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## **Master's Thesis and Field Study Abstracts**

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July 1982/June 1984

# MASTER'S THESIS AND FIELD STUDY ABSTRACTS

## Forward

This publication, the tenth 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 1982 through June of 1984.

A bound copy of each thesis or field study is on file in the 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, School of Graduate and Continuing Studies, St. Cloud State University, St. Cloud, Minnesota 56301.

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## COLLEGE OF EDUCATION

### CHILD AND FAMILY STUDIES

#### AN EXAMINATION OF THE RELATIONSHIP BETWEEN FANTASY PREDISPOSITION, TYPE A AND B BEHAVIOR PATTERNS AND LEVEL OF AGGRESSION IN 4 YEAR OLD CHILDREN

*Mary Colleen Ness*

This investigation intended to study the possible relationship between fantasy behavior, Type A and B behavior patterns and aggression in 4 year old children. Subjects were 56 Caucasian 4 year olds, 28 males and 28 females, enrolled in day care centers and nursery schools in the St. Cloud, Minnesota area. The subject's teachers completed the MYTH checklist, which measures Type A and B behavior patterns, and the Feshbach aggression scale, which measures aggression. The investigator conducted an interview, the Imaginative Play Predisposition (IPP), with each child to assess imaginative predisposition. The results indicated that a relationship existed between (1) high fantasy Type B behavior pattern and low aggression, and (2) low fantasy Type A behavior pattern and high aggression, but that relationship did not reach statistical significance.

*APPROVED BY RESEARCH COMMITTEE, MAY 1983*

*Jack Mayala, Chairperson*

#### PERSPECTIVE TAKING IN EARLY CHILDHOOD

*Connee Theisen*

A myriad of techniques have been utilized to investigate the perspective taking skills of young children. Methodologies have undergone almost constant revision and have yielded diverse results. The present research was designed to investigate whether or not perspective taking tasks which seem to be equivalent may differ in profound ways that can have major effects on task performances.

Subjects were 104 children, ages three years through six years who were enrolled in area kindergarten and day care programs. A battery of six perceptual perspective taking tasks designed to be as similar to each other as possible was administered to each subject. The data were analyzed using a chi-square test for independence to determine whether or not response patterns changed as a function of sex, age or task.

As predicted, some tasks in the battery were found to be much more difficult for the subjects than others. No differences were found between boys' and girls' ability within any age group to solve the items. Task mastery progressed in the following sequence: Task 4, Task 3, Task 5, and Task 2. Task 4 was the only one easy enough for the three-year-olds to complete with success, and Tasks 1 and 6 were too difficult for even the oldest subjects. The ability to respond nonegocentrically was present earlier than the ability to solve a task correctly.

In the area of follow-up, boys were found to be more likely to follow-up consistently when questioned about an initial response that was egocentric; while girls were more likely than boys to follow-up consistently if the initial response was nonegocentric.

Tasks which on the surface appear to be equivalent, can be very different in terms of requisite capabilities for successful performance. The items in the battery, although very similar, produced dramatically different results, thus confirming a need for standardization of perceptual perspective taking tasks.

*APPROVED BY RESEARCH COMMITTEE, MARCH 1984*  
*Jacob A. Mayala, Chairperson*

## THE DIAL AND THE MINNESOTA PRESCHOOL INVENTORY: A COMPARATIVE STUDY OF TWO DEVELOPMENTAL TESTS

*John B. Waldron*

Seventy-two children between the ages of 42 and 60 months were randomly selected from all the children tested at the 1982 preschool round-up in School District 750, Cold Spring, Minnesota. While they were being screened on the DIAL (Developmental Indicators for the Assessment of Learning), their mothers completed the Minnesota Preschool Inventory (MPI), a 150 "yes" or "no" response test comprised of questions dealing with child behavior. Of the 72 subjects, 68 were used to provide data analysis in determining the efficacy of the Minnesota Preschool Inventory by comparing it to the DIAL. A third test, the Pre-Kindergarten Readiness Test, was collected on 42 of the original subjects and used as a criterion test for comparing the predictive validity of the MPI and the DIAL.

The Minnesota Preschool Inventory correlated highest with the DIAL in the areas of Concepts and Communications, with an  $r$  ranging from .31 to .70 for Concepts and from .21 to .55 for Communications. The MPI had a 100 percent concurrent rate with the DIAL on physical symptoms (speech and hearing problems). The split-half reliability of the Minnesota Preschool Inventory for the full scale was .88; no reliability check was done on the DIAL.

Results further suggest that parents of a lower SES background were as accurate in their observations of their child's development as were the mothers of a higher SES. The MPI predicted the scores on the Pre-Kindergarten Readiness Test as well as the DIAL. Overall results indicate that the Minnesota Preschool Inventory is an effective developmental screening test.

*APPROVED BY RESEARCH COMMITTEE, MAY 1983*  
*Pamm Mattick, Chairperson*

## EDUCATIONAL ADMINISTRATION

### A STUDY OF VARIABLES THAT INFLUENCE COOPERATION AMONG PUBLIC SCHOOLS IN MINNESOTA

*Alvin G. Baas*

**PROBLEM:** What are the variables that influence cooperation among public schools?

**PROCEDURE:** Five superintendents and five school board members were selected. With one exception, all superintendents and board members represented separate school districts. An attempt was made to obtain a variation in size and location of school districts. The selected superintendents and board members were interviewed using the

depth interview process. The data were analyzed following accepted procedures for data collected with this research method.

**FINDINGS:** Increased student population base and a subsequent increase in services and programs were the variables most frequently cited as a reason why schools cooperate. Additional variables which were identified are listed as: the superintendent's attitude toward cooperation, the compatibility of superintendents, the ability of the director to get along with others, the geography of the cooperative, history of cooperation, principals, technical skills of the director, economic similarities, cooperation members, leadership, ability of the director, equitable administration of the cooperation, comparable available dollars, communication skills of the director, comparable size, and similar needs of the members.

**CONCLUSION:** Variables in addition to increased population and an increase in programs and services should be considered by education decision makers when forming educational coalition decisions.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1983*

*Leland Renz, Chairperson*

#### **MARKETING CONCEPTS AND STRATEGIES, NECESSITY AND APPLICABILITY FOR PUBLIC SCHOOLS**

*Sharon Joy Berg*

**PROBLEM:** Are marketing concepts and strategies applicable to public schools?

**PROCEDURE:** A data based search was conducted. Available literature was reviewed. Marketing concepts and strategies either presently utilized or recommended for utilization by public schools were presented. Based on the review of literature conclusions and recommendations were made.

**SUMMARY:** This review of literature was about the application of marketing concepts and strategies to public schools. It included a brief summary of marketing philosophies and concepts, as well as a discussion of their applicability to public schools. Marketing concepts transferable to public schools were defined. Specific marketing strategies to meet the current problems facing public schools were suggested. A conceptual model of marketing designed for use by educational institutions was presented, as well as, examples of marketing programs. Methods of implementation were discussed.

**CONCLUSIONS:** The reviewed literature support the following conclusions. Marketing concepts and strategies are necessary and applicable to public schools. The adoption of the marketing concept by public schools is necessary if they are to remain viable. At the present time, there are marketing strategies and models available and recommended for use by public schools.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*Leland Renz, Chairperson*

#### **THE COMMUNITY PERCEPTION OF THE EDUCATIONAL ENDEAVORS OF THE BAGLEY PUBLIC SCHOOLS**

*Ronald G. Bouchie*

**THE PROBLEM:** The problem in this study was to attempt to determine the community attitudes and perception of the programs of the Bagley Public Schools. The study attempted to compare the opinions of the identified groups



concerning the effectiveness of the professional staff, the academic programs, the school related discipline, and the extracurricular program.

**RESEARCH DESIGN:** Data for the study were collected through the use of a questionnaire developed by the researcher. The questionnaire was mailed to one hundred Independent School District #162 residents who were selected by a random sampling method.

A cover letter, data sheet, questionnaire, and a self-addressed stamped envelope were sent to each participant. Returns were received from thirty- eight respondents or 38 percent of the sample.

The data were tested and interpreted by an analysis of means, variance and percentages. The .05 level was used to determine significant differences based upon the analyses of variance.

**FINDINGS:** Based upon the analyses of the data collected for this study, the following conclusions were reached:

1. The hypothesis that the Bagley Community does not agree that the educational programs of the Bagley schools are adequate, is not supported by the data.
2. Non-elementary parents are more supportive of the schools than are elementary parents.
3. Residents with no school-age children are as supportive of the school programs as parents with school-age children.
4. The data show that senior high parents are less supportive of the school programs than are non-senior high parents.

**RECOMMENDATIONS:**

1. The Bagley school board, administration, and staff need to investigate the possible implementation of a complete intra-mural sports program as respondents seemed to favor this concept.
2. There appears to be a need for educating and familiarizing the Bagley Community with the school programs.
3. A positive approach to residents, on a frequent basis, is needed to remove the undecidedness that the majority shows toward the school programs. This can be done most easily with parents of school-age children, as there are ample reasons for a teacher to contact a parent. Residents with no school-age children can be influenced through positive newspaper articles, radio and television.

*APPROVED BY RESEARCH COMMITTEE, MAY 1983*

*Leland S. Renz, Chairperson*

**COLLECTIVE NEGOTIATIONS FOR CLASSIFIED STAFF:  
A STUDY OF OPINIONS OF SELECTED SCHOOL BOARD MEMBERS,  
SCHOOL ADMINISTRATORS AND CLASSIFIED PERSONNEL  
SELECTED MINNESOTA SCHOOL DISTRICTS**

*Gary A. Bratvold*

**THE PROBLEM:** The problem in this study was to compare the opinions of school board members, district-level administrators, building level administrators and classified staff toward written, collectively negotiated agreements for classified personnel. In addition, the study attempted to determine the current status of formalized agreements for classified personnel in selected public school districts in the state of Minnesota.

**RESEARCH DESIGN:** Data for the study were collected through the use of a questionnaire developed by the researcher. The instrument was mailed to 288 employees or school board members of sixty-four public school districts in the state of Minnesota. Returns were received from 161 persons or 55.90 percent of the sample.

The data were tested and interpreted by an analysis of means, an analysis of variance and percentages by adjusted frequency with the .05 level of significance set for acceptance or rejection of significant differences.

**FINDINGS:** Based upon the analyses of the data collected for this study, the following conclusions were reached:

1. Fifty-seven and one tenth percent of the respondents indicated the presence of formalized agreements for classified personnel.
2. Seventy-one percent of the respondents reported that classified staff should not be members of a union. Only 21 of 152 respondents indicated that classified personnel who are represented by a union have a more positive relationship with their school board.
3. In general, management agrees that collective bargaining causes negative relationships between employees and school boards, while classified personnel disagree.
4. The opinions of the respondents strongly indicated that salaries and fringe benefits for classified personnel should be established by the local school board rather than the state legislature.
5. If classified personnel collectively bargain, the respondents generally agreed that classified personnel could expect the following items to be viewed as negotiable: salary, length of work week/work year, vacation allowance, mileage allowance, life insurance, health insurance, dental insurance, disability insurance, sick leave, personal leave, grievance procedures for classified employees, severance pay, and uniform allowance.
6. Based upon the opinions of the respondents, classified personnel can expect greater difficulty in negotiating the following items: hours of daily work (starting and stopping times), promotion procedures, termination procedures, employee disciplinary procedures, employee evaluation procedures, work location, job descriptions, and transfer procedures.
7. The respondents were divided on the question of "Who Should Negotiate?" Generally, management opposed negotiated agreements while classified personnel supported such agreements.

**RECOMMENDATIONS:** Based upon the findings and conclusions of the study, the following recommendations are presented.

1. To promote the maturation of the collective bargaining process involving classified personnel and their school boards, it is recommended that capable personnel administrators and labor relations specialists be included in the process.
2. It is recommended that the challenge for both management and classified personnel is to deal constructively with one another.
3. Management and classified personnel should develop a systematic model for communications providing for continuous consultation.
4. Leadership for implementing the recommendations listed above should be provided by management.

The following areas were recommended for further research:

1. Replication of this study by comparing opinions from other states and/or regions of the United States.
2. Expansion of this study by including other variables of background information.
3. Studies of bargaining units combining both licensed and classified personnel and exploration of the potential impact of such units functioning at local, regional and/or state level.

*APPROVED BY RESEARCH COMMITTEE, MAY 1983*

*Lee Renz, Chairperson*

#### AN ASSESSMENT OF GIFTED EDUCATION PROGRAM ADMINISTRATIVE PRACTICES IN THE SCHOOL DISTRICTS OF THE REGION XI EDUCATIONAL COOPERATIVE SERVICE UNIT

*Roger A. Damerow*

**THE PROBLEM:** The purpose of this study was to assess the gifted education program administrative practices of the Region XI Educational Cooperative Service Unit school districts. Region XI ECSU is made up of forty-eight Twin Cities Area school districts located in seven counties.

**RESEARCH PROCEDURES:** A questionnaire consisting of seventy items was used to gather the data. The survey was administered to the Gifted Education Program Coordinators of the participating school districts in February and March, 1982.

The following factors were assessed by the survey instrument: district enrollment, tax base, and revenues; the existence of a formal gifted program and receipt of special state aids for gifted education; elementary and secondary gifted program characteristics; the estimated permanence of the gifted program and the likely impact of financial cut backs on it; opinions were also assessed in several general gifted program administrative areas, including program type/generalities, program finance, program staffing, program curriculum, program identification/selection procedures, and program community factors.

**FINDINGS:** The data collected strongly suggest that there is no correlation between district enrollment, tax base, and revenues and the type of gifted program operated or the manner in which it is operated. It is also apparent that gifted programs are common in Twin Cities Area school districts, and that most districts are recipients of special state aids for gifted programs. Pullout programs with special resource teachers were found to be the basis of the most common program approach.

Another finding of the study was that most respondents believed that their gifted programs have been established on a relatively permanent basis and will survive the current financial crisis. At the same time, it is clear that respondents feel that program services will be reduced as a result of the crisis. Program Coordinator positions were believed to be especially vulnerable to reduction or elimination. Respondents seem to be most confident of program permanence in those districts with mature programs (six to seven years old), and in districts whose gifted programs are based on volunteers, cluster grouping, regular classroom teacher services, or other low cost operational concepts.

A broad range and depth of data were reported in the areas of elementary and secondary gifted program characteristics, and in the section of the study dealing with opinions relative to gifted program types/generalities, financing, staff, curriculum, identification/selection procedures, and community factors.

**RECOMMENDATIONS:** It is recommended that further gifted program administrative practices survey research be carried out in other less urban settings, and that the sample size for future studies be larger. It is also suggested that a comparison of gifted program administrative practices in rural, suburban, and urban areas be carried out. Finally, it is suggested that additional investigation of administrative practices be carried out after the current financial crisis is over, comparing current and subsequent program practices, and thusly measuring the impact of the financial crisis on gifted education programs.

*APPROVED BY RESEARCH COMMITTEE, MAY 1982*

*George A. Farrah, Chairperson*

## THE RELATIONSHIP BETWEEN DECISION AND TEACHER MORALE

*Roger M. Esterbrooks*

**THE PROBLEM:** Participative decision-making and morale have been proposed as variables that may significantly affect the ability of an organization to achieve its end, the educational achievement of its students. One's decisional condition can vary, however: he/she could participate in decisions less than, as much as, or more than he/she preferred. These conditions are labelled decisional deprivation, decisional equilibrium, and decisional saturation. This study tested for significant differences in levels of morale among those three groups. A lesser consideration was the correlation of two continua of decisional condition with morale, ranging from: (1) deprivation through equilibrium to saturation, and (2) deprivation through saturation to equilibrium.

**RESEARCH PROCEDURES:** Data were collected from a population of 182 teachers in a public school district in West Central Minnesota. The Alutto-Belasco Decisional Participation Scale established teachers' decisional condition. The Purdue Teacher Opinionnaire measured the dimensions of morale. The .05 level of significance served as a general guide for the relevance of findings to school districts similar in setting.

**FINDINGS AND CONCLUSIONS:** Significant differences were found among the decisional conditions in overall morale and the single dimension of rapport with the principal. Those at deprivation ranked lowest, those at saturation were high. Some evidence also suggested that not by chance did those at equilibrium have the most positive attitudes toward their teaching load and the adequacy of the school's facilities and services to fulfill their roles. The original decisional condition continuum (deprivation through equilibrium to saturation) had a significant positive association only with overall morale (the sum of the dimensions). The second continuum of decisional deviation (deprivation through saturation to equilibrium), emphasizing one's capability to participate to the degree that he preferred, established significant direct correlations with five of the six dimensions of morale. It was also concluded that:

1. The index of teachers' perceptions of their level of involvement, i.e., their decisional condition, in decision-making offers some indication of their position in organizational outcomes;
2. Decisional deviation, both positive and negative, is a strong associate of organizational outcomes;
3. The decisional indicators of participation in decisional situations as deprived, saturated, and at active or passive equilibrium provide a profile of staff involvement in organizational activity.

**RECOMMENDATIONS:** Certain implications, in terms of morale and decision-making, result from this study:

1. That the Decisional Participation Scale provides a realistic basis for improved administrative and staff assessment of their involvement in decision-making;
2. That the profile of staff participation can provide valuable input when establishing the priority of situations for which staff involvement is desired; and
3. That educational administrators should continue to offer opportunities for participation to teachers no matter their previous dispositions toward involvement in decision-making.

*APPROVED BY RESEARCH COMMITTEE, MARCH 1984*

*George A. Farrah, Chairperson*

## A STUDY OF THE IMPACT THAT TEACHERS' UNIONS HAVE ON PERSONNEL MANAGEMENT AND STAFF UTILIZATION

*Terry G. Hermanson*

**STATEMENT OF THE PROBLEM:** This study had a double purpose:

- (1) To discover if Minnesota elementary principals felt significant, negative teacher union impact on personnel management and staff utilization.
- (2) To identify the degree of impact upon sixty items and personal behaviors related to personnel management in the role of elementary principal versus the demographic data.

**RESEARCH PROCEDURES:** The instrument used was the survey questionnaire through distribution by mail and/or incorporation of a personal interview.

The sample was composed of 34 elementary principals throughout the state of Minnesota, specifically from each of the eleven Educational Cooperative Service Units (E.C.S.U.'s). The return rate of surveys yielded 97 percent, indicating an interest in the study. Sixty items and personal behaviors related to personnel management and staff utilization were contrasted to seven categories containing demographic data. Both general and specific findings were reported in tabular form and/or profile analysis with general and specific interpretations that followed.

**FINDINGS AND CONCLUSIONS:** The study generated both general and specific findings too numerous to consider in this study. Yet, these findings were most pertinent for inclusion:

1. Elementary principals expressed "strong" union impact regarding:
  - a. grievance procedures
  - b. preparation periods
2. Elementary principals indicated that there was "moderate" union impact on:
  - a. determination of class size
  - b. lunchroom supervision duty

- c. number of classes taught
  - d. school calendars
  - e. staff reductions
  - f. teacher transfers
3. Elementary principals feel little or no union impact relating to 87 percent of the items or personal behaviors related to personnel management and staff utilization.

Specifically, the significant findings related to two demographic variables that generated the majority (75 percent) of statistical differences at ( $p \leq .05$ ) ANOVA:

- 1. size of school district (0-4,000) vs. (over 4,000) students
- 2. type of community (rural) vs. (suburban)

Specifically, these findings revealed:

- 1. Smaller, rural school district principals reported significantly ( $p \leq .05$ ) more negative union impact than did their counterparts in larger suburban districts.
- 2. The significant differences were typically between the "little" and "moderate" ranges of impact.

#### RECOMMENDATIONS:

- 1. Further investigation on the causes of the significant differences related to size of school district and type of community.
- 2. Principals find alternative ways to cope with and share opinions about union impact with other management personnel within the state of Minnesota (i.e., workshops, conferences, counsel, etc.).

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*George A. Farrah, Chairperson*

#### A STUDY OF SECONDARY SCHOOL MATHEMATICAL COURSE GOALS AND CONCEPTS TAUGHT TO ATTAIN THOSE GOALS IN VARIOUS SIZE SCHOOL DISTRICTS IN MINNESOTA

*Mark W. Hinckley*

**THE PROBLEM:** Today much discussion has centered on small schools and the influence size has on high school curriculum. This study focused on the relationship the size of a school system has to the mathematics content offered to students. Course goals, according to predictor variables of position, education, setting or location, enrollment, and experience, were researched via a descriptive survey. Also included was a nominal response of "Yes" or "No" as to whether concepts are taught that would allow students to attain the stated goals to ascertain the breadth of program offered.

**RESEARCH PROCEDURES:** An instrument was developed, in the form of a questionnaire, and mailed to selected school district representatives throughout Minnesota. The sample utilized in this study was one hundred school districts in Minnesota. Seventy-three responses were received.

This field study was normative and descriptive. However, both the analysis of variance and Chi-square were used to test the metrical (i.e., scaled data) and nominal data (i.e., the relationships).

Specifically, the t-test and group data statistics were used in this study to determine if significant differences existed between the selected groupings. All statistical procedures judge results significant at the  $p \leq .05$  level of significance.

