of parents in this particular school district and a survey of students attending one of the three high schools in the same district.

The student survey was developed and administered during the third trimester of the 1997-98 school year. Five hundred twenty-eight students that were enrolled in Health during the third trimester had the opportunity to take the survey. Two hundred eighty-two surveys were completed (53.4%). The data from the student survey were compared to the parent survey done previously in the school district.

The results show parents and students in this school district generally agree on what should be included in the sexuality education curriculum. Overall, parents and students also agree on what grade level various topics in sexuality education should be introduced. The one area of disagreement between parents and students was the issue of separating boys and girls during sexuality education. Parents believed that boys and girls should be separated through ninth grade, whereas the majority of students believed that boys and girls should not be separated at any grade level.

The results of the student survey and the comparison with the parent survey could be used as a reference when determining future curriculum.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1999

Rodney G. Doby, Chairperson

STATUS OF ATHLETIC TRAINING SERVICES IN MINNESOTA HIGH SCHOOL ATHLETICS

Jeffrey T. Johnson

During the past 25 years, adolescent sports competition has changed dramatically. Organized competition has taken over and adolescents are paying the price, with almost one in six of these participants being injured seriously enough that they will be unable to finish a practice or contest. Many of these injuries may have been less severe or not have occurred at all if a certified athletic trainer was present. The certified athletic trainer is specifically skilled to prevent, evaluate, treat, and rehabilitate athletic injuries.

The instrument used for this study consisted of a questionnaire. Participants in this study were randomly chosen Minnesota high school athletic/activities directors (n=120). Three athletic/activities directors were randomly chosen from each region.

Eighty-six athletic/activities directors, with at least one athletic/activities director from each region, responded to the questionnaire, with a majority responding that it is important to have an athletic trainer on staff. Most believe there is a correlation between hiring an athletic trainer and a reduction in their liability risk, yet only 38% of high schools employ the services of an athletic trainer.

The main reason that schools do not have the services of an athletic trainer is lack of funding. High schools in Minnesota retain the services of an athletic trainer at a rate slightly lower than the national average, with coaches providing a majority of the care to injured athletes. Larger schools more often have space set aside for athletic training purposes, are closer to medical facilities, and retain athletic training services for the entire school year.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1998

Robert Waxlax, Chairperson

A CASE STUDY ANALYSIS: EVALUATION OF DIVERSITY TRAINING PROGRAMS

Elizabeth A. Kane

As diversity training increases in organizations, it is important to understand the training goals and how to determine if the organization met those goals. A large majority of organizations evaluate their diversity training programs at level one, or participant reaction. Few extend beyond to evaluate what the participant learned, how the participant's behavior changed, or how the training affected the organization as a whole.

This research examines a case in St. Paul, Minnesota, and its evaluation practices. The study attempts to examine evaluation methods used, the obstacles to evaluation, as well as the connection between evaluation and both management support and perceived success of the program.

The results of the case study were not consistent. Interviewees had different views of why diversity training was conducted. Also, management support had more to do with individual difference than with the evaluations used. Overall, this researcher learned that evaluation is not useful unless the program has a clear goal in mind and has communicated that goal to their employees in more ways than just in training.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1999

Jeanne Hites, Chairperson

ANALYSIS OF THE PREDICTIVE POISSON PROCESS REQUEST-RESPONSE MODELING IN A HYPERMEDIA ENVIRONMENT

Kim Edward Krzenski

The intent of this paper is to define and defend that performance research for Hypermedia is a necessary reality. Fact: the phenomenal acceptance of Hypermedia and the World Wide Web translates to a linear relationship of conflicting performance requirements: the expected growth in users (the number of new users accepting the hypermedia) produces a geometrical increase in required network bandwidth. An increase in hypermedia users equals higher packet counts, higher network contention, and probable system congestion. With higher traffic demands, the result is a competition for system resources. With this scenario, can a model be built to predict outcome? Can it predict congestion and the resulting delay? Will performance metrics be within an acceptable human response-delay parameters of 100-200 ms. for end to end transmission?

Both global and specific problems and questions arise because of Hypermedia in the Ethernet environment. Questions whether or not a new technology will be necessary to accommodate this acceptance of Hypermedia: will the popular Ethernet support the traffic? Will the Ethernet standards promote any additional shortcomings with delay and lost packet traffic? The underlying services of HTTP, IP, and Ethernet are connectionless. With no guarantees regarding successful delivery of data, can a predictive model emerge?

