A SURVEY TO DESCRIBE THE NATURE, THE EXTENT, THE REPORTED DIFFERENCES AND TO ANALYZE FACTORS ASSOCIATED WITH K-3 GRADE BICYCLE SAFETY EDUCATION PROGRAMS WITHIN A 60-MILE AREA OF ST. CLOUD, MINNESOTA

By

Evan Keith Rowe, Jr.

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements for
the degree for

DOCTOR OF PHILOSOPHY

College of Education

1980

ABSTRACT

A SURVEY TO DESCRIBE THE NATURE, THE EXTENT, THE REPORTED DIFFERENCES AND TO ANALYZE FACTORS ASSOCIATED WITH K-3 GRADE BICYCLE SAFETY EDUCATION PROGRAMS WITHIN A 60-MILE AREA OF ST. CLOUD, MINNESOTA

By

Evan Keith Rowe, Jr.

The primary purpose of this study was to describe the nature, the extent, the reported differences and to analyze factors associated with K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota. The "Bicycle Safety Education Questionnaire" was developed with the assistance of a state panel of specialists to solicit K-3 grade bicycle instructor responses concerning classroom and "on-bike" instructional practices offered at the surveyed sites.

The sample population of this study consisted of 101 K-3 grade bicycle instructors in the Central Minnesota area. Final returns revealed that K-3 grade bicycle safety education programs of instruction were conducted in 97 of the 101 surveyed sites.

To determine the presence of significant differences with respect to reported practices of K-3 grade bicycle instructors and reported school and instructor characteristics, the writer contrasted selected school characteristics; i.e. school location -- urban vs.

rural locales, instructor sex, etc. and Kindergarten, grade 1, grade 2 and grade 3 bicycle instructor status versus reported bicycle safety education program components; i.e. course scheduling practices, enrollment levels, etc. contained in the 27 "Bicycle Safety Education Questionnaire" items.

Two types of formats were prepared to present the study findings. A summary and analysis of the frequency responses was presented for each of the questionnaire items as Part I Findings. Chi-square "cross tabulation" analyses, summary interpretations and significant findings were presented for contrasts performed between Kindergarten, grade 1, grade 2 and grade 3 bicycle instructor status and the 27 questionnaire classroom and "on-bike" bicycle safety education program components as Part II Findings. Chi-square "cross tabulation" significant differences were reported at the .05 level with respect to: (1) Four separate school and bicycle instructor characteristics; (2) Eighteen separate K-3 grade classroom instructional components and strategies; and (3) Two separate K-3 grade "on-bike" instructional activities.

Analyses of the study findings led to four major conclusions: (1) Kindergarten, grade 1, grade 2 or grade 3 bicycle instructor programs within a 60-mile radius of St. Cloud, Minnesota, were conducted at 97 of the 101 surveyed K-3 grade sites. However, they were not equally distributed with respect to instructor sex status and Kindergarten, grade 1, grade 2 and grade 3 conducted instructional bicycle safety education programs with classroom and "on-bike" activities; (2) Kindergarten, grade 1 and grade 2 bicycle instructors within a

60-mile radius of St. Cloud, Minnesota, offered a variety of classroom programs and practices; (3) Kindergarten, grade 1 and grade 2 bicycle instructors within a 60-mile radius of St. Cloud, Minnesota, offered a variety of "on-bike" instructional components and practices; and (4) Grade 3 bicycle instructors offered classroom and "on-bike" instructional programs and practices at 97 of the 101 surveyed K-3 grade sites within a 60-mile radius of St. Cloud, Minnesota.

Additional findings relative to school and bicycle instructor characteristics, classroom programs and "on-bike" instructional programs were also discussed.

The "Bicycle Safety Education Questionnaire" could be useful to traffic safety personnel in Minnesota and in other states involved with bicycle safety education evaluation procedures. In addition, study results coupled with improved K-3 grade bicycle instructor in-service teacher preparation programs could assist K-3 grade bicycle safety education programs and administrators with efforts to upgrade bicycle safety education for K-3 youth in the Central Minnesota region.

DEDICATION

This study is dedicated to:

Freda M. Rowe and the late Evan Keith Rowe, Sr.
without whose love, guidance and support this study
would not have been possible,

and

Janice and Evan Keith
wife and son
who, along with his parents,
made the attainment of the degree worthwhile.

Evan Keith Rowe, Jr.
East Lansing, Michigan 1980

ACKNOWLEDGEMENTS

The writer wishes to take this opportunity to thank the many people and organizations who have helped in the completion of this study.

Special appreciation is extended to Dr. Donald L. Smith, his chairman, for many hours of guidance, encouragement, support and assistance which were provided.

Appreciation is also extended to the other members of his committee, Dr. Robert O. Nolan, Dr. Adrian Koert, and Dr. Charles Henley for their time and assistance.

A special note of thanks is extended to Dr. George Farrah and Mr. Randy Kolb of St. Cloud State University. Special thanks is also extended to Dr. Daniel Shoemaker of Michigan State University. These individuals provided direction and support in the conduct of this study.

Thanks is also extended to the K-3 grade bicycle instructors and administrators who so willingly provided time and answers for the completion of the study. Thanks is also extended to Mr. Joseph E. Meyerring, Traffic Safety Unit, Minnesota Department of Education and to Ms. Ann Whitby, typist for their assistance and support during various stages of this study.

A personal note of thanks is also extended to the following families: The Somers' and the Rowe's for their encouragement and support during various stages of this study.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

CHAPTER I

INTRODUCTION

In May of 1976, an initial statewide "Bicycle and Pedestrian Safety Program Report" was mailed to 1748 superintendents in Minnesota by the Department of Education. A tallied summary of responses revealed that 1395 schools returned the survey report.[1]

Specific weaknesses noted of this survey were:

1. No referral was made concerning the use of the Minnesota K-3 Traffic Safety Curriculum Guide.
2. Specific classroom activities used in conjunction with bicycle safety education programs were not identified.
3. Specific "on-bike" laboratory activities were not surveyed; use of "hands on" experiences were not reported.
4. Local bicycle instructors were not identified. Reported results could not be verified in follow-up studies.
5. Numerous elementary schools in the surrounding St. Cloud, Minnesota area were not reported in the data.
6. Specific knowledge and use of bicycle safety education curricula resource material from other states were not surveyed.

Purpose of the Study

It became apparent that a more extensive survey of bicycle safety education activities in selected K-3 elementary grades in Minnesota was needed to obtain the information not gathered in the

1976 study. To accomplish this, it was the purpose of the present study to (1) contact every elementary school within a 60 mile radius of St. Cloud, Minnesota concerning bicycle safety education programs of instruction offered at the K-3 levels, (2) identify specific bicycle instructors responsible for identified bicycle safety education programs of instruction in surveyed K-3 grades, and (3) survey bicycle instructors concerning specific classroom and "on-bike" curricula components.

Importance of the Study

In 1976 a State Bicycle Safety Committee was initially charged with the task of exploring the extent of bicycle safety education programs in Minnesota communities, including the scope of education based activities. The committee was also charged with the task of preparing a state bicycle safety education planning guide for use by community personnel. These tasks were extended into the 1977-78 and 1978-79 fiscal years. Prior to the current study, detailed descriptions and statistical interpretations concerning the extent of reported bicycle safety education program components conducted in K-3 grades were not known.

In addition, efforts to collect specific bicycle safety education program components on a regional basis were not identified as specific Bicycle Safety Committee tasks. However, the specific data obtained in this study concerning the status and extent of K-3 grade bicycle safety education programs of instruction in selected Minnesota elementary schools will provide valuable assistance to committee

members. Knowledge of and assurances that identified bicycle instructor programs will receive additional committee funding may convince schools and communities to continue bicycle safety education activities. Federal and state funds will also be channeled into several surveyed K-3 grade bicycle safety education programs. With accurate accounts concerning specific bicycle safety education programs of instruction in K-3 levels within a 60 mile radius of St. Cloud, Minnesota may better accommodate the efforts of traffic safety experts at state, college and university levels to continue efforts that will assist schools and staff in the development and implementation of bicycle safety education programs of instruction.

Scope of the Study

This study encompassed every elementary school within a 60 mile radius of St. Cloud, Minnesota. The specific target audience included K-3 grade teachers and students that offered and received bicycle safety education programs of instruction.

The study was primarily concerned with the nature and extent of bicycle safety education components in classroom and "on-bike" laboratory activities. Individual K-3 grade bicycle instructors were surveyed with respect to classroom content, including Minesota bicycle safety laws, bicycle riding and safety concepts; bicycle safety education equipment concepts; bicycle care and maintenance concepts; bicycle safety education resource personnel; bicycle safety education audio-visual aids and models utilized; specific grade levels reported; outside agencies utilized; sources of bicycle safety education

program components (curricula, guides); types of bicycle safety education classroom instruction (in-school, after school); length of bicycle safety education classroom programs; time of year offered (Fall, Winter, Spring, Summer, integrated year-round); enrollment indices; and specific classroom strategies employed (e.g., teacher-led student-led, audio-visual presentations, lectures, small group activities, etc.).

In addition, specific "on-bike" activities were surveyed, including: off-road practice or skill test performances; on-street riding trips/hikes; special population "on-bike" instruction; and bicycle hike planning activities. Specific grade levels employed were noted on the survey returns.

Limitations of the Study

1. The sampling parameters of this study were confined to a 60-mile radius of St. Cloud, Minnesota. Hence, results based on a 100% return rate were applicable only to the central Minnesota area. No generalizations to K-3 grade bicycle safety education programs of instruction in other areas of the State could be substantiated. However, because the sampling region approximated a normal distribution of school districts, with features and land patterns found elsewhere in Minnesota where bicycle safety education programs were administered, the writer believed the findings of this study were applicable to other areas of the State with K-3 grade bicycle safety education programs of instruction.

2. The sampling universe was confined to identified bicycle instructors in every K-3 grade school within a 60-mile radius of St. Cloud, Minnesota. Survey results were applicable to K-3 grade bicycle instructors, bicycle safety education programs and K-3 grade students within central Minnesota. However, the writer believed the study findings were applicable to other areas of the State. The sampling area approximated a normal distribution of school districts, features and land patterns found elsewhere in Minnesota where K-3 grade bicycle safety education programs of instruction were conducted.

3. The Minnesota K-3 Traffic Safety Curriculum Guide bicycle safety section served as the primary source of materials and instructional practices surveyed in the "Bicycle Safety Education Questionnaire."

4. Randomly selected K-3 grade bicycle instructors and programs within close proximity of St. Cloud, Minnesota, served in the pilot study and follow-up visitation phases of the study.

5. The panel of specialists utilized in the questionnaire preparation and review phases was comprised of Minnesota citizens actively involved in the development and implementation of the Minnesota K-3 Traffic Safety Curriculum Guide bicycle safety section. These included active classroom and "on-bike" K-3 grade bicycle instructors, State of Minnesota Bicycle Safety Committee members, law enforcement personnel, educators and community support personnel.

Definition of Terms

Terms used in the study were defined as follows:

Bicycle. "'Bicycle'" means every device propelled solely by human power upon which any person may ride, having two tandom wheels, except scooters and similar devices and including any device generally recognized as a bicycle though equipped iwth two front or rear wheels."[2]

Bicycle safety curriculum. An organized collection of instructional materials designed to enhance or improve knowledge and skills concerning the operation of a bicycle usually offered in a classroom and/or environment suitable for instruction of "on-bike" skill activities. For the purposes of this study, the Minnesota K-3 Traffic Safety Curriculum Guide served as the curriculum, and curricular items surveyed.

Bicycle safety education program. A course of instruction equipped with a variety of classroom and/or "on-bike" riding learning experiences for the purpose of assisting children of K-3 grade levels to become good traffic citizens and to use bicycles under a variety of operating conditions. Related "on-bike" activities included rodeos, registrations and inspection programs.

Education. "The aggregate of all the processes by means of which a person develops abilities, attitudes and other forms of behavior of positive value in the society in which he lives."[3]

Elementary school. That period of education imparted from grades kindergarten through the sixth grade within the state of Minnesota. For purposes of this study, this definition was used.

K-3 grades. Kindergarten through 3rd grade inclusive.

K-3 grade bicycle instructors. The certified elementary teacher in each school identified as the bicycle instructor.

"On-bike instruction." Structured learning experience designed to be implemented outside the tradition classroom setting in order to provide "hands on" experiences with actual use of the bicycle under a variety of operating techniques and conditions. The writer used this definition to include environments outside the normal educational classroom setting in order to provide relevant "hands on" learning experiences.

State panel of specialists. In this study, a Minnesota group of citizens actively involved in the development and implementation of the Minnesota K-3 Traffic Safety Curriculum Guide section on bicycle safety education programs throughout Minnesota served as specialists. Individual representatives of the State Bicycle Committee were included in this category, including members with present or past experiences in the operation of bicycle safety education programs of instruction in the related areas of law enforcement, education, and community agency support services (see Appendix M for panel members).

Organization of the Remaining Chapters

A comprehensive review of the literature is reported in Chapter II. This required a survey review of important topics and themes related to the topic of bicycle safety education instruction, specifically educational approaches. Printed sources of information were surveyed in order to collect this material. Specifically, prior

bicycle safety education surveys in Minnesota and in other states, in addition to bicycle safety education curricula resource material from other states, is included. An Education Resources Information Center (ERIC) and National Technical Information Services (NTIS) search helped identify earlier printed sources of materials available in the scope of bicycle safety education instructional (classroom and "on-bike") activities.

Chapter III explains the selection of the sample, the preparation of the questionnaire and the methods used in processing the data.

Chapter IV contains a factual presentation of the data. A narrative description of the results of the data is included with individual tables and charts to summarize the statistical analyses of the specific questionnaire items. Bicycle safety education program content characteristics and individual bicycle instructor and school information are also reported.

Based upon the findings of Chapter IV, the summary, the conclusions, the recommendations, the discussion and the recommendations for further study are presented in Chapter V. Formulated criteria and guidelines prepared by the Minnesota State Bicycle Committee and Sub-Task Force on Bicycle Safety are used to assist in this endeavor.

The final selection of the study concludes with references used as resource material for study completion, as well as noted bibliographical notations. Appendices contain the survey instrument used to collect the data, sampling area characteristics, a list of panel members and additional references and resources.

CHAPTER I: FOOTNOTES

[1]"Bicycle and Pedestrian Safety Program Report," Survey Results, Minnesota Department of Education, 1976, pp. 1-2.

[2]"State of Minnesota Legislature," an act relating to Highway Traffic Regulations, specifically bicycles, motor vehicles and other human powered vehicles, H.F. No. 474, Chapter 739, Legislative Law, signed May 5, 1978, St. Paul, Minnesota, p. 2.

[3]Carter V. Good, ed., Dictionary of Education, prepared under the auspices of Phi Delta Kappa, 2nd ed. (New York: McGraw-Hill, 1973), p. 191.

CHAPTER II

REVIEW OF RELATED LITERATURE

For this portion of the study pertinent literature was reviewed concerning bicycle safety education program evaluation survey techniques. In addition, K-3 grade bicycle safety education printed curricula resource materials from other states were also examined. Important concerns such as bicycle primary graded and ungraded safety education programs, safety pamphlets and curricula were also reviewed.

Survey Techniques

Several survey studies have been conducted of bicycle safety education programs of instruction on local, state and national levels. Surveys reviewed concerning bicycle safety education classroom and "on-bike" laboratory programs of instruction included (1) Annual Fact Sheets compiled by the Minnesota Department of Education and (2) questionnaires utilized as assessment tools in other states.

Department of Education Study

The Minnesota Department of Education has conducted statewide surveys concerning the extent of bicycle safety education programs of instruction conducted in elementary grades through 1976. A sample copy of the latest fact sheet, "Bicycle and Pedestrian Safety Program

Report" was included in Appendix A. The fact sheets, though limited in scope, were studied in relationship to the extent of bicycle safety education programs of instruction. Nine questionnaire items were used to examine the number and nature of conducted programs with respect to bicycle instructor status, bicycle safety education curricula utilized, student enrollment levels, grade levels utilized, time of year offered, program length and laboratory exposures offered. The writer used these questionnaire items in the formation and preparation of the questionnaire.

Surveys from Other States

Use of a questionnaire as a survey tool to determine the status of bicycle safety education "classroom" and "on-bike" activities has been utilized in previous studies by a number of national and state research agencies. Included in this category and described below were The National Safety Council, The American Automobile Association and state and local survey efforts.

Prior to the release of its six hour "All About Bikes" (AAB) elementary school bicycle safety course of instruction, The National Safety Council (NSC) conducted a 1972 pilot study of the course of instruction in thirty elementary school districts around the country. The curriculum writers collected comments from randomly selected bicycle instructors concerning course curricula materials contained in the AAB package in an effort to offer a complete course of instruction to purchasers. The instructor comments resulted in revision of the AAB program prior to its initial release.[1]

A second survey of the AAB program was conducted in 1974 in 236 school districts around the country, prior to modifications and release of a second AAB edition of bicycle safety education materials. The surveyed bicycle instructor comments resulted in the following findings: (1) nearly 20 percent of the sampled schools had not planned to conduct bicycle safety education programs of instruction; (2) 20 percent of the returns indicated planned activities were cancelled and would not be conducted; (3) approximately 30 percent of the returns indicated materials were placed in reference libraries for referral use only; and (4) 30 percent of the returns indicated 1972 purchased materials were not being used. Further instructor comments revealed that: (1) instructor selected topics received the highest possible ratings; (2) technical and student activity topics received the lowest overall ratings; and (3) high ratings were given for visuals and student materials. Instructor comments received in the 1974 study resulted in the following 1974 study recommendations: (1) continued evaluations of in-service bicycle safety education programs and materials; (2) preparation of additional curricula; i.e. visuals and student "on-hands" materials; (3) development of in-service programs for bicycle instructors in curriculum-use strategies; (4) development of additional student evaluation and "take-home" activities; (5) expanded "on-bike" and complex classroom learning activities; and (6) development of additional integrated, "piecemeal" course materials.[2]

The teacher survey response form consisted of a two-page, nine item instructor response checklist concerning course format, teacher preferences, and enrollment data. Classroom and "on-bike"

specifics were not surveyed. In addition, a twenty-three item student checklist and opinion-oriented student report form was included as part of the two page teacher response survey. The aggregate instructor responses were not reported as summary data; hence, this information could not be reported (see Appendices B and C).