**FINDINGS:** Seventy-three schools were surveyed throughout the state of Minnesota. The responses were analyzed and cross-checked. The statistical procedure of analysis of variance and the method of Chi-square were used. In both cases, results were identical. There were few differences or relationships having to do with the predictor variables of position, education, setting or location, enrollment, and experience. These were only a minute proportion of the total sample. Therefore, the sample was homogeneous with few relationships or differences. It was found that schools of small size offer a four-year mathematics curriculum that is comparable to large schools and in the judgment of the respondent does prepare students to meet like goals in each of the years.

RECOMMENDATIONS: The following recommendations are made:

1. The study used only a selected subset of minimum course goals. Some difference may appear in a study of newer mathematical concepts such as those that developed in the 1960's and 1970's.
2. Relative to the goals surveyed it is apparent that small schools do offer a four-year curriculum that is comparable to large schools, with the exception mentioned in number one.
3. Further study be done in other areas of study in secondary schools.
4. Based on the goals studied there appeared to be very little, if any, statistical difference relative to school size and the person completing the questionnaire, relative to geometry and second year algebra.
5. Further study using broader goals is necessary to determine depth of senior mathematics.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1982

*George A. Farrah, Chairperson*

#### A COMPARISON OF THE SITUATIONAL DECISION STYLES SELECTED BY MALE AND FEMALE PUBLIC SCHOOL ADMINISTRATORS IN MINNESOTA

*Judith A. Maethner*

PROBLEM: Do female school administrators in Minnesota public schools use the same management decision styles as male school administrators when faced with the same situations?

PROCEDURES: Sixty female public school administrators were randomly selected. A group of sixty male public school administrators was randomly selected to match the female group in terms of the size of district represented and the types of administrative positions held. This sample of male and female administrators was asked to complete the Administrative Decision Style Survey by choosing a decision style from among five alternatives for each of four case descriptions. The cases described were typical of situations an educational administrator might encounter. The male and female groups were analyzed using a Chi-square statistic to ascertain whether they were, in fact, comparable on three factors: tenure; administrative position held; and, size of district represented. The decision styles chosen by males and females were compared using a Chi-square statistic on a case-by-case basis. Finally, the decision styles selected by the respondents were compared to the Vroom Normative Model of Leadership Styles, a decision-making model.

FINDINGS: The groups of males and females were similar with respect to size of district represented and administrative positions held. They differed significantly ( $p < .05$ ) on tenure, with the males having the most experience. When the chosen decision styles were compared to tenure groups (< 5 years, 5-10 years, > 10 years) no significant differences were found. When decision styles chosen by males were compared to those chosen by females, the groups were not significantly different on three of the four cases. On the one case where there was a significant difference, the females chose a consensus style more frequently than males. The administrators who responded to this study chose decision styles which were rated as "preferred or acceptable" on three of the four cases by the Vroom Normative Model of Leadership Styles.

CONCLUSIONS: Women public school administrators in Minnesota chose the same decision styles as male administrators in the majority of situations. On the one case where they differed significantly, the women chose a more democratic style (consensus). Length of experience in educational administration was unrelated to choice of decision style. Finally, the Minnesota public school administrators represented in this research were rational decision-makers the majority of the time.

APPROVED BY RESEARCH COMMITTEE, AUGUST 1982

*Leland Renz, Chairperson*

## A STUDY OF THE IMPACT OF BUDGET REDUCTIONS ON ELEMENTARY SCHOOL PROGRAMS IN MINNESOTA PUBLIC SCHOOLS

*Theodore J. May*

**THE PROBLEM:** The purpose of this study was to identify the effect of reduced spending on the quantity and quality of services offered in Minnesota elementary schools. Critical aspects of the study included an examination of the degree of program reduction, a determination of the program areas being reduced, and an interpretation of the impact of reductions and the quantity and quality of educational services being offered in the schools. A secondary purpose was to categorize the opinions of selected elementary school principals on the issue of budget reductions.

**RESEARCH PROCEDURES:** A random sample of elementary school administrators chosen from nine Educational Cooperative Service Unit regions in Minnesota was conducted. The survey was mailed to one-hundred elementary school principals. The results of the survey were tabulated and analyzed for content and adjusted frequency. The questionnaire was composed by the writer.

A second research technique was to conduct interviews with selected representatives of the system of elementary education in the state of Minnesota. Derived from the critical points in the questionnaire administered to school principals, four questions were presented to representatives of these organizations: the Minnesota School Boards Association, the Minnesota Elementary Principals' Association, the Department of Teacher Development, St. Cloud State University, and a currently practicing elementary teacher.

**METHODOLOGY:** A descriptive, statistical approach was employed in this study. As a basis for the study, a review of pertinent literature was conducted. Given the analysis provided by the review of literature and the statistical base provided by the survey results, the writer drew conclusions and generalizations about the impact of reduced revenue on elementary education in Minnesota. The study presented an objective description of budget cuts in terms of instructional programs, extracurricular programs, certified and classified personnel, student services, and administrative services. Because the data yielded in the survey were so extensive, only selected portions of it were usable and contributed to the findings and conclusions.

**FINDINGS AND CONCLUSIONS:** It was the purpose of this study to reflect the manner in which Minnesota public elementary education responded to budget reductions. The findings of this study, as derived principally from the opinion surveys and personal interviews, centered on several central issues: a common pattern of reductions, a survey of opinion regarding the equity with which reductions were administered, and a sense of common mission among the varying components of the system of elementary education. This paper, by describing the depth and breadth of budget reductions, has attempted to provide a base of information and analyses on which to predicate future budget decisions.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1983*

*George A. Farrah, Chairperson*

## PERCEPTIONS OF THE SECONDARY SCHOOL COUNSELORS' ROLE BY PARENTS, STUDENTS, TEACHERS, PRINCIPALS, CENTRAL OFFICE ADMINISTRATORS AND COUNSELORS IN SELECTED CENTRAL MINNESOTA SCHOOL DISTRICTS

*Michael P. Roos*

**PROBLEM:** The purpose of this study was to determine and examine the perceptions of the school counselors' role as held by parents, students, teachers, principals, central office administrators and counselors in Central Minnesota school districts.

**PROCEDURES:** The populations studied included all identified public secondary school counselors, principals, teachers, and central office administrators in Melrose, Monticello, and St. Cloud, Minnesota. In addition, a 20 percent random

sample of ninth grade students, twelfth grade students, parents of ninth graders and parents of twelfth graders was developed. The instrument used to determine the perceptions was derived from a twenty-three item counselor role function questionnaire developed by the guidance department in Mounds View, Minnesota. The questionnaire contained role function statements that could be divided into three key areas: (1) Career Guidance and Educational Planning, (2) Services for Troubled Students, and (3) Other Counselor Services. Judgments by the respondent groups to the questionnaire were made on a five-point scale for each of the twenty-three counselor role functions listed. Variables including age, sex and years of teaching experience were also isolated by the questionnaire.

To test the significance of differences at the .05 level, a one-way ANOVA analysis of variance was used, along with two-tailed t-tests. Each group was compared to the other groups. Mean priority ratings were also ranked.

**FINDINGS:** Counselor and teacher groups rated Services for Troubled Students to be of high importance. Parents and students rated Career Guidance and Educational Planning to be of high importance. Administrators wanted counselor time divided between Services for Troubled Students and Career Guidance and Educational Planning. Comparisons between groups produced significant differences on every one of the twenty-three counselor role functions.

**SUMMARY:** While there were significant differences between the perceptions of groups (i.e., students vs. teachers, teachers vs. parents, parents vs. principals, etc.) the counselors' role and expectations for it varied little between districts. Generally, the counselors role was an important one and a needed one.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*George A. Farrah, Chairperson*

## A COMPARISON OF COMMUNICATION MODELS WITHIN FOUR TYPES OF SYSTEMS

*Lela R. Tourville*

**PROBLEM:** The purpose of this study was to compare and contrast three models of communication to four types of systems.

**PROCEDURE:** The procedure used was library research obtained from the St. Cloud State University Learning and Resource Center in St. Cloud, Minnesota.

Information was gathered on three models of communication: action, interaction, transaction; and on four types of systems: inert, factional, dominant and pluralistic.

This study involved the synthesis of data on communication models and types of systems.

**FINDINGS:** Each type of system included the superintendent, school board, and community. The communication model used by each party within a system was dependent upon the relationship of all three parties within a given system.

In an inert community with an inert board, the model of communication used was interaction; while the superintendent working in the inert setting used the action model. A factional community and board employed the interaction communication model as did the superintendent. The action model of communication was used by the dominant board. The superintendent employed the interaction communication model. In a pluralistic community, the board and superintendent communicated by using the transactional model.

**SUMMARY:** The models of communication used by a superintendent and school board were dependent on their relationship to the community, job description, and the process used for decision-making and problem-solving.

The effectiveness of each system was based on their ability to solve problems and make decisions. In regards to problem-solving, the most effective system was the pluralistic board and superintendent which used the transaction model. The least effective, based on problem-solving, was the factional board and its superintendent.

*APPROVED BY RESEARCH COMMITTEE, MAY 1982*

*Leland Renz, Chairperson*



## A STUDY OF THE USE AND EFFECTS OF ACHIEVEMENT TESTING IN THE ELEMENTARY SCHOOLS

*Timothy M. Waller*

**PROBLEM:** The purpose of this study is an attempt to 1) discover how results of achievement tests are used in selected elementary schools of today, and 2) yield information to help answer the question as to the need of testing to be a part of the school curriculum.

**RESEARCH PROCEDURES:** Six elementary schools within four school systems located in central Minnesota were polled concerning their perceptions about testing and of how achievement tests are used in the elementary grades. This arbitrary group of teachers and administrators totaled approximately one hundred and twenty-five, of which ninety-seven responded. The questionnaire contained pertinent statements relating to 1) tests and the school curriculum; 2) type of test; 3) student prediction of success; 4) test reliability; 5) purpose of testing; and 6) teacher training for testing purposes. The data were analyzed in terms of simple percents, group data statistics, and "t" tests among the various clusters of items.

**CONCLUSIONS:** Educators today appear to have misconceptions about the use of achievement testing. In regards to the six cluster groups mentioned above, the educators polled were undecided about every issue. There was uncertainty about tests and their predictions and about test reliability. There was agreement about tests being an important part of the curriculum and the type of test was also important, but educators seem to be undecided as to which is the best type of test. There was also indecision about the purposes of testing. The overall conclusion was that for testing to become the device that it was intended to be, the training of staff for testing purposes was necessary.

**RECOMMENDATIONS:** The dominant recommendation is that training for test usage should be given to school boards, superintendents, elementary principals, teachers, parents. In addition, it is also recommended that teacher training institutions include test management as a part of their curriculum.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*George A. Farrah, Chairperson*

## SOME PARENTAL OPINIONS AFFECTING SELECTED PAROCHIAL SECONDARY SCHOOLS

*Paul J. Wenner*

**PROBLEM:** The primary purpose of this field study was to attempt to survey parental opinions in order that administration and school boards may better assess the future of private parochial secondary schools within the Diocese of St. Cloud.

**RESEARCH METHODOLOGY:** This included the designing of a survey instrument to document parental responses regarding their views of private parochial schools. The instrument was field tested on a group of fifteen parents in order to increase the objectivity and clarity of the survey instrument. The survey was then mailed to parents whose children were attending Benilde- St. Margaret's, Loyola and Cathedral High School in order to assess their responses to questions relative to: (1) values of parochial education, (2) cognitive growth, (3) affective growth, and (4) co-curricular activities.

Analysis of variance was then used to analyze those opinion findings against the personal data of the respondent according to: (1) age, (2) sex, (3) college graduate, (4) alumni of a parochial school, (5) spouse being an alumni of a parochial school, (6) whether or not their child in a parochial school was the first to attend a parochial school, and (7) their 1980 gross salary range.

**THE FINDINGS:** It was discovered that the more salient findings were: (1) that parents who were college graduates tend to be concerned about the values of parochial education and the cognitive growth of their children; (2) that parents

who have their first child in a parochial school tend to have strong feelings towards the co-curricular activities offered by their school; and that there was concern about the values of parochial education; and (3) that parents whose 1980 gross salary exceeds \$40,000 seem to place more significance on the cognitive growth of their children.

**RECOMMENDATIONS:** The findings suggested that attention should be focused on: (1) the personal backgrounds of the parents of the children attending a specific parochial school in order for administration and school boards to determine where emphasis should be placed in the educational process, (2) the improvement of instruction in religious programs of parochial secondary schools to better facilitate the cognitive growth of its students, and (3) strengthening and increasing the opportunities for all students to become involved in some form of extra co-curricular activities.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*George A. Farrah, Chairperson*

## **ELEMENTARY EDUCATION**

### **PELRA AND TEACHER SALARIES AND BENEFITS IN MINNESOTA: 1963-1980**

*Garry Freeman*

Minnesota teachers have been involved in collective bargaining since the Minnesota Legislature passed the Public Employment Labor Relations Act of 1971 (PELRA). The PELRA provided teachers with the legal means to negotiate contracts. PELRA also granted teachers a limited right to strike. Minnesota teachers could legally strike if a school board refused to enter arbitration or refused to implement an arbitration award.

The purpose of the study was to examine trends in teacher salaries and fringe benefit dollar amounts before and following the enactment of the PELRA legislation of 1971.

A random sample of forty-six school districts was selected in such a way as to reflect all geographical areas of Minnesota. The school years 1963-64 through 1979-80 were studied. Salary and fringe benefit dollar amount data were recorded for four points on each school district salary schedule; bachelor's degree minimum and maximum, and master's degree minimum and maximum.

Once all salary and fringe benefit data were recorded it was converted to 1967 dollars by using the Consumer Price Index (CPI). The means of the CPI adjusted dollar amounts for all four salary schedule points for each year of the study were then calculated and graphed.

The graphs of the mean CPI adjusted dollar amounts for all four salary schedule points revealed similar trends. From 1963-64 to 1970-71, the school year before collective bargaining began in Minnesota, an upward trend existed in teacher salary and fringe benefits when adjusted from inflation. After collective bargaining a general downward trend began for all four points studied. The low point was 1979-80. The high point was 1970-71.

Possible factors contributing to this post-collective bargaining downward trend included the advantage school boards had in being able to dictate whether or not teachers would have to submit to arbitration. Teachers were in a position of reacting to what school boards decided.

Other possible factors were the very high inflation rates experienced from 1973 through 1980, coupled with declining enrollments, which in Minnesota meant less state aid. Teacher salaries and benefits were large budget items and likely places for school boards to hold down increases.

Another consideration was a change in the way school boards perceived their relationship with teachers after collective bargaining. They may have taken an unyielding position because they were forced to negotiate with teachers.

It was likely that a combination of these factors contributed to the post-collective bargaining decline in inflation adjusted teacher salaries and benefits.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*Russell H. Schmidt, Chairperson*

## THE MICROCOMPUTER AS A SUPPLEMENTAL TEACHING TOOL IN MULTIPLICATION AND DIVISION

*John A. Haas*

**PROBLEM:** Educators are using microcomputers as teaching tools in the classroom. One use of the microcomputer is to reinforce concepts presented in class. The problem examined is the effectiveness of the microcomputer for reinforcement of multiplication and division problems.

**PROCEDURE:** Fifty, fourth grade students from two classrooms at Lincoln Elementary School in Little Falls were randomly-divided in three equal groups. The control group had only classroom instruction for multiplication and division. The microcomputer group had classroom instruction and also used Micro-Math Magic for reinforcement fifteen minutes every day. Micro-Math Magic is a set of microcomputer programs designed for multiplication and division reinforcement. The worksheet group had classroom instruction and also used worksheets containing problems randomly-selected from the appropriate Micro-Math Magic program. Four chapter pretest and posttests were given each student from the classroom text, Heath Mathematics. Each student answered an attitude survey at the conclusion of the study.

**FINDINGS:** The computer group from the "average" mathematics classroom scored significantly higher on the multiplication and division facts and one-digit multiplication posttests. The three groups from the "above-average" classroom tested without significant difference on any of the four posttests.

The attitude survey pointed out that the computer group enjoyed working on their problems significantly more than the other two groups. Also the computer group most strongly agreed their reinforcement work had helped them learn their math.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*Owen Hagen, Chairperson*

## AN INVESTIGATION OF THE FEASIBILITY OF THE WORDER ON SPELLING INSTRUCTION

*Gary W. Judd*

The purpose of this study was to explore the effectiveness of the "worder" as a supplemental activity to improve spelling achievement of elementary school children. The investigation attempted to determine if achievement relationships existed in spelling between:

- (1) grade level,
- (2) boys and girls,
- (3) the type of supplement used.

The investigation was conducted with 140 seven to twelve year old children from seven classrooms in grades two through six.

All students were divided into three groups and rotated through three tracks. These tracks consisted of a supplemental activity in the form of a printed "worder" and a computer "worder." The third track was the control.

All students in the investigation took pretests on spelling lessons, received teacher instruction, and were assigned the appropriate intervention. Posttests were administered at the end of each cycle.

Responses were analyzed to determine if the use of the "worder" improved spelling achievement for these elementary students and the relationships to grade, sex, and treatment.

**FINDINGS:** It was concluded from the analysis that students did improve at a statistically significant level in spelling achievement from pretest to posttest at all grade levels for both boys and girls.

It was found, however, that the addition of the supplemental "worder" to this program had no statistically significant affect on the gains made in achievement for any grade level, for boys or girls, nor in the type of treatment used. It was concluded that the use of a "worder" as a supplemental activity to improve spelling achievement was not effective.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*  
*Russell H. Schmidt, Chairperson*

#### **STEPS TAKEN TO INCREASE PARTICIPATION, ESPECIALLY OF FEMALES, IN THE ST. CLOUD ELEMENTARY AFTER SCHOOL PHYSICAL ACTIVITIES PROGRAM**

*Guy Schafer*

Youth sports programs have flourished for many years despite nearly 30 years of criticism from educators and the medical profession. Various estimates place the number of participants in these programs at 16.5 to over 20 million (Park, 1973; Seefeldt & Haubenstricker, 1978).

Besides the basic enjoyment of participating in sports, many lessons and skills are learned which are transferrable to school situations and everyday life. The St. Cloud School District has for many years offered an elementary after school athletics program which was considered to be successful by those involved.

With the passage of Title IX of the Education Amendments Act of 1972 and the regulations to implement the law becoming effective in July of 1975, athletic programs sponsored by institutions receiving federal funds had to be evaluated to determine if they were in compliance with the Title IX regulations. St. Cloud's after school program was found to be in noncompliance.

The problems addressed in this study were the concerns of the St. Cloud Title IX Committee that a new program be developed and offered that would meet the needs and interests of as many students in the district as possible. The new program would need to be in compliance with Title IX and be consistently implemented district wide assuring that the philosophies and goals of the program were uniformly applied throughout the district.

The literature reviewed dealt with the impact Title IX and Minnesota Statute 126.21 has had on youth sport programs, how the socialization process affects youths, the benefits children can gain from sports, and what activities and programs are considered to be effective for children.

Participation figures covering the 1973 to 1983 school years of the St. Cloud after school program were analyzed to evaluate the old program and assist in the formation of a new one. A survey was constructed and administered to approximately 35% of the fourth, fifth, and sixth grade students in the district starting in the 1978-79 school year and the following four years. The survey was developed to discover what the students in the district wanted offered in an after school athletic program. This data was also used to help develop the new after school program.

The major findings of the study were that the new program, developed and implemented district wide in the 1981-82 school year, was meeting the needs and interests of more students with increased participation on the part of females and males. The percentage of females participating in flag football, basketball and track and field increased slightly.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1983*  
*Boyd Purdom, Chairperson*

#### **MICROCOMPUTER DRILL EFFECTS ON SECOND GRADERS' ADDITION AND SUBTRACTION FACT MASTERY**

*Rita Webster*

The purpose of this study was to determine if the computer could be more effective in aiding second grade student written performance on basic addition and subtraction mathematics facts than the use of flashcard drill or no additional drill. The computer drill program was designed by the researcher.

Forty-six students from two second grade classrooms in Sandstone, Minnesota Independent School District 576 participated in the study. One classroom was randomly divided into three groups with each group rotating twice, among one-week cycles of computer drill, flashcard drill or no additional drill. The second classroom was the control group. All groups were tested at the end of each week. Comparisons were made between method of drill and between groups utilizing a t-test program.

**FINDINGS:** No statistically significant differences resulted, but informal interpretations and recommendations were made.

The teacher-designed program performed well. The program could be regulated to coincide with classroom learning situations.

Students who were not motivated by classroom paper and pencil drill were highly motivated by the computer drill. These students may not have been accurately measured because the mathematics facts test was a paper and pencil test rather than a computer test.

If computer costs continue to decrease while teacher costs continue to increase, then drill and practice may be an effective way to use the computer, since it would free the teacher to do those tasks which need the human touch. On the other hand, if teachers are doing an effective job with drill and practice in the classroom, then maybe the computer could be better used for complicated simulations and demonstrations.

For some students who can't be motivated to do paper and pencil drill and practice, perhaps the computer is a necessary catalyst for increasing performance of those students. The researcher did not recommend the avoidance of computers for drill and practice, but indicated that there is a need to find out where and how the computer is most effective, and integrate it into the curriculum accordingly.