This Study attempts to find a predictive model for request-response for end to end transmission metrics. In this Study, the services: Ethernet, Client/Server, Distributed Networking, IP, HTTP are described. Because this network is primarily connectionless, with no guarantees made regarding successful delivery of data (a network making a "best-effort" to deliver), this study will explore how this delivery does happen and how the protocols relate to the accuracy of modeling and forecasting.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1998

Dennis Guster, Chairperson

CARRIE COLEMAN ROGERS: A VICTORIAN LADY WHO WENT HER OWN WAY

Julie Coleman Lindquist

This is a case study; the telling and interpretation of one life. It is a story of a Southern Victorian woman, Carrie Coleman Rogers. During her lifetime she was well known to those who lived in the community of Arlington, Texas. However, beyond her time, that place and her family, no one would know her name. Social historians have demonstrated the value of studying groups of anonymous people, but it is not often that the study of an individual can prove worthy of all the time and effort required in a project such as this.

This research was possible because of Carrie's public presence and because she kept her personal papers. As the data accumulated, I found many surprises. Here was no fragile flower living a sheltered life behind the stained glass windows of her beautifully appointed Victorian home. She was not confined to a pedestal. Carrie Coleman Rogers may have seemed the proper Victorian lady, but her life choices continually revealed desires and ambitions which call into question the models historians have used to describe and define women of the South and of her generation. Surely patriarchy was the predominant force in shaping the lives of Victorian women, that is not in question. However, this study demonstrates Carrie Coleman Rogers was able by force of character and circumstance to live her life outside the proscriptions of patriarchy. Current models of Victorian womanhood fall short in defining her. She was Southern, of rural people, self-educated, married and the mother of five children. I did not find record of her membership in any major national feminist or woman's rights organization and she had a strong religious life.

However, Carrie also believed she was right in divorcing her husband in 1902. The following year she began a real estate business and through her continued activism and her interest in Progressive politics was later appointed to the position of Chief of Police in Arlington. She was the first woman Chief of Police in Texas.

This study is based on an extensive collection of primary source material collected as part of a project reconstructing the families of Carrie's parents. In addition, there are over five hundred family letters as well as business papers and photographs kept by Carrie and her family. In addition, there is a collection of newspaper clippings Carrie selected and saved. I also read the microfilm copies of the local newspaper, The Arlington Journal of 1897-1920. I have also completed extensive readings in women's history generally as well as those specific studies most appropriate to Carrie's life. Briefly, they include Southern women's history, the development of feminism in the nineteenth and early twentieth centuries, benevolence, reform and suffrage organizations and leaders.

Hopefully as this study and others of anonymous people continue to be written definitions and models can be reworked to include them in the on-going analysis of nineteenth-century American women.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1998

William Morgan, Chairperson

AN EVALUATION OF OUTCOME BASED EDUCATION: HOW TO MAKE IT WORK FOR SOUTH AFRICA

Andile Milton Mbeki

This is an historic and descriptive study that examined the introduction and implementation of Outcome Based Education (OBE) in the United States of America. It gives a background of the South African education system and the manner in which it has evolved over the years up to this point of the adoption of OBE.

The research was gathered by examining available literature, visiting school districts where Outcome Based Education was implemented, talking to educators to get their perspectives, and by conducting Internet searches. The study draws ideas from both the advocates and opponents of the philosophy.

The study found that Outcome Based Education presents a conflict in curriculum theory and curriculum practice. The study discovered a major problem with the implementation of OBE in the United States. OBE predetermines the end, what the outcomes are going to be, but it fails to outline necessary steps to be followed to accomplish the stated outcomes. OBE framework does have outcomes attached to it. The problem is the incompatibility of an OBE framework and the outcomes that do not fit neatly with it. The goals that one identifies should be consistent with the steps to be followed to accomplish the envisaged outcomes. OBE incorporated values and ethics outcomes that provoked anger from the conservative religious groups.

Outcome Based Education is built under authoritarian and corporate premises. It can work better in an undemocratic situation whereby authorities impose unchallenged commands. The study concluded that OBE did not work in the United States because people exercised their rights by challenging authorities to refrain from philosophical approaches but instead to come up with more practical and measurable outcomes. The study concluded that OBE can work in South Africa given the broad consultation that has been done since 1994 prior to its introduction. The recommendation warns South Africa to modify OBE in such a way that it will address the challenges the country faces or else it will also fail in South Africa.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1998

Bruce Romanish, Chairperson

RHETORICAL RESPONSES TO THE UNIMAGINABLE: THE HOLOCAUST AND DIALOGUE WITH G-D

Stephanie McMahon-Kaye

How individuals respond to the deity as they conceptualize "Him" in moments of despairs is an on-going theme throughout literature both religious and secular. This work sought to compare and contrast the religious rhetoric found in the Book of Job with that of two individuals who perished--that is to say, were murdered--in the Holocaust.