An American Automobile Association study entitled "Special Survey on Bicycling and Bicycle Accident Records" was conducted in 1971 and 1972 by the Auto Club of Southern California and the California State Automobile Association as a part of a nationwide "Pedestrian Safety Inventory Report" (see Appendix D). Response survey forms were sent to 252 cities. An integral portion of the questionnaire included 11 items concerning local bicycle safety education program and activity instruction offered by schools and civic organizations. Returns from 125 cities revealed that: (1) over 50 percent of the reported specific school activities included rodeos, inspections and lecture activities; (2) nearly 25 percent reported regular inspections, rodeos, lectures, quizzes and riding tours repeated on a regular basis; (3) 7 percent reported bicycle safety education activities conducted by school and civic personnel; (4) four communities reported civic agencies conducted "on-bike" activities without the aid of school personnel; (5) 13 communities extended bicycle safety education activities beyond the junior high level; and (6) summary accident involvement data emphasized the need to structure bicycle safety education programs beginning in the elementary grades.

A 1976 "Bicycle Safety Education Concepts" survey instrument was included as an integral component in an attempt to determine the

status of bicycle safety education experiences offered by Wayne County, Michigan elementary grade school teachers. A 12-item checklist constituted the approach used to measure bicycle safety education classroom and "on-bike" activities. An open-ended question at the close of the survey provided respondents the opportunity for additional comments and bicycle instructor reactions concerning local programs and survey techniques (see Appendix E).

Survey results were later collected and analyzed with the assistance of the Michigan Department of Education concerning the following bicycle safety classroom and "on-bike" areas and procedures of instruction: bicycle safety enrollment levels, bicycle care and maintenance concepts, bicycle safety instructional strategies, bicycle safety laws, bicycle safety riding and safety concepts, bicycle safety equipment, bicycle performance and skill test measures and bicycle accident data.

Studies on Classroom and "On-bike" Practices

Numerous studies have been reported concerning the justification and extent of bicycle safety education instruction programs. Specific documents and studies reviewed concerned (1) research publications and documents reported by governmental and research agencies, (2) documental citings, and (3) NTIS, ERIC and Dissertation Abstracts sources.[4]

A 1975 study titled "City of Santa Barbara, California Bicycle Safety Program Study and Implementation Report" identified the existence of bicycle safety education junior high school programs

of instruction conducted in the Santa Barbara, California junior high schools. The community-wide approach included bicycle rodeos, advance publicity (media spots), bicycle rider requirements (age limits, riding permits) and improved bicycle safety education curricula; i.e. simulation films and instructor manual. There was an overall reduction of observed bicycle riding violations following the implementation of the junior high school bicycle safety programs of instruction and on the street enforcement patrols. Observed violations decreased from 55 percent to 21 percent for all bicycle riders.[5]

Bicycle safety education programs conducted in K-3 grade schools and nearby communities were reported in a March 1976 "Bibliography of Highway Safety Literature" publication. Specific references to bicycle safety education activities revealed five documented research reports prepared with the assistance of automobile clubs, clinical physicians, school districts, state governments and federal funding agencies. The articles described concerned efforts on the part of various agencies to establish and upgrade the classroom or "on-bike" rodeo activities in schools, in addition to community service activities; i.e. parental involvement, enforcement measures, funding efforts and public service announcements. Improved research efforts to collect bicycle accident experience data were described.[6]

International bicycle safety education efforts provided by school teachers for pre-kindergarten and elementary youth have been documented in research literature. A 1978 research report, "The Ability of Preschool and Schoolchildren to Maneuver their Bicycles," conducted by the National Road and Traffic Research Institute and

other researchers in Sweden studied specific "on-bike" riding factors. These were exhibited by 144 school-aged children, ages 5-13, in nine separate "on-bike" laboratory skill performance stations while maneuvering, accelerating and braking. Study results revealed participant age was the most important factor in determining overall cycling ability. Riding frequency and bicycle design/fit were also important considerations. Post-test interviews indicated cycling began around five years of age. The youths commonly used bicycles as the primary means of transportation whenever possible.

Despite the reported riding frequency, only 13-year-olds could satisfactorily perform all tests. Those under 8 performed very poorly in most skill areas, despite using their own bicycles. It was a recommendation of the researchers to prohibit children under 8 from riding in traffic mix areas. The study failed to determine how early children would be able to cycle with proper training with a bicycle more suited to their physical stature. Specific test situations were: looking backwards while cycling, cycling slowly between two lines, cycling between wooden block pairs, cycling with one hand, relaying cycling (movement of tennis balls from one cone to another), cycling through narrow gates, mounting from the left and right, accelerating tests and braking tests. Each skill area was determined to contain proficiencies related to those necessary for travel in actual traffic situations. In addition, all tests were carried out on off-street asphalt surfaces in separated areas.[7]

In a 1978 study, "Bicycle Riding Practices: Implications for Safety Campaigns" by Robert E. Dewar, he observed and recorded

specific riding behaviors practiced by 200 bicyclists of various age levels. Results of the study revealed major performance errors committed by bicycle riders of different age groups which were addressed in follow-up bicycle safety education activities. Data revealed three types of dangerous behaviors that should be addressed in any safety education campaign: (1) lack of respect for other vehicles on roadways (signal neglect, failure to head check on lane changes); (2) riding on the wrong side of the road; and (3) poorly equipped bicycles. Results also indicated the most important target audience to be addressed was the younger cyclist, under 12 years of age. Study recommendations suggested: (1) use of brief television shorts that depict errors common to certain target groups (age levels); and (2) demonstrations of correct riding behavior for motorists and bike riders.[8]

Colin G. Drury, in a 1978 study titled "The Law and Bicycle Safety," referred to the need for measuring the learned outcomes, in addition to the taught outcomes, of bicycle safety laws and regulations among users. Paper-and-pencil tests were administered to elementary grade students. In addition, recognition awards for high achievement scores were given by the teachers as added incentives for achieving increased law knowledge and conformance test scores. In addition, teacher efforts to upgrade parental involvement programs in bicycle safety education school-related activities; i.e. tours, "on-bike" rodeos were deemed necessary in order to enhance successful bicycle riding practices by youths.[9]

A 1975 Helsinki, Finland study, "Investigation into Use and Outfit of Schoolchildren's Bicycles," measured the use of various pieces of safety equipment on 600 bicycles through visual inspection and interviews. Study results indicated 400 children and parents were unaware of the importance of prescribed and recommended bicycle equipment, or of efforts to upgrade the knowledge and handling abilities of bicycle riding by youth in nearby communities. Study recommendations included: (1) teacher directives to plan specific bicycle riding routes and practices for school-aged youth and (2) restrict riding practices for youngest school-aged children.[10]

Published accounts concerning funding and training efforts to upgrade bicycle safety education classroom and "on-bike" programs were also reviewed. The United States Department of Transportation has, in recent years, participated in national, state and local efforts to upgrade bicycle safety education training programs. A few of the specific funded efforts included: (1) "Identification of Specific Problems and Countermeasure Approaches to Enhance Bicycle Safety," a project which was designed to provide recommendations for training programs, public information programs, regulations and structural design standards for use by educators and government officials. Anacapa Sciences prepared the lengthy document primarily for use with teenagers and adult target groups;[11] (2) "Identification and Development of Countermeasures for Bicyclist/Motor Vehicle Problem Types," a project which was designed to develop countermeasures in three areas: training programs, public information campaigns and education and enforcement of traffic regulations by reviewing accident experience

data and interview data. No specific results have been released to date. Dunlap and Associates were instructed to develop a model training program and study bicycle regulations and public information material;[12] (3) "Regional Workshops on Bicycle Safety," a project which was conducted in cooperation with the Consumer Product Safety Commission to provide comprehensive assistance to communities and states in developing bicycle safety conferences and programs through a series of ten regional workshops.[13] In addition, a compatible contract released by the Department of Transportation and Consumer Product Safety Commission assisted state and local governments in developing bicycle safety programs for local use. Final reports were published and released for use by state officials. Prior to convening ten regional workshops for national and state experts, a "Bike-Ed" conference was held in Washington, D. C. in May 1977. Historically, the Consumer Product Safety Commission and the U. S. Department of Transportation have served as the leading Federal agencies responsible for promotion and upgrading bicycle safety education efforts. The 1977 national conference represented a national cooperative effort between the two agencies and outsiders to address and combat the serious national problem of bicycle accidents, injuries and deaths.[14]

A comprehensive review of NTIS Distribution Center publications, ERIC documents and Dissertation Abstracts sources revealed the existence of the following documents and studies related to bicycle safety education programs conducted in K-3 graded and nongraded levels.

(1) Travel on! Mini-Units and Learning Activities on Transportation for Grades K-3 (Jane Lawson, ABT Associates Inc.,

Cambridge, Massachusetts, 1977). This K-3 curriculum manual included public transportation, transportation and the environment, transportation safety and bicycling safety topics of instruction in thirteen mini-unit presentations. Each of the mini-units contained lesson plans, teacher activities, student learning activities and implementation strategies. A "Learning to Ride a Bike" mini-unit contained in the K-3 manual was designed to be integrated within language arts, mathematics and social studies programs. Supplemental activities included independent learner assignments, quiz-type and evaluation suggestions, use and demonstration procedures and suggested resources. Teacher reproducible masters were also included for classroom use.[15]

(2) K-9 Traffic Safety Resource Curriculum. Level B. Professional Guide (North Carolina State Department of Public Instruction, Governor's Highway Safety Program Office, Raleigh, North Carolina, 1975). This level B guide contained materials for Grades 2-3 teacher and student uses. The content included pedestrian, bicycle, school bus and passenger safety units that stressed perceptual and judgmental skill development. The bicycle safety education unit included suggested learning activities, concepts, objectives and background content information, while artwork and supplemental worksheets were included for teacher use. Additional outside activities, resource lists and subject area cross reference charts completed the unit.[16]

(3) K-9 Traffic Safety Resource Curriculum. Level A. Professional Guide (North Carolina State Department of Public Instruction, Governor's Highway Safety Program Office, Raleigh, North Carolina, 1975). This Level A guide contained bicycle safety education program materials

for use in grades K-1. Bicycle safety was included as an integral unit of instruction along with pedestrian safety, school bus safety and passenger safety. Each unit included concepts, learning objectives, course outline, content material, suggested learning activities, artwork and reproducible worksheets. A supplementary resource list was included.[17]

(4) School Pedestrian Safety for Elementary Schools (Jean Flagg, Walter Hawkins, Suffolk County Board of Cooperative Educational Services III, Dix Hills, New York, 1973). This loose-leaf curriculum guide was a result of the combined efforts of many people in the Suffolk County, New York school district under terms of a grant awarded to the school district by the Suffolk County Traffic Board and financially supplemented by the Suffolk County Organization for the Promotion of Education (SCOPE). Specific units covering pedestrian safety, bus safety and bicycle safety were included. Teachers were encouraged to select materials for integration into their own classes. Over 350 pieces of artwork were also included for teacher duplication, transparency development and student use. In a pilot study of the materials, lower grade level students profited from individual attention provided by upper elementary students in classroom instruction sessions. The bicycle safety section included a storybook account of the "Mice Family" portrayed in ten separate reading sections. The guide was developed as a teaching tool, and not a panacea for all teachers. Bicycle topics included in the guide covered bicycle history, bicycle selection and fit, bicycle parts and

types, riding habits, bike riding skills, night riding, bicycle manners and behaviors, bicycle accessories, bicycle skills and bicycle maintenance and care procedures. Suggested pre- and post-tests, outside learning activities and resources were also included in the 116 page document.[18]

Curriculum Guides

The following state and school district curriculum guides were reviewed to identify bicycle safety education classroom and "on-bike" topics of instruction which could assist in the construction of specific questionnaire items. The curricula were grouped by state and presented in alphabetical order.

K-12 Traffic Safety Education Program for Alaska (Alaska State Department of Education, 1974)

This guide included pedestrian, passenger, school bus, water and boating, first aid, alcohol and traffic, drugs and traffic, snowmobile, motorcycle, driver and traffic and bicycle safety topics of instruction. In addition, numerous outside learning activities, evaluation procedures and reference lists were included. It was initially prepared as the first step in the development of a comprehensive statewide curriculum in traffic safety for K-12 students. Units of traffic safety instruction were included to allow teacher flexibility in selecting specific safety topics for classroom and "on-bike" instruction. A teacher improvement/reference/rationale section was included in the guide. Instructional materials, state requirements and teacher reproducible masters were also included in the notebook-styled curriculum.

California Guide to Bicycle Education
(California State Department of Education, 1977)

Based on the Anacapa Associates' Santa Barbara Bicycle Accident Study data, the bicycle safety education section emphasized "on-bike" activities for 4-6 grades that stressed hazard recognition, scanning and motor skill development. It also included parental involvement efforts for lower grade level instruction. Supervised on-road training practices were offered for upper elementary youths. Additional worksheets and follow-up activities were included for teacher selection.

Colorado Traffic Safety Education Guide
(Colorado State Department of Education, 1974)

This guide was developed after extensive referral to the Illinois Traffic Safety Education Guide and Washington Traffic Safety Education Guide. It was divided into four major sections. The authors included organizational, administrative and supervisory responsibilities. Specific topics included driver education and other related traffic safety subject areas, topical safety areas related to the nature of the highway transportation system, control and information processing tasks, traffic mix patterns, operator performance tasks, readiness and familiarity tasks, critical situations, accident causation and other roadway (bicycle, motorcycle, etc.) participants. Bicycle safety materials included in the guide consisted of bicycle selection and fit concerns, care and maintenance procedures, bicycle riding practices, security and storage procedures and traffic mix responsibilities as topics for classroom and

"on-bike" study. Appendices included bicycle safety resources and bibliographical lists.

Illinois Traffic Safety Education Guide
(Illinois State Department of Education, 1969)

This extensive traffic safety education curriculum included detailed activities and games designed to be used within existing pre-kindergarten and grades 1-8 by teachers and students. The 3-ring notebook design led to the development of other state curricula and programs of instruction for elementary and secondary levels. The Illinois guide offered introductory statements, teaching aids, reference material, lesson plan formats, learning activities and reproducible masters. Specific bicycle safety content covered history, nomenclature, maintenance, signs and markings, riding habits, classroom and "on-bike" tests and teacher information material for K-8 levels. Presentations for other safety-related areas included recreation, home, passenger, pedestrian and bus ridership.

Safety Education Units for Illinois Schools
(Illinois State Department of Education, 1969)

This guide included bicycle safety as a component of a comprehensive traffic safety program, along with recreational safety, home safety and school safety for K-3 levels. Separate traffic safety presentations were offered for each grade level in the following teacher and student formats: subject/content headings, introduction/objectives/vocabulary lists, teacher instructions/use methodologies, specific units/content/themes, specific objectives/

integration uses, teaching materials/learning activities, reproducible masters and evaluation suggestions. Bicycle safety topics included sizing concerns, equipment and storage practices, riding habits and bicycle laws. A copy of the state Driver's Manual was also included.

Indiana K-6 Traffic Safety Education Curriculum
(Indiana State Department of Education, 1975)

This guide included bicycle safety as a K-6 traffic safety unit, plus offering instruction in pedestrian safety, school bus ridership and vehicle passenger safety. Activities were developed to evoke "decision-making behaviors" with respect to roles of the bicyclist in the transportation system. It was designed to be integrated within the existing curriculum, and included cross-reference charts. The authors provided specific activities for use in the K-1, 2-3 and 4-6 grades to meet individual student needs. Reproduction masters, a suggested bibliography, episode formats, specific objectives, teacher content and suggested outside activities were included.

A Traffic Safety Multi-Media Program K-12
(Kokomo-Center Township Consolidated School Corporation, Kokomo, Indiana, 1973)

This guide was developed as a comprehensive driver and traffic safety education K-12 multi-media program for Kokomo-Center Township, Consolidated School Corporation, Kokomo, Indiana. It was financed by a grant from the state of Indiana. The authors prepared 22 sections in the following topical areas: safety patrol,

pedestrian, bus, bicycle and pre-driver education for the K-12 grades. The guide also included a copy of the "Indiana Driver's Manual." An introductory section included the project description and rationale, letters of endorsement, acknowledgment and appreciation remarks. The guide reinforced K-3 grade bicycle safety classroom instruction with "on-bike" activities for 4-8 level youth. Learning experiences for the Kindergarten level in pedestrian, bus ridership, bicycle and vehicle riding exposures for youth in the Kokomo, Indiana area provided meaningful, learning opportunities and additional study guides for K-8 grades in multi-media (scripts, local activities and objectives) were included.

K-6 Traffic Safety Education for Iowa Schools
(Iowa State Department of Education, 1975)

This guide included a separate section on bicycle safety designed to assist teachers in the state mandated bicycle safety instruction requirement for K-6 youth. It included a variety of activities to meet individual needs in providing bicycle topics of instruction within existing K-6 subject areas or for use as a separate subject area for K-6 youth. In addition to bicycle safety, materials in pedestrian, school bus passenger, automobile passenger and mini-bike safety were provided. Individual grade level material was offered for teacher selection. Specific bicycle content material covered selection, history, uses, nomenclature and riding habits.

Teacher-use formats were repeated for each grade level, and included basic concepts, introductory statements, learning

principles/use descriptions, reproduction master cards and a resource section. A bicycle safety handbook, introductory section and review section were offered for each grade level.

Bicycle Safety Club Handbook for State of Iowa (Iowa State Department of Education, 1975)

This guide was developed to assist teachers, parents and others in initiating extracurricular bicycle safety activities. It was used to accompany a bicycle safety section of the K-6 Iowa Safety Curriculum Guide. Resources and outside learning experiences were added in the appendix section. Descriptions of bicycle clubs, activities, and appendices were included. Appendices contained guidelines, club materials, suggested activities, programs, bicycle nomenclature, inspection and maintenance concerns, ordinance formulas, "on-bike" activities and evaluation procedures.

School Pedestrian Safety for Elementary Schools (SCOPE/BOCES) (Board of Cooperative Educational Services, Suffolk County Organization for the Promotion of Education, Suffolk County, Iowa, 1973)

This curriculum was initially designed as a regional educational program, sponsored by the Board of Cooperative Educational Services I, II, and III of Suffolk County, Iowa (BOCES) in cooperation with the Suffolk County Organization for the Promotion of Education (SCOPE), to further the understanding of good safety practices. Bicycle safety material was included along with materials on pedestrian safety and school bus riding safety practices. Teacher flexibility was designed into the integrated style materials, which

included over 350 pieces of art work masters. Teachers were encouraged to supplement content materials with supplemental classroom activities; e.g. assignments, stories. Initial pilot testing of the curriculum utilized fifth and sixth grade students in assistance type roles to provide instruction to K-4 grades. Fifteen stories in pedestrian safety, 20 visuals on school bus safety, and 10 units of animated bicycle safety adventures ("The Mice Family") comprised the curriculum. The bicycle safety unit incorporated independent student learning activities in 12 bicycle topics of instruction for K-3 grades.