*APPROVED BY RESEARCH COMMITTEE, MAY 1984*

*Russell Schmidt, Chairperson*

## **INFORMATION MEDIA**

### **THE DOUGLAS COMMUNITY LIBRARY: A PROGRAM OF COMBINED PUBLIC/SCHOOL LIBRARY SERVICES FOR THE RESIDENTS OF THE DOUGLAS SCHOOL DISTRICT AND COMMUNITY EDUCATION ENROLLEES**

*Jocelyn Lee Baker*

**PROBLEM:** The problem of the study was to: (1) trace the conceptualization, establishment and development of a combined school/public library, (2) assess the potential usage and services, and (3) document the actual utilization of the library's services.

If a combined school/public library program is to be successful and meet the needs of the community, it is essential to assess potential library patrons to determine what services should be offered. Additionally, following the establishment and operation of a library for a three (3) month period, it is also necessary to evaluate the services offered by the library. Therefore, it was the purpose of this study to provide data and information on the following: (1) statistics of potential and actual library users that included place of residence, age and educational background, (2) frequency of use, (3) types of services, (4) hours and days of operation, and (5) other pertinent library-related statistical information.

**PROCEDURE:** Two survey instruments were developed and distributed to adult community education classes of the Douglas School System. The first one was distributed to enrollees during the 1981 fall term. The second survey was administered to class participants at the end of the 1982 spring term. In addition, the survey was also distributed to all library patrons who had become members. Upon return of the surveys, the responses were recorded, analyzed and summarized.

**SUMMARY AND CONCLUSIONS:** The survey aspects of the study indicated that even though community education students indicated some interest in using the services of the Douglas Community Library, it was the community residents, living in areas immediately adjacent to the library, that formed the bulk of the library's enrolled members. Members of this group used the library and indicated overwhelmingly that they would utilize the library's services during the next community education term.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1983*  
*John Berling, Chairperson*

## **PHYSICAL EDUCATION AND RECREATION**

### **COMPUTERIZATION OF INTERCOLLEGIATE TRACK MEETS RUN ON A SIX LANE TRACK**

*Richard D. Clay*

The purpose of this study was to develop a computer program to help facilitate the organization and administration of intercollegiate track and field meets held on a six lane track.

The computer program developed in the study assigns competitors in a track and field meet to heats and lanes in accordance with National Collegiate Athletic Association track and field rules. Heats and lanes can be assigned by the computer in preliminary and final rounds of competition for events run in lanes all the way and for relays where the first lap is run all the way in lanes.

The data for testing the computer program were collected from a four team college track and field meet (Meet of the Saints) held at St. Cloud State University. A comparison was made between the manual and computer methods of assigning competitors to heats and lanes in the Meet of the Saints. The findings of this investigation showed both methods of assigning heats and lanes produced the same results for the events analyzed. It was also found that the computerized heat and lane assignments can be used for events not run in lanes all the way and for field events.

It was concluded that the computer program developed in this study is a workable tool for facilitating the organization and administration of track and field meets. It was also concluded that the computerized method of assigning competitors to heats and lanes was faster than the manual method and more accurate.

Recommendations that were made for future studies included expansion of the computer program to include seven, eight, and nine lane tracks. Also, the program should include procedures for scoring track and field meets. It was also recommended that the National Collegiate Athletic Association develop a comprehensive computerized system of organizing the NCAA track and field program on a nationwide basis.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1983*  
*Robert Waxlax, Chairperson*

### **A COMPARATIVE STUDY DESIGNED TO MEASURE THE ATTENTIONAL STYLE OF THREE GROUPS OF HIGH SCHOOL QUARTERBACKS**

*Stephen P. Johnson*

**GENERAL PROBLEM:** The general problem was to determine what relationships exist between quarterbacks with winning records (.750), quarterbacks with .500 level records, and quarterbacks with losing records (.250) in relation to their attentional style scores, as measured by Nideffer's Test of Attentional and Interpersonal Style.

**LIMITATIONS:** The study was limited to sixty quarterbacks from high schools in the state of Minnesota. For the purpose of this study Nideffer's Test of Attentional and Interpersonal Style was used by the quarterbacks to measure their attentional style.

**PROCEDURES:** Data for this study were gathered from sixty high school quarterbacks after the completion of the 1983 regular season. After the study was approved, a phone call to the coach of each quarterback was made explaining the study. Tests, answer sheets, and administration instructions were sent to each participating coach. Nideffer's Test of Attentional and Interpersonal Style was then administered to the sixty quarterbacks to evaluate their attentional styles.

**TREATMENT OF DATA:** The data on the Test of Attentional and Interpersonal Style were scored as directed in Nideffer's Test of Attentional and Interpersonal Style Handbook. Upon completion of the test a raw score was tabulated for each quarterback on each attentional scale. These scores were converted into a standard t score. Multiple chi-square tests of analysis were computed on each of the nine attentional scales seeking differences in the attentional style of the three groups of quarterbacks (.750, .500, .250). Acceptance for significance was set at the .05 level of confidence.

**FINDINGS:** The results of this study revealed that a significant difference existed between the three groups of quarterbacks (.750, .500, .250) in relation to the internal overload and reduced attention scales.

No significant differences existed between the three groups of quarterbacks (.750, .500, .250) in relation to the broad external focus, external overload, broad internal focus, or the narrow attentional focus scales. Nor did significant differences exist between the three groups of quarterbacks (.750, .500, .250) in relation to the attentional focus scales minus the attentional overload scales.

*APPROVED BY RESEARCH COMMITTEE, MAY 1984*  
*John Kasper, Chairperson*

## **EFFECTS OF TWO FIVE-WEEK TRAINING PROGRAMS ON VERTICAL JUMP PERFORMANCE OF COLLEGE STUDENTS**

*Valerie Swanson, Sussenguth*

**PROBLEM:** The purpose of this study was to determine the effects of two five-week training programs on the vertical jump performances of college underclassmen.

**METHODOLOGY:** Eighty-seven physical education students from Willmar Community College in Willmar, Minnesota, were randomly assigned to two experimental groups and one control group. The experimental groups completed vertical jump training programs for three days each week for five weeks.

The difference between pretest and posttest vertical jump means and weekly vertical jump mean gains were compared by total groups (two experimental and one control) and for females and males. Comparisons were made by the analysis of variance statistical technique.

**FINDINGS:** The Hydra-Gym experimental group mean increase (experimental group mean of 1.20 and control group mean of .02) in vertical jump performance was significant at the .01 level. Weeks one, three and four also indicated an increase in vertical jump performance at the .01 level of significance. The vertical jump mean gains of females in the Hydra-Gym experimental group for the posttest, week one, week three and week four were all significant at the .01 level. Males in the Hydra-Gym experimental group showed increases in posttest mean gains and week three means which were significant at the .05 level. The free weight/power jumping experimental group mean increase (experimental group mean of 1.24 and control group mean of .02) in vertical jump performance was significant at the .01 level. Weeks one and three also indicated a significant increase in vertical jump performance at the .01 level. The increase for week four was significant at the .05 level. Females in the free weight/power jumping experimental group showed a gain in vertical jump performance in the posttest, and for weeks one, two and four. Each was significant at the .01 level while week three increases were significant at the .05 level. The posttest and week one vertical jump mean gains for males in the free

weight/power jumping group were significant at the .05 and .01 levels, respectively. No significant differences were found between the vertical jump pretest and posttest means or weekly mean gains of the two experimental groups.

CONCLUSIONS: Within the limitations of the study, the investigator concluded the following: (1) the two experimental vertical jump training programs demonstrate value for increasing vertical jump performance of college females and males, and (2) neither training program, however, appears to be superior to the other in promoting vertical jump improvement.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1983*

*Ray Collins, Chairperson*

## **PSYCHOLOGY**

### **A STUDY OF ATTITUDES TOWARDS THE QUALIFIED REHABILITATION CONSULTANT HELD BY PERSONS AFFECTED BY VOCATIONAL REHABILITATION WITHIN THE MINNESOTA WORKERS' COMPENSATION SYSTEM**

*Kenneth E. Abeln*

Workers' Compensation laws in the State of Minnesota provide for monetary benefits to be paid to individuals who have become disabled due to a work-related injury or illness. The Workers' Compensation System is privately funded by employers through private insurance companies, but it is regulated by the State of Minnesota. The State regulates the amount of benefits, insurance premiums paid by employers, and the delivery of services to the disabled worker. One of those services is the provision of vocational rehabilitation counseling in an effort to return disabled workers to productive employment within the restrictions of their disability in the shortest time possible. The provision of vocational rehabilitation services within the Workers' Compensation System is a subject of some controversy currently. When a worker becomes disabled, there are commonly several different professionals involved in administering benefits and services, and bringing the case to a resolution. These professionals include a doctor who treats the disability, an insurance claims adjuster who coordinates the delivery of benefits and services, an attorney who protects the rights of the disabled worker under the law, and a vocational rehabilitation counselor who assists the disabled worker in returning to gainful employment. The ultimate goal of all persons involved in a case, including the disabled worker, is to return the disabled worker to a productive life and gainful employment.

A qualified rehabilitation consultant is a vocational rehabilitation counselor who has been approved by the State of Minnesota to deliver vocational rehabilitation services to disabled workers under Minnesota Workers' Compensation laws. All of the professionals mentioned in the preceding paragraph, and the disabled worker as well, are involved in the effort to return the disabled worker to gainful employment. The qualified rehabilitation consultants coordinate this effort. This study sets out to prove that differing attitudes towards the qualified rehabilitation consultant exist among these groups. To the best of this author's knowledge, no research has been done on this subject. This study does not purport to examine the effects of these differing attitudes, nor does it examine the reasons underlying these attitudes. This study sets out only to prove the existence of differing attitudes.

The study does, in fact, indicate that a wide divergence of attitudes does exist. The instrument used to measure these attitudes produces a possible range of scores from 0-80, with 0 being the most positive attitude and 80 being the most negative attitude. Surveys were mailed to 30 members of each of the five groups, and a response rate of 64% was obtained. The results indicate a range in scores from 0-76, and the mean scores for each of the five groups ranged from 17-42. The conclusion of the study is that a wide divergence of attitudes does exist. The implication of this study for the professionals in each of the groups is to recognize this divergence of attitudes and make efforts to lessen it in order to promote more efficient and harmonious delivery of vocational rehabilitation services to the disabled worker.

*APPROVED BY RESEARCH COMMITTEE, MAY 1983*

*George Petrangolo, Chairperson*



## THE INTERRELATIONSHIP OF TWO DISCIPLINES; A DESCRIPTION OF CHRISTIAN COUNSELING; PRACTITIONER AND PRACTICE

*Carol J. Wittenberg Carlson*

Christian counseling has arrived, but what substantiation describes the therapy involved? The literature review for this topic revealed available information and research on this specialization, including extensive theoretical recommendations. However, the information on practical appraisal and description was very limited. The present study was designed to investigate the practice of Christian counseling: to describe representative characteristics of its practitioners, to examine the interrelationship occurring between Christian discipline and psychological discipline, to document the theory and techniques of therapy, and to test for significant differences between counselors with differing philosophical orientations toward therapy.

Two-hundred eight Christian counselors responded on a questionnaire devised by the author to obtain descriptive items of age, experience in the field, educational preparation in psychology and theology, denominational affiliation, theoretical orientation, philosophical orientation and usage of scriptural and psychological techniques. John Carter's paradigm (1977) was utilized to represent a summary and a choice of approaches to the interrelationship of Christianity and psychology.

Descriptive results were presented and discussed as additions to the available demographics on this population of Christian counselors. They indicated most counselors of this population to be generally youthful in age and experience, diverse in denominational affiliation, generally well educated in psychology with some training in theology, eclectic in theory and integrative in philosophy, with the majority selecting secular positions toward therapy.

For hypothesis testing, Carter's model served as a framework upon which counselor responses were categorized. The two main philosophical orientations, sacred and secular, were compared for differences in description and practice. While these two positions did not differ markedly on descriptive characteristics, significant differences did appear upon testing the subsamples for techniques used in therapy. Sacred respondents were especially characterized by primary usage of both scriptural and psychological techniques; in contrast, secular respondents used primarily psychological techniques with secondary emphasis placed on scriptural techniques.

The implications of these descriptive and statistical findings are discussed in terms of the interrelation of disciplines; and a record of techniques endorsed for therapy by these practitioner respondents was included in entirety for future reference and research in this area.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*Arthur J. Redding, Chairperson*

## PREVALENCE OF PERCEIVED FUNCTIONAL DISABILITY IN THE MINNESOTA COUNTIES OF STEARNS, BENTON, WRIGHT AND SHERBURNE

*Jerilyn Lasley and Steven L. Walsh*

This study had three objectives. The first objective was to obtain data regarding the prevalence of perceived functional disability in a four county area in central Minnesota and compare the results to data obtained in a 1976 State of Minnesota study of the same area. The second objective of this study was to determine if the adult sample was representative in respect to age to the population reported in the 1980 census. The third objective of this study was to determine if the percentages of male and female respondents in this study were representative of the population reported in the 1980 census.

The method of data collection was a telephone interview rather than the personal interview method used in the 1976 study. Twenty-nine questions from the interview schedule of the original survey were chosen for use in this study with only minor changes necessary to make the questionnaire usable over the telephone. The questionnaire was administered to 147 adults, representing 147 randomly selected households, providing information about 480 persons living in those households. Of the persons represented in this study, 16.25% were perceived to have one or more functional disabilities compared to the prevalence rate of 14.5% found in the 1976 study. A weighted means analysis was applied to the two proportions and no statistically significant difference was found at the 95% level of confidence. Using a chi-square

analysis the researchers determined at the 95% level of confidence that the ages of adults sampled by this study were comparable to the population reported in the 1980 census. By similar analysis, the researchers determined at the 95% level of confidence that the respective percentages of males and females in this study were not representative of the population found in the 1980 census.

This study is significant because the proportion of perceived functional disability found in this 1982 telephone survey did not differ significantly from the proportion found in the 1976 study based on personal household interview. This finding suggests that the data collected in the 1976 study are still valid in 1982 and that the telephone interview is an inexpensive and effective method for collecting data regarding the prevalence of perceived functional disabilities.

*APPROVED BY RESEARCH COMMITTEE, MARCH 1983*

*Eugene Perkins, Chairperson*

## **A COMPARISON OF THE RELATIONSHIP OF RELIGIOUS COMMITMENT TO PURPOSE IN LIFE AND SELF-ACTUALIZATION IN COLLEGE STUDENTS**

*Todd Mulliken*

People in modern society are involved in an age which is focused upon material, and technological gain. The present age has brought forth an acquiescent type attitude toward technological advancement and change in general.

This unique kind of belief toward change has caused people to perceive change as necessary for growth, while stability is seen as a form of stagnation. The result is a rather chaotic social system where people are confused and unstable in their search for identity and purpose (Keniston, 1965).

A commitment to self, religion, society, justice or truth has been offered as a solution to this rapidly changing society in that a commitment will challenge an individual and can enhance their personal growth and self-actualizing values (Jourard & Landsman, 1980).

Religious commitment, in particular, can be an aid to people in their quest for meaning and positive mental health. Frankl (1972) hypothesizes that a mature spiritual commitment will indeed aid this search.

The present study examined the relationship of religious commitment to purpose in life and self-actualization in male and female college students to test the belief that a commitment to religion will enhance a person's purpose in life and level of self-actualizing.

The findings suggest that there is a significant positive relationship between religious commitment and purpose in life (beyond the .05 level), while virtually no relationship was found between religious commitment and self-actualization.

Sex-differences on all variables were assessed, with the findings showing that females scored higher than the males in each case but not at a significant level. Significant differences were found however on the existentiality and feeling reactivity scales of the POI, with the females scoring higher on both, suggesting that the females in this sample tend to be more flexible in adhering to rigid principles and are more sensitive to their own needs and feelings than are the males.

These results indicate that, within this sample, individuals with a higher level of religious commitment also had a more defined meaning in life, and that females were more religiously committed, had a higher sense of meaning in life and were higher in their level of self-actualizing than were the males.

*APPROVED BY RESEARCH COMMITTEE, MAY 1984*

*Arthur J. Redding, Chairperson*

## **ENTRY LEVEL REQUIREMENTS FOR STATE AGENCY VOCATIONAL REHABILITATION COUNSELORS**

*Douglas J. Tourville*

**THE PURPOSE:** The purpose of this study was to compare degree requirements, area of concentration requirements, experience requirements, testing requirements, and salary ranges for entry level rehabilitation counselor positions in the United States and the District of Columbia.

**PROCEDURE:** The procedure used involved three steps. First, an initial letter was sent to each state rehabilitation agency within the United States and the District of Columbia. Next, a follow-up letter was sent to all agencies not responding to the initial letter. Finally, telephone contact was made to obtain 100% participation.

**FINDINGS:** The study revealed a wide disparity within the United States and the District of Columbia regarding state rehabilitation agencies entry level employment requirements. Also, data collected indicated there was a lack of uniform guidelines for rehabilitation counselor requirements and there was an absence of literature regarding this type of descriptive study.

**SUMMARY:** The requirements for employment within state rehabilitation agencies were not uniform. The data returned indicated a need for further study and also prompted the following recommendations.

1. Comparison studies regarding mobility, salary, and promotability within state agencies should be undertaken.
2. Individual studies should be done expanding upon the researcher's initial data.
3. Studies listing alternative employment for the rehabilitation professional should be undertaken.
4. Studies should be developed comparing employment opportunities for the various psychology professionals.
5. Legislation should be introduced by the Federal Government providing uniform requirements for rehabilitation counselors.
6. Trends within the rehabilitation field should continue to be identified so rehabilitation professionals can become better informed about their profession.

*APPROVED BY RESEARCH COMMITTEE, MAY 1984*

*Derwyn Anderson, Chairperson*

#### **THE EFFECTS OF ASSERTIVENESS TRAINING ON THE INDIVIDUAL'S LEVEL OF MORAL REASONING**

*Rachel A. Wilcox*

According to research on moral reasoning the large majority of individuals do not progress beyond stage 3 or 4. Theoretically this could in part be due to lack of exposure to higher stages. This study was designed to examine the effects of an assertiveness training experience on the participants' level of moral reasoning. Fifteen handicapped subjects, 2 males and 13 females, ranging in age from 29 to 52 years, were accepted for this study. The level of moral reasoning was assessed with administration of the Defining Issues Test (DIT) designed by Professor James Rest. Subjects were given this test at the beginning of the first assertiveness experience and again at the end of the experience. Professor Rest's recommendation reliability and consistency checks required the elimination of 80% of the data. The remaining data, although insufficient to provide any data supported conclusions, indicated that an increase in the level of moral reasoning was achieved by subjects who participated in an assertiveness training experience.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*George Petrangelo, Chairperson*

## READING CONSULTANT

### A SURVEY OF THE ATTITUDES OF HIGH SCHOOL STUDENTS AND TEACHERS TOWARD READING AND READING CLASSES

*Sharon A. Machtmes Borgert*

The purpose of this study is to investigate high school students' attitudes toward reading and their interest in improving reading achievement; and to examine if the interest and attitude are dependent on (a) present achievement level, (b) sex, (c) grade level and/or (d) post high school plans. This study will also investigate whether teacher attitudes toward supporting a reading curriculum are dependent on (a) sex, (b) training in the reading field, or (c) personal reading habits.

The student subjects used in this study were from a school in a small rural town in south central Minnesota. From a population of 347 ninth through twelfth graders, 315 students were used in the study. Adult subjects used for this study included teachers of students in grades seven through twelve, and the administration of the school. Thirty-three teachers and administrators participated in the study.

Two surveys were used, one for the students and one for the teachers. The student survey was designed to assess student attitudes toward reading and reading classes, whereas the teacher survey was designed to measure teacher reading habits and attitudes as well as background in the area of reading.

A simple analysis of variance was used to compare student attitudes toward reading with grade, sex, reading achievement and plans for the future. Analysis of variance was also used to compare teacher attitudes toward reading with sex, professional background in the field of reading and personal reading habits. A Pearson's Correlation was used to analyze whether a student's perception of his reading skills or his actual achievement affected his interest in taking a reading class.

The results of the analysis indicated that sex, post high school plans and achievement level did have an effect on student attitudes toward reading, but grade level did not. The results of the teacher analysis indicated that sex and personal reading habits had a significant effect on teacher interest in supporting a reading curriculum. According to the mean attitude scores of teachers, those who were certified in reading or had taken at least three classes in the reading field were more inclined to support a reading curriculum.

Further study of male attitudes toward reading, elective classes at the secondary level and ways to develop critical reading skills is recommended as well as research in the area of teacher training and inservice. The writer would also draw the conclusion that the study population is in need of a reading program for its students and an inservice program for its teachers.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1982*

*Lynette Char, Chairperson*

### FAMILY ORIENTED INVOLVEMENT IN FIFTH GRADE READING

*Debra Hassman Neher*

The purpose of this study was to determine if teacher-directed parental involvement by tutoring fifth grade children in reading would help raise reading achievement. Pupils were selected from a predominantly Caucasian, middle class, suburban school district. A group of 18 parents and families worked approximately 15 minutes daily for nine weeks on reading skills directly related to the students' daily reading work. The control group consisted of 15 parents and families who did not use the prepared activities. The data collected failed to reject the two hypotheses that:

1. There is no difference in the vocabulary scores of fifth grade students whose parents provide supplemental reading reinforcement at home and those fifth grade students whose parents do not reinforce at home.