Moshe Flinker and Etty Hillesum share little in common, save their "Jewishness." Each travels a path of reflection and supplication that at times mimics the Book of Job and at other times conflicts with the rhetoric and the tone of the earlier work. This thesis focused upon their individual style, conclusions, and journey.

APPROVED BY RESEARCH COMMITTEE, JULY 2000

Rex Veeder, Chairperson

TELEVISION VIEWING AND PHYSICAL FITNESS IN CHILDREN

Deborah A. Meierhofer

The purpose of this study was to examine the relationship between television viewing and two important health related physical fitness components, cardiorespiratory (CR) endurance and body composition (BC), among fourth grade children. A brief written survey was used to measure hours of television (TV) watched, including hours spent playing video games, and hours spent being physically active by fourth graders and their parents each week.

Measure of CR endurance of the children was made using the one-mile walk/run test. Body composition was determined by the sum of triceps and calf skinfolds. Of 164 children surveyed, 52.4% completed both parts (N=86), mean age was 9.81+/- .38 yrs. The children surveyed watched 15.67+/-10.09 h of TV weekly, of which 1.19+/-2.99 h was spent playing video games, and reported being physically active 4.09+/-33.46 h weekly. Triceps skinfolds measurements from this study were greater for both girls (2.28 mm) and boys (2.34 mm) when compared to NCYFS II data. With obesity defined 25% body fat or more for boys, and 32% or more for girls, 35% of boys and 26% of girls were obese. Pearson correlations demonstrated that no significant relationships exist in this study between hours spent watching TV and CR endurance, nor between hours of TV and sum of skinfolds. Significant relationships were found between one-mile walk/run performance and total skinfolds ($r=.58$, $p<0.01$), hours of TV watched by children and hours of TV watched by their parents ($r=.40$, $p<0.01$), and girls' physical activity levels and that of their mothers ($r=.50$, $p<0.01$). Conclusions support the notion that children in this study watch less TV than previous research suggests, time children spent watching TV was not significantly related to their physical fitness levels and that children's TV watching levels may be influenced by how much TV parents watch. A girls' physical activity is related to activity of here mother and this suggest that mothers play an important role in keeping their daughter(s) active.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1998

David W. Bacharach, Chairperson

GENDER AND LANGUAGE

Nicole T. Meierhofer

The goal of this project is to examine how gender and language relate with one another in terms of “doing gender” while speaking. Analyzing the language of children and adults with the societal perceptions of that language is important.

Doing this kind of examination aids in the exploring possible reasons and solutions for language reform.

Feminist pedagogies and conclusions from the above research shape the generic course plan in the appendix of the thesis.

PROBLEM:

Females and males are raised to project rigid gender role stereotypes when speaking. Men’s language is valued and women’s is devalued. The language or words themselves also reflect sexist social structures. Since this problem exists in education, a remedy to both is explored.

FINDINGS:

Females and males are raised in a polarizing society where language perpetuates the sexist values of American culture. This problem does not disappear within the college classroom and it is feminist pedagogical strategies that can aid in the reform of language as well as sexist social values. An example of this strategy is detailed in the appendix.

APPROVED BY RESEARCH COMMITTEE, APRIL 2000

Nancy Brennan, Chairperson

JOB RESPONSIBILITIES OF THE NCAA DIVISION III ATHLETIC DIRECTOR AT SCHOOLS WITH VARSITY FOOTBALL

Clayton J. Moose

Administration of intercollegiate sports in American colleges dates back to the 19th century. Prior to 1880, the on-campus organization for intercollegiate athletics was done by undergraduates. Today the central figure in the administration of collegiate athletics is the athletic trainer.

Although there has been considerable writing on the subject of an athletic director’s job responsibilities in general, there has been very little specific and comprehensive documentation on the multitude of job responsibilities performed by the NCAA Division III athletic director with varsity football.

The purpose of this study is to identify the major job responsibilities of athletic directors at NCAA Division III schools with varsity football. The major responsibilities of the college level athletic director can be categorized in five areas. Those are concerning financial matters, personnel factors, directing the department, facilities management, and acting as departmental representative.