The Kentucky Bicycle Driver's Guide
(Kentucky State Department of Education, 1975)

This 30-page manual was initially designed for use by bicyclists of all ages. The guide presented traffic laws, safety rules, equipment, highway signs and traffic control signals to insure safe operation of bicycles on state streets and highways. A parental responsibility section was included to assist adults in the expanded bicycle education process. Safe riding practices, skill activities, hazard avoidance and a bibliography section were also included.

Maryland Safety Instructional System
Teacher Guide to Bike Basics
(Maryland State Department of Education, 1973)

This material was designed to foster development of psychomotor skill development, decision-making skills and motor-skill coordination in emergency reaction situations. Bicycle safety materials were included within individual pre-kindergarten and Grades

1-8 volumes. Bicycling size and fit concerns, bicycle safety equipment and storage and fit topics were presented. Additionally, a separate "Teacher's Guide to Bike Basics" section and a two-frame filmstrip presentation for second grade audiences was included in the curriculum. The program was designed for integration within existing classes and offered cross-referenced charts for teacher implementation. An optional 65-page pamphlet of state rules and laws for use with beginning audiences was provided. An updated "Way to Go" instructional television series for 5-8 year olds included "Bike Basics" materials concerning rules and laws in pamphlet and filmstrip format.

Ride On! Pedal On!
(Transportation Consumer Education for Adults, Cambridge, Massachusetts, 1975)

Individual grade level learning activities were developed to offer instruction in the safe use of the bicycle as a means of transportation by bicyclists of all ages. Bicycle materials focused on riding rules and rationale for bike user behaviors. Upper elementary approaches focused on role-playing activities concerning law violations and riding errors. K-3 and 4-6 grade presentations centered on such larger transportation concerns as public transportation, safety, transportation, environment and bicycling practices. Separate volumes covering bicycling and transportation uses were presented for use in the 6th grade.

Curriculum Guide for Safety Education, Grades K-6
(Michigan State Department of Education, 1973)

This guide was developed to promote the acquisition of health and safety habits in K-6 grades. It was designed to be implemented within other subject areas included in the elementary school grades. Such practices were hoped to foster good citizenship and conservation of human values, a healthy environment and to continue the minimization of accident involvement. It offered a comprehensive approach to health and safety education that offered content, learning experiences, behavioral objectives for K-3 and 4-6 grades and references and resources for several safety areas. Bicycle safety materials were included as an integral facet of traffic safety. Specific bicycle safety material for use in K-3 grades centered on bicycle riding and use procedures, bicycle law obeyance activities and selection and fit concerns. Fourth through sixth grade bicycle material included bicycle law and regulation practices, bicycle equipment concerns, bicycle license and registration procedures, bicycle operation, bicycle care and maintenance practices, skill and "on-bike" tactics and bicycle violation occurrences. The guide also contained a list of supplementary bicycle resource materials to increase active learner participation efforts by instructors, families and community personnel.

The State Department of Education also prepared a Traffic Safety Education Curriculum Guide, Grades 7-9 to promote the attainment of health and safety habits by youth in grades 7-9. Bicycle safety instruction topics included bicycle riding and use practices,

bicycle law and equipment maintenance practices, bicycle license and registration procedures, bicycle skill testing procedures and accident investigation drills.

Minnesota K-3 Traffic Safety Curriculum Guide
(Minnesota State Department of Education, 1970)

The State of Minnesota developed this guide to serve as a teacher resource tool to promote K-3 youth survival opportunities in the traffic safety related areas of pedestrian, vehicle passenger, school bus and bicycle safety. Specific safety areas, topic statements, subject area applications, implementation timetables, lesson goal statements, background activities and suggested follow-up activities comprised the safety unit formats. A preliminary review of other state traffic safety curriculum guides occurred prior to the development of the Minnesota guide. Specific references to bicycle safety included bicycle riding, care and maintenance concerns, driver responsibilities, size and fit concerns, equipment needs, laws/signs/markings, prohibited driving practices, hazard recognition, passenger regulations, nighttime riding practices and emergency care procedures. Individual grade level adhesive-backed posters depicting each safety-related area were included for instructor use in separate cellophane packages. Teachers were encouraged to integrate classroom and "on-bike" materials in existing core subjects from the twenty-two bicycling units.

The Minnesota Bicycle Driver's Guide
(Minnesota Department of Public Safety, 1978)

This 30-page manual contained bicycle traffic laws, safety rules, recommendations, highway signs and signals common in cycling. In addition, a parental responsibility and involvement section was included to assist adults in the promotion of bicycle safety. A bicycle driver's test course was included for "on-bike" activities.

Traffic Education for Montana Elementary Schools -- Bicycle Safety
(Montana State Department of Education, 1974)

This guide was developed to assist teachers in processing instruction in traffic safety curriculum areas in the K-6 grades. It contained instructional aids and resource materials for use in existing subject areas. It was initially developed in 1963 for teacher in-service sessions, and pilot tested in 12 elementary schools prior to distribution and use. It was prepared in loose-leaf binder style and presented in the following format: preface, table of contents and style; format/description; informational sheets (e.g. problem solving methods/animated cartoon descriptors "Safety Friends"); bicycles and traffic mix concerns (e.g. traffic control signs, signals, pavement markings); applied instructional areas (e.g. charts); decision-making process descriptions and uses (e.g. bicycle courtesy, signals, blind spot checks, weather conditions and hazards, hazard recognition); traffic interaction situations (e.g. intersections, emergency vehicles); and highway user concerns (e.g. safety operator). The authors utilized a management-by-objective strategy in conjuction with a traffic safety

decision-making process activity (Identification, Prediction, Decision, Action). They encouraged the use of outside agencies and assistance when practical. They listed educational learning processes to facilitate learning experiences (repetition, practice, modeling, etc.). Specific units were arranged according to appropriate instructional materials, teacher use/information sheets and appendices. Color coded information sheets, topic format sheets and reinforcement activity sheets assisted teachers and students.

Professional Guide: K-9 Traffic Safety Curriculum, Levels A, B, C, D (North Carolina State Department of Public Instruction, Governor's Highway Safety Program Office, Raleigh, North Carolina, 1975)

This guide was developed as a part of an eight point plan to increase pedestrian and bicycle safety traffic activities. Guidelines were offered to implement state and community programs to address the problem in the areas of community planning, highway and traffic engineering, enforcement, public information and education. Material was based on accident involvement figures to prepare timely, usable, K-9 pedestrian, bicycle, passenger, motorcycle safety and driver education preparation instructional materials. University traffic safety personnel, state agencies, teachers and school administrators from four counties prepared instructional techniques and concepts in several developmental workshops. The guide became a useful tool to aid teachers in implementing a balanced dynamic traffic safety program responsive to the needs of youth and instructors in the state. It was prepared in a loose-leaf binder style.

The material was developed to process identification, recognition and decision-making procedures for youthful pedestrians and bicyclists. Specific objectives were developed to measure the progress of youths as functioning traffic citizens, their knowledge of the traffic environment, their ability to identify and assess hazards, their ability to react to hazards and their ability to display appropriate behaviors in all traffic situations. In addition, specific unit objectives, safety activity checklists, reproducible masters, topical material; i.e. content, suggested activities, supplementary activities and resource lists were included. Teachers were encouraged to include instruction in these traffic safety related areas as a part of existing subject material.

The Bicycle Driver's Guide
(Ohio State Department of Education, 1975)

This 30-page pamphlet was initially developed for use by youth and adult bicyclists to assist them in processing state traffic laws, equipment, highway signs and traffic control devices necessary in safe bicycle operation. A parental responsibility and involvement section was also included. Specific bicycle driving hazards and a bicycle bibliography was also included to serve as a useful classroom tool.

Oklahoma Curriculum Guide and Student Handbook
for Teaching Pedestrian Safety Education
(Oklahoma State Department of Education, 1973)

This guide provided teachers with information and resources to assist teachers in providing a comprehensive program of pedestrian

safety for Oklahoma Youth at the K-3 levels. Content was presented in a colorful cartoon style that depicted the actions of "Scotty the Safety Scarecrow." Animated drawings provided safe advice for children's understandings, plus numerous exercises for elementary youth. Integration was the desired strategy for teacher implementation. A specific format included introduction, goal/purposes, acknowledgements, content material, suggested projects, learning activities, bibliography/resources and reproducible student exercises. The subject matter was cross-referenced for integration use. No specific bicycle safety education activities were included in this guide. However, reference to bicycle safety instruction did appear in content discussions and teacher introductory remarks.

Traffic Safety Education for Oregon Schools, K-3; and
Traffic Safety Education for Oregon Schools, 4-6
(Oregon State Department of Education, 1973)

These two state handbooks were adapted largely from the Illinois Traffic Safety Education Guide for the purpose of assisting teachers in the implementation of effective safety education programs in pedestrian, bicycle, car passenger and school bus passenger safety. It was also designed to aid teachers in processing traffic survival skills (added as a specific Oregon graduation requirement). Suggested classroom activities were designed to assist students in minimizing complex and hazardous survival behaviors. Handbook units were organized according to specific program goals and competency statements (performance indicators spelled out in Oregon graduation requirements tables). The guide encouraged teachers to develop

additional instructional materials not included in activity sections. A K-3 grade handbook formed the basis for the instructional program in 4-6 levels in four safety areas, with the focus on Oregon rules of the road and related bicycle laws. Handbooks were offered for instruction in the first, second and third grade levels. In addition, an appendix of reproducible masters and the Oregon law handbook were included for teacher use. The specific handbook format offered unit competency and goal statements, suggested teaching aids, specific lessons (topical subject heading, program and course goals), suggested content, specific performance indicators (Oregon statutes), subject area applications, handbook materials and learning activities. Also included were specific evaluation procedures for "on-bike" skills when used in conjunction with classroom materials. "On-bike" performance evaluation procedures were listed as desirable for teacher use, as compared to oral or written procedures, when possible.

South Carolina Department of Highways and Public Transportation--South Carolina's Bicycle Driver's Handbook (South Carolina Department of Highways and Public Transportation, 1978)

This 24-page handbook for youth and adult bicyclists of South Carolina was developed by the State Department of Highways and Public Transportation to assist bicyclists with state laws, safety devices, maintenance and proper cycling practices related to safe bicycling. It was also designed to assist parents with classroom-related bicycle riding practices. It included verbal and animated drawings to assist the reader with bicycle model/size/fit concerns, required equipment, laws and regulations, maintenance procedures,

security and storage procedures, registration and licensing procedures, bicycle history, riding/driving concerns and "on-bike" techniques.

Washington Traffic Safety Education Guide
(State of Washington Department of Education, 1973)

This curriculum guide was developed to assist teachers and other users in the development, expansion and improvement of competency-based traffic safety education programs of instruction. Bicycle safety materials were presented as an integral aspect of the larger highway transportation system. Specific material was presented in the following format: introductory statements, basic control tasks, stored information, human functions, traffic mix concerns, operator performances, critical system tasks, membership functions, learning activities, learning processes, program phases, instructional scheduling, student learning activities, entry and exit criteria and additional instructional facilities. Much of the material was further divided into individual student Learner Activity Packages (LAPs) for independent use.

State of Washington Bicycle Driver's Guide
(State of Washington Department of Education, 1975)

This 30-page manual was prepared for bicyclists of all ages. Traffic laws, safety rules, bicycle equipment and signs and signals were included to assist with safe bicycling procedures. A parental involvement activity section was added to assist adults with the classroom and "on-bike" processes. Teacher resources, hazard

identification and exercises and safe riding practices were also included.

Safety Programs Guide for West Virginia Schools
(West Virginia State Department of Education, 1971)

This guide was developed under the direction of a 1971 state mandate to provide a comprehensive program of safety and safety education in all schools and grade levels. Materials were developed by the State Department of Education in the 1973-74 school year. Traffic safety education specialists, county school administrators and others developed policies for safety education. These individuals designated the Civil Defense Office of Education as the responsible agency for implementation of the guidelines. Four separate units were prepared for educational uses. Part I was an Administration and Coordination Guidelines section which stipulated five areas for compliance within a comprehensive school safety program, i.e. environmental, safety, safety services-reporting, inspecting and safety program evaluation. In addition, detailed staff and performance responsibilities were included. Part II contained specific bicycle safety education curriculum resource units which contained a wide range of teacher suggestions and activities for K-6 elementary grades.

Traffic Safety K-12 Curriculum Guide for Wisconsin
(Wisconsin State Department of Public Instruction, 1972)

This guide was developed to assist teachers with a state requirement to provide accident causation instruction in K-12 grades. The teachers were encouraged to provide instruction within

existing subject areas. Part II contained teaching ideas and strategies employed in traffic safety educational settings (including philosophy, learning strategies, student activities and supplemental student learning activities). No specific mention of bicycle safety content was included in this guide. However, numerous referrals to related traffic safety education topical areas were included.

Wisconsin Bicycle Driver's Guide
(Wisconsin Department of Public Instruction,
Governor's Office of Highway Safety Programs,
Madison, Wisconsin, 1978)

This 30-page manual contained bicycle traffic laws, safety rules and bicycle equipment concerns for use by bicyclists of all ages. A parental involvement section was included to assist adults with classroom and "on-bike" riding practices. Teacher resources, hazard recognition experiences and safe riding practices were also included in the manual.

Bicycle topics of instruction for use in K-3 grades included bicycle selection and fit concerns, bicycle rules of the road, bicycle riding habits, bicycle safety equipment concerns and bicycle maintenance procedures. Safety material for normal and necessary integration within existing subject material was included in Part II. The document was field tested for over six months in seven counties with over 200 teachers prior to actual use and distribution. Section III contained suggested secondary level activities and strategies for implementation with the 21 units listed. Section IV included a comprehensive list of K-12 resources for use by teacher

and student audiences in a highly usable, and consistent format; resource by grade, major concentration area, focus area served (home, school, community), audience and audience-age.

Project T.R.A.F.F.I.C.
(Wisconsin State Department of Public Instruction, 1976)

The Madison, Wisconsin public schools and the Wisconsin Department of Public Instruction jointly developed a traffic safety curriculum for statewide use. The writers included bicycle safety as an integral component that included bicycle rules and hazard perception drills. Bicycle activities were presented in a two volume, pre-kindergarten through twelfth grade curriculum guide designed to be used within existing subject areas.

Privately Produced Programs

Several commercially produced bicycle safety curriculum guides were reviewed relative to classroom and "on-bike" activities offered in the K-3 grades. Bicycle topics of instruction were examined for possible inclusion as questionnaire items.

AETNA's Pedestrian/Bicycle Safety Program
(Aetna Safety Instructional Services,
National Offices, Binghampton, New York, 1977)

This cassette/filmstrip curriculum was developed to actively involve K-3 youth in classroom, bicycle and pedestrian safety activities. The four units of instruction included bicycle driving practices plus operator attitude formation strategy development exercises. The total program included visuals, teacher guides, reproducible masters and student response activities.

All About Bikes: A Bicycle Safety Program
(National Safety Council, National Offices,
Chicago, Illinois, 1971, 1972)

The National Safety Council initially produced a comprehensive six hour bicycle safety education elementary graded curriculum guide following a pilot test of partial instructional materials in Chicago, Illinois area schools (see earlier discussion in Chapter II, Surveys from Other States). Revisions performed in 1972 created 58 visual aids, 36 contrived incidents, two teacher booklets and a series of learning experiences concerning bicycle laws, bicycle driving experiences and accident analysis experiences. In addition, supplemental student activities were included in the 8-hour program. An animated bicycle film was available for use in K-6 grades.

AAA Teacher's Guide to Bicycle Safety
Activities and Projects
(American Automobile Association,
National Offices, Falls Church, Virginia, 1977)

This program contained a series of creative learning activities in bicycle safety to assist instructors in correlating elementary subjects with bicycle safety materials for Kindergarten through eighth grade youth. Several bicycle instructional activities included teacher information messages, classroom implementation strategies and bicycle use and riding habits.

Bicycle Safety Program - Basic
(Milner-Fenwick, Inc., 3800 Liberty Heights Ave.,
Baltimore, Maryland, 1976)

This audio/filmstrip presentation program prepared for educators included three major sections on bicycle safety related

topics of instruction. Hazard identification strategies and decision-making skills were emphasized in numerous accident avoidance and analysis sequences designed to be used within existing subject areas. The bicycle safety program presented bicycle laws, bicycle selection concerns, bicycle driving habits and bicycle maintenance and care procedures in a 10-filmstrip, teacher guide and spirit master format. The commercially prepared materials were specifically geared for 2-6 grade use.

Cub Scout Bicycle Safety Program
(Boy Scouts of America National Office,
North Brunswick, New Jersey, 1977)

This leader training activity package was prepared for K-6 and adult audiences to foster growth and provide training for Cub Scouts in bicycle safety riding practices in group training sessions. The objectives of the month-long program were developed to enable each participant to receive special instruction in bicycle care and maintenance procedures, safe operator habits, and knowledge of traffic signs and rules of the road. Highlights of the commercially prepared package included teacher objectives, a leader guide booklet, bicycle inspection materials, "on-bike" skill activities, liaison supportive materials and extra-curricular activities.

Discovering Traffic Safety
(Automotive Safety Foundation,
1776 Massachusetts Avenue, N.W.,
Washington, D.C., 1977)

Seven films and teacher handbook materials were created to assist classroom teachers with integration of bicycle safety into

existing classroom subject areas, schoolbus ridership practices, pedestrian safety and car passenger safety concerns. Bicycle riding practices in on-street locations were presented to generate K-3 audience responses in classroom settings. K-9 students served as actors in real-life dramatization episodes devised to trigger student self-discovery classroom discussions.

Just Like a Car
(Film Loops, Inc., PO Box 2233,
Princeton, New Jersey, 1971)

This 12-minute film and accompanying instructor's guide was initially prepared for use within 3-6 grade classroom settings to assist in bicycle safety education instruction. Bicycle rules of the road, bicycle riding habits, hazard identification exercises and road sharing practices were presented. The program also included teacher lesson plans, classroom posters and four filmstrips that emphasized defensive driving habits, rule obeyance practices, hazard avoidance strategies and traffic mix formulas for survival.

Traffic and Pedestrian Education Systems
(Elisar Research Corporation, 15th East 48th Street,
New York, New York, 1971)

This privately produced traffic safety program was designed for use in existing 3-6 classroom settings. The package included modular units on bicycle safety topics that included bicycle sizing concerns, bicycle safety equipment, bicycle care and maintenance concerns and operator riding habits. Animated student presentations, a classroom use filmstrip, a teacher's guide and instructor ditto masters were included in the bicycle program.

Books

Several books on bicycle safety instructional activities in the K-3 grades were reviewed. Classroom and "on-bike" educational topics were examined for possible inclusion as questionnaire items.