2. There is no difference in the reading comprehension scores of fifth grade students whose parents provide supplemental reading reinforcement at home and those fifth grade students whose parents do not reinforce at home.

The lack of difference may be attributed to small sample size and the limited length of the study. The treatment may have been ineffective due to the difference in motivation for teacher-selected reading vs. child-selected reading.

*APPROVED BY RESEARCH COMMITTEE, FEBRUARY 1984*

*Roger Rouch, Adviser*

## A STUDY OF RIGHT BRAIN SKILLS BEING UTILIZED IN EDUCATION AND IN THE TEACHING OF READING

*Patricia AnnMarie Nelson*

**PROBLEM:** This study attempted to study the relative importance of right-brain activities as aids to comprehension and vocabulary development in the average and above average readers in two sixth grade language arts classes.

**PROCEDURE:** Six stories were chosen from the students' basal reader. Each of the six stories was presented in a four day study unit. The experimental group used right-brain activities as motivational material. They were also instructed in visualizing skills to aid in learning new vocabulary words. The control group was read only the motivational material presented in the basal reader manual, and defined the new vocabulary individually using their basal glossary.

Both groups took the same vocabulary and comprehension test on the fourth day. The vocabulary tested was only those words labeled by the publisher as new words. The comprehension questions were literal and inferential questions and were selected from the basal reader manual.

An Analysis of Covariance by group with I.Q. scores was computed on each of the twelve tests.

**CONCLUSION:** The following conclusion was determined from the data: Right-brain activities did not improve reading comprehension or the ability of the students to correctly define vocabulary words.

*APPROVED BY RESEARCH COMMITTEE, JULY 1983*

*Roger Rouch, Chairperson*

## THE RELATIONSHIP BETWEEN THE PRIMARY METHOD OF READING INSTRUCTION AND THE WRITING SKILL OF FIFTH GRADE STUDENTS

*Diane Corcoran Nielsen*

**PROBLEM:** A reading test score and a writing sample were obtained from 52 fifth grade students in an attempt to test two hypotheses. First, that there is a relationship between reading skills and writing skills. Secondly, that children who are taught reading primarily through a language experience approach (LEA) will have stronger writing skills than children who are taught reading primarily through a traditional basal approach (TBA) when neither instructional group had an organized writing curriculum in their school.

**PROCEDURE:** Since each group took a different standardized reading test, percentile ranks from the comprehension subtest of each instrument were used as a measure of reading skill. The writing sample collected was narrative in nature and completed by the students following the viewing of a soundless film. This study utilized a trait scoring system developed and scored by the researcher.

The Kendall Correlation Coefficient (Tau) was used to test the relationship between reading skills and writing skills. The Mann-Whitney U test was utilized to test the null hypothesis that there are no differences between the mean rank score of two instructional subgroups (TBA and LEA) on the three writing scores (organization/situation enhancement, sensory detail and total).

**FINDINGS:** The data of this study supported the hypothesis that there is a relationship between reading skills and writing skills. However, the experimental hypothesis that there is a difference between the writing skill of students from the two instructional reading groups failed to be substantiated by the data of this study.

**CONCLUSIONS:** Before confirming the findings of this study, the researcher suggested that further investigation, carefully designed and controlled, be conducted in the area of reading/writing relationships. Particular attention should be paid to the examination of various instructional practices in reading and writing which could assist teachers in the most efficient and effective methods of instruction.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1983*

*Roger R. Rouch, Chairperson*

## **AFFECTIVE CHARACTERISTICS OF LEARNING DISABLED AND REMEDIAL READING STUDENTS IN A SECONDARY SCHOOL SETTING**

*June Abate Roos*

Two samples of high school students with reading problems were compared on an affective measure, the Student Positive Profile Scale. In one group were adolescents who met the Minnesota learning disabilities eligibility criteria.

In the other group were students who were enrolled in a remedial reading program identified only through a screening device based on achievement.

There are fifteen themes on the Student Positive Profile Scale. Analysis of Variance compared the two samples. There were no significant differences on any of the themes. Both of the selected samples had mean profiles on the Student Positive Profile Scale which seemed to show differences from the normal population. The profiles were elevated in the pathological direction. These findings are similar to those of other studies using the Student Positive Profile Scale as an affective measurement.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*Roger Rouch, Chairperson*

## **SENIOR HIGH SCHOOL EDUCATION**

### **THE DEVELOPMENT OF CAREER EDUCATION ACTIVITIES TO BE INTEGRATED INTO A SENIOR HIGH SCHOOL ENGLISH CURRICULUM**

*Danith McPherson Clausen*

The purpose of this study was to develop classroom activities that taught career development concepts as specified by the Minnesota Department of Education's Career Education: Some Essential Learner Outcomes for tenth, eleventh, and twelfth graders and that integrated these career concepts into a senior high school English curriculum.

A review of the professional literature on career development theories and on school-based career education programs produced a list of qualities recommended by theorists and educators for inclusion in school-based career education programs. The theorists reviewed were Ginzberg, Super, Tiedman, and Blau and his associates. Each of their theories presented aspects of career development that had significance for a career education program. Based on the work of these theorists, educators proposed that ideal career education programs were for all students, were

developmental in nature, were integrated into existing subject areas, and included community involvement. Each student should acquire a marketable skill, knowledge of the world of work, an understanding of self, and decision-making skills.

Taking these qualities into consideration, the researcher developed activities that presented career development concepts in conjunction with English concepts, including objectives for both. These activities exhibited aspects of each of the major theorists' views of career development. They also displayed most of the qualities identified as necessary for an adequate career education program but did not exhibit others.

The researcher concluded that the activities were consistent with the criteria for a school-based career education program, that objectives for the development of decision-making skills had to be supplied from a source other than the career education learner outcomes, and that the development of activities for the performance objectives and enabling objectives not dealt with in this study was needed.

The researcher recommended, therefore, that instructional materials to develop decision-making skills be included when using the activities developed to address the performance objectives and enabling objectives not included in this study.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*Lowell Mortrude, Chairperson*

## **SPECIAL EDUCATION**

### **THE EFFECTIVENESS OF SQ3R AS A STUDY TECHNIQUE IN FOURTH GRADE SOCIAL STUDIES**

*Alan R. Albrecht*

The purpose of this study was to determine if teaching fourth grade students the SQ3R study technique would increase their retention of content material in social studies. Children received training in the SQ3R technique for four consecutive days and were then compared to a directed independent study group for content retention of social studies material.

It was hypothesized that there would be no significant difference between the two groups on 1) an immediate post-test and 2) a two week delayed post-test. It was further hypothesized that there would be no significant difference in consistency of performance on the immediate and delayed post-tests for each of the two groups.

The results of the study show the mean scores for the SQ3R group were higher in all comparisons of the two groups. For the immediate post-test, the SQ3R group scored significantly higher than the directed independent study group. For the delayed post-test, there was no significant difference between the two study groups. There was no significant difference for either group in their consistency of performance between the immediate and delayed post-tests.

*APPROVED BY RESEARCH COMMITTEE, MAY 1984*

*Joan Bigler, Chairperson*

### **METHODS FOR DETERMINING GOALS FOR SENIOR HIGH LEARNING DISABLED AND EMOTIONALLY MENTALLY HANDICAPPED STUDENTS IN CHISAGO COUNTY SCHOOLS**

*Stephen G. Allen*

**PROBLEM:** This study was designed to show what resources were being utilized by senior high special education programs in the Chisago County Special Education Cooperative. The study investigated what personnel and assessment

tools were being utilized in planning educational programs for Learning Disabled (LD) and Educationally Mentally Handicapped (EMH) students.

**SAMPLE:** Eighty-three Individual Educational Program (IEP) documents of students in grades 10 through 12 were sampled; there were 54 LD IEP documents and 29 EMH IEP documents. Ten senior high special education teachers were also surveyed; five teachers were certified in EMH, three teachers were certified in LD, and two teachers were certified in both LD and EMH.

**METHOD:** The personnel and assessment data was collected from the IEP documents and reported through utilization of an IEP Survey. The LD and EMH teachers were given a Teacher Questionnaire asking them to rate various personnel and assessment tools as related to goal planning.

**FINDINGS AND DISCUSSION:** It was determined that IEP sessions averaged 3.05 members per session. These planning sessions were always attended by the special education teacher. Parents and counselors were involved about half of the time. The other members of the committee were usually involved on an occasional basis.

There was almost always some type of assessment data recorded on the IEP document. This indicates that assessment data were available to goal planning. But, goals were directly related to the assessment data only 37% of the time.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*Eva Gadberry, Chairperson*

#### BEHAVIOR MANAGEMENT INSERVICE FOR SPECIAL EDUCATION ASSISTANTS: A COMPARISON OF METHODS

*Karen Gredvig Boyum*

The purpose of this study was to determine if there were differences between the effectiveness of two modes of inservice training of special education assistants in TMH classrooms in the area of behavior management. The participants of the study were special education assistants who work for Hennepin Technical Centers, District #287, north program for the mentally retarded. There were 41 assistants included in the study. After doing independent study in instructional booklets, the assistants were given one of two different practicum type exercises. Mode one was actual case study analysis and mode two was simulated case study analysis. Also examined were the effects of the variables of years of experience as special education assistants and the amount of time spent in independent study. All of these variables were measured against pre-test and post-test score gains. Finally, comments and suggestions of the assistants were solicited through an evaluation questionnaire about the inservice.

Results of the study indicated that the type of case study analysis was not a significant indicator of test score gain. There was, however, a significant difference on their test performance between those assistants who completed a case study assignment, either actual or simulated, and those who did not complete the assignment. When determining the effects of years of experience and time spent studying, a significant relationship could be concluded for post-test scores and amount of time spent in independent study. While statistical significance was realized for several hypotheses it seemed doubtful that practical application was indicated. The evaluation questionnaire pointed out many of the practical concerns and attitudinal views of the assistants. These included areas of limited timelines, poor time of the year and an unfavorable learning format along with disagreement with the presentation of the inservice and objections to the expectations outlined for the assistants. These negative sentiments should be considered in the interpretation of the results of the study. Elimination of the problematic areas and replication of the study would be of interest and benefit in this realm of study.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*James Lewis, Chairperson*



## A COMPARISON OF DRAWING ABILITY BETWEEN MENTALLY HANDICAPPED AND NON-HANDICAPPED CHILDREN IN A DRAWING EDUCATION PROGRAM

*Thomas R. Carlson*

This study examined the effect of four weeks of art instruction on judged characteristics of pencil drawings of mentally handicapped and non-mentally handicapped adolescents.

**METHOD AND SUBJECTS:** Ten mentally handicapped and ten non-mentally handicapped students produced sixty pencil drawings. These drawings were evaluated by two groups of professionals: visual artists and special educators. Drawing samples were taken before and after instruction. The sixty drawings were pooled for evaluation.

**RESULTS:** Drawings by mentally handicapped students were found to be ranked significantly lower than drawings of non-mentally handicapped students when evaluated by both groups of judges. Art instruction did not have a positive effect on either group of students. Instead, a decline between pre and post test scores occurred which may have been a result of adolescent artistic regression. In general, the visual artists rated the drawings significantly lower than the special educators.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1983*

*Eva Gadberry, Chairperson*

## A CORRELATION STUDY OF ORAL READING RATE AND READING COMPREHENSION FOR LEARNING DISABLED AND EDUCABLE MENTALLY HANDICAPPED STUDENTS

*Dorothy Libbon Desens*

There are various methods of assessing student progress in reading. A currently popular method is the data-based approach.

A review of the literature revealed that there were two general theories regarding oral reading speed as an indicator of reading comprehension. One position held that oral reading speed is not indicative of reading comprehension; the other holds that oral reading speed is an indicator of reading comprehension.

The study conducted by this author examined the correlation between oral reading speed and reading comprehension. The study was conducted over a six week period and included normal students as well as learning disabled and educable mentally handicapped students. Students were in grades two through nine.

Teachers were trained in the data-base program modification system.

**FINDINGS:** Pearson Product Moment Correlation Coefficients were calculated on the gain scores for the three groups. The data supported the following conclusions:

1. As the oral reading speed increased for normal students, comprehension also increased ( $r = .985$ ).
2. As oral reading speed increased for educable mentally handicapped students, comprehension decreased ( $r = -.650$ ).
3. No consistent relationship was found for learning disabled students ( $r = .064$ ).

The recommendation based on these conclusions is that reading rate is not an adequate measure of reading achievement in problem reading groups.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1982*

*Floyd Ayers, Chairperson*

## AN ATTITUDINAL STUDY OF PRE-SERVICE TEACHERS AT ST. CLOUD STATE UNIVERSITY

*Karyn Gail Enestvedt*

**PROBLEM:** The purpose of this study was to determine the effects of an early field experience on the attitudes of pre-service teachers toward teaching, children, and supervision.

**PROCEDURES AND FINDINGS:** The subjects for this study were 52 teacher education students enrolled in 1983 winter and spring quarter Junior Practicum/Basic Skills course at St. Cloud State University. The Junior Practicum/Basic Skills course is a competency-based early field experience for pre-service teachers in the St. Cloud State University special education department.

Subjects were requested to respond to items on the Karyn Enestvedt Educational Pre-Service Attitude Survey (KEEPS), a 14 item Likert-type attitude scale. The instrument was designed by the author to measure the attitudes of pre-service teachers toward teaching, children, and supervision. The instrument was administered on a pre/post test basis. During survey tabulation, responses were adjusted so that all scores were in the same direction. Mean scores were then computed for both subgroups.

Paired replicates design was employed in this study. Fischer's Distribution Free Sign Test was used to examine the significance of the data.

Findings indicated that no significant difference existed in the winter quarter pre-service teacher's attitudes toward teaching. However, significant differences were noted on pre-service teacher's attitudes toward children and supervision. The study displayed similar results when replicated spring quarter.

**SUMMARY AND CONCLUSIONS:** It is apparent from this study that the Junior Practicum/Basic Skills course was effective in building more positive attitudes in prospective teachers toward children and supervision. This information supports the premise that early field experiences in teacher training generate more positive attitudes in pre-service teachers.

*APPROVED BY RESEARCH COMMITTEE, MAY 1984*

*Eva Gadberry, Chairperson*

## A DESCRIPTIVE SURVEY TO DETERMINE THE LEVEL OF PARTICIPATION AMONG EMH STUDENTS IN STUDENT ACTIVITIES AND THEIR GENERAL ATTITUDE TOWARD THESE SCHOOL PROGRAMS

*Michael D. Francis*

**PROBLEM:** The purpose of this study is to determine the level of participation among Educable Mentally Handicapped (EMH) students in student activities and their general attitude toward these school programs. The null hypothesis for this study was that the attitude of secondary EMH students toward school student activities does not make a significant difference in their level of participation in such programs.

**PROCEDURES:** Forty-five EMH students from five small rural secondary schools were randomly selected and asked to complete a 20-item questionnaire. The author visited the schools; explained and read each of the questions to the students.

A chi-square analysis was used to determine significant differences in attitudes between EMH students who did participate in student activity programs and those who did not.

**FINDINGS:** The majority of EMH secondary students held positive attitudes toward student activity programs. Less than one-half of the students surveyed participated in school student activity programs. Three of the survey items yielded a

significant difference in attitudes between students involved in student activities and those who are not. Suggestions are made for incorporating student activity programs as activities that support current educational programs.

*APPROVED BY RESEARCH COMMITTEE, MARCH 1983*

*Jerry Wellik, Chairperson*

## POST SCHOOL ADJUSTMENT OF LEARNING DISABILITY GRADUATES OF LITTLE FALLS, MINNESOTA

*Ronald L. Hinnenkamp*

**PURPOSE:** The purpose of this study was to determine how well learning disabled former students (LD) adjusted to adult life and how that compared to graduates of the school in general. The study compared occupations, life styles and education of graduates in drawing conclusions.

**PROBLEM:** Few studies have examined the ability of LD to compete in the post high school world. The results may provide direction for educational programs for the special student.

**PROCEDURE:** Eighteen 1978 graduates who received remedial assistance and eighteen mainstream (MS) graduates were interviewed to determine how well prepared they were for adult life and how well they adapted to problems. The interviews were done by phone with assurances of confidentiality.

**FINDINGS:** Former LD students were involved in community recreation in numbers equal to the MS subjects, but the variety of activities they were involved in was not as great. The LD subjects were also less likely to use the newspaper as a source of news.

The LD subjects considered the vocational classes in which they were enrolled in high school as being the most beneficial. Conversely, the MS subjects listed academic courses as being the most helpful. The LD subjects did not have as high an opinion of their high school experience as did the MS subjects.

It was determined that the LD graduates were less likely to use credit, though not noted was whether this was due mainly to lack of information or poor financial standing. The LD group was also more likely to make use of public assistance.

The LD subjects were more entrenched in their current job status, considering it a permanent position. They were relatively unskilled when compared to the MS group. The LD subjects also had been less likely to change jobs since graduation.

The LD subjects enrolled in post high school training at a lower rate than their MS counterparts. They indicated a preference to disassociate themselves with further school involvement.

The LD subjects' attitude toward school in general was average, with an appreciation shown for vocational courses. The academic coursework was not remembered fondly, mainly due to difficulty encountered with reading the material.

**SUMMARY AND CONCLUSIONS:** Several recommendations were made as a result of observations made during the course of the study.

Students should be encouraged to get involved in and experience a wider range of activities while in high school. Students should also be exposed to the facilities and agencies available to adults.

LD students should have more opportunity for improving skills applicable to further training or the world of work.

Since the student must provide for himself or herself after graduation, care must be made in making assistance available so as not to create dependence on others.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*Floyd W. Ayers, Chairperson*

## A STUDY TO DETERMINE THE MOTIVATIONAL DIFFERENCES BETWEEN LEARNING DISABILITY STUDENTS AND REGULAR MAINSTREAMED STUDENTS

*Terry L. Householder*

**PROBLEM:** This study was concerned with the personality differences between learning disabled students and mainstream students. Specifically, the study attempted to answer, does a student in learning disabilities and a student in mainstream, scoring the same on achievement scales also score the same on The Children's Personality Questionnaire?

**PROCEDURE:** The Children's Personality Questionnaire was completed by 60 students. There were 30 learning disabled and 30 mainstream students. A total of 39 were female and 21 were male. This study was conducted in Ocoee Junior High School, Orange County, Florida. The subjects responded to 150 questions which were read by the author. Statistical analysis was a t-test utilizing the normal curve value.

**RESULTS:** A significant difference was found in 11 out of 14 personality factors when learning disabled females were compared to mainstream females. Significant differences were found in 6 out of 14 personality factors comparing learning disabled males and mainstream females; learning disabled females compared to learning disabled males resulted in 6 out of 14 factors being significantly different. The total learning disabled group compared to the total mainstream group results were significantly different in half of the 14 personality factors.

Mainstream students revealed personality factors congruent with school achievement; such factors as, trustful, attentive, participation, cooperation, and easy going were high scores.

Learning disabled students displayed personality factors which tend to negatively influence motivation and school achievement. Learning disabled males scored high in head strong, stern, hostile and self assured. Learning disabled females scored high in shrewdness, cutting corners and emotionally detached.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*James Lewis, Chairperson*

## AGE AND SEX DIFFERENCES IN RELATION TO LEARNING DISABILITIES

*Dan Wm. Hovland*

The issue of "school entrance age" has been the source of discussion and study for many years. Age at entrance is only one factor in determining the success that a child has in school, but it has been a very important one. A typical beginning kindergartner has been anywhere from just barely five years old to nearly six years old. This twelve-month spread has brought into the same classroom children with a wide range of abilities. A certain number of the low-achieving children in that classroom have become identified as having a learning problem.

This study explored the relationship between the age of a child at school entrance and later identification as a "learning disabled" child. This relationship was explored for males and females.

Data for the study were gathered on students from the five school districts in Minnesota's Mid-State Educational Co-op: Little Falls, Pierz, Royalton, Swanville, and Upsala. The population used for the study consisted of students in grades kindergarten through sixth grade who were considered to be "learning disabled," a total of 230 children.

The chi-square test of independence was used to determine whether the age data on the L.D. population were significant for males, females, and for both, in a multiple comparison. For males, the results were not significant at the .05 level. For females, and in the multiple comparison, the results were significant at the .05 level.

The results of the study indicate that of the L.D. population examined, female L.D. students tend to be among the youngest in their class, whereas male L.D. students tend to be distributed fairly evenly by age.

*APPROVED BY RESEARCH COMMITTEE, MAY 1984*

*Floyd W. Ayers, Chairperson*

## THE EFFECTS OF AN "INSTRUCTIONAL TEAMWORK" INSERVICE PROGRAM ON THE WORKING RELATIONSHIPS BETWEEN INSTRUCTIONAL TEAM MEMBERS IN A TMH SETTING

*Mary Hutchings-Ruprecht*

**PROBLEM:** This research in the area of instructional teamwork was sought to improve the relationships that exist between and among the instructional staff which include teachers and instructional aides. Written, visual and oral inservice packages were developed to: 1) improve the instructional teams' understanding of the principles and methods of instructional teamwork; 2) improve the instructional teams' understanding of the dynamics by which the instructional team operates; and 3) improve the effectiveness of the instructional teams in the following areas: ability to renegotiate roles, share leadership responsibilities, communicate, manage conflicts, provide constructive feedback, solve problems, conduct effective team meetings, and monitor team performance.