Two instruments were used to secure data. These two instruments included (1) the questions asked of the athletic director at Worcester Polytechnic Institute in two interviews, and (2) the survey of 100 NCAA Division III athletic directors. The case study was designated to find out information about the position of an NCAA Division III athletic director with regard to his job responsibilities and how the athletic director went about executing those duties. In order to draw conclusions about the role of an NCAA Division III athletic director, however, the researcher noticed a need to find out more information about the position on the national scale. The second instrument of the study, a national survey, was thus developed.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1999

Robert G. Waxlax, Chairperson

A STUDY OF THE EFFECTIVENESS OF THE READING RECOVERY PROGRAM

Lisa Morgan

The purpose of this study was to examine the effectiveness of the Reading Recovery Program in a northern district. The primary focus was to determine whether fourth grade students maintained their reading performance acquired from their first grade Reading Recovery program. The subjects included students who were served in the program and students who were not served in the Reading Recovery Program, however, were considered at-risk in their reading performance.

The data collected for this study included demographic information such as gender. Free and reduced lunch counts, attendance, and other programs students were served in the first grade. The instruments utilized in this study included the Minnesota Comprehensive Assessment, the Iowa Achievement Test, a district developed End-of-the-Year Reading Assessment, and results from a researcher developed survey. The following limitations and delimitations were placed on this study: a) the students' records studied were limited to one cohort of discontinued Ready Recovery students and one cohort of at-risk readers; b) the use of several different assessment tools were used, each having a different form of measurement and administration to try to compare results in literacy, c) the study was limited to the first year of implementation of the Reading Recovery Program which may effect the progress of students because of its newness; and d) the study is limited to one school district which is a small sample regarding the effectiveness of the program.

The results from this study indicated reading performance was maintained according to the research developed survey at the End-of-the-year Reading Assessment. Fourth grade teachers completed both of these instruments. In contrast, the other instruments employed revealed limited evidence of Reading Recovery subjects maintaining their reading ability after first grade. In view of this, the overall results indicate students served in the Reading Recovery Program did not maintain their reading performance acquired in their first grade year. In regard to this study, the effectiveness of the Reading Recovery Program is questionable in reference to the school year 1995-96.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1999

Fred Hill, Chairperson

A STUDY OF AUDIO CASSETTE AND SHORT-TERM SEMINAR STYLE SALES TRAINING AT CELLULAR ONE OF NORTHERN MINNESOTA

Jeffrey J. Parris

PROBLEM:

Every year American companies spend billions of dollars to improve their sales productivity through various sales training programs with few efforts put forth to evaluate training experiences within the parameters of a comprehensive model. The purpose of this study is to examine whether AUDIO CASSETTE and short-term seminar methods of sales training positively impact employee performance in terms of knowledge development, self-confidence, and sales results as well as determine whether one method provides a greater return on investment so that American executives can make more informed sales training decisions in the future.

FINDINGS:

The results of this study indicate that AUDIO CASSETTE and short-term seminar styles of sales training positively impact sales personnel; however, neither methodology provides a statistically significant advantage over the other when evaluated in terms of learner reaction, knowledge, acquisition, impact of trainee self-confidence, or sales performance. Consequently, the lesser expense of developing and implementing AUDIO CASSETTE sales training for employees suggests this methodology may provide a greater return on investment.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1999

Fred Hill, Chairperson

INCREASING PARTICIPATION IN ELECTRIC UTILITY CONSERVATION IMPROVEMENT PROGRAMS IN RURAL MINNESOTA

Carol Russell Phelps

Since the oil crisis of the 1970s, both public agencies and private citizens have undertaken measures to conserve energy. To a degree, the efforts have been successful. More efficient use of electricity, alone, realized a savings of \$21 billion in new power plants from 1973-90. The potential has not peaked, however. Whether capacity, the environment, image, or the bottom line are motivations, the 'renaissance conservation movement' is being embraced to varying degrees by consumers, government, and business.

Minnesota electric utilities have also become increasingly involved in conservation initiatives. In 1993, the Omnibus Energy Bill required investor owned utilities (IOUs) to reinvest a portion of their earnings in quantifiable projects encouraging customer energy conservation improvements.

Although IOUs must meet identical requirements, rural-based utilities--such as Otter Tail Power Company--face unique challenges. Power retail outlets, greater geographical distance, and lower per capita customer income may play a significant role in limiting the ability of such entities to succeed. If, and to what degree, this is true, was an essential issue for Otter Tail Per to explore.

A consumer research study was undertaken to examine a) the contributing factors currently inhibiting or motivating customers' conservation improvement program involvement, b) participation, and c) the strategies necessary to effect an increase in positive consumer action. Findings revealed consumers had only a mid-level knowledge of energy-efficient products, and an even lesser interest in learning more. The majority preferred to shop in their hometown for merchandise; yet slightly over one-third had never seen energy-efficient products in their local marketplace. A survey of retailers substantiated the fact that many retail stores carry few, if any, energy-efficient products.