Better Bicycling for Boys and Girls
(George Sullivan, Dodd, Mead and Company,
79 Madison Avenue, New York, New York, 1974)

This 64-page book included detailed descriptions of bicycle use, fit, riding habits, club formation procedures, "on-bike" skill activities and touring strategies. It was designed for use in 3-6 grades.

Bicycles--All About Them
(McPhee Gribble Publishers, Penguin Books, Inc.,
7110 Ambasson Road, Baltimore, Maryland, 1976)

This 32-page book described bicycle operations, repair procedures and operator improvement strategies. Authors also included safety tips and hazard avoidance strategies.

The Bicycle Book
(Lillian and Godfrey Frankel, Simon and Schuster
Publishers, 630 5th Avenue, New York, New York, 1971)

This 22-page book contained bicycle selection, bikeway development, security methods, recreation uses, laws and safe riding practices and equipment and maintenance procedures. A bicycle game section was also included for use in classroom sessions.

Bicycle Racing
(Robert B. Jackson, Henry Z. Walck, Inc.,
19 Union Square West, New York, New York, 1971)

This 71-page book described the merits of bicycle racing for 3-6 grades. Publishers also included bicycle types, racing styles and associated careers for increased interests.

Bicycling
(William Morrow and Co., 105 Madison Avenue,
New York, New York, 1972)

Charles Coombs and the William Morrow Publishing Company developed a 172 page book that included bicycle uses, history, selection, maintenance and home repair procedures. Future uses and prototypes were also discussed. Fifty-nine photographs were included to assist readers.

Pamphlets and Booklets

Several bicycle safety printed materials and pamphlets for use in K-3 grades were also reviewed. Classroom and "on-bike" instructional topics were reviewed for possible inclusion as questionnaire items.

Allstate Insurance Company Bicycle Safety
Education K-3 Grade Pamphlets
(Allstate Insurance Company,
Chicago, Illinois, 1978)

Allstate Insurance Company produced two bicycle safety education K-3 grade pamphlets for use in classroom programs:

"Allstate the Joy of Bicycling" (1978)

> This 4-page bicycle safety education instruction pamphlet contained bicycle use, bicycle terminology, bicycle riding procedures and bicycle care and maintenance concerns.

"Hi! Bike Pilots!" (1977)

This 4-page bicycle safety education instruction pamphlet contained bicycle operator safe riding practices plus care and maintenance procedures.

Both pamphlets were prepared for use by all ages.

American Automobile Association K-3 Grade Bicycle Safety Education Instructor Pamphlets (American Automobile Association, 8111 Gatehouse Road, Falls Church, Virginia, 1971-1977)

These pamphlets were reviewed in order to ascertain classroom and "on-bike" topics of bicycle safety education for possible use as questionnaire items.

"Bicycle Driver's License" (1972)

1st, 2nd and 3rd grade bicycling licensing material offered sample license format and rules.

"Bicycle Information Test" (1973)

3-6 grade material contained 25 tests and scoring sheets for teacher/student use.

"Bicycle Inspection Checklist" (1971)

3-6 grade material provided 25 checklists for teacher/student use.

"Bicycle Safety Skill Tests" (1973)

3-6 grade material included rodeo "on-bike" blueprints, 12 pages.

"Bicycling Is Great Fun" (1972)

3-6 grade material in a 2-page foldout contained rules/laws and maintenance procedures.

"Bike Safety Posters" (1973)

K-6 grade material included ten brightly colored posters for classroom purposes.

"Teacher's Guide to Bicycle Safety Activities and Projects" (1977)

K-6 grade information offered classroom and outdoor "on-bike" projects and activities for use in bicycle safety education programs.

"Terry the Tricycle" (1975)

This Kindergarten level 6-page story was prepared for classroom instructional use.

"Be a Bike Expert--Have Fun, Know the Rules"
(Minnesota Department of Public Safety, State High Building, St. Paul, Minnesota, 1978 Revised)

This 6-page, K-3 grade pamphlet was developed to inform bicyclists of rules of the road, signs, signals, pavement markings, required bicycle equipment, night riding procedures, operator registration procedures and inspection procedures.

"Bicycle Safety Information Test"
(National Safety Council, 444 North Michigan Ave., Chicago, Illinois, 1975, 1976)

This 1-page commercially produced quiz included 25 items covering rules of the road and related maintenance/equipment items in a checklist format.

"Bicycle Safety Program Kit"
(Minnesota Department of Public Safety, State Highway Building, St. Paul, Minnesota, 1974)

This community development and planning kit booklet included K-3 grade and adult bicycle instruction information covering campaign strategies, pamphlets, public relations information, "on-bike" strategies, fact sheets and club development suggestions.

"Bicycle Safety Quiz"
(Minnesota Department of Public Safety, State Highway Building, St. Paul, Minnesota, 1975)

This 8-page, 20 item True/False bicycle safety information quiz was developed to survey bicyclists concerning bicycle operator habits, bicycle equipment, bicycle inspection procedures, bicycle rules of the road and additional equipment and maintenance concerns. It was designed for use by all ages.

"Bikes--and Boys and Girls"
(Kemper Insurance Company, Route 22, Design Studio A-1, Long Grove, Illinois, 1966)

This pamphlet provided a general overview of bicycle rules and laws, maintenance procedures and theft concerns. It contained bicycle vocabulary and safety terms for use in K-8 grades.

Minnesota Agricultural Extension Service Bicycle Safety Education Pamphlets
(U.S. Department of Agriculture -- 4-H, University of Minnesota, St. Paul, Minnesota 55108)

The Minnesota Agriculture Extension Service prepared and distributed two K-3 grade bicycle safety education pamphlets for use in 4-H related bicycle safety education classrooms and "on-bike" programs. These were reviewed in order to determine classroom and "on-bike" topics of instruction for possible inclusion as questionnaire items.

"4-H Bicycle Program - Unit I. Your Bicycle and You" (1971)

> This 4-page pamphlet provided a general overview of bicycle size and fit concerns, operator riding habits and care and maintenance concerns. It was designed for use by all ages.

"4-H Bicycle Program - Unit II. Maintaining Your Bicycle" (1970)

This 4-page pamphlet provided specific bicycle maintenance and care techniques written in step-by-step bicycle operator self-repair formats. Bicycle operator safe riding habits were also discussed. The pamphlet was designed for use by all ages.

Schwinn Bicycle Company Bicycle Safety Education Pamphlets
(Schwinn Bicycle Company, 1856 North Kostner Ave., Chicago, Illinois 60639)

Schwinn Bicycle Company has prepared several bicycle safety education K-3 grade pamphlets for use in classroom bicycle safety education presentations. These were reviewed in order to ascertain classroom and "on-bike" topics of instruction for possible inclusion as questionnaire items.

"Bicycle Safety" (1972)

This 5-page pamphlet included bicycle operator safe riding rules of the road and bicycle nomenclature and repair techniques. The pamphlet was designed for use by all ages.

"Tire Care Guide" (1972)

This 6-page pamphlet included tire maintenance techniques written in a self-repair format. In addition, a tire pressure chart plus tire care products were included for bicycle operator use and reference. It was designed for use by all ages.

"Lock Your Bike" (1972)

This 4-page pamphlet included bicycle security and protection techniques plus descriptions and photographs of bicycle locking mechanisms. It also was designed for use by all ages.

"Modern Woodmen Bicycle Safety Program"
(Modern Woodmen of America, Director of
Fraternal Activities, Rock Island, Illinois, 1977)

This program was designed for use by 4th, 5th and 6th graders in bicycle safety education programs covering bicycle safety knowledge, "on-bike" skill activities and bicycle maintenance and inspection procedures. It included sample citations, an 8-page "Bicycling for Fun and Safety" pamphlet, public awareness sample campaign materials, scoring sheets and evaluation forms. Teachers were encouraged to use the bicycle safety materials within regular subject areas.

"Sidewalk Vehicles: Safety Education Data Sheet #17"
(National Safety Council, 444 North Michigan Avenue,
Chicago, Illinois, 1967)

This pamphlet included brief discussions of tricycle safety concerns for use in bicycle safety instruction. It contained specific bicycle safety concepts and factual information for orientation with classroom bicycle safety education topics of instruction.

State of Minnesota Bicycle Safety Education
K-3 Grade Pamphlets
(Minnesota Department of Public Safety,
State Highway Building, St. Paul, Minnesota, 1976-1977)

The Minnesota Department of Public Safety produced two bicycle safety education instruction pamphlets for use in K-3 grade classroom and "on-bike" sessions.

"Bicycle Safety Quiz" (1977 Revised)

This 8-page fold-out pamphlet included 20 operator rules of the road and safe riding/maintenance

questions with answers. In addition, teacher and parent introductory statements were included. The pamphlet was designed for use by all ages.

"Be a Bike Expert" (1976)

This 6-page pamphlet included diagrams and captions in colorful presentations covering rules of the road, traffic signs and signals plus driver rights, duties and registration procedures. The pamphlet was designed for use by all ages.

U.S. Consumer Product Safety Commission Pamphlets
(U.S. Consumer Product Safety Commission, Washington, D.C., Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 1975-1977)

These bicycle safety education instruction materials were produced for free distribution and available in limited quantities. They covered a wide range of bicycle safety education topics of instruction.

"A Bicycle Built For You" (1977)

This 4-page teacher's guide is a curriculum designed for grades 3-6 containing teacher introductory information and six reproducible masters. Specific topics noted were bicycle equipment, hazard identification activities, route selection concerns, safe driving practices, games and other activities, laws/regulations, accident analysis, safe protection clothing, a resource/bibliography pamphlet and fact sheets.

"Bicycles: Buy Right . . . Drive Right" (1976)

This 10-page pamphlet included bike uses, bike selection concerns and bike driver strategies. It may be used with all ages.

"Bicycles--Fact Sheet No. 10" (1975 revision)

This fact sheet contained bicycle concerns and safety features developed to assist classroom teachers. The pamphlet was designed for use by all ages.

"Bicycling: Fun With Safety" (1975)

This 6-page guide included bicycle selection, maintenance procedures and safe riding habits. The pamphlet was designed for use by all ages.

"Catalogue of Publications" (1977)

This 30-page pamphlet of visual sources presented available bicycle safety materials and fact sheets designed for use by all ages.

"Sprocket Man" (1975)

This 28-page animated coloring book included bicycle uses, riding practices, control tips, bicycle safety concerns, equipment concerns, night riding practices and defensive riding practices. It also included bicycle theft/security practices, accident statistics, care and maintenance procedures plus introductory instructor remarks. It was designed for use in K-6 grades.

"Your Life Rides on Your Tires" (1975)

This pamphlet included bicycle maintenance and equipment concerns. It was designed for use in 3-6 grades.

State and Local Programs

These K-3 grade classroom and "on-bike" printed bicycle safety education materials were prepared with the assistance of local bicycle instructors in selected areas. These were reviewed to ascertain bicycle safety education instructional topical areas for possible inclusion as questionnaire items.

"Public Awareness in North Carolina"
(North Carolina Office of Transportation Planning, Transportation Building, Raleigh, North Carolina, 1977)

This 1977 program originated as a multi-faceted public awareness program for all age levels in North Carolina, with Curtis

Yates, North Carolina Bicycle Coordinator, North Carolina Department of Transportation as chairman. The program components included the development of mass media spot announcements; portable booths for public service promotions; a "road show" package of pre-planned discussions and movies and reproduced pamphlets. Other key elements included a series of "Bicycle Awareness Projects" statewide workshops; a statewide survey to establish baseline bicycle safety data, packaged as "The Bicycle Awareness Project"; updated bikeways manual entitled "Bicycle Highways"; preparation of a "Bicycle Safety Rodeo Manual"; creation of a full "Bike Information Service" (literature, films, research); demonstration projects in two communities that produced a model community education program guide ("Bicycle Safety Cities"); a developed course for adult bicyclists that included curriculum guides and continuing education programs; and continued in-service training programs for bicycle instructors.

"Wisconsin's Statewide Safety Programs"
(Wisconsin Division of Highway Safety Coordinators,
131 West Wilson Street, Room 803,
Madison, Wisconsin, 1977-1979)

This program was sponsored by the Wisconsin Division of Highway Safety Coordinators in 1977 and revised in 1979 to upgrade and disseminate bicycle and pedestrian safety activities statewide for all ages. The Department of Public Instruction produced a series of nine 25-minute instructional television programs for use in K-8 levels, entitled "It's Your Move." The packet included videotapes, a student bicycle driver handbook, and teacher guides with themes, objectives, film synopses and suggested follow-up activities.

Efforts were expanded in 1979 to include three additional 15-minute video programs for use by junior high groups. Also, the Madison area public school system produced a pilot traffic safety curriculum for use in K-8 grades.

Additional K-3 level instructional curricula produced by the Division of Highway Safety Coordinator staff included:

"Bicycle & Pedestrian Safety Films" (1977, update 1979), film list.

"Bicycle Inspection Sheet" - 1-page inspection checklist.

"Bicycle Law Sheet #4" - Wisconsin bicycle law information.

"Bicycle Rights & Rules" - Bicyclists' duties and operator procedures.

"Bicycle Safety Certificate" - Recognition card for use in bicycle safety programs.

"Bicycle Safety Test for Grades K-3" - "On-bike" skills test diagram and instruction sheet.

"Guidelines for Bicycle Club Rides & Bike'A'Thons" - Information sheets for bicycle tours and trips.

"Leaflet Order Form" (1977, 1979) - Order form for bicycle and pedestrian safety materials.

"My Safety Coloring Book -- Teacher's Guide to Coloring Book" (1977) - Classroom booklet and teacher information materials.

"Model Programs in Pedestrian and Bicycle Safety for Wisconsin Communities" (1977) - 98-page booklet for development and implementation of community pedestrian and bicycle safety education programs.

"Planning Guide for the Development of Pedestrian and Bicycle Facilities" (1977) - 136-page community planning and information booklet in pedestrian and bicycle safety education programs.

"Planning the Bicycle Tour" - Instructor planning tips and suggestions concerning bicycle tours.

"Reasons for Not Driving a Bicycle on Left Side of Roadway" - Bicycle operator's information and fact sheet.

"Rules to Live By" - Bicycle operator's riding information sheet concerning accident avoidance techniques.

"Suggested Bicycle Touring Equipment" - Bicycle operator's information concerning touring gear and over-night bicycle trips.

"Ways Youth Groups Can Assist in Bicycle Safety Programs" - Guidelines for youth agencies concerning bicycle safety education program activities.

"Wisconsin Pedestrian & Bicycle Safety Plan" (1977) - 172-page document concerning state and regional pedestrian and bicycle safety school and community programs. This document included state resources available for local instructors.

Community Programs

Selected community bicycle safety education classroom and "on-bike" programs were reviewed. Bicycle safety education topics of instruction were reviewed for possible inclusion as questionnaire items.

"Mesa, K-12 Traffic Safety Program"
(Mesa City, Arizona schools, Mesa, Arizona, 1973)

Mesa, Arizona city schools developed a concept formation, skill adoption and recognition program project in 1973 for use in traffic safety education courses in the K-12 grades. K-3 levels profitted from classroom instruction that included bicycle safety education classroom and "on-bike" instruction, in addition to other traffic safety topics within established subject areas. Opportunities to practice "on-bike" riding procedures were provided for 4-6 grade youth. The project was initiated following three years of development and pilot test activities in the Mesa, Arizona region.

"El Cajon Bicycle Safety Court"
(El Cajon Police Department,
100 Fletcher Parkway, El Cajon, California, 1977)

This project was initially developed in 1963 by the El Cajon Police Department for use in 3-8 grades for the promotion of bicycle safety awareness. Police officers delivered safety talks concerning safe bicycle riding practices in nearby elementary schools. In each school, all third through eighth grade students were assembled for the bicycle presentations. The police program also included bicycle rules of the road, safety checks, bicycle rodeos and "Bicycle Safety Court" sessions. Peer court decisions included warnings, safety essays, bicycle safety school attendance and safety pamphlet readings. The program revealed a noted reduction in reported police fatality/accident experience data.

"School Traffic and Safety Education Section of the Los Angeles School District Community Support Experiment Brings It all Together (School Traffic and Education Section, Los Angeles City Unified School District, 1200 Cornwell Street, Los Angeles, California, 1977)

This program was developed for pre-kindergarten and grades 1-8 youth for the Traffic and Safety Education section of the Los Angeles United School District by 23 community agencies (including Optimists, Veterans of Foreign Wars, American Automobile Association state chapters and local police agencies). The instructors used lectures, films and "on-bike" rodeo sessions in pre-kindergarten and elementary school presentations. Bicycle instructors utilized adapted educational curricula from other states and integrated local environments during "on-bike" trips. The project utilized

junior high school students as instructors in the elementary grade programs. The project produced videotape/filmstrip risk detection presentations and a teacher activity resource guide. Program materials were developed following an investigation of the accident experience data available from school, police and research files.

"Sterling, Illinois Evaluates Its Bike Safety Program"
(Sterling, Illinois School District No. 5,
1800 6th Avenue, Sterling, Illinois, 1977)

The Sterling, Illinois School District No. 5 developed an extensive traffic safety education program that included a bicycle safety evaluation project. Teacher curriculum guides, teacher in-service training sessions, bicycle maintenance clinics, bicycle rodeo activities and a "Bicycle and Pedestrian Safety Park" (1½ acre simulated street and intersection complex) were developed to provide bicycle instruction. In addition, police enforcement efforts were included to curb bicycle violations. Community speakers and community newsletters complemented educational and enforcement efforts. The survey and checklist evaluation procedures provided valuable data concerning bicycle knowledge and self-esteem measures. Bicycle knowledge scores and self-attitude indices showed significantly higher scores after the project's initial year of implementation.

"On-Street Bike Training for 3rd and 4th Grades"
(Newton, Massachusetts Public Safety Office,
1321 Washington Street, West Newton, Massachusetts, 1977)

This "on-bike" street training program was conducted for 3rd and 4th grades following completion of assembly programs that stressed bicycle rules of the road and operator riding procedures.

The "on-bike" tours stressed student hazard recognition and avoidance procedures in a 3-mile bicycle riding session.

"An Auto Club's Bicycle Safety Training and Involvement"
(The Auto Club of Missouri, Cycling Activities Office, 201 Progress Parkway, Maryland Heights, Missouri, 1977)

The Auto Club of Missouri Cycling Activities Office established information release centers for media personnel, community planners, police, educators and legislators. Members and non-members received a variety of safety research training materials, tour preparation information sheets and printed bicycle safety pamphlet materials. Cyclists learned bicycle maintenance procedures and operator riding procedures in one day and extended riding programs. K-3 youth participated in special instruction seminars, which included a "Cycling Skills Proficiency Course." Other services provided for members and non-members included newsletters, bike riding maps, public service announcements and K-9 teacher materials.