**PROCEDURES:** Thirty-six instructional staff (12 instructional teams) participated in the Instructional Teamwork inservice training program and the study to measure the effectiveness of these training modules. Questionnaires were administered to the experimental and control groups before, directly after and six months after the training had taken place. Pre and post tests were given for each module to determine whether learning had taken place.

Pre and post test questions were validated by relating the test items to the informational questions on the questionnaire. Process evaluation was used to assist the facilitator in improving the content and operation of the individual modules.

**FINDINGS:** Statistically significant differences were demonstrated between and within the experimental and control groups on the pre, post and post-post questionnaires.

Pre and post tests results displayed highly significant increases in learning for all participants, concluding that knowledge of interpersonal and teamwork skills increased as a result of the "Effective Teamwork" inservice program.

Significantly high results were also seen comparing self-reports (questionnaires) with actual performance (tests) for most of the questions which related to general information.

The results of this study suggest that interpersonal teamwork skills can be taught to increase knowledge, as well as to aid in the development of team practices and relationships.

*APPROVED BY RESEARCH COMMITTEE, MARCH 1984*  
*Stanley Knox, Chairperson*

## THE EFFECT OF PRECISION TEACHING TECHNIQUES ON THE READING ACHIEVEMENT OF HANDICAPPED AND HIGH AVERAGE THIRD GRADE READERS

*Caryn Mae Knutson*

**AN EXPERIMENTAL STUDY.** The purpose of this study was to determine the effects of using precision teaching techniques to increase word rate on the reading achievement of low handicapped and high average third grade readers. There were twenty one third grade students involved in this study. There were two experimental groups (one for the low handicapped readers and one for the high average readers) and two control groups (one for the low handicapped readers and one for the high average readers). The students in the experimental groups did daily 60 second timings while reading from word rate charts for six weeks. Their results were recorded on graphs. The reading instruction of the students in the control groups was not altered. Students were pre- and post-tested on the Woodcock Reading Mastery Tests and Curriculum-Based Sight Word Recognition Tests. An analysis of variance was used to calculate the results. The analyses revealed that students in the low handicapped experimental reading group made significant progress in word recognition, but not decoding or comprehension. There was no significant difference in scores for the low control group. Results also showed there was no significant difference between the pre- and post-test achievement scores of the students in the high average experimental and control groups.

The results of this study suggest that precision teaching to increase word rate should be employed with low handicapped readers to improve word recognition skills. However, when comprehension or word analysis is involved, precision teaching techniques should not be used alone.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1983*  
*Floyd W. Ayers, Chairperson*

#### CHARACTERISTICS OF SUSPENDED STUDENTS WHO WERE REFERRED TO AN ALTERNATIVE SCHOOL AND THOSE WHO RETURNED TO THEIR HOME SCHOOLS

*Mary Brennan Michaud*

**PROBLEM:** This study was concerned with the characteristics of students with behavior problems who were referred to an alternative school. Eight variables were examined in a comparison between suspended students who returned to their home schools and those who were referred to an alternative school to determine if the alternative school referrals possessed a set of common characteristics.

**PROCEDURE:** The cumulative files of 137 ninth and tenth grade suspended students from the two public high schools, Apollo and Technical (Tech), in the St. Cloud Public School District were examined. The two groups, those who returned to their home schools and those who were referred to the Area Learning Center were then compared on these variables: sex, grade level, reading level, number of parents, handicap, reason for suspension, community agency involvement, and if the student received free or reduced lunches. The two high schools were also compared to see if differences were present between their returnees and their referrals. A chi-square analysis was performed on each variable to determine which were significant.

**RESULTS:** Of the eight characteristics tested, four showed significant differences between the two main groups, all those who returned and all who were referred. Students living with one parent, receiving free or reduced lunch, having community agency involvement and identified as learning disabled had a greater chance of being referred to the alternative school.

When the groups were separated by school, two variables showed significant differences. At Apollo the most often cited reason for suspension was truancy, while at Tech insubordination was most often the reason for suspension. Also, Apollo referred a significantly higher percentage of ninth grade students to the Area

Learning Center; Tech referred a larger percentage of tenth grade students. All other variables showed no statistical significance.

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*James Lewis, Chairperson*

#### THE EFFECTIVENESS OF SQ3R AS A STUDY TECHNIQUE IN FOURTH GRADE SCIENCE

*Lynette A. Norman*

The purpose of this study was to determine if teaching the SQ3R study technique to fourth graders would increase their retention of content material in science. The subjects were divided into two groups. The SQ3R group received training for forty minutes each day for four consecutive days. They were then compared to a directed independent study group for content retention of science material.

Three hypotheses were formulated: 1) there would be no significant difference between the two groups on the immediate post-test, 2) there would be no significant difference between the two groups on a delayed post-test given two

weeks later, and 3) there would be no significant difference in consistency of performance for either group on the immediate and delayed post-tests.

The results show the SQ3R study group scored significantly higher than the directed independent study group on the immediate post-test. On the delayed post-test, there was no significant difference between the two groups, although the SQ3R mean scores were higher than the directed independent study group. Finally, there was a significant difference in performance when the immediate post-test was compared to the delayed post-test for the SQ3R study group, while the directed independent study group performed the same on both post-tests.

*APPROVED BY RESEARCH COMMITTEE, MAY 1984*

*Joan Bigler, Chairperson*

## SPECIAL EDUCATION PROGRAMS AND SERVICES IN FIVE RURAL MINNESOTA COOPERATIVES

*C. W. Nykreim*

The purpose of this study was to determine the special education services being delivered to school-age handicapped students who live in rural or sparsely populated areas of Minnesota. The study was designed to determine the number of students receiving special education service by category and level, and to determine the amount of daily staff time spent servicing these students.

**METHOD:** Five special education cooperatives from Planning Regions D, E, and F were selected for this study. Rural cooperatives were selected because there is reason to believe that these students may not have had access to these services based on geographic isolation, incidence of handicaps, population density, and local economy.

A questionnaire was designed to gather information about the number of students receiving special education services by level and category of disability, and the amount of daily staff time being delivered to these students. The questionnaire was also designed to indicate the current teaching assignments, and licenses of the special education teachers.

All special education teachers were asked to complete one questionnaire per teaching assignment. The data were hand tabulated to determine the mean, median and range of service to students receiving Level III LD and EMR special education in each of the five cooperatives. There were insufficient data for analysis for all other levels and categories.

**RESULTS:** The data from all five cooperatives reported an absence of any Level II services. The results indicate that students primarily received Level III service, and the results were consistent from all five cooperatives, except for Co-op E. The similarity of the results lends validity to the conclusions.

The data also indicate that teachers were appropriately licensed for their teaching assignments. Ninety-five percent of the total teachers reported were teaching in their area of licensure.

**CONCLUSIONS:** Students received service primarily in Level III, direct service. LD and EMR data dominated this study, and the data indicated that Level II services were lacking in all five cooperatives. The results were similar for all five cooperatives. Ninety-five percent of all teachers were appropriately licensed for their teaching assignment, and the amount of time delivered to students in all cooperatives appeared to be reasonable for both LD and EMR students.

Further studies in both urban and rural schools were recommended to determine and provide the most effective and efficient special education systems in Minnesota.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*Stanley Knox, Chairperson*

## READING ACHIEVEMENT AND THE CHARACTERISTIC OF VISION

*Margaret Anne O'Leary*

This study was conducted to determine whether there was a significant difference between the visual skills of students who were above average readers and those who demonstrated a learning disability. Two groups of third, fourth and fifth grade students from the Osseo, Minnesota Public Schools were screened with the Keystone School Vision Screening Test. The scores of one group of 20 above average readers were compared with 20 students who were currently enrolled in a learning disabilities program. All of the subjects were randomly selected and matched for sex. The students who were considered above average readers ranked at or above the 51st percentile within the Osseo School in reading achievement. The students who were currently being served in the learning disabilities program had at least one objective on their individual education plan to improve reading ability. These subjects met state and district criteria for entrance to a learning disabilities program. A paid para-professional who had been trained by the school nurse administered the visual screening in the building that the children attended. Each of the 15 test items were examined for differences between the two groups using the Chi-square. No differences were found for 11 of the 15 subtests. Four of the five subtests related to near point vision were different for the two groups. Learning disabled students exhibited greater difficulty with near point visual characteristics than above average readers. This was consistent with previous research.

This may have implications for a more comprehensive visual assessment of some learning disabled children and for the use of individualized visual training procedures.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1983*

*Floyd Ayers, Chairperson*

## TREATMENT OF SELF-CONCEPT WITH SHORT TERM ACADEMIC GOAL SETTING

*Bruce M. Ostern*

The present study investigated the effect of short term academic goal setting and the effect of the resulting positive feedback on the self-concept of the learning disabled child. Twenty-eight LD children were involved in the study; fifteen in the experimental group and thirteen in the control group. The experimental group children established achievable goals at the beginning of each week and reviewed their success at the end of each week for a period of eight weeks. The children's teachers and parents provided the students with feedback about their successful goal achievement. Both groups were pre- and post-tested with the Piers-Harris Children's Self Concept Scale.

The results indicate that both groups gained in Mean raw scores. The experimental group treatment did not achieve the desired effect.

Conclusions drawn from the data indicate that the feedback system had no effect on self-concept. This conclusion should be considered very carefully since there are several limitations on the data. The primary one being that this was a short term intervention program, and a longer time interval may have been needed to establish any changes in self-concept. Another important limitation on the present study was the fact that both groups included a single case who suffered an intense emotional event during either the pre- or post- measurement situation. Therefore, these single cases may have greatly influenced the results of the small groups and the investigation should be repeated using a larger sample.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1983*

*Floyd Ayers, Chairperson*



## SOCIAL ADJUSTMENT OF HANDICAPPED STUDENTS IN SIXTH AND SEVENTH GRADES

*RaeMona G. Smith*

The transition from the sixth grade mainstream program to the seventh grade junior high school can be a traumatic experience for many students. Social adjustment is an important factor in academic success. This study explored the differences in social adjustment for handicapped and non-handicapped students at the two educational levels in rural and urban areas.

A total of sixty-six teachers from the Benton Stearns Special Education Cooperative and the Robbinsdale School District No. 281 each evaluated a handicapped and a non-handicapped student from their mainstream classroom.

The instrument used was the Pupil Behavior Rating Scale by High. One item which related to the judgment of relationships was omitted from the original scale.

The Behavior Rating Scale was given to the Directors of Special Education in each district involved in the study. The director distributed the scale to the special education teachers who gave the forms to the mainstream teachers at the sixth and seventh grade levels. Completed forms were returned to the special education teachers and then to the Directors of Special Education.

Results of analysis of variance indicated no significant difference when rural and urban groups or sixth and seventh grade groups were compared. A very important finding of this study is that when total scores for handicapped and non-handicapped students were analyzed, analyses were significant at the .05 level with the handicapped group receiving lower scores. On all items they scored significantly lower.

It can be concluded from this study that there was a significant difference in social adjustment for the handicapped students and the non-handicapped students with the handicapped students consistently rated lower. It can also be concluded there was no significant difference between either sixth and seventh grade or urban and rural groups.

Further research investigating the dynamics of social adjustment and its effects on academic achievement of handicapped students is recommended. The results indicated that attention to social adjustment of handicapped students in the mainstream classroom is necessary and social skills should be considered an integral part of a child's learning process. The writer suggests further research exploring differences between grade levels may further clarify factors involved in this study.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*Stanley Knox, Chairperson*

## TEAM DECISION-MAKING IN DEVELOPMENT OF INDIVIDUAL EDUCATION PROGRAMS FOR SEVERELY AND PROFOUNDLY HANDICAPPED STUDENTS

*Christine W. Sonenblum*

**PROBLEM:** The purpose of this study was to investigate the possible similarities or differences in IEP goal selection decisions among two types of planning teams: intradisciplinary, in which only one type of professional is represented, and interdisciplinary which combines several specialists representing more than one area of expertise. Match between goal classification and area of student need was examined in an attempt to evaluate the ability among teams to select goals for intervention that corresponded to written assessment information.

**PROCEDURE:** Simulation techniques were employed to collect data reflecting annual goal selection decisions made by six different teams of three members each. Subjects were licensed TMR teachers, occupational and physical therapists, and communication disorders specialists. The teams (three intradisciplinary and three interdisciplinary) reviewed each of three case studies describing severely mentally retarded students and chose from a list of 40 possible annual goals those they agreed upon as appropriate for immediate use on the student's individual education program. Teams were also required to differentiate among the goals chosen by assigning a priority ranking of high or low to each one.

**FINDINGS:** According to chi-square calculations, few significant differences among teams are reported. Of the obvious differences shown, a clear relationship between team make-up and type of goal selection decisions made is not defined.

Clearly, different teams made different choices for the same case studies, but the results are not conclusive as to the extent that team make-up affected the differing outcomes. Bias of intradisciplinary teams toward the specialty area represented by their members in goals selected was not demonstrated.

Two of the three interdisciplinary teams showed obvious similarities with both of those teams making goal selection decisions that closely corresponded with the assessment data provided for every case study. The only other team which showed similar accuracy in matching high priority goals to assessment information given was an intradisciplinary group of communication disorders specialists, each of whom had several years experience in the use of role release and the transdisciplinary model of service delivery.

**SUMMARY AND CONCLUSIONS:** It seems likely that the make-up of educational planning teams and the disciplines represented or absent from the decision-making process have an effect on the team's ability to effectively choose goals which match with assessment data. Two out of three interdisciplinary teams appeared to show a somewhat greater ability to focus accurately on priority needs of the students described to them than did two out of the three intradisciplinary teams. The intradisciplinary team whose accuracy was outstanding in matching annual goals to priority needs was unique in that each of its members was very experienced in using a transdisciplinary model of service delivery with the severely handicapped. It seems possible that training within a model which fosters role release and intervention in the natural environment combined with experience in such a setting, where interpersonal communication and mutuality in addressing student needs are stressed, serves to enhance the ability of professionals from any discipline to accurately address the multiple needs of the severely handicapped student. The outcomes of this study underscore the need for further research to describe the nature of quality decision-making in education and to compare the effectiveness of models of service delivery in programming for the severely handicapped.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1983*

*Eva Gadberry, Chairperson*

#### **DIFFERENTIATING CHARACTERISTICS OF STUDENTS' EARLY SCHOOL CAREERS IN THE PREDICTION OF DROPOUTS**

*Anita M. Spellacy*

**THE PROBLEM:** Every year fifteen to twenty of the 800 students leave Rocori High School. They leave poorly prepared to find employment. The school district needed a prevention and intervention program for potential dropouts. This study was designed to find factors that would best enable early identification of potential dropouts.

**METHODS AND PROCEDURES:** The subjects of this study were thirty-seven dropouts and thirty-seven graduates from Rocori Senior High School located in Cold Spring, Minnesota. Data were compiled for the graduating classes between the years 1979-81. Dropouts were randomly paired with classmates who chose to complete their high school careers. Data on several dropout factors were compared by mean percentages for graduates and dropouts for each of the given three years. The factors included: general retention rate, sex of dropouts, grade at exit, number of schools attended, participation in special education programs, I.Q., number of grades repeated, attendance, number of classes failed, grade point average, and reading ability.

Comparison for number of schools attended, number of classes failed, and number of days absent was done by mean percentages for school levels, i.e., elementary, junior high, and senior high rather than by class years.

**RESEARCH FINDINGS:** Rocori had a better retention rate than the state or national averages. Seventy-five percent of the dropouts were males. Most dropouts left in grades 11 and 12. Dropouts were likely to have attended more schools than graduates. Dropouts had a 60 percent chance of participating in a LD special education program. Both the graduate and dropout groups were in the average intelligence range. Dropouts had a 24 percent chance of having repeated a grade in school. First and eighth were most commonly repeated. Dropouts showed a steady decline in attendance through their school career, missing twice as many days as the graduate group. Dropouts had a history of failing classes from elementary school through senior high. Dropout students had a grade point average of C or D in the junior and senior high compared to a B or C average for the graduates. Almost twice as many dropouts as graduates fell in the below average reading ability category.

DISCUSSION AND CONCLUSIONS: Attendance, participation in special education programs and repeating a grade seemed to be the best dropout predictors. Grade point average, reading level, and number of classes failed produced a discrepancy between the groups to a lesser degree. Number of schools attended seemed to be a predictive factor only in the senior high. It is the teachers' and counselors' responsibility to check their students' cumulative files for this important background information that may indicate a high dropout risk student. This process must be done starting in the elementary years. Early identification and prompt remediation of social and academic problems are the keys to assure success for all students.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*Joan Bigler, Chairperson*

## TEACHER REACTION TO THE INCLUSION OF MILDLY HANDICAPPED PUPILS IN THE REGULAR ELEMENTARY CLASSROOM

*Helen S. (Januschka) Swanson*

The purpose of this study was to assess the opinions of regular classroom teachers when teaching the mildly handicapped student in their elementary classrooms. It also attempted to determine whether those elementary teachers who had less than ten years teaching experience had different opinions regarding: 1) the practical applications of mainstreaming, 2) their own feelings of competency when teaching a mainstreamed handicapped student, and 3) the support services they receive from their special education staff and administration, than those who had over ten years teaching experience. The opinions of the elementary teachers who had no formal instruction in special education and the opinions of the teachers who had some formal instruction in special education were also analyzed to determine if there were any significant differences between these two groups regarding the three mainstreaming areas mentioned above.

The subjects in this study were 63 regular elementary teachers, grades one through six, in the Brainerd, Minnesota, Public Schools.

A three part questionnaire was developed by the researcher, drawing from contributions from educators in the field of special education and from contributions of related research. Part I consisted of demographic information; Part II, utilizing a Likert format, included 30 items which were categorized into the following areas: 1) practical applications of mainstreaming, 2) teacher competency, and 3) teacher support services; and Part III, which was optional, asked for teacher comments on the mainstreaming of the mildly handicapped in their classrooms.

Using an analysis of variance technique, no major differences between the different groups of teachers were found on the three different areas of mainstreaming the mildly handicapped student. Based on the responses of the participants in this study, it is recommended that periodic inservices to update and instruct these teachers on various aspects dealing with teaching the mildly handicapped in the regular classroom be held. Adequate preparation time, smaller class size, and continuous support from the special education staff and the administration are also recommended so the regular teacher can effectively work with the mildly handicapped student in the elementary classroom.

*APPROVED BY RESEARCH COMMITTEE, MARCH 1984*

*William Lovelace, Chairperson*

## EARLY IDENTIFICATION AND INTERVENTION: A STUDY IN EFFECTIVENESS

*Karen D. Swart*

This study investigates the effectiveness of a current public school early identification program. The intent of this study was to measure whether an early identification program that utilizes current assessment techniques recommended for early identification programs is effective in identifying the majority of mildly and moderately handicapped students prior to formal schooling.

A  $X^2$  analysis compared the number of students identified in early identification programs with those students identified after formal schooling. Subjects used were 54 kindergarten and third grade students served in either learning disabilities or educably mentally handicapped programs during the 1981-1982 school year. Early identification was defined as identification prior to first grade. Identification after formal schooling was defined as identification during the first or second grade. A Normal Curve Test compared proportions of mildly and moderately handicapped students to total kindergarten enrollment for both subject groups.

The results indicated there was no significant difference between the number of mildly and moderately handicapped students identified in early identification programs and those mildly and moderately handicapped students identified after formal schooling. However, a trend towards greater numbers of mildly and moderately handicapped students identified in the four year old program was observed.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1983*

*Sandra Reese, Chairperson*

#### GENERALIZATION ACROSS SETTING, TIME, AND ADMINISTRATOR IN AN EDUCATIONAL PROGRAM

*Sheila J. Swenson*

Learned skills which are demonstrated only in the instructional setting, are of little interest or value to the learner. Therefore, steps must be taken during learning to ensure that generalization of the mastered skills will occur.

In this study, assessment of skill generalization was conducted with 28 elementary students, within a campus laboratory reading program. Instructors were college students enrolled in Junior Practicum for Special Education, a pre-intern experience. Phonics skills were taught using data-based, direct instruction, for 25 minutes on a daily basis. Generalization was measured within subjects, across setting, time and administrators. Under Test Condition I, a ten item probe (Probe A) was administered by the Junior Practicum student in the instructional setting. Test Condition II occurred three hours later when an alternate probe (Probe B) was administered by this researcher, in an alternate setting. Test Condition III occurred two weeks later when Probe B was again administered by this research in an alternate setting.

The number of skills correctly applied did not differ across the three testing conditions. Reasons for the generalization are discussed.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1982*

*Sandra Reese, Chairperson*

#### DEVELOPMENT OF A PREVOCATIONAL COMPONENT IN A PROGRAM FOR SEVERELY HANDICAPPED STUDENTS

*Barbara L. Troolin*

This field study was designed to provide programs for severely handicapped students with information on how to develop a prevocational component.

Questionnaires were sent to 25 randomly selected directors of special education programs in Minnesota. The response rate was 80 percent; most responses were by mail and others by telephone interview. Other information was gathered by site visits to selected programs and reviewing the literature about this topic.