Utilities, nationwide, have employed marketing techniques of broad description to achieve conservation success. Direct mail, rebate coupons, advertising and other methods have been utilized. Otter Tail Power Company has also incorporated several of these vehicles in conservation improvement promotions, to varying degrees of success.

Based upon research findings, recommendations for further marketing efforts must address the following objectives: incorporate short- and long-term strategies, create promotional synergy, be multi-level in focus, and acknowledge existing consumer knowledge. The sixteen specific tactics suggested in the study encompass public relations, consumer education initiatives, advertising, and more.

APPROVED BY RESEARCH COMMITTEE, JANUARY 2000

Ande-Michael Habte, Chairperson

NEURAL NETWORK'S APPLICABILITY FOR PREDICTING COLLEGE FOOTBALL PLAYS

David W. Prather

Football coaches have always used experience and intuition to predict the outcome of football plays, all the while searching for a tool that could help them to increase their accuracy. Neural networks are a recent development in computer software that have experienced dramatic success in the area of pattern recognition. The neural network is a tool that has the capability of examining large amounts of data with multiple variables for similar patterns once the neural network has been trained. There is no other current software package that can be used by a football coaches that has this capability. The purpose of this study was to ascertain the viability of using neural network software to successfully predict the outcome of college football plays. Each play recorded over the course of 10 football games was used for analysis. Five of those games were St. Cloud State University versus the University of Minnesota at Duluth from the 1990 through 1994 football seasons. The other five games were St. Cloud State University versus the University of North Dakota during that same time period. Variable selection was the next critical step. With too many variables, the neural network might not be able to recognize any patterns. If there are too few variables, the patterns that are recognized would be of little value to a football coach. The variables that were selected represented game statistics, offensive, and defensive formations on the play's yardage. Plays were then coded into a form that was acceptable to the neural network. The neural network was then trained. This was accomplished by giving the neural network 362 plays from which to glean information and establish the presence of patterns. The neural network was then tested by giving it more plays, less the result, and letting it predict the result. The neural network analysis was based on the 22 test runs that were conducted to ascertain the ability of the neural network to successfully predict the outcome of college football plays. Analysis was also performed on the specific areas within the study, namely the spreadsheet and the individual variables used in the neural network. The spreadsheet was used to look at total yards per game and average yards per play, as these figures are used extensively by football coaches. The variable analysis was used to examine individually each of the variables that was used by the neural network. The neural network shows a modest ability to accurately predict the outcome of college football plays. The best R^2 value was .40 which is respectable for such a data set. The results of the network yielded an average error of .5 yards with a maximum absolute error of 2.0 yards. In order to increase the neural network's accuracy, future studies should consider decreasing the number of variables and increasing the number of plays used to train the network. The accuracy of the neural network would probably be enhanced in a high school rather than collegiate environment, since offensive and defensive schemes are less complex. Less complexity would reduce the number of variables in the network and enhance the network's ability to detect patterns with greater accuracy.

APPROVED BY RESEARCH COMMITTEE, JULY 1998

David Bacharach, Chairperson

NEWCOMER'S STORIES: AN ANALYSIS OF INFORMAL ORGANIZATIONAL STORYTELLING AND EMPLOYEE SOCIALIZATION AT ST. CLOUD STATE UNIVERSITY

Collette S. Rubel

PROBLEM:

Researchers examining organizational culture and its influence have often utilized organizational stories as tools for uncovering themes and diagnosing organizational problems. They have also seen their value as a tool for creating and continuing an organizational culture. In fact, they are often described as one method through which organizational socialization occurs. However, the impact of storytelling during the newcomer's orientation process into the organization has not been specifically explored.

PROCEDURE:

The following study examined whether storytelling during the orientation period impacts the newcomer's socialization into the organization. New tenure track faculty, staff, and administration at a state university were studied using the critical incident method. Data were collected in two forms. First, a survey questionnaire was given to the study group to determine the impact of storytelling during the orientation process. Second, follow-up interviews were conducted with select members of the identified population to collect critical incidents of storytelling. Through interpretive analysis, the researcher identified dominant themes present in the stories the newcomers recalled. Finally, these stories were analyzed in conjunction with the university's mission statement in order to explore the influence they have on the newcomer's socialization process.