State Summaries

Several states have prepared a summary list of state bicycle safety activities (curricula, media, projects and resource personnel packages). Classroom and "on-bike" activities used in K-3 instructional settings were reviewed in earlier sections.

ALABAMA
- Statewide K-8 Bicycle-Pedestrian Safety Curriculum (school use)
- "Rules of the Road" pamphlet
- Television spots

ALASKA
- K-12 Traffic Safety Curriculum (included educational presentation in rules, laws, maintenance, fit and rodeo guidelines)

ARKANSAS	Two-hour bicycle safety integration programs for schools One-hour teacher-oriented program for school use One-hour bike maintenance rodeo and registration program for schools
COLORADO	Comprehensive traffic safety curriculum (bicycle units included)
CONNECTICUT	K-6 bicycle safety resource curriculum for schools
DELAWARE	"Bike Right Awareness Program (5th graders) (designed to be used within existing classes) Slide Show Presentations for classroom use on bike safety Rodeo, on-road riding and skill testing procedures for schools provided
FLORIDA	K-6 Statewide Bicycle Safety Curriculum (bicycle units included) "Rules of the Road" pamphlets distributed and assemblies conducted for schools by Florida Highway Patrol
IDAHO	K-12 Highway Safety Curriculum (pilot-tested for distribution); bicycle units included; cooperation with Modern Woodmen of America Bicycle Safety Kit and Test Materials source materials
ILLINOIS	"K-12 Statewide Curriculum." Emphasis in 4th and 5th grades on bike safety units. Supported by Texas Rangers Safety Kit, Bicycle Rodeos Seminars, Community College Bike Skill Test Rodeos, 4-H Club Bike Activities and "Rules of the Road" pamphlet distributed
INDIANA	Elementary Traffic Safety Curriculum (included 26-page pamphlet on Bicycle Fairs); 24-page "Bicycle Safety Manual" (skill tests, film)
IOWA	K-6 Curriculum Guide (bicycle safety units); teacher-training 2-hour workshops; sponsored Bicycle Safety Clubs, Bicycle Safety Fairs; Bike Inspection Days and Bike-A-Thons (civic club activities); school conducted assemblies and bike inspections (Iowa State Patrol) Bike Safety requirement in all school systems
KENTUCKY	School conducted presentations (Kentucky State Police, Blue Grass Wheelman Association) 6-page pamphlet, "Bicycling in Kentucky" (tour suggestions) Bicycle Drivers Handbook (Kentucky-oriented) developed for educational use; Local television spot announcements; School Pedestrian and Bike Safety Curriculum

MAINE	School-use film lists AAA; "All About Bikes" (National Safety Council) Goodyear Bicycle Safety Educational Materials distributed for school use (guide, suggestions) Police conducted rodeos for schools
MICHIGAN	Curriculum Guide for Safety Education, Grades K-6 (bicycle safety integrated units) Films and filmstrip distributed upon request K-12 safety education program (bike safety materials were distributed to schools upon request)
MINNESOTA	K-3 Traffic Safety Curriculum Guide (bicycle safety units) and Instructor Guide Minnesota Bicycle Drivers Guide (school use) Film/media distribution upon request Teacher in-service workshops provided School district bike safety educational instructional materials
MISSISSIPPI	Junior High bicycle safety program (civic club sponsors, television spot announcements) for schools and community use
MISSOURI	4-12 Bicycle Safety program kit (teaching suggestions, advice) AAA of Missouri (bicycle program, riding/touring suggestions)
MONTANA	K-6 Bicycle Safety Curriculum (integration, separate subject referrals)
NEBRASKA	K-6 Bicycle Safety Curriculum (integration, separate subject use)
NEVADA	"Safest Show on Earth" (4th grade emphasis) - bike safety materials Bike Safety Program presentations by civic clubs and state AAA Nevada Youth Traffic Safety Association (bicycle safety concerns programs preparation) Bicycle Safety Programs upon request (state assistance; high school assistance at elementary grades)
NEW HAMPSHIRE	K-6 Bicycle Safety Program upon request (Agricultural Extension Service, 4-H Clubs)
NEW JERSEY	4-6 Bicycle Safety visual/content program ("Just Like a Car") Local police and civic group support

NEW YORK	4-6 Curriculum Guide (27-page bicycle guide with goals, outcomes, teaching tips in affective, psycho-motor and cognitive areas)
NORTH CAROLINA	K-9, 4-volume traffic safety curriculum (includes bicycle safety materials with emphasis on recognition skills, rules/laws)
OHIO	4-6 grades utilize commercially produced content/ media materials; "Ohio Bicycle Drivers Guide" 30-page reader - school use Statewide workshops for teachers and administrators upon request Chamber of Commerce, civic groups and AAA assistance offered
OREGON	K-6 Traffic Safety Curriculum Guide includes comprehensive rules/laws, hazard recognition activities, maintenance concerns, fit/selection concerns and motor skill development sections
PENNSYLVANIA	Bicycle Safety program kits available to school physical education teachers (K-12 levels)
WASHINGTON	4-9 grades receive kits upon request (films, filmstrips, resource materials) Washington Bicycle Driver's Guide (30-page pamphlet for school use, upon request
WISCONSIN	"It's Your Move" (traffic safety educational pedestrian, bicycle safety television K-8 series via videotape for school use) 30-page teacher/instructor pamphlet, Wisconsin Bicycle Driver's Handbook (upper grades) upon request. Additional support materials from Wisconsin Division of Highway Safety Coordination available, upon request Statewide bicycle instructor teacher workshops (Summer)

Summary

The review of related literature was undertaken to gain a greater understanding of the use of bicycle safety education programs and survey evaluation techniques. National, state and local

evaluations of classroom and "on-bike" programs of instruction produced information concerning bicycle safety education programs of instruction offered in the K-3 grades. Studies and research documents also produced information relative to teacher instructional practices in bicycle safety education programs. Bicycle safety education printed curricula resource materials from national, state and local sources produced information concerning bicycle safety education courses of instruction that include classroom and "on-bike" topics for use in K-3 grade subject areas.

Chapter II was divided into four sections. The first section pertained to various surveys conducted by states and reported the extent of bicycle safety education programs of instruction.

The second section reported specific documents and studies that described the extent and basis for local, state and national bicycle safety education activities. International efforts were also described.

The greatest depth of investigation concerned printed curricula material for K-3 grades produced by state agencies, school districts and commercial interests. Statewide and local curriculum guides, privately produced programs, books and pamphlets plus community programs of instruction were investigated. Information used by individual states in the form of teacher curriculum guides, safety manuals, state requirements, resource books, packets of instruction and bicycle safety education pamphlets were examined.

Finally, a review of bicycle safety instructional practices used in numerous states was presented. Classroom printed materials and "on-bike" activities were noted.

Chapter III will present the method of procedure for the study. Development of the survey instrument, sampling procedures utilized and data analysis procedures will be noted.

CHAPTER II: FOOTNOTES

[1]Thomas W. Chlapeka, Teacher Evaluation of the National Safety Council's "All About Bikes" Program, August 1974, p. 1.

[2]Ibid., pp. 3-5, 10-13, 29-30.

[3]Beverly J. Hammond, Special Survey on Bicycling and Bicycle Accident Records, 1972, pp. 1-2, 7-10.

[4]On-line searches conducted with assistance of St. Cloud State University's computer terminal. Individual sources examined were National Technical Information Service (NTIS) Clearinghouse, Educational Resources Information Center documents (ERIC) and Dissertation Abstracts reviews.

[5]City of Santa Barbara Transportation Division, Bicycle Safety: A Program of Implementation and Study. A Final Report, 1975, pp. 1-56.

[6]National Highway Traffic Safety Administration, Department of Transportation, Highway Safety Literature, HSL No. 76-08 (Washington, D.C.: U.S. Department of Transportation), pp. 5-6, 8-12, 15, 22, 27, 36, 39, 46.

[7]Peter Arnberg, et al., "The Ability of Pre-School- and School Children to Maneuver Their Bicycles," VII Rapport, No. 149A (1978), I:1-39.

[8]Robert E. Dewar, "Bicycle Riding Practices: Implications for Safety Campaigns," Journal of Safety Research 10 (Spring 1978): 40-41.

[9]Colin G. Drury, "The Law and Bicycle Safety," Traffic Quarterly 32:4 (1978): 618-620.

[10]Pekka Trainen, "Investigations Into Use and Outfit of Schoolchildren's Bicycles," Investigations into Light Traffic #1 (1975): 1-16.

[11]Leslie Baldwin, "Federal Bicycle Programs and Projects," Bicycle Forum I (Spring 1978): 30-32.

[12]Ibid, p. 32.

[13]Ibid, pp. 33-34.

[14]Ibid, pp. 33-34; U.S. Department of Transportation, U.S. Consumer Product Safety Commission, Bicycle Safety Education: Preface--A Guide to Materials and Resources (CPSC-C-77-0027) (Washington: Lawrence Johnson and Associates, Inc.), p. i.

[15]Jane Lawson, et al., Travel On! Mini-units and Learning Activities on Transportation for Grades K-3 (Cambridge, Mass.: ABT Associates, Inc., 1977), pp. 1-2.

[16]Governor's Highway Safety Program Office, K-9 Traffic Safety Resource Curriculum. Level B. Professional Guide (Raleigh, N.C.: Governor's Highway Safety Program Office; Durham, N.C.: Research Triangle Institute, 1975).

[17]Governor's Highway Safety Program Office, K-9 Traffic Safety Resource Curriculum. Level A. Professional Guide (Raleigh, N.C.: Governor's Highway Safety Program Office; Durham, N.C.: Research Triangle Institute, 1975).

[18]Jean Flagg and Walter Hawkins, School Pedestrian Safety for Elementary Schools (Dix Hills, N.Y.: Suffolk County Board of Education, 1976).

CHAPTER III

DESIGN AND PROCEDURES OF THE STUDY

This chapter presented the sources of data, development of the survey instrument, the methods used in obtaining the data and the procedures used in the evaluation of the data.

Selection of Sample

One hundred and one K-3 grade elementary schools within a 60-mile radius of St. Cloud, Minnesota comprised the sample and specific target population surveyed in this study.

This figure represented all K-3 grade schools within the sampling area. The writer concluded that the geography; i.e. terrain, map features, etc., population distribution; i.e. density, levels, etc. and physical land features; i.e. water sources, rural-urban areas, etc. in the sampling area were similar to the geographical composition, population characteristics and physical land features found elsewhere in the state. Hence, the sampling area was determined to be representative of most areas of Minnesota. The 1970 United States Census Bureau data served as the baseline source of information reported as population trends, geographical compositions and physical land features used to support the writer's conclusions (see Appendices J, K, and L).

Bicycle instructors that offered bicycle safety education classroom and "on-bike" programs of instruction in K-3 grades within a 60-mile radius of St. Cloud, Minnesota were initially identified via phone calls and personal visits to the chief administrative officer in each elementary school. These administrators identified the bicycle insturctor in K-3 grades in their respective schools. The bicycle instructors were then asked via phone calls and personal visits to assist in the collection of information regarding the nature and extent of the bicycle safety education program of instruction within their respective schools. An initial letter was forwarded to each identified bicycle instructor, emphasizing the earlier request for questionnaire completion (see Appendix O).

Preparation of the Questionnaire

The "Bicycle Safety Education Questionnaire" was developed to produce information relative to the nature of bicycle safety education program components in classroom and "on-bike" settings in K-3 grades of the 101 surveyed schools.

The questionnaire was initially drafted following a review of bicycle safety education printed curricula materials. State curriculum guides and programs relative to bicycle safety education were reviewed to identify bicycle safety education classroom and "on-bike" topics of instruction which could assist in the construction of specific questionnaire items. In addition, previous surveys used in conjunction with bicycle safety education programs of instruction were reviewed. Specific questionnaire items were

designed to provide information concerning school oriented characteristics; i.e. school location--urban vs. rural locales, instructor sex, grade levels utilized and bicycle instructor status--teacher, agency representative, etc. Survey items were also developed to collect information relative to bicycle safety education program components; i.e. course scheduling practices, enrollment levels, teaching strategies, curriculum materials, accident data, evaluation techniques, goal/objective statements and instructor preparation levels. In addition, four open-ended (personal response) items were developed and included in the questionnaire. Two items assessed the use of bicycle safety education program resource material and the extent of outside agency utilization. Another open-ended item surveyed the use of curriculum materials. The last open-ended item asked the instructors to evaluate the "Bicycle Safety Education Questionnaire." The "Bicycle Safety Education Questionnaire" was comprised of 27 questionnaire items (see Appendix Q).

The initial draft of the questionnaire was forwarded to a state panel of specialists for their review and comments. This committee was chosen with the assistance of the Traffic Safety Section, Minnesota Department of Education and the Center for Driver Education and Safety, St. Cloud State University. Five individuals were selected to assist as specialists based on (1) previous bicycle safety education experience; i.e., bicycle safety education program offerings, preparation of the bicycle safety education section, Minnesota K-3 Curriculum Guide, etc. or (2)

currently serving as a bicycle instructor in the state (see Appendix M). These individuals assisted with efforts to determine congruency of agreement concerning content validity with respect to the bicycle safety education program content items in the questionnaire. High levels of agreement were reported later in this chapter. Noted differences among the specialists were used as a basis to assist with the modification of the questionnaire prior to the actual pilot study phase.

Pilot Study

The questionnaire was then forwarded to a random sample of six bicycle instructors in K-3 grades in elementary schools in the St. Cloud, Minnesota Metropolitan Area. The bicycle instructors reviewed and completed the questionnaire prior to the administration of a bicycle safety education program of instruction at their respective schools. The six individuals selected at random for participation in the pilot study phase met the following criteria: (1) current instructors in the Kindergarten, first, second, or third grade levels in a K-6 school located within 60-miles of St. Cloud, Minnesota, and (2) offered a bicycle safety education program of instruction at their school during the pilot study phase.

Initial meetings and follow-up visits to the six sites were scheduled with the pilot study group prior to distribution of the questionnaire. These arrangements were made to insure questionnaire completion.

Following the receipt of the questionnaires from the pilot study raters, visits to three of the six pilot study schools during periods of bicycle safety education programs of instruction were scheduled to observe and report bicycle instructor practices. The three sites were randomly selected from the six elementary schools that participated in the pilot study phase. Statistical comparisons were made between the bicycle instructor reported responses and the observed bicycle safety education program practices. High rater reliability levels were reported later in this chapter.

The pilot study bicycle instructors also assisted in the efforts to report congruency of agreement concerning content validity with respect to the bicycle safety education program content items included in the questionnaire. High levels of content validity were reported later in this chapter. Noted differences among the six pilot study bicycle instructors were used as a basis to assist with the modification of the questionnaire prior to actual study use.

Following the review by the state panel of specialists and completion of the pilot study phase, rater input assisted in the modification of the questionnaire. A final revision of the questionnaire was made based on additional input provided by the writer's guidance committee.

The 27 item questionnaire was prepared in its final format with the assistance of statisticians and computer center consultants at the Computer Center, St. Cloud State University. Survey format,

coding/reporting techniques and statistical treatment process procedures were reviewed prior to final revisions of the questionnaire.

Program Questionnaire

The "Bicycle Safety Education Questionnaire" was basically designed to determine the nature, the extent, the reported differences and the factors associated with K-3 grade bicycle safety education programs. Among the objectives of the questionnaire was a determination of the number of various classroom and "on-bike" components contained in the bicycle safety education program of instruction offered within the K-3 grades in elementary schools within a 60-mile radius of St. Cloud, Minnesota. In addition, course scheduling practices, enrollment levels, teaching strategies, curricula utilized, accident data and instructional sites were also surveyed. The total bicycle safety education program at each site was investigated, with specific questionnaire items devoted to care and maintenance concerns, bicycle rules and regulations, safe driving and handling practices, bicycle safety curricula resources and "on-bike" skill test practices. Bicycle safety education program instructors were also asked to provide personal comments concerning the use of curriculum and resource materials. Two additional open-ended items surveyed the extent of outside agency utilization and produced questionnaire evaluation information.

A cover letter was forwarded with each of the questionnaire packets, which were mailed to the bicycle instructors. The letter urged these individuals to reply to the questionnaire within two

weeks from the date of receipt (see Appendix P). A postage-paid return envelope was included.

Responsibility for the completion and return of the questionnaire was assigned to the identified K-3 grade bicycle instructor in each surveyed site. The questionnaire packets; i.e. questionnaire cover letter and return envelope were prepared for distribution and forwarded to each site.

Follow-up Response

Fifty-five questionnaires were returned within the first two weeks. At that point a follow-up phone call was personally made to the bicycle instructors that had not returned the questionnaire. The second contact proved to be instrumental in the return of the remaining 46 questionnaires.

Processing Data

All 101 individual K-3 grade bicycle instructors returned the "Bicycle Safety Education Questionnaire."

Frequency distribution tables were prepared to report both the aggregate responses and the central tendency measures; i.e. mean, median, mode, standard deviation, etc. for each questionnaire item. Following the computation of the frequency findings, comparisons between the questionnaire variables of interest; i.e. bicycle safety education classroom and "on-bike" topics of instruction derived from the review of the literature phase of the study were performed. The variables of interest in this study were bicycle safety education course scheduling practices, enrollment levels,

teaching strategies, curriculum materials, accident data, evaluation techniques, goal/objective statements and bicycle instructor preparation levels. In addition, school oriented characteristics; i.e. school location--urban vs. rural locales, instructor sex, grade levels utilized and bicycle instructor status--teacher, agency representative, etc. were also questionnaire variables of interest. Specific comparisons were performed on the following variables of interest:

- City vs. rural programs
- Bicycle instructor sex
- Kindergarten, grade 1, grade 2 and grade 3 levels
- Kindergarten, grade 1, grade 2 and grade 3 class sizes
- Bicycle instructor status; i.e. teacher, enforcement officer, agency representative, judicial department representative, parent, etc.
- Season instructional program offered
- Program length
- Curricula utilized; i.e. state, local, privately produced, etc.
- Instructional strategies
- Minnesota bicycle laws
- Bicycle riding and safety concepts
- Bicycle safety equipment concepts
- Bicycle care and maintenance concepts
- "On-bike" skill test performance activities
- Bicycle safety education resource personnel utilized
- Bicycle safety education agency utilization

- Bicycle instructor qualifications
- Bicycle accident experience data
- Bicycle safety education program requirement levels; i.e. mandatory, strongly suggested, suggested, no opinion, disagree, strongly disagree or no place in curriculum--ranked by appropriate grade level (Kindergarten, grade 1, grade 2 or grade 3).