Responses from the questionnaire were tallied and analyzed. In special education programs in Minnesota, the prevocational component typically has been in operation five years or less. Students are informally assessed and primarily use teacher-made materials in the classroom or an extension of the classroom. A variety of work skills and behaviors are addressed as part of the prevocational training. Of interest to author were the perceptions of the questionnaire respondents regarding the development of a prevocational component.

Suggestions were made that will assist programs interested in establishing a prevocational component or expanding what they currently have. Procedure recommendations include planning, establishing a continuum of services, community referencing, focusing on work behaviors, raising the vocational level of the students, and analyzing the facilities. Process recommendations focus on needs assessment, an evaluation component and defining job responsibilities. Focusing on work as a purposeful activity, familiarizing oneself with content and resources, advocating prevocational training and establishing a network system are general recommendations.

*APPROVED BY RESEARCH COMMITTEE, FEBRUARY 1983*

*Richard Johnson, Chairperson*

#### COMPARISON OF IMITATION-PLUS-MODEL AND MODEL-ONLY METHODS OF SPELLING INSTRUCTION FOR SELECTED EMH STUDENTS

*Mary Nicolette Vavra*

This study compared the model-only (MO) and the imitation-plus-model (IPM) methods of spelling word correction and instruction. Subjects were two elementary students selected from an available population pool. These subjects were students in an EMH resource program and had severe spelling problems. Spelling lists of ten words each were chosen from Fitzgerald's List of 350 Crucial Words. Instruction and word correction methods alternated weekly for ten weeks. Results showed that the IPM method surpassed the MO method in daily and weekly word acquisition and retention. However, consideration must be made for sample bias and individual attention when viewing results.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*Floyd Ayers, Chairperson*

#### DEMOGRAPHIC FACTORS AS THEY RELATE TO REGULAR ELEMENTARY SCHOOL TEACHERS' ATTITUDES TOWARD THE LD PROGRAM IN THEIR SCHOOL

*Debora J. Wade*

**PROBLEM:** The purpose of this study was to examine regular elementary school teachers' attitudes toward the LD program in their school and to determine if there is a significant relationship between teacher attitudes and demographic factors such as sex, educational background, and teaching experience.

**PROCEDURE:** The subjects in this study were 99 regular elementary school teachers in one school district. The instrument used was designed to determine the attitudes of the teachers toward the LD program in their school. The questionnaires were distributed during building staff meetings and collected one week later. The results were first tabulated to obtain the overall attitude of the teachers to the LD program in their school. The relationship of each demographic factor to those attitudes was then tested, using the Chi-square technique and the .05 level of probability for acceptance of the null hypotheses.

**RESULTS:** Results of this study indicate that teacher attitudes toward the LD program in their school are predominantly positive and that demographic factors have no significant relationship to those attitudes. However, a significant relationship does exist when the sex and educational background of the teachers is compared to teacher perception of the nature of the LD program. The teachers were divided as to whether the LD program was a resource program or a special separate program.

**CONCLUSION:** It was concluded that elementary school teachers appear to hold predominantly positive attitudes toward the LD program in their school and that demographic factors are not significantly related to those attitudes. The sex and

educational background of the teachers appears to be significantly related to teacher perception of the nature of the LD program.

It was suggested that LD teachers examine the results of this study to determine if there is a need to provide more information to the regular teachers regarding the philosophy of the LD program for this school district.

*APPROVED BY RESEARCH COMMITTEE, MAY 1983*

*Joan Bigler, Chairperson*

#### COMPETENCY BASED PROGRAM REVIEW AT ST. CLOUD STATE UNIVERSITY SPECIAL EDUCATION

*Judithann Way*

This study examined an instructional component of a competency based teacher training program. A static group, pre-post design with equivalent forms measuring instrument was used to evaluate the effects of instruction. Equivalent forms analysis indicated no effects of testing. Replication was accomplished by working with candidates registered in two academic quarters (winter quarter's set of subjects and spring quarter's set of subjects). The total number of subjects, all majoring in Special Education, was 48. Results for winter and spring quarter's set of subjects indicated the effects were clearly those of instruction.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1983*

*Floyd Ayers, Chairperson*

#### A STUDY OF A SENIOR HIGH FACULTIES' KNOWLEDGE, UNDERSTANDING, INVOLVEMENT, AND OPINIONS OF A SECONDARY LEARNING DISABLED PROGRAM

*Thomas A. Wicklund*

**PROBLEM:** It was the purpose of this study to question the faculty at Tech Senior High School in St. Cloud, Minnesota, and discover: (1) how much knowledge and understanding they had about the learning disability program at Tech, (2) how much involvement they had with the learning disability program at Tech, and (3) what their opinions were about the necessity of an inservice on the learning disability program. A secondary purpose of this study was to ascertain if there were differences between departments' knowledge, understanding and involvement in the learning disability program.

**PROCEDURE:** A questionnaire containing twenty-six questions about the learning disability program was sent to the 115 faculty and administrators at Tech. The questionnaires were color coded to identify the thirteen departments. Fourteen questions dealt with the faculties' knowledge and understanding of the learning disability program and twelve questions were concerned with the faculties' involvement in the program. After two weeks the collection of the questionnaires ended and the results were tabulated.

**RESULTS:** The data were displayed on nine tables. Percentages were calculated on each response for each question. There were three possible responses for the first thirteen questions and two responses for the next thirteen questions. The two null hypotheses were tested for significant differences between departments. The departments were also ranked in order of their mean scores for each section. The data showed that there were areas of definite high and low knowledge and understanding about the program. There were also areas of high and low involvement in the program. There was found to be significant differences between departments in both their understanding and knowledge of the program and involvement in the program. The departments that had high mean scores on the involvement section also scored the highest mean scores on the knowledge and understanding section. Departments scoring highest mean scores

on both the knowledge and understanding section and the involvement section included: counselors, administration, special education and work experience. Those departments scoring lowest on these sections were: physical education, business and mathematics. The majority of the faculty felt they did not have a good understanding of the program and that an inservice on the learning disability program is needed.

**RECOMMENDATIONS:** It is recommended that an inservice should be carried out in the fall of 1982 at Tech on the learning disability program. At the inservice the areas of low knowledge and understanding about the program should be emphasized. The faculty should be made aware of areas where they can become more involved in the program. The learning disability faculty should visit informally with members of the departments that scored low on the questionnaire to increase awareness about the program in those departments.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*James Lewis, Chairperson*

### **IMPACT OF SPECIAL EDUCATION STAFF DEVELOPMENT ACTIVITIES ON INSTRUCTORS IN VOCATIONAL EDUCATION**

*Barbara L. Wolfe*

This study was designed to measure the impact of staff development activities on a group of vocational education teachers serving handicapped students.

A total of 46 vocational educators in an experimental group and 13 vocational educators in a control group from West Central Wisconsin rated items concerning the enrollment of handicapped students in vocational education. Survey items were rated on a pre and post survey in four general areas: the curriculum, modifications made, communication, and the characteristics of handicapped students.

Chi-square analyses of the survey responses were computed to determine if change occurred as the result of the implementation of a special education staff development program. Further analyses were done to determine any differences based on the demographic variables: size of school district, vocational area, years of teaching experience, and number of handicapped students in past classes. Return rate for the experimental population was 63 percent and 72 percent for the control population.

The major finding of this study indicated that positive change occurred in the attitudes and activities of the vocational educators as a result of the staff development program. Other findings included: small school teachers responded more positively than large school teachers; less experienced teachers responded more positively than more experienced teachers; technical and industrial, home economics, and agriculture teachers responded more positively than business education teachers; and teachers having more handicapped students in past classes responded more positively than teachers with fewer students in past classes.

The findings of this study suggest that staff development programs, such as the one implemented in this study, can be effective. Priority should be given to promoting the involvement of vocational educators in developing the individualized education program. Cooperative planning between vocational and special educators should also be encouraged based on the identification of these areas by this study.

The data resulting from this study will assist in the justification of staff development programs and give support to the research indicating that vocational services for the handicapped improve when the vocational teachers possess information concerning the needs of the handicapped student.

Based on the findings of this study, further research in the area of vocational programming for the handicapped students was recommended.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1983*

*Stanley C. Knox, Chairperson*

# COLLEGE OF FINE ARTS AND HUMANITIES

## ART

### A STUDY OF HOW A JUNIOR HIGH ART COURSE, SEX, AND ART GRADES INFLUENCE CREATIVITY TEST SCORES

*Linda M. Reiland*

**PROBLEM:** The purpose of this study is to determine if creativity test scores are influenced by taking a junior high art course, student's sex, or the students' grades in art.

**PROCEDURE:** Eighty students were randomly chosen from the eighth grade. Forty eighth graders had taken the junior high art course. Forty eighth graders had not. Each group was given the Circles Task, NVA, of the Minnesota Tests of Creative Thinking and Writing. One elementary art specialist and one junior high art teacher scored the tests for fluency, flexibility, elaboration, and originality. The scores were then computed for mean, standard deviation, F probability, and Pearson's Correlation Coefficient by the Academic Computer Services at St. Cloud State University. Both sets of judges' scores were computed.

#### FINDINGS:

1. The group having the art class attained higher creativity test scores than the group which did not have the art class.
2. The males slightly surpassed the females in creativity test scores.
3. No conclusions could be made when comparing grades and creativity scores for either group.

**SUMMARY, IMPLICATIONS FOR TEACHING JUNIOR HIGH ART, CONCLUSIONS AND SUGGESTIONS FOR FURTHER STUDY:** The junior high art course taught in this study appears to have caused an increase in the creativity test scores of the eighth grade group that was tested. Additional creativity tests and additional junior high students should be tested to determine if this is a consistent finding.

Being male or female did not significantly change the creativity test scores. Both sexes need to be reinforced for creative thinking.

The students' past grades in art did not measure creative thinking ability according to the test results. If creativity is to be measured by art grades, it would appear that more creative thinking exercises should be included in the junior high art curriculum.

A longitudinal study could be beneficial to determine how creativity extends to other areas and if creativity increases with further study.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1982*

*Lee J. Gutteter, Chairperson*

### THE DESIGN OF AN ART FACILITY FOR WATFORD CITY SCHOOLS

*Jerrel L. Holm*

**PROBLEM:** The purpose of this study was to design an all-purpose art facility that would best benefit students and the community of Watford City, North Dakota.



**PROCEDURE:** First the information about the environment which included the community, the school plant, the students, and the school curriculum of Watford City was compiled and analyzed. Several art facilities were then visited and photographed. Available literature was reviewed. The architectural firm A.W.B.W. hired by the school and the National Art Education Association were both contracted by the writer to expand on the design of art facilities. These total findings were condensed and evaluated to be used in designing an art facility for Watford City High School.

**CONCLUSIONS:** Because each school district is unique in itself it became very evident through this study that it is extremely important to analyze the school and community environment before attempting to design an art facility. It was also found there is a definite need to update and expand upon the available information on designing art facilities.

*APPROVED BY THE RESEARCH COMMITTEE, AUGUST 1983*

*Laurie Halberg, Chairperson*

## **COMMUNICATION DISORDERS**

### **A COMPARISON OF AUDITORY-VISUAL AND VISUAL STIMULATION MODES AND THEIR EFFECTS ON THE ACQUISITION OF THREE-ELEMENT STRUCTURES BY NON-ORAL CEREBRAL PALSIED MENTALLY HANDICAPPED SUBJECTS**

*Richard Michael Mattson*

**PROBLEM:** The purpose of this study was to compare the effects of auditory-visual stimulation and visual stimulation alone on the acquisition and development of three-element (symbolized words) structures to facilitate communication by the non-oral cerebral palsied mentally handicapped population.

**PROCEDURE:** Six residents of the Brainerd State Hospital, Brainerd, Minnesota, were selected for the experiment. The subjects were non-oral cerebral palsied mentally handicapped and had language-age equivalencies ranging from two years, six months to four years, four months. Each subject used a communication board, and demonstrated ability to combine two symbols (pictographs) correctly in spontaneous productions at a 75 percent correct response rate to a 90 percent correct response rate. Three subjects were randomly assigned to one of two experimental groups. Group 1 received both auditory and visual stimulation while Group 2 received auditory stimulation only. Both groups were administered a pre-test, post-test, probe tests, and training sessions. The tests measured the ability of the subjects to generate independently three-element structures referring to actions or events depicted in each of ten photographs presented to them. Probe tests were administered every fifth day of the experiment and consisted of the subjects independently creating three-element productions for each of ten pictures presented. Training sessions were administered four days per week and consisted of the subjects modeling 15 three-element structures per session presented by a trainer. The mode of stimuli used during the training sessions depended on the group of which the subject was a member. The Duncan Multiple Range Test and the Wilcoxon t-Test were used for statistical analysis of the data compiled.

**FINDINGS:** Comparisons between modes of stimuli for Group 1 (auditory and visual stimulation) and Group 2 (auditory stimulation only) were made for daily scores, weekly scores, probe test scores, and pre- and post-test results. In each analyses, Group 1 did significantly better ( $p < .05$ ) than Group 2. Several of the analyses proved to be significant at the .0001 probability level.

**CONCLUSIONS:** The results of this study indicate that both auditory and visual stimulation improve the acquisition of three-element structures significantly better than auditory stimulation alone for a non-oral cerebral palsied mentally handicapped population.

*APPROVED BY RESEARCH COMMITTEE, MAY 1983*

*Martin A. Kammermeier, Chairperson*

## ENGLISH

### KATHERINE ANNE PORTER AND THE PLANTATION MYTH

*Brigid L. Bechtold*

Within three generations, the American South moved from ante-bellum plantation life to the industrialized twentieth century. Losing plantation life by force heightened both the sense of loss and the fond regard which Southerners felt for plantation life. Their fond memories of and desperate longings for the past erased negative features and exaggerated positive aspects, creating a mythic plantation life. Nineteenth century Southern writers helped glorify this life, but Southern Renaissance writers (1925-1960) untangled the mythical plantation from the actual plantation and then used the structure and values of the myth to try to understand actual plantation life and determine its present value.

One Southern Renaissance writer who worked to untangle myth from reality in this regard was Katherine Anne Porter. Porter also had to move into modern society from a background of actual and mythical plantation life, so she used what she found in the past both to explain the present and to help her move into the future. She found that the Old Order Had fragmented women's lives into social roles, which Southerners had refined into heroic images that served to glorify plantation life. Although Porter saw that both fragmentation and glorification destroyed women, she evidently believed that the heroic image could survive if fragmentation were erased; she used the heroic order which she found in the plantation myth to pattern both her life and her fiction.

The Miranda stories, which convey what Porter calls her "felt experience" of actual and mythical plantation life, suggest that the heroic order fails in human life. The Old Order portrays Miranda perceiving the values and structure of actual plantation life. In Old Mortality, Miranda imagines herself fitting the heroic images of the plantation myth, and in Pale Horse, Pale Rider she integrates the women's roles to form a pure identity. The Miranda-identity in "Flowering Judas," "Theft," and "The Jilting of Granny Weatherall" moves into the New Order but fails to maintain the heroic image in modern society.

Though the heroic identity kept Miranda from living a fulfilling life, it gave her the courage to move away from plantation roles for women and form her own identity. Though Porter calls the Miranda stories her "felt experience," they also reflect her real experience of using the heroic order to shape her public image. This heroic image evidently gave Porter the courage to be a writer; it also gave her the pattern for her fiction.

*APPROVED BY RESEARCH COMMITTEE, FEBRUARY 1984*

*James Lundquist, Chairperson*

### THE MEANING OF CAMÓES' MYTH IN OS LUSÍADAS

*Maria Leda Hogan*

Camões discovers in myth an allegorical form to glorify the heroes of Os Lusíadas. He inserts the pagan gods in his epic and places heroes and deities in a human and a divine plan. The Olympian gods in the epic appear human, in the sense that they possess humanized behavior-holding councils, giving speeches, and taking active part in human matters-but they also manifest supernatural power in their actions, divine looks, appearance, and inspiration. The heroes, on the other hand, are also humans, but their image grows progressively for human into god, achieving complete deification at the paradise of the Isle of Love, the climax of the long voyage and the Otherworld. The sailors surpass the conqueror Bacchus, and equal Hercules in their strength and daring in opening lands and seas never navigated before. Their earthly glory, then, leads them to a heavenly glory.

*APPROVED BY RESEARCH COMMITTEE, MAY 1983*

*John L. Melton, Chairperson*

## THE DEVELOPMENT OF A COMPOSITION STUDENT AS WRITER: A CASE STUDY

*Mary Pluth Palmquist*

This thesis is a humanistic case study that explores the value of teaching writing as an art by using the general principles of literary artists and relying on the students' own knowledge and background as material to be shaped in writing.

This study concentrates on the development of a single student through a series of written assignments for a freshman composition course but it does not intervene scientifically in the writing process as she is writing. As a study, then, this thesis bears a closer relationship to the more humanistic case studies of Rollo Brown and David Holbrook than to the more scientific case study of Janet Emig.

The thesis concludes that artists' rules were of prime value in teaching writing, that a few essential proceedings and rules constantly repeated were vital, that there was a direct relationship between a good assignment and a good paper, that working with students' own writing--not overly depending on a textbook or workbook--gave vitality to the class, that the goal was quality not quantity writing, and that both the student and the teacher needed to be nourished by the wisdom of the past if they hoped to achieve that quality.

The appendix contains all the class assignments for the quarter and facsimiles of all but one of Barbara's papers with the teacher's comments from first draft to final revision.

*APPROVED BY RESEARCH COMMITTEE, MARCH 1983*

*Philip Keith, Chairperson*

## MUSIC

### PARTICIPATION IN MINNESOTA SCHOOL STRING PROGRAMS

*William Robert Wick*

**STATEMENT OF THE PROBLEM:** The purpose of this study is to determine if existing string curricula in selected high schools and colleges meet the present and future needs of string students in the State of Minnesota.

**PROCEDURE:** This was an empirical study investigating the strength of relationship between background characteristics and certain items. Characteristics included age, sex, and honor point ratio. The items used involved musical interest, practicing, selecting an instrument, lessons, social considerations, and future plans. The instrument used to examine students needs consisted of a survey containing background information (three characteristics) as well as sixteen items. A stratified sample was used consisting of high school senior string players and college string players from Southeastern, Central and Northwestern Minnesota. Simple percents were used to show general findings and the Chi-square method was used to test two areas--the strength of relationship between background characteristics and the survey items; and how students from each school answered the items. The level of confidence used was .95.

**CONCLUSION:** The survey results indicate a dichotomy exists relative to what the high school orchestra director thinks students want and need and what they really want and need (i.e., high school players dislike of classical music and orchestra concerts and their low concert attendance). The key is to find out what each student wants and needs. A survey similar to the one used in this study should be used on a regular basis by orchestra directors--it would provide them with valuable student input for curriculum planning and a better understanding of their students.

*APPROVED BY RESEARCH COMMITTEE, MAY 1983*

*Shirley Schrader, Chairperson*

# COLLEGE OF SCIENCE AND TECHNOLOGY

## BIOLOGY

### THE EFFECTS OF FOUR TRIHALOGENATED METHANES ON THE EMBRYONIC DEVELOPMENT OF RANA PIFIENS AND XENOPUS LAEVIS

*Timothy D. Byrne*

Stage 7 Rana pipiens and stage 2 to 4 Xenopus laevis embryos were exposed to the trihalogenatedmethanes (THMs): chloroform (CF), bromodichloromethane (BDCM), chlorodibromomethane (CDBM) and bromoform (BF). X. laevis embryos, exposed at concentrations of 1, 10, 100, 1000 ppm, showed a significant ( $\alpha = .05$ ) linear trend for abnormalities in morphology and swimming and for the percent of dead embryos by day seven. The R. pipiens embryos were exposed to THMs at concentrations of 1, 10, 100 ppm. Significant regressions were found for CF in morphology and swimming, BDCM in morphology and percent of dead embryos by day 14 and BF in morphology, swimming and percent of dead embryos. CDBM did not have any significant regressions. The regressions of the abnormality indices on the degree of bromination were not significant.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1982*

*Alfred J. Hopwood, Chairperson*

### A PRELIMINARY SURVEY OF PARTICULATE AND DISSOLVED ORGANIC MATTER, ADENOSINE TRIPHOSPHATE BIOMASS, AND OTHER PARAMETERS IN THE MISSISSIPPI RIVER NEAR ST. CLOUD, MN

*Stephen B. Ellingson*

To quantitatively determine the effect of the discharges from three tributaries (Little Rock Lake, Watab Creek, and Sauk River) on the physical, chemical, and biological parameters of the Mississippi River near St. Cloud, Minnesota 94 samples were collected from 29 July 1980 to 4 April 1981. River samples were collected up- and down-stream from each outflow in addition to regular samples from each tributary. Planktonic biomass estimates were obtained indirectly using the firefly luciferin-luciferase enzyme system to measure adenosine triphosphate (ATP) which was converted to total microbial carbon. Wet oxidation with dichromate was used to measure particulate and dissolved organic matter. Current velocity, discharge, water temperature, specific conductance, total oxidized nitrogen (nitrate and nitrite), and filterable reactive and total phosphorus concentrations were also determined.