APPROVED BY RESEARCH COMMITTEE, MAY 2000

Judith Litterst, Chairperson

THE EFFECTS OF CALCULATOR USE IN PRE-HIGH SCHOOL MATHEMATICS

Joyce E. Schneider

PURPOSE:

The purpose of this study was to explore the effects of hand-held calculator use from the perspective of eighth-grade students. The effects of calculator use on students' ability to perform simple calculations, on understanding of concepts, and affective benefits were explored.

STUDY GROUP:

Students who had completed eighth grade were chosen for the study because they have experience using a calculator, and mastery of basic skills and readiness for high school is assumed at this level of instruction.

FINDINGS:

The review of the literature indicated great support and some opposition to calculator use. Most accept the benefits of calculator use to aid in long computations and to facilitate problem solving. The affective benefits of calculator use are also widely accepted. The main controversy concerns the effects of calculator use on basic skills. Some argue there is no harm to skills and others claim loss of skills and mental agility.

PROCEDURES:

The opinions of eighth grade students concerning their use of calculators and its affect on their learning of mathematics were solicited. A questionnaire and follow-up interviews were used to gather data. Scores of the Iowa Test of Basic Skills were used to determine skill levels of students. Data were analyzed at the statistics department at St. Cloud State University.

CONCLUSIONS:

The findings indicate students are experienced calculator users before they enter the eighth grade. Some see benefits of calculator use in learning concepts other than basic skills. More than half of the students see a growing dependence on the calculator for their basic skill computations and a decrease in their ability to calculate by hand or mentally. They tell us if a calculator is used too much or inappropriately by students, many will become calculator dependent. An analysis of the Iowa Test Basic Skills reveals computation scores of the students are significantly lower than either problem solving or concepts. Students reported that use of a calculator increases enjoyment of their study of mathematics.

RECOMMENDATIONS:

Recommendations made to ensure appropriate calculator use include a curriculum that values paper-pencil, mental math and estimation skills as well as calculator skills. There should be appropriate calculator activities to facilitate learning. Non-calculator skills should be determined, taught, and accessed at appropriate grade levels. Teachers need to consistently model appropriate estimation and mental math skills in conjunction with calculator use.

APPROVED BY RESEARCH COMMITTEE, OCTOBER 1999

Susan K. Haller

COMPARISON OF THE PERFORMANCE OF SWITCHED 10 MEGABITS PER SECOND ETHERNET WITH SHARED 100 MEGABITS PER SECOND FAST ETHERNET

David M. Schons

The ever-increasing demand for improved computer network performance, specifically at the level of the local area networks (LANs), drives continuous change and development in protocols and equipment. In this context, the introduction of the Fast Ethernet standard in combination with the significant decrease in the cost of hardware required for its implementation presents both great opportunities and new challenges in the area of network design.

How, then, given these new options, can these protocols and equipment most effectively be implemented? Indeed, as choices regarding network configurations proliferate, analysis of these choices becomes increasingly time-consuming and expensive, yet necessary. What methods can mitigate these time and expense concerns, specifically as related to Ethernet and Fast Ethernet?

The use of testbeds to develop benchmarks, in conjunction with quantitative analysis, can provide such inexpensive and timely analytical tools. The study described herein presents a method of using freely available hardware, software, and analytical components to assess the characteristics of LAN technologies. By analyzing and comparing testbed data, the characteristics of switched 10 Mbits/s and shared 100 Mbits/s technologies will be isolated and compared.

APPROVED BY RESEARCH COMMITTEE, JULY, 1998

Dennis Guster

THE PEOPLE'S FAIR A BARTER FAIR FOR GREATER ST. CLOUD, MINNESOTA

Michael Sharp

INTRODUCTION:

The ongoing consolidation of political and economic power in the hands of an elite few continues to point to the need for a movement on the left to counter this trend as well as to create and live a vision of an alternate society where power is more equally distributed among all people. Such work for social change will require that people have some connection with each other beyond the issue of the day. One setting which could provide an environment for people to gather for basic economic and social needs would be a seasonal barter fair. A series of such fairs could provide an environment for the exchange of goods, services and ideas necessary for the creation of a community of resistance.

LITERATURE REVIEW:

Current applications of barter can be found in international trade, barter clubs, local barter networks and

regional festivals. Historically one can find precedent for these forms of barter in pre-colonial American trade patterns, trading days and county fairs. Barter has served, and continues to serve, individuals, businesses and countries around the world as a method of exchange. The potential of a regional barter fair is that such an event might assist people in moving beyond simple economic relationships in the process of creating alternatives to our highly stratified society.