Comparisons between variables of interest as reported by the bicycle instructor in each school were statistically treated and reported in Chapter IV. Chi-square "cross-tabulation" was chosen in order to (1) determine frequency levels of reported responses for each school site, (2) determine the shape (frequency) of the reported scores for each questionnaire item; i.e. distribution of scores for each item as reported by individual, total schools, and (3) determine the comparisons between the reported school oriented characteristics; i.e. school location, grade levels utilized, etc. and the comparisons between the reported bicycle safety education topics of instruction; i.e. teaching strategies, bicycle care and maintenance concerns, etc. and K-3 grade bicycle instructor status in frequency distribution terms; i.e. distribution curves, "goodness of fit," etc. Significance was reported for comparisons performed on the variables of interest when probability values for the chi-square yields at or below the .05 level of significance was attained.

Chi-square significance tables, plus a narrative description of the findings and interpretations of the analyzed data were presented for each questionnaire item. Summary responses, statistical percentages and chi-square significance levels were included for each reported questionnaire item.

Review by State Panel of Specialists

Prior to the presentation of the summary of frequency responses and chi-square cross-tabulation contrasts plus data analyses, results of the "Bicycle Safety Education Questionnaire" review by the state panel of specialists and the pilot study phase were reported. The writer utilized a review by the state panel of specialists to determine congruency of agreement concerning validity of bicycle safety education content items in the questionnaire (see Appendix M). It was found that four of the five specialists (80 percent of respondents) were in total agreement concerning the validity of the bicycle safety education content items in the "Bicycle Safety Education" Questionnaire. These individuals determined that

1. The 27 questionnaire items were in agreement with the bicycle safety education content material as stated in the Minnesota K-3 Traffic Safety Curriculum Guide;
2. The "Bicycle Safety Education Questionnaire" was adequate for use in measuring the nature and extent of bicycle safety education programs in K-3 grades in the St. Cloud, Minnesota area;
3. The questionnaire items were clear and concise as stated; and
4. The bicycle safety education dominant themes; i.e. bicycle safety education program descriptors, bicycle safety education concept utilization, etc. and

corresponding questionnaire items in the "Bicycle Safety Education Questionnaire" were appropriate for use by K-3 grade bicycle instructors in the St. Cloud, Minnesota area.

On the other hand, one specialist (20 percent of aggregate respondents) offered technical revisions concerning specific questionnaire items; i.e. substitute terminology, review items for added clarity. The final revisions of the "Bicycle Safety Education Questionnaire" incorporated these suggestions.

Results of the Pilot Study

The pilot study phase was conducted to determine:

1. The validity of the bicycle safety education component themes; i.e. bicycle safety education program descriptors, bicycle safety education concept utilization, etc. and corresponding questionnaire items used in "The Bicycle Safety Education Questionnaire;"
2. The clarity and conciseness of questionnaire items used in "The Bicycle Safety Education Questionnaire";
3. Agreement with bicycle safety education content material contained in the Minnesota K-3 Traffic Safety Curriculum Guide; and
4. Adequacy of the "Bicycle Safety Education Questionnaire" to measure the nature and extent of bicycle safety education programs of instruction conducted in the St. Cloud, Minnesota area (see Appendix N for a list of pilot study instructors).

One hundred percent of the six pilot study bicycle instructors reported the 27 questionnaire items were valid with respect to the incorporated bicycle safety education content materials. Returns indicated the questionnaire items were clear and concise as stated. In addition, these bicycle instructors confirmed the questionnaire items adequately reflected and agreed with bicycle safety education content material as stated in The Minnesota K-3 Traffic Safety Curriculum Guide. There was 100 percent agreement that the questionnaire items and component themes; i.e. bicycle safety education program descriptors, bicycle safety education concept utilization, etc. adequately measured K-3 grade bicycle safety education programs of instruction at their schools. No technical revisions or changes were reported by the six bicycle instructors.

Visits to three of the six pilot study sites during periods of bicycle safety education classroom and "on-bike" programs of instruction confirmed bicycle instructor reported practices as stated in the returned "Bicycle Safety Education Questionnaires." Thus, a 100 percent rater reliability level was attained by means of the visits to the three sites. As a result of the "Bicycle Safety Education Questionnaire" review by the state panel of specialists and completion of the pilot study phase, the final revision of the questionnaire was completed prior to mailing and distribution processes. Suggested revisions also assisted in the development of the "Bicycle Safety Education Program Coding Manual" (see Table 1, p. 81).

Summary

There were 101 K-3 grade bicycle instructors contacted for the purposes of the questionnaire phase of the study. A "Bicycle Safety Education Questionniare" was forwarded to each bicycle instructor for completion and return processes following identification at each site.

The questionnaire was prepared with the assistance of information gained from previous bicycle safety education studies, from a review of related literature, and with the consultation assistance provided by a state panel of specialists, a pool of pilot study K-3 grade bicycle instructors, the Computer Center at St. Cloud State University and the writer's guidance committee.

A 100 percent return rate of the questionnaire was deemed necessary for data processing. This was accomplished with the return of all 101 questionnaires, which were processed for further statistical analyses.

Data based on the 100 percent return rate were presented in Chapter IV. The separate questionnaire items were analyzed and the data organized into chi-square "cross tabulation" significance tables. In addition, summary frequency response tables were prepared which included abbreviated questionnaire items and corresponding nominal frequencies.

CHAPTER IV

ANALYSIS OF RESULTS

The primary purpose of this study was to describe the nature, the extent, the reported differences and to analyze factors associated with K-3 grade bicycle safety education programs of instruction in elementary schools within a 60-mile radius of St. Cloud, Minnesota.

The study utilized a "Bicycle Safety Education Questionnaire" to solicit bicycle instructor responses concerning classroom and "on-bike" programs of instruction in 101 K-3 grade schools in central Minnesota.

The sample population of the study consisted of 101 K-3 grade elementary teachers identified as bicycle instructors in each K-3 grade school within a 60-mile radius of St. Cloud, Minnesota. Final returns revealed bicycle safety education programs were conducted in 97 of the 101 surveyed sites.

Since school-oriented characteristics; i.e. school location--urban vs. rural locales, instructor sex, etc. and Kindergarten, grades 1, 2 and 3 bicycle instructor status versus reported bicycle safety education program components, i.e. course scheduling practices, enrollment levels, etc. were contrasted, these analyses centered on the strength of relationships between the two groups of variables. Therefore, the findings were presented in two formats

and delineated as follows: Part I presented a summary of frequency responses of each of the 27 "Bicycle Safety Education Questionnaire" items in Tables 2 through 6. Narrative findings of the data were also included. Part II presented the chi-square "cross tabulation" contrasts and analyses of the data performed on each of the questionnaire items. Part II also included statistical Tables 7 through 10, summary findings, interpretations and hypotheses statements. "Open-ended" questionnaire responses were presented in narrative format as reported by responding K-3 grade bicycle instructors. The specific responses and questionnaire items were not listed as Part II cross-tabulated data.

For this study, the aggregate responses to the 27 questionnaire items were grouped according to the dominant bicycle safety education program component themes that follow.

1. Bicycle safety education program descriptors; i.e. teaching formats, teaching personnel, etc.;

2. Bicycle safety education concept utilization; i.e. bicycle safety equipment, bicycle care and maintenance, etc.;

3. Bicycle safety education program evaluation practices; i.e. skill exercises, reported accident data, etc.;

4. Bicycle safety education program duration; i.e. seasonal programs, instructional hours, etc.;

5. "Open ended" response items; i.e. support agency utilization, audio-visual aid utilization, etc.

The five dominant bicycle safety education program component themes were contained within bicycle safety education curriculum

guides, bicycle safety education programs of instruction and reviewed bicycle safety education questionnaires. These five dominant themes and corresponding questionnaire items were presented in a "Bicycle Safety Education Coding Manual" format in Table 1.

Research Questions

The writer developed the following research questions from the stated research objectives of the study. In addition to the major research questions, specific research hypotheses were prepared in the null form and presented prior to presentation of the data and narrative analyses.

Major Research Questions

1. Are there any significant differences in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to reported school and bicycle instructor characteristics (e.g., urban vs. rural locations, instructor sex, actual bicycle instructor occupation, grade levels offered and instructor preparation levels)?

2. Are there any significant differences in K-3 grade classroom bicycle safety education instructional components as reported by K-3 grade bicycle instructors within a 60-mile radius of St. Cloud, Minnesota?

3. Are there any significant differences in K-3 grade "on-bike" bicycle safety education instructional activities as reported by K-3 grade bicycle instructors within a 60-mile radius of St. Cloud, Minnesota?

TABLE 1.--Bicycle Safety Education Program Coding Manual. Questionnaire Items Grouped by Bicycle Safety Education Content Area.

Bicycle Safety Education Component Area (Theme)	Questionnaire Item Number
1. Bicycle Safety Education Program Descriptors, Enrollment Levels	1, 5, 6, 7, 8, 11, 12, 13, 20, 21, 22, 24, 25, 26
2. Bicycle Safety Education Concept Utilization	14, 15, 16
3. Bicycle Safety Education Program Evaluation Practices	17, 18, 19, 23
4. Bicycle Safety Education Program Duration	2, 3, 4
5. Bicycle Safety Education "Open-Ended Response" Items	7, 9, 10, 27

Specific Research Hypotheses
(Null Form)

HO_1: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to urban vs. rural programs as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors.

HO_2: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to instructor sex status as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors.

HO_3: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to bicycle instructor occupations as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors.

HO_4: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to Kindergarten, grades 1, 2 and 3 level bicycle safety education programs as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors.

HO_5: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the following bicycle safety education formal bicycle instructor preparation levels as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors:

- I have received no formal instruction in bicycle safety education
- Formal course in bicycle safety education
- Formal course in traffic safety education with bicycle safety component (e.g., K-6 traffic safety education)
- In-service workshop or seminar in bicycle safety education

HO_6: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to time of year (seasonal) offerings (e.g., Fall, Winter, etc.) as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors.

HO_7: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to student contact hours as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors,

HO_8: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to program meeting times (e.g., before school, during school, etc.) as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors.

HO_9: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to student enrollment levels as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors.

HO_{10}: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to instructional format (e.g., separate unit, integrated within existing classes, etc.) as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors.

HO_{11}: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to resource personnel utilized in classroom programs as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors.

HO_{12}: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to bicycle safety education curricula (guides) utilized by reporting Kindergarten, grades 1, 2 and 3 bicycle instructors.

HO_{13}: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to audio-visual aids or models used in conjunction with bicycle safety education programs as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors.

HO_{14}: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to outside agencies involved in bicycle safety education programs as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors.

HO_{15}: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the following "instructional techniques" utilized by reporting Kindergarten, grades 1, 2 and 3 bicycle instructors:

- Teacher-led discussions
- Teacher lecture format
- Teacher-led informal discussions
- Teacher-led small group activities
- Guest speakers, bicycle safety experts
- Audio-visual aids, models
- Student-led formal presentations

- Student-led informal discussions, activities
- Student-led small group work
- Use of prepared curriculums or instruction materials
- Other _____

HO_{16}: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the following types of bicycle safety education activities as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors:

- Classroom presentations
- Off-road skill test(s)
- On-street riding
- Bicycle hikes (trips)
- Bicycle registration
- Bicycle licensing
- Bicycle maintenance
- Special assemblies, seminars
- Special instruction:
    - Handicapped
    - Special Education
    - Adult(s)
    - Other _____

HO_{17}: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the following "Minnesota Bicycle Laws" as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors:

- I do not teach bicycle safety education laws
- Bicycle as a vehicle
- Obedience of traffic signs, signals, pavement markings and sidewalk crossing ordinances
- Licensing or registration of bicycles
- Riding in self-propelled fashion
- Riding with flow of traffic outside central business district
- Proper riding techniques inside central business district
- Riding procedures to insure proper visibility
- Riding no more than two abreast
- Riding on the right-hand side of the roadway
- Riding within a single lane of travel on laned roadways
- Riding close to the right curb-edge

- Yield the right of way to pedestrians and other vehicles
- Carrying only the number of persons designed for the bicycle
- Keeping hand(s) on the handlebars, except when signaling, or stopped and prepared to complete turn
- When walking a bicycle, face the traffic
- Staying off roadways that prohibit bicycle riding
- Use of bicycle paths or lanes when provided
- Use bell or horn when necessary
- Use of light during night riding
- Authorized use of highly visible reflective clothing during night riding
- Procedures for operation of special bicycle events (e.g., parades, contests, or races)
- It is a misdemeanor to break safety laws
- Other _____

HO_{18}: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the following "bicycle riding and safety" concepts as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors:

- I do not teach bicycle riding and safety concepts
- Proper mount and dismount
- Proper riding positions astride bicycle
- Proper pedaling
- Proper braking
- Proper stopping procedures
- Proper procedures for turning
- Emergency stopping and maneuvering
- Defensive riding
- Hazards that face the bicyclist (e.g., weather, pavement, vehicles)
- Crossing railroad tracks
- Crossing intersections
- Correct lane placement
- Overtaking other bicycles or vehicles
- Night-time riding
- Using safety flags
- Using reflective materials
- Proper clothing for increased visibility
- Skill and performance tests
- Touring techniques and packing procedures
- Trip planning
- Conducting special bicycle events (e.g., parades, contests, or races)
- Other_____

HO_{19}: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the following "bicycle safety equipment" concepts as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors:

- I do not teach bicycle safety equipment concepts
- History of bicycling
- How to measure a bicycle for proper size and fit
- Bicycle anatomy (e.g., pedals, seats, frame)
- Classification of bicycles (e.g., lightweight, touring, 3-speed)
- Selection of bicycles and accessories
- Required equipment (e.g., brakes, horn/bell)
- Required equipment on newly sold bicycles (e.g., pedal and wheel reflectors)
- Required equipment for night-riding (e.g., lights, reflectors)
- Recommended equipment (e.g., rear tail light, basket, grips)
- Optional equipment for visibility and safety (e.g., flags, clothing, mirrors)
- Tripping, touring or traveling equipment (e.g., bags, tool kit)
- Other _____

HO_{20}: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the following "bicycle care and maintenance" concepts as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors:

- I do not teach bicycle care and maintenance concepts
- Proper bicycle storage
- Theft prevention
- Parking procedures
- Brakes (e.g., adjustment for even wear)
- Saddle (seat) (e.g., adjustment for proper size)
- Handlebars (e.g., tighten often, proper height)
- Wheels (e.g., nuts tight to prevent sway, uneven wear on rim)
- Tires (e.g., properly inflated, no defects)
- Spokes (e.g., tight, wear)
- Pedals (e.g., spin freely, tight)
- Chain (e.g., wear, lubrication)
- Gears (e.g., adjustment, replacement of cables)
- Keeping all working parts clean and lubricated
- Others _____

HO_{21}: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the following specific skill exercises, offered in conjunction with "on-bike" performance or skill tests as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors:

- I do not offer "on-bike" performance or skill tests
- Sign, signal, pavement marking recognition
- Balancing exercises (e.g., straight line, weave, zig-zag)
- Relay races
- Riding planks, narrow surfaces
- Serpentine, slalom, or weave riding
- Slow-poke races (coasting races)
- Ride and pitch exercise (hit the target, bean bag toss)
- Traffic mix situations
- Timed speed races
- Circling and balance exercise
- Figure-8 with weave
- U or Y turn-about exercise
- Stopping drills
- Braking with/without skids
- Evasive riding exercise(s)
- Riding on rough surfaces (e.g., gravel, wet/bumpy grassy areas)
- Riding on wet surfaces
- Pair or group riding exercise
- Passing exercise
- Merging exercise
- Simulated turning exercises (e.g., one-way, two-way, 4-lane, divided and undivided roadways)
- Do you provide awards or certificates to participants? (If yes, circle appropriate grades)
- Do you utilize reflectorized tape in conjunction with inspections? (If yes, circle appropriate levels)

HO_{22}: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to utilization of expertise from others in their community at performance, skill test activities as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors.

HO_{23}: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to incorporation of the bicycle safety skill test or an evaluation performance program at the site of the local high school Driver Education range/off-street practice area as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors.

HO_{24}: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the rank ordering by bicycle safety education instructors concerning offering bicycle safety education as a required subject as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors.

HO_{25}: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the rank ordering of the following instructional groups as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors:

- Pre-elementary grade teachers
- Elementary teachers, K-3
- Elementary teachers, 4-6
- Junior high teachers, 7-8 or 7-9
- Senior high teachers, 9-12 or 10-12
- Youth agency leaders (Y's, Scouts, etc.)
- Bicycle organization representatives (American Youth Hostels, Gopher Wheelman)
- Police department personnel
- Judicial department personnel
- Bicycle shop representatives
- Parental instruction
- Community broad-based support groups (e.g., educational instructors, police personnel, judicial support, parental involvement, and community agency support)
- Parks and recreation department personnel
- Other _____

HO_{26}: There is no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to bicycle safety-related accidents and fatalities on school grounds during the 1977-78 school year as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors.

HO_{27}: There is no significant difference in selected K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the following items as reported by Kindergarten, grades 1, 2 and 3 bicycle instructors:

- Interest in nearby K-3 grade reported bicycle safety education programs contents and instructor practices
- Interest in receiving a copy of the Minnesota K-3 Traffic Safety Curriculum Guide; and
- Reported additional K-3 grade bicycle instructor comments relative to bicycle safety education instructional practices not listed in the "Bicycle Safety Education Questionnaire."

Summary of Frequency Responses

Following in tabular (Tables 2 through 6) and narrative form are the reported K-3 grade bicycle instructor responses by frequency. These aggregate responses to the 27 "Bicycle Safety Education Questionnaire" Items were grouped according to the five dominant bicycle safety education program component themes listed in Table 1. The five summary frequency response tables (Tables 2 through 6) contained abbreviated questionnaire item statements plus corresponding nominal frequencies (see Appendix Q).

Findings of Demographic Data

Ninety-seven of the 101 surveyed K-3 grade bicycle instructors reported offering bicycle safety education activities. Of these 97 there were 83 men and 14 women. Bicycle safety education activities were offered in 46 rural locales and 51 urban locales. There were 58 bicycle safety education activities conducted in Kindergarten, 89 in grade 1, 91 in grade 2 and 97 in grade 3.

More bicycle safety education classes were conducted in class enrollment sizes of "60 or more students" at the Kindergarten through grade 3 levels than in smaller class sizes.

More "Integrated Within Regular Class" bicycle safety education programs were conducted in the 97 reported K-3 grade bicycle safety education programs than those taught as "Separate Units," "Assembly" or "Other Means (Holiday Programs)."