The St. Regis Paper Company dam divided the River into pondlike and fast flowing regions with mean current of 14 and 47 cm/sec respectively. The River was a relatively homogeneous body of water characterized by the following means: discharge, 66.9 m<sup>3</sup>/sec; water temperature, 12.5°C; conductance, 320 uS/cm; pH, 7.7; 1% light level, 4.4 m; dissolved oxygen, 8.12 mg O<sub>2</sub>/l; nitrogen, 0.072 mg N/l; filterable reactive phosphorus, 0.008 mg P/l; total phosphorus, 0.041 mg P/l; particulate organic matter, 1.265 mg C/l; dissolved organic matter, 8.062 mg C/l; planktonic biomass, 91 ug/l; and viable biomass, 10.5% of particulate organic matter. The various physical and chemical parameters were of little value in predicting biomass concentrations. Particulate organic matter and planktonic biomass followed similar trends and were slightly correlated ( $r = 0.61$ ). The Sauk River was the only tributary to discharge elevated levels of inorganic nutrients, particulate organic matter, and planktonic biomass into the River.

The firefly luciferin-luciferase enzyme system is a recently developed analytical technique and thus has not been frequently applied to inland waters, particularly rivers. The results from this study broadly confirm other lacustrine applications, however, a detailed theoretical discussion of the background and specifics of the method is given to encourage future research in this area.

*APPROVED BY RESEARCH COMMITTEE, MAY 1984*  
*Alfred J. Hopwood, Chairperson*

#### VERIFICATION AND IDENTIFICATION OF ALGAL INHIBITORS PRODUCED BY AQUATIC VASCULAR PLANT, CERATOPHYLLUM DEMERSUM L

*Loren J. Larson*

This thesis was to verify and identify the presence of organic algal inhibitors produced by Ceratophyllum demersum, which had been suggested in earlier studies. C. demersum was cultured in the laboratory for two to four weeks. Organic compounds dissolved in the media were then extracted, separated, and bioassayed to determine if any inhibit the growth of Chlorella pyrenoidosa, a green alga. Three compounds exhibited inhibition and were identified as vanillic acid, syringic acid, and p-hydroxybenzoic acid. Source of these compounds was suggested to be the breakdown of lignin from the tissues of the macrophyte.

These organic acids were bioassayed with C. pyrenoidosa using commercial samples of each and were found to promote growth of cultures at low concentrations ( $1.0 \times 10^{-4}$  M) and inhibit growth at slightly higher concentrations ( $4.0 \times 10^{-4}$  M). This activity can be explained by the reported interaction between the acids and an auxin catabolic enzyme. These acids act as inhibitors for the enzyme at low concentrations, which causes an increase in auxin concentration, and act as synergists for the enzyme at higher concentrations, reducing auxin concentration. Growth of C. pyrenoidosa is reported to be positively related to auxin concentration.

Results indicated that microbial degradation of two of the three acids, vanillic and p-hydroxybenzoic, occurs. This process appeared to be obligate aerobic respiration. Syringic acid did not appear to be readily degraded.

*APPROVED BY RESEARCH COMMITTEE, MAY 1983*  
*Keith M. Knutson, Chairperson*

#### NATURALLY OCCURRING SALIVARY IMMUNOGLOBULIN A ANTIBODIES TO STREPTOCOCCUS MUTANS

*Lawrence D. Neumann*

A reliable micro enzyme linked immunosorbent assay (ELISA) was developed to detect salivary immunoglobulin A (IgA) antibodies directed against Streptococcus mutans in human saliva samples obtained from 131 volunteers. Three bacterial strains were tested for suitability as solid phase antigens in the test including S. mutans, strain 6715 (wild type), and two isogenic mutants of this strain, mutant C4 and mutant C211. Of these three strains, S. mutans, strain 6715 was chosen as the solid phase antigen. Strain 6715 and mutant C4 gave similar results in the assay, but mutant C211 was found to have a receptor for the conjugate. In developing the test, it was noted that salivary IgG reduced color development. However, adsorption of the IgG with staphylococcal protein A reduced IgA titers and the test is best performed without prior adsorption of the saliva.

Over 97% of the study population was culture positive for S. mutans and all but five individuals had detectable titers to S. mutans. Other culture results showed that there was no correlation between past caries experience and the current number of lactobacilli in the oral cavity. The immunoassay gave a significant number of results. Significantly higher IgA titers against S. mutans as well as number of caries were found in females when compared to males ( $p < 0.01$ ), snackers compared to nonsnackers ( $p < 0.005$ ), and individuals receiving topical fluoride as compared to those who did not ( $p <$

0.01). Smokers showed significantly higher numbers of caries ( $p < 0.01$ ) but significantly lower IgA titers when compared to nonsmokers ( $p < 0.005$ ). Numbers of caries and IgA titers were found to increase with increased sugar intake. The number of caries also increased with age, but the IgA titer decreased in older individuals.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1983*  
*Gordon D. Schrank, Chairperson*

#### INVESTIGATION OF ECTOMYCORRHIZAE OF POPULUS TREMULOIDES IN NATIVE WOODLANDS

*Dana L. Richter*

Ectomycorrhizal fungi were surveyed in local native pure stands of quaking aspen, Populus tremuloides Michx. Seventeen species were identified.

Morphology of P. tremuloides ectomycorrhizae were studied by light microscopic examination of whole mounts and paraffin sections stained with safranin and fast green. Fungal morphology was compared with literature descriptions as a means of identifying observed fungal symbionts.

Pure culture of five of the fungi was attempted on ten different laboratory media commonly used for growth of fungi. The inability of ectomycorrhizal fungi to grow in culture indicates the dependence of these organisms on their host.

Two of the fungi, Amanita vaginata (Fr.) Vitt. and Lactarius uvidus (Fr.) Fr., were used in the fluorescent antibody technique for identification of these fungi on their corresponding mycorrhizal structures. Whole sporocarps were used for antibody preparation in rabbits. An array of cross reacting antibodies resulted which could not be used for absolute identification of the specific fungi. The fluorochrome dyes fluorescein and rhodamine in combination were successful to differentiate plant from fungus tissue in fresh ectomycorrhizae specimens.

*APPROVED BY RESEARCH COMMITTEE, MAY 1983*  
*Lester E. Lindstrom, Chairperson*

#### BEHAVIORAL OBSERVATIONS OF WATER STRIDERS (HEMIPTERA: GERRIDAE, VELIIDAE)

*Beth A. Schramm*

This paper presents behavioral observations concerning water striders (Hemiptera: Gerridae, Veliidae) in four selected study areas near St. Cloud, MN, on Watab Creek, Mayhew Creek, the Sauk River and the Elk River. Field observations included intra- and interspecific orientations to current barriers and current patterns as well as the effects of surface ripples and sunlight patterns on the location and boundaries of occupied areas. Characteristic skating patterns and factors influencing them were identified for Metrobates and Rhagovelia. The fall behaviors of wall climbing, negative geotropic and positive thigmotactic responses by Gerris remigis and rock crawling by R. obesa were described. In the laboratory, G. remigis were studied with regard to feeding, individual actions such as somersaults and their behavior under artificially-cold temperatures.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1982*  
*Ralph W. Gundersen, Chairperson*

## THE EFFECT OF PRENATAL EXPOSURE TO PENTOBARBITAL ON PLASMA TESTOSTERONE LEVELS IN PUBERTAL AND ADULT MALE RATS

*Jane Marie Schumacher*

Sodium pentobarbital or saline (control) was administered to pregnant rats at 17-21 days of gestation.

Male offspring at either 21 or 120 days were sacrificed by cervical dislocation and blood was collected. The serum was separated for testosterone determination by radioimmunoassay (RIA).

Data from RIA were statistically analyzed by student's t-test yielding a 99.99% confidence level. Therefore pentobarbital permanently decreases the plasma testosterone level by 0.5 ng/ml in pubertal and adult male rats.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1983*

*David P.S. Mork, Chairperson*

## OBSERVATIONS ON THE LIFE CYCLES OF HYDROPSYCHE BIFIDA BANKS AND HYDROPSYCHE MOROSA HAGEN (TRICHOPTERA:HYDROPSYCHIDAE)

*Neal J. Voelz*

Two different laboratory streams were used to examine the life cycles of Hydropsyche bifida and H. morosa (Trichoptera:Hydropsychidae). Effectiveness of the artificial streams was determined. Hydropsyche bifida and H. morosa were shown to be useful bioassay organisms. Variations of the species-specific larval head patterns were drawn for both H. bifida and H. morosa.

Field studies were used to determine niche separations for H. bifida and H. morosa in riffle areas of the Sauk River, St. Cloud, Minnesota. Physical-spatial factors such as retreat material, substrate preference, area of riffle and location on substrate were used to evaluate this separation. Eggs found in the river were indistinguishable from laboratory eggs obtained. The river eggs developed and photographs were made of the first instar, tentatively identified as Hydropsyche sp.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1983*

*Alfred J. Hopwood, Chairperson*

## A STUDY OF THE CORRELATION BETWEEN LEVELS OF TRIHALOMETHANE AND TOTAL ORGANIC CARBON

*Michael V. Walter*

Mississippi River water was sampled upstream of the St. Regis Paper Mill in Sartell, Minnesota, points progressively downstream of the St. Regis Plant, the Watab Creek and Sauk River which are tributaries of the Mississippi River. Levels of total organic carbon (TOC) and Trihalomethane (THM) found in the above locations were compared with levels of TOC and THM found at the St. Cloud Sewage Treatment Plant (SCSTP). Two sample dates showed levels of THM and TOC to be correlated. The third sample showed an increased level of bromoform indicating a bromide concentration significant enough to cancel the affects of TOC. No significant difference was found between THM species in the SCSTP and three rivers sampled. Preliminary evidence indicates that production of THM may be taking place following chlorination of effluent from water treatment plants.

*APPROVED BY RESEARCH COMMITTEE, SEPTEMBER 1982*

*Alfred J. Hopwood, Chairperson*

## INDUSTRIAL STUDIES

### EMPLOYMENT PATTERN OF INDUSTRIAL EDUCATION TEACHERS GRADUATING FROM ST. CLOUD STATE UNIVERSITY 1975 THROUGH 1980

*Ronald Warren Fisher*

**PROBLEM:** The purposes of this study were: (1) to survey the employment pattern of industrial education graduates from St. Cloud State University; (2) to determine the reasons why the industrial education graduates entered, never entered, remained, left, or returned to the teaching profession; and (3) to make recommendations based on the results of this study.

**PROCEDURE:** The population involved in this study consisted of St. Cloud State University graduates with a Bachelor of Science degree in industrial education. The population was further limited to the graduating classes of 1975 through 1980. One-hundred and sixteen persons fell within the limitations of the study. A three-part questionnaire was developed and mailed to the members of the population to determine the employment pattern, job satisfaction and reasons why teachers have remained, returned, or left the teaching profession. The status information derived from the questionnaire was reported in textual and tabular form. Recommendations were based on the results of the study.

**FINDINGS:** Ninety-five (82%) of the 116 graduates responded and it was found that forty-one (43%) were teachers and fifty-four (56%) were non-teachers.

Data derived from the questionnaire were analyzed and it was found that: (1) eighty-three (87%) of the respondents earned a Bachelor's degree as the highest degree earned; (2) fifty-four (56%) left teaching within five years from graduation; (3) thirty-nine (41%) selected construction as the most popular option; (4) fifty-six (58%) of the respondents taught in a junior, senior, or junior/senior high school; (5) a majority of the respondents who taught, taught within their option; (6) a majority of teachers and non-teachers were not satisfied with the salaries earned in education; (7) teachers and non-teachers had good relations with administrators and other teachers; (8) good facilities were provided for programs; (9) budgets appeared to be adequate; (10) teachers and non-teachers felt respected by the community and students; (11) a large majority of teachers and non-teachers felt they had contributed to education and (12) teachers enjoyed being teachers.

**CONCLUSIONS:** It was concluded from the data derived that: (1) higher salaries are being offered in industry and business; (2) teaching is a satisfying career if teachers can financially afford to remain; (3) teachers who never entered teaching did not change their majors because the skills and knowledge gained in college were directly accepted in industry and business.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*William H. Kemp, Chairperson*

### INDUSTRIAL EDUCATION SAFETY CURRICULUM PRACTICES OF GRADUATES FROM ST. CLOUD STATE UNIVERSITY COLLEGE OF INDUSTRY 1978 THROUGH 1982

*John Stephen Gerken*

**PROBLEM:** The purpose of this study were to: (1) determine the number of hours spent teaching safety curriculum in each of the selected areas of industrial education, (2) identify sources used by industrial education teachers to develop safety curriculum, (3) correlate methods of teaching with specific areas in industrial education, and (4) recommend guidelines for an industrial education curriculum based on survey results.



**PROCEDURE:** The population in this study consisted of St. Cloud State University graduates with a Bachelor of Science degree in industrial education. The population was further limited to the graduates from Fall Quarter, 1978, through Spring Quarter, 1982, inclusive. The target population was expected to be 92 persons. This survey should in no way be constructed as an evaluation of the quality of instruction but should be viewed simply as a survey of current practices. A three part questionnaire was developed and mailed to the members of the population to determine the grade levels they teach, number of hours spent teaching safety, sources used to develop safety curriculum, whether or not they believe enough time is spent teaching safety, and to prioritize a selected list of safety factors related to industrial education. The status information derived from the questionnaire was reported in textual and tabular form. Recommendations were based on the results of the study.

**FINDINGS:** Fifty-three (70.6%) of the 75 valid population responded to the questionnaire. Twelve (22.7%) of the respondents never taught, 41 (77.3%) indicated that they have had teaching experience.

Data derived from the questionnaire were analyzed and it was found that: (1) the construction option was the most popular option, (2) 34.2 percent of the time respondents spend teaching safety is in the construction option, (3) a majority of the teachers teach more than one grade level, (4) respondents used several sources for the development of safety curriculum, (5) 21 out of 30 (70.0%) of the respondents believed that their Industrial Education program devotes enough time to safety, (6) the most popular methods of teaching safety in the manufacturing and construction areas are lecture and demonstration, and (7) 28 (52.9%) of the respondents believed that their instruction at St. Cloud State University was "good" to "excellent" in terms of preparing them to personally function safely.

**CONCLUSION:** It was concluded from the data derived that: (1) even though fewer teachers are in the field, the programs in industrial education are still maintained as well rounded, (2) the grade level of students does not dictate the use of different methods of instruction, and (3) present safety curriculums do not coincide with the methods that industrial education teachers are presently using.

*APPROVED BY RESEARCH COMMITTEE, MAY 1984*  
*Phillip G. Bergstrom, Chairperson*

## ASSESSMENTS OF NEEDS AND TRENDS OF THE AUTO BODY REPAIR INDUSTRY IN CENTRAL MINNESOTA

*LeRoy D. Thompson*

**PROBLEM:** This research deals with the concerns of how many post-secondary, vocational trained persons the auto body repair industry will need from 1984 to 1989 and what type of job entry skills will be required.

**PROCEDURE:** Information was collected by use of a mailed questionnaire sent to sixty-eight auto body repair shops located within an approximate fifty mile radius of St. Cloud, Minnesota. This survey was conducted from February 24, 1984 to March 16, 1984.

**FINDINGS:** From a total of sixty-eight auto body repair shops who received the questionnaire, fifty-two shops responded. Of the fifty-two shops, four shops were out of business, seven did not wish to participate, thus providing forty-one usable responses.

There were ninety-three full-time persons and fourteen part-time persons employed in the surveyed auto body repair shops in central Minnesota. Of the shops surveyed, there were sixty possible employment opportunities for the auto body repair graduates of the St. Cloud Area Vocational-Technical Institute (AVTI) from 1984 to 1989.

The four job entry skills that were deemed most important by the surveyed auto body shops were: paint matching, mig welding (steel), aligning body openings, and removing and replacing body panels. These four courses of study are part of the twenty-five areas of training in the Auto Body Repair Program at the St. Cloud AVTI.

Forty-four percent of the auto body repair shops surveyed in central Minnesota employed one person compared to 13 percent in the national Motor and Equipment Manufacturers Association (MEMA) study conducted in 1982-83. Findings showed 70 percent of the shops surveyed in central Minnesota repaired one to five vehicles weekly compared to MEMA's study which showed 33 percent of their shops doing the same volume of work weekly.

**SUMMARY:** This study was to determine the needs and trends as perceived by the auto bodyrepair industry in central Minnesota during the period of 1984 to 1989. In order for the St. Cloud AVTI to provide the industry with skilled apprentices, it is important that the Auto Body Repair Program keeps current with today's repair procedures and requirements. To accomplish these goals, it is necessary to have input and recommendations from the local auto body repair advisory board and the auto body repair industry within the service area of the institution.

*APPROVED BY RESEARCH COMMITTEE, MAY 1984*

*Gerald Nestel, Chairperson*

## **COLLEGE OF SOCIAL SCIENCES**

### **HISTORY**

#### **MINNESOTA PUBLIC OPINION REGARDING SENATOR JOSEPH R. MCCARTHY FROM 1950-1957**

*Mary Ropella Johnson*

Senator Joseph R. McCarthy dominated the national political scene in the early 1950's by charging that communists were active in the United States government. Minnesotans, like most Americans, were aware of the activities of the Wisconsin senator and expressed their opinions. The purpose of this study was to identify and discuss the extent to which changes occurred in attitudes toward McCarthy from 1950 to 1957.

City and small town newspapers, randomly selected around the state, were studied to determine what Minnesotans were told about McCarthy and to discover what opinions they had about him. Newspaper articles, editorials, letters to the editor and syndicated columns provided the major resources for this study. Five time periods in McCarthy's career, the Wheeling speech of 1950, the 1952 election, the Army-McCarthy hearings, the censure vote and the senator's death, provided the framework for determining the extent of newspaper coverage of him, the contrast between city and small town coverage, the attitudes toward McCarthy and the extent to which these attitudes changed after each period and why.

Minnesotans with access to daily newspapers received complete coverage of McCarthy during the five time periods studied. Those with access only to weekly newspapers received limited information because the weeklies dealt mainly with local news and commentary. The research for this study indicated McCarthy had the backing of a number of Minnesotans, possibly a majority, during 1950, and this support seemed to continue through the election campaigns of 1952. However, a change in attitude toward McCarthy occurred during the Army-McCarthy hearings in 1954. The extensive coverage, both in newspapers and on television, allowed people to observe McCarthy and his methods first hand and support for the senator dropped drastically. Backing for McCarthy continued to decline later the same year after the censure vote and his charges against Eisenhower. At the time of McCarthy's death, attitudes toward the senator were less negative as Minnesotans tried to assess objectively McCarthy's career. Although Minnesotans deplored the senator's methods, some felt McCarthy's investigations were necessary.

*APPROVED BY RESEARCH COMMITTEE, MARCH 1984*

*Calvin W. Gower*

## SEVENTEENTH CENTURY PURITAN BURIAL IN MASSACHUSETTS AND PLYMOUTH

*Steven R. Nefstead*

**PROBLEM:** The historical milieu of sixteenth century Europe produced a group of religious zealots, the Puritans. The intention of the Puritan movement was to finalize reforms begun by the Reformation by purifying the Anglican Church of vestiges of Catholic dogma and ritual. The strategy of that purification was based on justifying all church doctrine and ritual upon the negative scriptural rule; that is, all ritual and doctrine not specifically mandated by scripture was prohibited. The implementation of that rule dictated stripping away almost all ceremonies connected with Puritan religious observance. Since Puritans regarded their religion and religious attitudes as integral with their daily lives, the negative scriptural rule was also applied to the Puritan funeral, regarded a civil function among Puritans.

During the first eighty years of Puritan settlement in New England a gradual departure was taken from earlier standards of traditional English Puritan burial. An explanation of acceptance of increased ceremony and ritualization, in the face of the negative scriptural rule tradition, commands the consideration of this thesis.

**PROCEDURE:** An exposition of the historical matrix of sixteenth century western Europe, and in particular England, was used in its cultural milieu. The contrast of historical and environmental differences between sixteenth century England and seventeenth century New England were then examined to identify the reasons for increased ritualization, ostentation, and other miscellaneous changes made by New England Puritans in the burial ceremony originally introduced by the first English Puritan settlers.

**FINDINGS:** Three influence clusters account for the gradual abandonment of the negative scriptural rule in connection with funerals. They were a profound sense of religious, social, and economic loss felt by colonial Puritans, and occasioned by the loss of one of their brethren; the distraction of Puritans from their original intention of establishing a godly commonwealth by the demands and opportunities of the new environment; and occasional mechanical adaptations dictated by the physical conditions of the wilderness.

**SUMMARY AND CONCLUSIONS:** The Puritan movement and its concomitant negative scriptural rule were born of sixteenth century historical conditions. When those conditions were changed by a new environment and new secular and religious ideas, Puritanism, a child of its age (as are all movements), was forced to change.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*Edward Pluth, Chairperson*

## SPECIAL STUDIES

### EFFECTS OF SPECIFIC MUSCLE TRAINING ON CARDIORESPIRATORY KINETICS

*Randy W. Braith*

During competition, successful endurance athletes attempt to maintain a baseline intensity just beneath their lactate threshold. However, baseline may be sustained for only brief periods in some events. The uneven terrain of cross-country skiing, for example, requires the competitor to continually exceed steady-state. The capacity of the oxygen delivery system to respond rapidly to repeated fluctuations in metabolic demand will decide performance.