METHODOLOGY AND DATA:

The original research for this project involved the development of an interview to measure interest in a barter fair and to identify the characteristics of such a fair which might help it serve as a site for community organizing. The sample for this study included activists, artists, laborers, artificers, and small farmers who live within a 40 mile radius of St. Cloud, Minnesota. The information collected was organized into categories reflective of the general inquiry into the potential of a barter fair for this area. These categories include (a) general interest, (b) characteristics, (c) community organizing, and (d) communication.

CONCLUSION:

The conclusion of this project is the creation of a model for a barter fair for greater St. Cloud, MN. The model includes (a) an organizing scheme, (b) a barter process, and (c) amenities. This final model, The People's Fair, is the product of research into past and present uses of barter combined with wisdom garnered from local farmers, artificers, laborers, artists, and activists. This model provides one more option for organizers to consider in attempts to gather people together for the work of creating alternatives to the economic, political and social status quo.

APPROVED BY RESEARCH COMMITTEE, DECEMBER 1998

Tami Spry, Chairperson

AMAE AND THE RETICENT JAPANESE STUDENT IN THE ESL CLASSROOM

Jay C. Stocker

This paper is a study of the problem of the reticent Japanese student in the Western ESL classroom in relation to the concept of *amae* and is intended for Western ESL instructors with no teaching experience in Japan. The problem is examined within the context of the research question and hypotheses which follow.

RESEARCH QUESTION AND HYPOTHESES

(1) How is overall class participation of Japanese students affected by their ability to display and receive *amae* with their Western instructors?

(H1) the more their desire to give and receive *amae* is blocked or frustrated, the more reticent they will be in class (avoidance behavior).

(H2) Teachers and students develop coping strategies (behaviors) to compensate for the perceived failure to satisfy the Japanese students' desire for *amae* in a way similar to that inherent in their interactions with Japanese instructors in Japan.

METHODOLOGY:

The research findings are based on ethnographic data collected by nonparticipant observers of ESL classes at SCSU, and from questionnaires given to Japanese students at Minnesota State University, Akita (MSU-A), St. Cloud State University (SCSU), and Seirei Women's Junior College (Seirei), Akita City, Japan. Questionnaires were also given to Western English instructors at Seirei and SCSU, and a questionnaire was also given to one Japanese instructor at Seirei. In addition, the author's observations from his four years of teaching experience in Japan are reported.

CONCLUSIONS:

Analysis of the data confirm both hypotheses with qualifications. Although the ethnographic data were not easy to interpret due to the difficulty of assigning a psychological construct to observable behaviors, the questionnaire responses indicate that the longer Japanese students are exposed to the Western classroom environment, the better able they are able to cope with their desire to use *amae* with their Western instructors. Since the Japanese students are inexorably in the Western cultural context during their course of instruction, it is incumbent upon them to adapt their behavior to fit the cultural perspective of their Western instructors in a manner appropriate to the cultural context. Also, the Western instructors should be aware of the concept of *amae* and how it influences the behavior of their Japanese students in the classroom, especially those students with little prior exposure to Western instructors in such a setting. Knowledgeable Western instructors trained to recognize *amae* behaviors in their Japanese students will expedite learning by demonstrating patience and tolerance of *amae* behaviors, and this, in turn, will result in empathy with their Japanese students

*APPROVED BY RESEARCH COMMITTEE,
James Robinson, Chairperson*

AN EXAMINATION OF THE EFFECTS TODAY'S TECHNOLOGICAL WAVE WILL HAVE ON TOMORROW'S WRITING INSTRUCTORS AND STUDENTS

Kellie A. Tatge

Just as scholars questioned the validity of such tools as the pencil, the printing press, the typewriter, and the word processor, the debate now centers on computer technology and its role in the teaching of learning of writing. This thesis will examine the history of various writing instruments and their role as educational tools. By tracing the shaky starts through the public's acceptance and use of the technology, I will show that the Internet, moos, and email are no different than their predecessors in that they too have encountered resistance, but are being supported by public use and industry adaptation.

Using industry as a marker, the aspect of education as an industry will be explored. Business theories, such as TQM, may affect the way our current technological tools are implemented in the teaching and learning process. Industry principles also suggest a supply and demand factor will direct higher education, possibly grudgingly, into an arena where learners are respected for their power to choose. This decision-making power will ultimately bend education to meet the evolving demands of traditional students as well as the needs of the returning learner.

Due to the fact that learners and industry will demand technologically based instruction; institutions will be faced with several obstacles. First, what courses can be taught using current web-based technology? Who will teach the courses? As an institution, is an investment made in developing courses or are predesigned packages purchased? How much time and money will be allotted to fund the training of current instructors in using the new technology? What would a course, specifically a writing course in this case, need to look like in order to be fundamentally sound and attractive to learners? Finally, if an investment is made in technology, what is the likelihood of success? These questions and others pertaining to an institution's readiness for technologically based instruction will be discussed.