"Police Personnel" were used more frequently to assist as "Resource Personnel" in K-3 grade bicycle safety education programs than "Other Groups (Jaycees)," "Guest Speakers," "Bike Shop Personnel," "Amateur Cyclists" or "Park/Recreation Personnel." No "Judicial Representatives" were used in reported K-3 grade bicycle safety education programs.

The "Minnesota K-3 Traffic Safety Education Curriculum Guide" was reportedly used more frequently in K-3 grade bicycle safety education programs than "Other Units/Guides ("Essentials of Good Bicycling")," "School Curricula," "Commercial Guides" or "Other State Curricula."

"Teacher-Led Discussions," "Guest Speakers/Experts," "Audio-Visual Guides/Models" and "Use of Curricula/Materials" were reportedly used more frequently as "Instructional Techniques" in K-3 grade bicycle safety education programs than "Teacher Lectures," "Teacher-Led Informal Discussions," "Teacher-Led Small Groups," "Student-Led Small Group Work," "Student-Led Informal Discussions," "Student-Led Small Group Work" or "Other Methods (Independent Outside Work)."

"Classroom Presentations" were used more frequently as "Specific Instructional Activities" in K-3 grade bicycle safety education programs than "Off-Road Skill Tests," "Special Assemblies (seminars)," "Bicycle Maintenance Procedures," "Bicycle Registrations," "Bicycle Hikes/Trips," "On-Street Riding Programs," "Special Activities For Pre-School," "Handicapped Instruction," "Special Education Programs" or "Special Group Instruction." It appears that no "Adult Activities" were conducted in K-3 grade bicycle safety education programs.

"Riding on The Right Side," "Carrying Proper Number of Riders," "Obedience of Signs/Signals/Markings," "Use of Lights at Night," "Use of Visible Clothing," "Keeping Hands on Handlebars," "Riding Close to Right Curb," "Yielding to Vehicles," "Use of Bell/Horn," "Riding Two Abreast," "Riding with Traffic," "Bicycle as a Vehicle," "Face Traffic When Walking," "Staying Off Roadways Where Prohibited," "Use of Bicycle Paths/Lanes," "It is a Misdemeanor to Break Laws," "Use of Sidewalks When Permitted," "Riding Within a Traffic Lane," "Riding in a Self-Propelled Manner," "Riding Procedures Inside Central Business Districts," "Riding For Visibility," and "Proper Licensing Procedures" were reportedly presented more often as "Minnesota Bicycle Laws" in K-3 grade bicycle safety education programs than "Special Events Procedures/Rules" or "Seminar/Violation School Procedures." Most K-3 grade bicycle instructors reportedly offered "Minnesota Bicycle Safety Laws."

K-3 grade bicycle instructors reported bicycle safety education instruction should be a requirement. More instructors felt

it should be a requirement in grade 1 and grade 2 bicycle safety education programs than in Kindergarten or in grade 3 bicycle safety education programs.

"Elementary Level Instructors (K-3, 4-6)" received higher ratings as bicycle instructors than either "Pre-elementary Instructors," "Junior High Teachers," "Senior High Teachers," "Youth Groups," "Bicycle Riding Organizations," "Police Personnel," "Judicial Personnel," "Park/Recreation Personnel," "Bicycle Shop Representatives," "Parents," "Community Groups" or "Other Groups (Scouts, Patrols)."

Most of the responding K-3 grade bicycle instructors requested "Information Concerning Contents and Instructional Practices of Nearby K-3 Grade Bicycle Safety Education Programs."

Reporting K-3 grade bicycle instructors were divided concerning "Requests for Minnesota K-3 Traffic Safety Curriculum Guide."

More reporting K-3 grade bicycle instructors received "No Formal Instruction" in bicycle safety education than "In-Service Workshops/Seminars," "Formal Courses in Traffic Safety Education," or "Formal Courses in Bicycle Safety Education." No reporting instructor received a "Formal Course in Bicycle Safety." The findings of "Demographic Data" are reported in tabular form in Table 2.

Findings of "Concept Utilization"

Reporting K-3 grade bicycle instructors offered "Turning Procedures," "Reflective Materials," "Hazard Elements," "Defensive Riding Procedures," "Stopping Procedures," "Riding Positions,"

TABLE 2.--Bicycle Safety Education Demographic Data Program Descriptors - Enrollment Levels.

Instructor Sex
(Questionnaire Item #1, Appendix Q)

Male	Female
83	14

School Location
(Questionnaire Item #1, Appendix Q)

Rural (R)	Urban (U)
46	51

Number of Programs by Grade Levels
(Questionnaire Item #1, Appendix Q)

Kindergarten (K) (n = 58)	1st Grade (1) (n = 89)	2nd Grade (2) (n = 91)	3rd Grade (3) (n = 97)
37 R - 21 U	41 R - 48 U	43 R - 48 U	46 R - 51 C
51 M - 7 F	80 M - 9 F	82 M - 9 F	83 M - 14 F

Reported Student Enrollments in Bicycle Safety Education Programs
(Number of Programs for Each Grade Level by Class Size)
(Questionnaire Item #5, Appendix Q)

	1-15	16-30	31-45	46-60	61 or more	Total
K	4	11	6	6	31	58
1	4	11	6	6	62	89
2	3	12	6	6	64	91
3	3	12	7	6	69	97
					Grand Total	335

Reported Bicycle Safety Education Instructional Formats
(Number of Programs for Each Format, by Grade Level)
(Questionnaire Item #6, Appendix Q)

Instructional Format	K	1	2	3
Separate Unit	14	16	14	22
Integrated	33	61	64	61
Assembly	32	37	39	39
Other	3	30	31	31
Not Offered	2	1	1	0

Reported Use of Resource Personnel
(Number of Programs for Each Resource Personnel, by Grade Level)
(Questionnaire Item #7, Appendix Q)

Resource	K	1	2	3
Classroom guest speakers	9	12	11	15
Park, Recreation sponsor	1	1	1	2
Police	41	70	71	75
Judicial representative	0	0	0	0
Bicycle shop sponsor	1	1	2	5
Amateur cyclist	2	4	4	4
Others (Jaycees)	8	9	10	12

TABLE 2.--Continued.

Reported Use of Curricula/Guide(s)
(Number of Programs for Each Curriculum/Guide, by Grade Level)
(Questionnaire Item #8, Appendix Q)

Curriculum(s)/Guide(s)	K	1	2	3
School curriculum	6	31	31	35
Minnesota K-3 Traffic Safety Curriculum Guide	34	64	66	71
Other State curriculum	4	4	4	5
Commercial guide	8	10	10	11
Other unit/guide	13	39	40	40

Reported Use of Instructional Techniques
(Number of Programs for Each Instructional Technique, by Grade Level)
(Questionnaire Item #11, Appendix Q)

Instructional Techniques	K	1	2	3
Teacher-led discussions	44	74	76	82
Teacher lectures	8	35	37	42
Teacher-led informal discussions	16	20	22	27
Teacher-led small group work	7	9	10	14
Guest speakers, experts	40	68	70	74
Audio-visual guides, models	34	66	68	73
Student-led presentations	2	2	3	4
Student-led informal discussions	2	2	3	4
Student-led small group work	2	2	3	5
Use of curricula, materials	32	59	61	67
Other techniques (independent work)	2	3	3	4

Reported Use of Specific Instructional Activities
(Number of Programs for Each Instructional Activity, by Grade Level)
(Questionnaire Item #12, Appendix Q)

Instructional Activities	K	1	2	3
Classroom presentations	40	71	72	77
Off-road skill test	8	36	38	42
On-street riding	4	5	6	9
Bicycle hikes, trips	1	1	1	4
Bicycle registration	5	6	6	8
Bicycle licensing	5	6	7	7
Bicycle maintenance	7	9	9	15
Special assembly (seminar)	30	31	32	34
Special activities (pre-school)	0	0	0	2
Handicapped	2	3	3	3
Special education	2	2	2	3
Adult	0	0	0	0
Other (special groups)	1	1	1	2

Reported Incorporation of "Minnesota Bicycle Laws"
(Number of Programs for Each "Minnesota Bicycle Law", by Grade Level)
(Questionnaire Item #13, Appendix Q)

Minnesota Bicycle Laws	K	1	2	3
Not offered	8	9	9	9
Bicycle as a vehicle	37	64	67	71
Obey signs, signals	41	72	75	82
Riding self-propelled	27	55	58	62
Riding with traffic	33	64	64	73
Riding inside central business district	29	56	57	68
Riding for visibility	32	60	64	69
Riding two-abreast	38	67	69	75
Riding on right side	43	76	78	83
Riding within a single lane	29	57	61	66
Riding too close to curb	36	70	72	78
Yielding to other vehicles	39	70	72	78
Carrying proper number on vehicle	41	72	73	80
Keeping hands on handlebars	39	70	73	79
Face traffic when walking bicycle	31	59	63	69
Staying off roadways where prohibited	29	51	62	67
Use of paths, lanes where provided	29	51	62	67
Use of sidewalks when permitted	25	53	56	60
Use of bell, horn when necessary	33	64	68	75
Licensing procedures	22	49	52	55

TABLE 2.--Continued.

Reported Incorporation of "Minnesota Bicycle Laws" (cont.)

Minnesota Bicycle Laws	K	1	2	3
Use of light at night	37	70	73	79
Use of visible clothing	42	74	75	79
Special events procedures	7	8	8	11
Misdemeanor penalty	22	50	53	59
Other bicycle laws (seminars, convictions)	1	1	1	1

Reported Responses Concerning Offering Bicycle Safety Education as a Required Subject - by Number of Programs
(Questionnaire Item #20, Appendix Q)

Yes	No	No Response
36	15	46

Reported Responses concerning Rank Ordering by K-3 Grade Bicycle Instructors with Respect to Offering Bicycle Safety Education as a Required Subject - by Number of Programs
(Number of Programs for Each Rank Order, by Grade Level)
(Questionnaire Item #21, Appendix Q)

Priority Level Selected by Instructors	K	1	2	3
Highest (1st) Priority	5	8	7	7
2nd Priority	0	7	14	6
3rd Priority	4	12	6	5
4th Priority (Last Priority)	18	0	0	9

Reported Responses Concerning Rank Ordering by K-3 Grade Bicycle Instructors with Respect to Instructional Groups if Bicycle Safety Education Was a Required Subject - by Number of Programs
(Number of Programs for Each Instructional Group, by Priority Level Selected by Instructors)
(Questionnaire Item #22, Appendix Q)

	Priority Level Selected by Instructors													
Instructional Groups	No Response	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Pre-Elementary	85	1	1	4		2					1		1	2	
Elementary, K-3	53	25	7	6	3	2					1				
Elementary, 4-6	63	3	20	8	2		1								
Junior High	78	1	1	7	1	3	1	2	1						
Senior High	85	1		1	2	1	1	1	1	1		2		1	
Youth Groups	81	2	2	2	1	1	3	1	1	1		1	1	1	
Bicycle Organizations	82	2	1	1	4	1		1	1	1	2		1		
Police	61	6	6	7	9	2	3	1	2						
Judicial Personnel	85	1	1			1				3	3	2	1		
Park/Recreation sponsor	78	1	1	1	4	2	1	4	1	1	2	1			
Bicycle Shop sponsor	82	1		1		3	1	1	2	1		4	1		
Parents	76	5	2	2	2	3	3		1				2	1	
Community support group	72	8	3	3	2	1	1		1	2	1		1	2	
Other group (Scouts)	94		1												2

Reported Expressed Interest Concerning Receiving Information with Respect to Area K-3 Bicycle Instructor Programs and Practices - by Number of Programs
(Questionnaire Item #24, Appendix Q)

Yes	No	No Response
87	8	2

TABLE 2.--Continued.

Reported Responses Concerning Expressed Interest in Receiving A Copy of the Minnesota K-3 Traffic Safety Curriculum Guide - by Number of Programs
(Questionnaire Item #25, Appendix Q)

Yes	No	No Response
46	47	4

Reported Responses Concerning Types of Formal Instruction Received by Bicycle Instructors with Respect to Bicycle Safety Education - by Number of Programs for Each Type of Formal Instruction
(Questionnaire Item #26, Appendix Q)

Number of Programs	Response
0	Formal Course in Bicycle Safety Education
4	Formal Course in Traffic Safety Education that included Bicycle Safety Education Component (e.g., K-9 Traffic Safety Education)
10	Local In-Service Workshop or Seminar in Bicycle Safety Education
83	No Instruction in Bicycle Safety Education

"Mount/Dismount Procedures," "Pedaling Procedures," "Night Riding Procedures," "Safety Flags Usage," "Crossing Intersections," "Skill Test Procedures," "Railroad Crossings," and "Overtaking Others," as "Bicycle Riding/Safety Concepts" in greater frequencies than "Not Being Offered," "Touring/Packing Procedures," "Special Events," "Demonstrations," or "Trip Planning."

Reporting K-3 grade bicycle instructors offered "Required Equipment," "Proper Size, Fit," "Bicycle Anatomy," "Required Equipment--(New Models)," "Required Equipment For Night Use," "Recommended Equipment," and "Optional Equipment (Baskets)" as "Bicycle Safety Equipment" in greater frequencies than "Bicycle History," "Not Being Offered," "Bicycle Trip Equipment" or "Other Concepts (Bicycle Frame Construction)."

Reporting K-3 grade bicycle instructors offered "Handlebars," "Tires," "Chain," "Wheels," "Spokes," "Pedals," "Theft Prevention," "Parking Procedures," "Clean/Lubricate All Parts" and "Brakes" as "Bicycle Care and Maintenance" concepts in greater frequencies than "Bicycle Storage," "Not Being Offered" or "Other Concepts (Maintenance Schedules)." The findings of "Concept Utilization" are reported in tabular form in Table 3.

Findings of Program Evaluation Practices

Reporting K-3 grade bicycle instructors offered "No Specific Skill Exercises" in greater frequencies than "Sign/Signal Recognition," "Balancing Exercises," "Stopping Drills," "Serpentine/Weave," "Circling/Balance," "Slow Races," "Braking/Skids," "Rough Surface

TABLE 3.--Bicycle Safety Education Concept Utilization.

Reported Incorporation of "Bicycle Riding and Safety" Concepts
(Number of Programs for each Concept, by Grade Level)
(Questionnaire Item #14, Appendix Q)

"Bicycle Riding and Safety" Concept	K	1	2	3
Not offered	12	12	13	11
Mount, dismount procedures	23	54	53	59
Riding positions	26	57	57	66
Pedaling procedures	23	55	52	58
Braking procedures	26	58	57	63
Stopping procedures	29	62	61	66
Turning procedures	29	64	64	69
Emergency stops	8	37	36	42
Defensive riding procedures	30	57	58	66
Riding in hazards (weather)	30	57	60	67
Railroad crossing procedures	27	31	33	38
Crossing intersections	35	42	42	48
Lane placement procedures	27	29	30	36
Overtaking others	19	22	24	30
Night riding procedures	32	36	41	49
Use of safety flags	22	46	48	48
Use of reflective materials	37	66	67	74
Use of reflective clothing	32	62	65	71
Skill tests	8	32	35	39
Touring, packing procedures	2	3	3	4
Trip planning procedures	1	1	1	1
Special events	1	2	2	3
Other "bicycle riding, safety" concepts (demonstrations)	2	2	2	3

TABLE 3.--Continued.

Reported Incorporation of "Bicycle Safety Equipment" Concepts
(Number of Programs for each Concept, by Grade Level)
(Questionnaire Item #15, Appendix Q)

"Bicycle Safety Equipment" Concept	K	1	2	3
Not offered	14	13	14	13
Bicycling history	11	12	13	17
Proper size, fit	24	54	55	60
Bicycle nomenclature	24	52	53	53
Bicycle classification	18	19	20	25
Bicycle selection	17	18	19	24
Required equipment	29	60	63	68
Required equipment on new models	21	47	48	54
Required equipment for night use	31	36	39	46
Recommended equipment	26	30	32	40
Optional equipment	19	22	24	31
Bicycle trip riding equipment	2	2	3	4
Other "bicycle safety equipment" concepts (bicycle frames)	3	3	3	3

Reported Incorporation of "Bicycle Care and Maintenance" Concepts
(Number of Programs for each Concept, by Grade Level)
(Questionnaire Item #16, Appendix Q)

"Bicycle Care and Maintenance" Concept	K	1	2	3
Not offered	17	17	16	15
Bicycle storage	17	19	22	21
Theft prevention	27	32	34	40
Parking procedures	22	25	28	33
Brakes	19	22	26	31
Saddle (seat)	21	50	54	56
Handlebars	21	50	54	57
Wheels	20	49	51	55
Tires	20	48	51	56
Spokes	18	46	49	55
Pedals	19	47	51	54
Chain	20	48	52	56
Gear	16	19	23	27
Clean, lubricate parts	20	23	27	32
Other "bicycle care and maintenance" concepts (maintenance schedules)	2	2	3	3

Riding," "Reflectorized Tape," "Awards/Certificates," "Figure-8 With Weave," "Riding Planks," "Timed Races," "Passing Exercise," "Relay Races," "Traffic Mix," "Merging Exercise," "Group Riding," "Wet Surface Riding," or "Ride/Pitch" as "Specific Skill Exercises" in conjunction with performance/skill tests.

K-3 grade bicycle instructors reported using "Local Bicycle Safety Expertise at Their Skill/Performance Tests." An equal number of K-3 grade bicycle instructors did not respond to the item. These instructors indicated "Non-Use of Expertise at Their Skill Tests." A small number of reporting bicycle instructors "Would Like to Use Local Expertise at Their Skill Tests."

Most K-3 grade bicycle instructors did not conduct the "Skill Test or Performance Evaluation Program at The Local High School Range/Practice Area."

Many reporting K-3 grade bicycle instructors did not supply "Bicycle Safety Related Accident or Fatality Data." Most of the responding K-3 grade bicycle instructors indicated bicycle-safety related accident/fatality data was "Unavailable" for reporting purposes. One accident and zero fatalities were reported by responding K-3 grade bicycle instructors. The findings of "Program Evaluation Practices" are reported in tabular form in Table 4.

Findings of Program Duration

More K-3 grade bicycle programs were offered in "Spring" as Compared to "Fall," "Integrated Within Regular Classes (Year Round)," "Summer" or "Winter." No K-3 grade bicycle safety education programs were offered as "Winter" offerings.

TABLE 4.--Bicycle Safety Education Program Evaluation Practices.