The purpose of this study was to compare the cardiorespiratory kinetics for two groups of differently-trained endurance athletes during combined exercise and leg exercise. Eight highly trained males served as test subjects. Four

of the subjects were distance runners who train for and compete in marathon road races. The other four subjects were cross-country skiers who compete in winter and train specific to their sport in summer.

Maximal  $\text{VO}_2$ , vertical power output (watts) and aerobic threshold were established or verified during incremental treadmill walking (4.5 mph) and ski-walking. The ski-walk test differed only in that it included simultaneous arm exercise that simulated the diagonal stride of cross-country skiing.

Results from each of the respective maximal tests were incorporated into two subsequent tests:

(1) kinetics walk, and (2) kinetics ski-walk. The design of the kinetics tests attempted to simulate the fluctuating intensity of an athletic competition through abrupt increases and decreases in treadmill elevation. Subjects performed at vertical power outputs corresponding to: (1) aerobic threshold, (2) 60 percent of the difference between aert and  $\text{VO}_2$  max, (3) 90 percent of the difference between aert and  $\text{VO}_2$  max, (4) a repeat of the "hill" eliciting 90 percent of the difference between aert and  $\text{VO}_2$  max.

A Medical Graphics Corporation exercise system was integrated with existing laboratory equipment. The on-line computer provided breath-by-breath analysis of expired gas composition and heart rate data. The Douglas bag method verified computer results. Heart rate and  $\text{VO}_2$  response curves generated by the computer were used to estimate  $\text{T}\frac{1}{2}$ -On for HR and  $\text{VO}_2$  during the transition from moderate to be very heavy leg and combined exercise.

The skiers' maximal  $\text{VO}_2$  ski-walking ( $\text{VO}_2 = 5.273$ ) was significantly ( $p = 0.05$ ) greater than walking values ( $\text{VO}_2 = 5.135$ ). The runners experienced a significant decrement ( $p = 0.01$ ) in  $\text{VO}_2$  during maximal ski-walking ( $\text{VO}_2 = 5.003$ ) in relation to their walk test values ( $\text{VO}_2 = 5.179$ ).

During the submaximal kinetics tests, there were no significant differences between groups for leg exercise. During combined exercise the runners demonstrated significantly ( $p = 0.01$ ) delayed HR and  $\text{VO}_2$  kinetics.

The results of the maximal tests indicate that  $\text{VO}_2$  max should be assessed with a sport specific test. The results of the submaximal kinetics tests suggest that inclusion of an untrained muscle group during heavy exercise will delay total-body  $\text{VO}_2$  and increase oxygen deficit.

*APPROVED BY RESEARCH COMMITTEE, MARCH 1984*

*John M. Kelly, Chairperson*

## CROSS-CULTURAL COMMUNICATION IN THE CLASSROOM

*Ellen Dawson-Witt*

One million international students are expected to be enrolled in the colleges and universities of the United States by the year 1990 and university personnel are not prepared for this influx. Little is known about this large population thus it is the intent of this work to learn more about international students by studying two particular groups, the Malaysians and the Nigerians, at a medium-sized four-year institution in central Minnesota.

The first chapter presents an overview of international educational exchange including a brief history of foreign study, statistics on the current international student population and an explanation of the importance of international educational exchange. The second chapter proposes that problems arise with these exchanges in the most critical setting, that is, in the university classrooms. These problems arise not from difficulties in using the English language but from the culturally determined perceptions and behaviors of the international students.

A review of pertinent literature, presented in chapter three, shows that while much has been written about the social adjustment of international students, very little investigation has been done on the academic adjustments these students must make to survive and succeed in the American university classroom. Chapter four presents the details on this investigation which examines the views of faculty members and Nigerian and Malaysian students at this American university. The investigation was comprised of two parts. First, a series of interviews was conducted with faculty members to determine (a) if they had experienced difficulties in having international students in their classrooms, (b) what these difficulties were, and (c) to what the faculty members attributed these problems. Secondly, a survey was given to 90 American and 95 international students to examine their perceptions of the ideal, local American and (for the international students) home country university settings. The survey examined the physical set-up, the rapport and interaction, the teaching methodology or delivery system and the testing and grading procedures employed in each of the three university settings.

Chapter five presents the findings of the investigation. The interviews and the surveys show that there are several problem areas, for example, objective tests, the amount of time allotted for tests, class discussions and the use of a

syllabus. It is shown that even students who are quite familiar with English are not familiar with the culture of the American classroom. Chapter six presents implications and suggestions based on the research.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1983*

*Robert Lavenda, Chairperson*

#### **CURRICULUM MANAGEMENT DURING A PERIOD OF DECLINING ENROLLMENT AND DECLINING REVENUE**

*Karen P. Gates*

The problem under study was how to manage curriculum during a period of declining enrollment and declining revenue.

The writer first reviewed the literature on curriculum definitions, the legal authority of school boards as decision makers, various curriculum designs and organizations, and curriculum development processes. Additional information was examined on change and the role of change agents in effecting change. Then, the experience of the 1930 educational system was outlined, as an example of another period when education experienced both reduced revenues and lowered enrollments.

Following the review of literature, a curriculum management model was presented which featured a structured committee approach. Major decision making committees included the subject matter committees, that report to the Curriculum and Instruction Council. Citizen input on curriculum would be obtained through a Community Curriculum Committee. Both the council and this committee would report to the school board, the final decision making authority for curriculum in local schools. In addition, the curriculum development cycle with the four stages--assessment, development, implementation, and evaluation--was explained. Next, the role and qualities of the district's curriculum leader were outlined. Finally, a zero-based budget concept was presented as a way to match curriculum priorities with budget allocation.

From this background, the writer visited a school district in the state of Minnesota which had experienced both falling enrollment and budget problems. Interviews were conducted with the superintendent, the curriculum leader, high school principal, a high school teacher, two students, and a school board member. Each person was asked about curriculum changes over a five year period, with emphasis placed on each person's perspective. In addition, documents which the school district had prepared for public use were gathered, including their Educational Planning Task Force Report and their Planning, Evaluating, and Reporting (PER) Document. The new Curriculum Review Model which the district has instituted was reviewed. In addition, the forces which influence curriculum, both internal and external forces, were discussed.

In order to effectively manage curriculum during a period of declining enrollments and declining revenue, it was recommended that a school district have an orderly process for development and review of curriculum which would be maintained even in times of reduced funding, a process for establishing district level curriculum priorities and goals; and an emphasis on curriculum as focus for decisions on staffing, budget allocation, and building utilization. In addition, the district should have a competent and capable curriculum leader who is an effective change agent. The zero-base budget concept was recommended as a way to match curricular priorities with budget allocation. The last recommendation was to use the tenure law or staff evaluation systems to retain the effective teaching staff.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1982*

*Russell H. Schmidt, Chairperson*

#### **MEASUREMENT OF SELECTED METABOLIC RESPONSES TO FOIL FENCING**

*Michael J. Hewitt*

The major objective of this investigation was to contribute useful information concerning metabolic responses to foil fencing. Heart rate changes during elimination round tournament foil fencing and laboratory foil fencing were compared

to evaluate the ability of the laboratory bouts to simulate tournament conditions. Oxygen uptake, heart rate, ventilation and respiratory exchange ratio were compared for foil fencers during motorized treadmill running and fencing in laboratory bouts. Regression equations were developed to predict percent of maximal oxygen uptake from percent of maximal heart rate during treadmill running and laboratory foil fencing. The energy costs of tournament fencing were estimated based on data collected.

Six male foil fencers between the ages of 16 and 34 volunteered for the study. The fencers were active competitors within the Minnesota division of the United States Fencing Association.

Mean and maximal heart rates during elimination round foil fencing bouts were  $169.9 \pm 12.9$  and  $182.8 \pm 13.2$  beats per minute, respectively. The laboratory bouts elicited corresponding heart rates of  $165.8 \pm 19.1$  and  $178.6 \pm 21.1$  beats per minute. The differences for mean and maximal heart rates measured under the two conditions were not statistically significant, and the laboratory protocol was accepted as an appropriate tool for the physiological evaluation of foil fencing.

Peak exercise values for oxygen uptake, heart rate, ventilation and respiratory exchange ratio were significantly lower ( $p < .01$ ) during laboratory foil fencing than during uphill treadmill running.

The metabolic cost of foil fencing during elimination round competition was estimated based on data collected during laboratory and tournament bouts. The value of 13.39 kilocalories per minute for this sample was 24.1 percent greater than any existing estimate. The current caloric cost estimate is equivalent to 11.0 METS.

*APPROVED BY RESEARCH COMMITTEE, MAY 1983*

*John M. Kelly, Chairperson*

## CARDIOVASCULAR RESPONSES TO TRAINING AT THE AEROBIC AND ANAEROBIC THRESHOLDS

*Bruce Johnson*

The purpose of this investigation was to study the relationship of different methods of determining the aerobic and anaerobic thresholds and the subsequent use of the thresholds as training stimuli. Specifically this involved comparisons of the aerobic threshold determined by ventilatory changes (initial non-linear increase in  $VE$  and  $VE/VO_2$ ), a fixed plasma lactate level of  $2 \text{ mmol.liter}^{-1}$  and at the onset of blood lactate accumulation. For the anaerobic threshold, comparisons were made between the second non-linear increase in  $VE$  and  $VE/VO_2$  and a fixed plasma lactate level of  $4 \text{ mmol.liter}^{-1}$ .

Twelve untrained male subjects participated in the study. Each subject performed four tests prior to training. The first two tests were maximal cycle ergometer tests incremented  $180 \text{ kpm}$  every minute to exhaustion at a pedal speed of  $60 \text{ rpm}$ . From these tests maximal values, as well as ventilatory aerobic and anaerobic thresholds were determined. The third test was a sub maximal ergometer test incremented  $180 \text{ kpm}$  every three minutes at  $60 \text{ rpm}$  to  $90\%$  of  $VO_2 \text{ max}$ . This test was performed with longer exercise stages in order to obtain blood samples for plasma lactate determination. The last test required the subjects to cycle at an intensity which elicited a plasma lactate level of  $4 \text{ mmol.liter}^{-1}$  at  $60 \text{ rpm}$  until exhaustion, or one hour. Maximal values obtained, as well as values at the thresholds were  $VO_2$ , HR, R, VE, power output and time.

After initial testing, the subjects were divided into three groups of four. One group trained at an intensity which elicited a plasma lactate level of  $2 \text{ mmol.liter}^{-1}$ , a second group at a level of  $4 \text{ mmol.liter}^{-1}$ , and the third group served as a control. An additional max test was administered on the fourth week of training to reset exercise intensities. At the conclusion of the eight week training period, the initial three tests were performed again.

Hypothesis 1 stated no difference would be found between pre and post-training maximal values or values at the aerobic and anaerobic thresholds. Hypothesis 2 expressed there would be no difference between the groups after training in maximal values or values occurring at the aerobic and anaerobic thresholds. The last hypothesis said there would be no difference in values obtained by the different methods of determining the aerobic and anaerobic threshold.

In summary, hypothesis 1 was rejected for both training groups. Significant increases were obtained in  $VO_2 \text{ max}$  liters.min of  $13.1\%$  and  $23.1\%$  for the  $2$  and  $4 \text{ mmol.liter}^{-1}$  groups respectively. Additional increases at the aerobic and anaerobic thresholds determined by each measurement method were also noted for both groups (Aerobic-vent.  $15.5\%$  and  $19.1\%$ , aerobic- $2\text{mmol}$   $22.8\%$  and  $20.9\%$ , aerobic-OBLA  $9.1\%$  and  $12.5\%$ , anaerobic-vent.  $4.9\%$  and  $21.6\%$ , anaerobic  $4 \text{ mmol}$   $14.6\%$  and  $14.6\%$  for the  $2$  and  $4 \text{ mmol.liter}^{-1}$  groups respectively). Hypothesis 2 was accepted as no significant differences were found between the groups after training in the variables studied during maximal, aerobic and anaerobic threshold exercise.

For the determination of the aerobic threshold, hypothesis 3 was accepted as all three methods used for determination were concluded to occur at the same  $\text{VO}_2$ . For the anaerobic threshold, hypothesis 3 was rejected as the second non-linear increase in  $\text{VE}$  and  $\text{VE}/\text{VO}_2$  occurred at a significantly higher level than values obtained at the 4  $\text{mmol}\cdot\text{liter}^{-1}$  plasma lactate level.

The application of these results indicate that the aerobic threshold may be accurately determined by ventilatory changes, at a fixed lactate level or at OBLA. Respiratory compensation at the anaerobic threshold cannot be applied to a general fixed lactate level of 4  $\text{mmol}\cdot\text{liter}^{-1}$ . Untrained individuals may generate similar cardiorespiratory improvements whether the stimulus is of moderate intensity or of high intensity over an eight week period if equal amounts of total power output are performed.

*APPROVED BY RESEARCH COMMITTEE, MAY 1983*

*John Kelly, Chairperson*

### THE EFFECT OF AEROBIC ACTIVITY ON RESTING METABOLISM

*Debra A. Krippner*

The purpose of this investigation was to study the response of resting metabolism following treadmill exercise of a specified intensity and duration. The training protocol met the guidelines recommended by the American College of Sportsmedicine for the development of cardiorespiratory fitness and weight management. The training consisted of dynamic, aerobic exercise (treadmill walking) three times per week at low ( $55 \pm 5$  percent  $\text{VO}_2$  max) and higher ( $70 \pm 5$  percent  $\text{VO}_2$  max) intensities for 40 and 30 minutes, respectively. The total energy expenditure of the exercise was moderate at approximately 300 to 350 kilocalories per session. Six untrained, college-age women attending St. Cloud State University volunteered to participate in the study from November, 1982 through February, 1983. Descriptive and body composition information was obtained and each subject performed two discontinuous maximal treadmill tests to determine peak oxygen consumption and heart rate.

The physiological variables of resting metabolic rate ( $\text{kcal}\cdot\text{m}^{-2}\cdot\text{hour}^{-1}$ ), oxygen consumption, heart rate and oral temperature were determined before and after exercise at each training session. Measurements continued twice a week for two hours and once a week for six hours during recovery from exercise. Hypothesis 1 was stated to compare pre- and post-exercise resting metabolic rate at two levels of moderate, aerobic exercise. Hypothesis 2 was stated to compare the resting metabolic rate during recovery from low and higher intensity exercise.

In summary, hypothesis 1 was rejected since there was a significant elevation in mean resting metabolism at 90 minutes of recovery from exercise at an intensity of 55 percent  $\text{VO}_2$  max and at 30 minutes of recovery from exercise at an intensity of 70 percent  $\text{VO}_2$  max. The reasons for the absence of a more consistent elevation in resting metabolism after exercise in this group of women are unknown. Hypothesis 2 failed to be rejected on the basis that the mean resting metabolic rate during recovery from exercise of varied intensity and duration, but requiring similar caloric expenditure, was not significantly different. At 30 minutes of recovery from both the low and higher intensities of exercise, the resting metabolic rate was approximately 6 and 11 percent higher than pre-exercise levels, respectively. This study supports earlier findings that resting metabolism is elevated 30 minutes after aerobic exercise and possibly longer.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1983*

*John Kelly, Chairperson*

### THE EFFECTS OF RAPID WEIGHT LOSS ON THE BODY COMPOSITION AND CARDIOVASCULAR FITNESS OF COLLEGIATE WRESTLERS

*William Anthony Latzka*

The purpose of this investigation was to study the body composition, cardiovascular fitness, blood and urine variables of collegiate wrestlers throughout a competitive wrestling season. This study focused on the effects of rapid weight loss on

repeated performances, similar to the situation which exists in wrestling tournaments.

Eight collegiate varsity wrestlers volunteered to participate in this study. Body composition measurements were taken in the pre- and peak season. Three cardiovascular endurance tests were administered, one in the pre-season and two during the peak season. In one of the peak season tests, the subjects were asked to be 5 percent below their normal training weight. Blood and urine were collected prior to these tests. Each cardiovascular endurance test consisted of three consecutive treadmill tests to exhaustion.

Significant decreases in total body weight and percent body fat were observed. However very little difference was found when comparing lean body weight during the pre-season and the peak season measurements. Body composition data suggest that the wrestlers were at a net negative caloric balance throughout the wrestling season.

There was a significant increase in the wrestlers' aerobic capacity from pre-season to peak season. This may reflect the wrestlers' increased training volume during the wrestling season. There were no significant changes in the metabolic responses in maximal treadmill tests in peak season at normal training and following a rapid weight loss.

Significant changes were observed in metabolic responses during the repeated tests.

Hemoglobin values were significantly higher in the peak season measurements as compared to the pre-season. A significant increase in serum creatinine and sodium excretion was observed during the weight loss period. During the weight loss period, there were increases in serum sodium, BUN, hemoglobin, serum potassium, excreted potassium and creatinine and urine specific gravity, as well as a decrease in urine volume and pH. The data indicate that the wrestlers were dehydrated during the 5 percent weight loss period. This degree of dehydration appeared to have little effect on performance as measured in the present investigation. Even though few changes in performance were noted as a result of dehydration, it must be emphasized that the subjects who participated in this investigation were highly conditioned collegiate wrestlers. The same degree of dehydration may have resulted in greater changes in a younger less fit population. For these reasons the investigator does not recommend or encourage dehydration among wrestlers.

*APPROVED BY RESEARCH COMMITTEE, NOVEMBER 1983*

*John Kelly, Chairperson*

#### *TALENTS UNLIMITED IN THE CROSBY-IRONTON PUBLIC SCHOOLS, 1981-1982*

*Jeanee M. Simmonds*

This study was conducted to determine the extent to which Crosby-Ironton Public School teachers used the Multiple Talent approach to teaching/learning in their classroom structure and if that use had any impact on students.

A random sample of 20 percent of the student population in grades 2 through 9 was selected to be included in the study. The same subjects were given pre-tests and post-tests in the five talent areas: productive thinking, forecasting, communication, planning, and decision making. Statistics were computed on the pre-test/post-test scores using Analysis of Variance and t-test to determine the mean, standard deviation, mean gain, and level of significance.

The data indicated that 80 percent or more of the students were above average (median) in at least one of the five talent areas.

The combined test results at the elementary level (grades 2-6) showed significant gains ( $p \leq .000$ ) on all five tests. The individual elementary grades showed statistically significant gains ( $p \leq .01$ ) on all tests with the exception of fourth grade and sixth grade on planning and fifth grade on forecasting. The junior high (grades 7-9) combined test results showed a significant gain ( $p \leq .000$ ) in decision making; a significant loss ( $p \leq .028$ ) in forecasting; and no significant difference in productive thinking, communication, and planning. Lack of evidence of implementation at the junior high level and lack of growth in the talent areas are possibly attributed to the lack of use of Multiple Talents in the classroom structure.

Mean scores varied from grade to grade within each test, not necessarily having a higher mean at a higher grade level, indicating that as one gets older one does not have a greater talent capacity.

It is recommended that the Crosby-Ironton School District continue its use of the Multiple Talents program with more use to be sought at the junior high level. It is also recommended that other school districts implement the Multiple Talent approach to teaching/learning.

*APPROVED BY RESEARCH COMMITTEE, AUGUST 1982*

*Russell Schmidt, Chairperson*



## MAXIMAL CARDIORESPIRATORY RESPONSES AND VERTICAL POWER OUTPUTS ASSOCIATED WITH COMBINED AND LEG EXERCISE IN HIGHLY TRAINED ATHLETES

*Glenn M. Street*

This study was conducted to compare maximal oxygen uptakes ( $\text{VO}_2$  max's), carbon dioxide outputs ( $\text{VCO}_2$  max's), respiratory exchange ratios (R max's), ventilations (VE max's), heart rates (HR max's) and vertical power outputs (watt max's) measured during combined exercise with those measured during leg exercise. Highly trained cross-country skiers ( $n = 6$ ) and distance runners ( $n = 5$ ) participated in four continuous, progressive inclined treadmill tests; a ski-walk, a walk, a run and a repeat of one of the aforementioned.  $\text{VO}_2$ 's,  $\text{VCO}_2$ 's, R's and VE's were measured by the Douglas bag method. Except for R max, there were no significant ( $p > .05$ ) differences between tests on the skiers' maximal cardiorespiratory responses and vertical power outputs. The skiers' R max was lower ( $p < .05$ ) during the ski-walk test than during the walk or run tests. Walk and run R max's were equal ( $p > .05$ ). For the runners, there were no differences ( $p > .05$ ) between tests on the maximal vertical power outputs, but their maximal cardiorespiratory responses were lower ( $p < .05$ ) during the ski-walk than during the walk or run. Also, there were no differences ( $p > .05$ ) between the walk and run maximal cardiorespiratory responses. One practical implication of these results is that highly trained cross-country skiers' maximal cardiorespiratory responses are assessed equally well during their off-season by a ski-walk, walk or run test. A second implication is that arm involvement during the aerobic assessment of highly trained distance runners may result in an underestimation of their maximal cardiorespiratory responses.

APPROVED BY RESEARCH COMMITTEE, MAY 1983

*John Kelly, Chairperson*