Ultimately, web-based instruction will become a part of every healthy institution of higher learning. Delivering instruction via the Internet is simply today's answer to the aged correspondence mode of teaching and learning. Technology's incorporation into higher education will arise out of an institution's drive to survive and even excel in the relatively young global market of education. This thesis will prove educators must have the foresight to see the coming wave of technology and the strength to dig a path for this flood to follow.

*APPROVED BY RESEARCH COMMITTEE, DECEMBER 1999
Rex Veeder, Chairperson*

A COMPARISON OF THE STAND-UP START USING MOYE BLOCKS VS. THE CROUCH START FOR SMALL-COLLEGE VARSITY WOMEN SPRINTERS

Kurt Threinen

This study was a kinematic comparison of sprint starts made with a conventional block set and with the Moye block, a one-pedal design with a low-angle front foot pad on its central column. Eight collegiate women sprinters performed starts from both their preferred crouch position, using conventional blocks, and from a modified stand-up position (one had on the ground) in the Moye block. Time to 30m and various kinematic variables obtained from video analysis were used to evaluate the starts. The low angle front block pad on the Moye allowed placement of the front foot <10" (<25 cm) from the starting line, versus a mean of 18.6" (47 cm) for the crouch. Body CM in the set position was higher and slightly forward in the stand-up. The stand-up start produced a faster time to 30m than the crouch, 5.00s to 5.04s ($t=3.02$, $p=.01$). Velocity upon exit from the blocks was higher for the stand-up start, 3.1 m/s, vs. 2.7 m/s., likely due to a much longer block time (0.48s vs. 0.39s). The rear foot pushed against the blocks for 0.27s with the stand-up and 0.17s with the crouch. The body CM started higher but rose less quickly during the starting action for the stand-up start. Front knee flexion and ankle dorsiflexion occurred during the initial block action in the stand-up, with a knee angle decrease of 16-38°, prior to knee extension. The flexion was speculated to have invoked the stretch-shortening cycle in order to produce higher angular velocities upon knee extension. The first two stride lengths were longer with the stand-up, and at 0.65s after initial movement, the stand-up start put the body CM farther down the track, 1.28m vs. 1.13m. The velocity difference at block exit was maintained through the first stride. The stand-up start from the Moye blocks is faster to 30m than the crouch start used in competition by collegiate women sprinters. It produces a higher velocity at block exit through longer block time and a possible stretch-shortening cycle event.

APPROVED BY RESEARCH COMMITTEE, SEPTEMBER 1999

Glenn Street, Chairperson

MARKETING PRACTICES OF SOCIAL SERVICE NON-PROFIT ORGANIZATIONS

Rhonda D. Van Hale

PROBLEM:

This research project attempted to determine relationships between social service non-profit organizations and their marketing practices. The theoretical framework was constructed from grounded theory critical theory and the paradigms of marketing mix management and services marketing. Various traditional marketing practices are employed by for-profit corporations, but the ability, necessity or desire to implement these same strategies in social service non-profit organizations has not been determined. Previous research has primarily been conducted in regard to public services announcements (PSAs). Although this form of marketing effects various degrees of success, no research has determined definitive information on effective strategies for PSAs, much less for the marketing needs of a social service non-profit organization as a whole.

PROCEDURE:

Surveys were faxed to the marketing and executive directors of 60 small social service non-profit organizations in Minnesota. They were asked to complete demographic data, check the marketing practices they believed are needed for such an organization to be excellent, and identify three small central Minnesota non-profit organizations that exhibited some of those marketing practices. Sixteen social service non-profit organizations were identified from this survey material. Directors from five of these organizations were interviewed regarding their marketing practices and rationale for same.

SUMMARY:

The marketing practices and beliefs of the interviewees suggest several areas for further research regarding social service non-profit organizations, the most significant being the directors' convictions about building coalitions, networking, teamwork and cohesiveness as effective marketing practices. The identification of these tactics in specific regard to marketing presents a completely new way of defining marketing. These views are radically different from the views of traditional marketing practitioners and hence, present a paradigm shift. This important discovery, in combination with the directors' concerns about their organizations' abilities to create, implement and maintain marketing strategies, suggest that research on these topics would prove to be an immense asset for social service non-profit organizations.

APPROVED BY RESEARCH COMMITTEE, MAY 1999

Julie Andrzejewski, Chairperson