Reported Incorporation of Specific Skill Exercises for Bicycle Safety Skill/Performance Test (Number of Programs for each Category, by Grade Level) (Questionnaire Item #17, Appendix Q)

	K	1	2	3
Not offered	43	46	47	49
Sign, signal recognition	8	36	37	40
Balancing exercises	8	35	37	41
Relay races	0	0	1	2
Riding on planks	2	3	3	4
Serpentine, weave	5	32	33	37
Slow races	3	30	31	33
Ride, pitch exercises	0	0	0	1
Traffic mix exercises	0	0	1	2
Timed races	1	2	2	3
Circling, balance exercises	7	32	33	36
Figure-8, weave exercises	4	5	6	9
U, Y turn-about exercises	2	2	2	3
Stopping drills	6	33	35	38
Braking with, without skids	4	30	31	33
Evasive exercises	0	0	0	1
Riding on rough surfaces	2	28	29	29
Riding on wet surfaces	1	0	1	1
Group riding exercises	1	0	1	0
Passing exercises	2	2	2	2
Merging exercises	2	1	1	1
Turning exercises	3	3	3	3
Presentation of awards, certificates	7	7	8	11
Use of reflectorized tape	7	9	11	12

Reported Use of Community Personnel for Bicycle Safety Skill/Performance Test - By Number of Programs (Questionnaire Item #18, Appendix Q)

Yes	No	Would Like To	No Response
49	22	7	19

TABLE 4.--Continued.

Reported Incorporation of Bicycle Safety Skill Test or an Evaluation Performance Program at Driver Education Range/Off-Street Practice Area -- by Number of Programs
(Questionnaire Item #19, Appendix Q)

Yes	No	No Response
6	82	9

Reported Responses Concerning Bicycle Safety-Related Accidents, Fatalities that Occurred on School Grounds During the 1977-78 School Year
(Questionnaire Item #23, Appendix Q)

Accidents	Fatalities	Unavailable	No Response
1	0	55	41

Reported K-3 grade bicycle safety education programs were more often presented in "1-2 Hour Formats" in Kindergarten, grade 1 and grade 2 bicycle safety education programs than in "3-5," "6-8," "9-11" or "12 or More Hour" formats. One grade 3 bicycle safety education program was conducted in "12 or More Hours."

All but one reported K-3 grade bicycle safety education program was conducted "During School Hours." One reported K-3 grade bicycle safety education program was conducted "After School Hours." No reported K-3 grade bicycle safety education programs were conducted "Before School Hours" or on "Saturdays/Other Times." The findings of "Program Duration" are reported in tabular form in Table 5.

Findings of "Open-Ended" Response Items

The responding K-3 grade bicycle instructors reported use of the "Minnesota Highway Patrol (25 sites)" and "Anoka Police Department (25 sites)" more often than "Other Individuals/Agencies" as reported by agency/title and grade levels (roles) in K-3 grade bicycle safety education programs.

A variety of "Specific Audio Visual Aids or Models" were used on an equal basis by K-3 grade bicycle instructors.

A variety of "Outside Agencies" were used on an equal basis by K-3 grade bicycle instructors.

A variety of "Additional Instructor Comments" and K-3 grade "Bicycle Safety Educational Practices" were offered by responding K-3 grade bicycle instructors. The findings of "Open-Ended" response items are reported in tabular form in Table 6.

TABLE 5.--Bicycle Safety Education Program Duration.

Reported Seasonal Offerings (Number of Programs for Each Category) (Questionnaire Item #2, Appendix Q)				
Fall	Winter	Spring	Summer	Integrated Within Regular Classes, Year-Round
29	0	90	2	4

Reported Student Contact Hours (Number of Programs for Each Category, by Grade Level) (Questionnaire Item #3, Appendix Q)					
Student Contact Hours	K	1	2	3	
1-2	39	34	30	27	
3-5	14	24	29	35	
6-8	4	30	28	29	
9-11	1	1	4	5	
12 plus	0	0	0	1	
TOTAL	58	89	91	97	335 (Grand Total)

Reported Meeting Times (Number of Programs for Each Category) (Questionnaire Item #4, Appendix Q)			
Before School	During School	After School	Saturdays/Other Times (Holidays)
0	96	1	0

TABLE 6.--Open-Ended Response Items--(Questionnaire Items 7, 9, 10, 26, Appendix Q).

Question Item #7: Please Identify the individuals used as resource personnel in your school's bicycle safety education program.

Name	Agency/Title	Role(s)/Grade(s)
Mr. Art Berry	Atwater Police Department	K-3
Mr. Tim Thompson	Police Chief (Winsted)	K-3 Assemblies
Reverend Earnest Carolson	Rush Point Lutheran Church (Pastor) (Southview Elementary)	K-3 Bicycle Inspection Leader
Ms. Dixie Peterson	4-H Member (Southview Elementary)	Bike Safety Instructor
Mr. Leroy Pearson	Braham Chief of Police (Southview Elementary)	Coordinator
Mr. Larry Southurland	Isanti County Sheriff	(South) Instructor (Land)
Mr. Nelson	Minnesota State Patrol (Southland Elementary)	Assemblies
Rev. Harold Fowler	Braham Police Officer (Southland Elementary)	Bike Inspection Leader
Dusty Rhode	Minnesota State Patrol (Silver Lake)	K-3 Assemblies
Highway Patrol Officer	Minnesota State Patrol (St. Cloud)	K-3
St. Cloud Police Department.	St. Cloud Police Department	K-3
Minnesota Highway Patrol	Minnesota Patrol (Minneapolis; Anoka)	K-3
Anoka Police Department	Anoka Police Department	K-3
Chief Akers	Cambridge Police Department (Cambridge)	K-3 Speaker
Sheriff Harder	Isanti County Sheriff (Cambridge)	K-3 Materials
Officer Jim Smith	St. Cloud Police Department	K-3 Speaker
SCSU Students	SCSU (Madison Elementary, St. Cloud)	K-3 Speaker
St. Cloud Bike Shop	Bike Shop (St. Cloud)	K-3 Speaker
Officer Frank McCarthy	Minnesota Highway Patrol (Crosby-Ironton)	K-3 Speaker, films, "Mike the Bike"
St. Louis Park Officers	St. Louis Park Police Department	K-3
Mr. Richard Waage	Hutchinson Police Department	Grade 3 Speaker
Lt. Moreland	Minnesota Highway Patrol (Long Prairie)	K-3
Mr. Joe Winkler	Long Prairie Police Chief	K-3
Officer Richard Moreland	Minnesota Highway Patrol (Sauk Centre)	K-3 Speaker
Officer Tim Sturvie	Albany Police Department	K-3 Speaker
Officer R. Burlingame	Cedar Island Police Department (Chief)	K-3 Speaker
Officer R. Henning	Cedar Island Police Department	K-3 Speaker
Officer Norman Nelson	Minnesota Highway Patrol (Albertville)	K-3 Speaker, Safety Checks. Bike Course, Reflectivity
Officer Dick Moreland	Minnesota Highway Patrol (Benson)	K-3 Speaker
Officer Dick Moreland	Minnesota Highway Patrol (Harding Elementary)	K-3 Speaker
Officer Shull	Osseo Police Officer (Fair Oaks)	K-3 Speaker
Mr. Larry Converse	Motley Police Department	K-3 Speaker
Officer Frank McCarthy	Minnesota Highway Patrol (Motley)	K-3 Speaker
Mr. Robert Knoche	Minnesota Highway Patrol (Chisago Lakes)	K-3 Speaker
Officer Tom Zerwas	Elk River Police Department	K-3 Juvenile Liaison Officer
Officer Bob Knoche	Minnesota Highway Patrol	K-3 Speaker
Chisago County Sheriff	Chisago County Sheriffs Office	K-3 Speaker
Officer Frank McCarthy	Minnesota Highway Patrol (Princeton)	Grade 3 Speaker
Officer Bob Petterman	Princeton Police Department	Grade 3 Speaker
Officer Frank McCarthy	Minnesota Highway Patrol (Lincoln Elementary) (Little Falls)	K-3 Speaker
Officer Dick Moreland	Minnesota Highway Patrol (Brooten)	K-3 Speaker
Brooten P.D. Officers	Brooten Police Department	K-3 Speakers
Officer Norman Nelson	Minnesota Highway Patrol (Southview Elementary) (Waconia)	K-3 Speaker
Officer Frank McCarthy	Minnesota Highway Patrol (Knight Elementary) (Randall)	K-3 Speaker
Coon Rapids P.D. Officers	Coon Rapids, Police Department (Adams Co.)	K-3 Speaker
Browerville V.F.W.	Browerville, V.F.W.	K-3 Speaker
Minn. Hwy. Patrol Officers	Minnesota Highway Patrol (Browerville)	K-3
Minn. Hwy. Patrol Officers	Minnesota Highway Patrol (Buffalo Lake)	K-3
Buffalo Lake Cub Scouts	Buffalo Lake Cub Scouts	K-3
Eagle Bend Boy Scouts	Eagle Bend Boy Scouts	K-3
Local County Sheriffs	Local County Sheriffs (Wagner Elementary)	K-3
Grey Eagle 4-H	Grey Eagle 4-H	K-3 Rodeos
Becker Bicycle Club	Becker Bicycle Club	1-3
Officer Frank McCarthy	Minnesota Highway Patrol (Baxter)	1-3
Officer Dick Moreland	Minnesota Highway Patrol (Howard Lake-Waverly)	2-3
Wright County Sheriffs	Wright County Sheriffs (Howard Lake-Waverly)	2-3
Howard Lake Police Chief	Howard Lake Police Department	2
Officer Kiltridge	Minnesota Highway Patrol	1-3
Sauk Rapids Police	Sauk Rapids Police Department	1-3
Officer Dick Moreland	Minnesota Highway Patrol (New London)	2-3
Officer Dick Moreland	Minnesota Highway Patrol (Delano)	K-3
Officer Howard Sander	Olivia Police Department Chief	K-3
Minn. Hwy. Patrol Officers	Minnesota Highway Patrol (Aitkin)	K-3
Milaca Merchants, Bike Shop.	Milaca Merchants (inc. Bike Shops)	2-3
Milaca Civic Clubs	Milaca Civic Clubs	2-3
Officers Chuck Stanbaugh & Ron Holt (Chief)	Melrose Police Department	K-3

TABLE 6.--Continued.

Name	Agency/Title	Role(s)/Grade(s)
County Sheriffs	County Sheriff Department (Lake Ripley)	K-3 (Laws, Riding Practice)
Lester Prairie Officers	Lester Prairie Police Department	K-3
Minn. Hwy. Patrol Officers .	Minnesota Highway Patrol (Hector)	K-3
Minn. Hwy. Patrol Officers .	Minnesota Highway Patrol (Fairview)	K-3
Local Merchants, American .. Legion, Service Clubs, Local Police Department	Fairview	K-3 Rodeos, Laws, Rules, Riding Procedures
Officer Richard Moreland ...	Minnesota Highway Patrol (Cold Spring)	K-3 Rules/Laws
Local P.D., Bike Shop ..... Cyclists	Pinewood Elementary	K-3 Laws, Size/Fit, Riding Practices
New London Police Officers..	New London Police Department	K-3
Officer Dick Moreland	Minnesota Highway Patrol (Cokato)	K-3
Local Police Officers	Local Police Department (Helen Baker, Lincoln ... Elementary)	Grade 3
Officer Dick Moreland	Minnesota Highway Patrol (Eden Valley/Watkins) ..	K-3 Speaker
Local Jaycee (Ron ..... Remington)	Local Jaycees (Bendix Elementary)	K-3
Minn. Hwy. Patrol Officers .	Minnesota Highway Patrol (Garfield, St. Cloud) ..	K-3
Officer Jim Smith	St. Cloud Police Department	K-3
Mr. Paul Rooney	St. Cloud Public Schools	K-3

Question Item #9: Identify specific audio-visual aids or models used in conjunction with your bicycle safety education program (e.g., slides, transparencies, films, cassette/filmstrip).

Aid	Model/Title	Source	Topic	Grade(s)
Filmstrips:	"How to Ride your Bike Safely" ...	Bicycle Institute of America	Riding Safety	K-3
	"Street Safety"	Encyclopedia Britannica ..	Riding Safety	K-3
	"Pooh Rides the Bus"	Local Media Center	Classroom Topics ...	2
	"Bicycle Safety"	Local Media Center	Classroom Topics ...	2, 3
	"I'm no Fool with a Bicycle"	Local Media Center	Classroom Topiss ...	3
	"Hazards in Sight"	Local Media Center	Classroom Topics	3
	"The Bear's Bicycle"	Viking Press	Bike Riding	K-3
	"Be a Better Pedal Pusher"	S.V.E.	Bike Riding	K-3
	"Bike Behavior"	S.V.E.	Bike Riding	K-3
	"Safety on the Bicycle"	Young America	Bike Riding	K-3
Films:	"If Bicycles Could Talk"	American Legion	Riding Skills	1-3
	"Bike-Wise To Be Sure".....	St. Cloud Film Library ...	Maintenance & Riding.	3
	"The Bicycle Clown"	Dept. of Public Safety ...	Riding Skills	1-3
	"Drive Your Bike"	Dept. of Public Safety ...	Riding Skills	1-3
	"Just Like a Car"	Dept. of Public Safety ...	Riding Skills	1-3
	"A Monkey Tale"	Dept. of Public Safety ...	Riding Skills	1-3
	"The Day the Bicycles Disappeared".	St. Cloud Film Library ...	Riding Skills	3
	"Bike People"	St. Louis Park School .... Library	Riding Skills	3
	"Bicycles are Beautiful"	Local Media Center	Riding Skills	3
Kit:	"Mike the Talking Bike"	Minn. State Police	Laws	K-3
	"Cars, Bikes, and People"	Local Media Center	Bicycling Concerns ..	1-3
	"Minnesota Bicycle Safety Kit" .... (Instructors)	S.C.S.U.	Bike Selection, ... Riding and Maintenance Tech.	3

Question Item #10: Please identify any outside agencies involved in your bicycle safety education program (e.g., Department of Education, Department of Public Safety).

Agency	Topical Area	Grade(s)
Winsted Police Department	Bicycle Riding Concepts	K-3
Elk River Police Department	Bicycle Selection	K-3
Minnesota State Police	Bicycle Riding	K-3
Department of Public Safety	Rules and Riding Practices	K-3
Benson Police Department	Rules and Riding Safety	K-3
St. Cloud Police	Rules and Riding Safety	K-2
Minnesota Safety Council	Bicycle Safety Materials	3

TABLE 6.--Continued.

Agency	Topical Area	Grade(s)
Coon Rapids Police	Rules	K-3
Glencoe Police	Bike Rodeo	3
American Automobile Association	Bike Safety Materials	3
Bicycle Institute of America	Rules	K-3
Allstate Insurance Company	Bicycle Riding Techniques	3
St. Louis Park Police	Bike Rodeo	K-3
Modern Woodmen of America	Bicycle Safety	1-3
Lions Club	Bicycle Inspection and Rodeo	1-3
Braham Civic and Commerce Association	Bicycle Inspection and Rodeo	1-3
Braham Junior Chamber of Commerce	Bicycle Inspection and Rodeo	1-3
4-H Club	Selection, Maintenance, Riding, Skills & Touring	1-3
St. Cloud A.V.T.I.	Bicycle Laws	K-3
Osseo Police Department	Bicycle Safety	K-3
Anoka Police Department	Bicycle Laws/Regulations	1-3

Question Item #26: If you have any additional instructional areas or comments relative to bicycle safety education instruction which were not covered in the preceding survey items, please include this information in the space below.

Mr. Curtis Levang Howard Lake-Waverly Elementary	"Bike Fair" testing, bike riding skills.
Mr. James Nelson Eden Valley-Watkings Elementary	Have own bike programs already in operation in K-3 grades.
Mr. R. Conklin Atwater Elementary	Bicycle Safety is taught incidentally in schools. No great demand for mandated programs at present time.
Mr. Jack L. Horton Lincoln Elementary (St. Cloud)	Hopefully provided valuable information.
Ms. Mary Olmsted Cedar Manor Elementary (St. Louis Park)	Seeks bicycle safety education materials for use in upper elementary grades.
Mr. Karl A. Berlin Foley Elementary	Currently bicycle safety program is incidentally taught. Lately local police and highway troopers not conducted programs. Receive some National Safety Council materials. Requests assistance in proper bicycle safety and information programs.
Mr. Rodney Ferber Fair Oaks Elementary (Osseo)	We do some unit teaching of bicycle safety within general safety units in K-3 grades.
Mr. M. Nelson Rush City Elementary	Mostly teach bicycle safety in 4-6 levels.
Mr. Vern S. Hagen Brooten Elementary	Has used Highway Patrol officers with "Mike The Bike" presentations, plus AAA, VFW, local American Legion and local police department in rodeos.
Mr. Paul Olinger Osakis Elementary	Requests a blank survey or two to distribute to staff to assess thoroughness of teacher instruction in bicycle safety education.
Mr. Ronald D. Rude Coon Rapids (Adams Elementary)	A special bicycle safety program is not needed. We cover general safety rules all the time.
Ms. Sue Rieland Eden Valley-Watkins Community Education	Thoroughly enjoyed the bicycle safety materials you shared with me. I'd heartily recommend them for any beginning or ongoing bicycle safety program.

Chi-Square "Cross Tabulation" Contrasts--Data Analyses

In Part II are presented tables (Tables 7-10) and narrative descriptions of the summary findings/interpretations, plus hypotheses statements of the chi-square "cross tabulation" treatments performed on the 27 "Bicycle Safety Education Questionnaire" items. The writer grouped the statistical treatment results and summary descriptions (significant interpretations and hypotheses statements) according to the five dominant bicycle safety education program component themes listed in the "Bicycle Safety Education Coding Manual" (Table 1, p. 81). The specific responses to the "open-ended" questionnaire items (component area #5) were presented in narrative format as reported by responding K-3 grade bicycle instructors. The specific responses and questionnaire items were not listed in Part II as cross-tabulated data. Tables 7-10 contained the chi-square "cross-tabulation" contrasts of the selected school-oriented and instructor variables; i.e., school location--urban vs. rural locales, instructor sex, etc. These tables also contained contrasts performed for Kindergarten, grades 1, 2 and 3 bicycle instructor status with the reported bicycle safety education program components--i.e. scheduling practices, enrollment levels, etc. These were presented in cluster fashion (Table 1, p. 81). Also presented were group data statistics and the HO decisions for the particular questionnaire items. The following example illustrates the reporting method:

Contrasts for Cluster #1
(Bicycle Safety Education Program Descriptors)

Cluster #1 Contrast	N	df	Chi-square	$p \leq .05$	H:o Decision
Instructor Sex versus School Location	97	1	.006	.936	Do not reject

Definitions of Statistical Terms

Instructor Sex: (Instr. Sex) surveyed in this study referred to surveyed K-3 grade male and female bicycle instructors within a 60-mile radius of St. Cloud, Minnesota.

School Location: (School Loc.) K-3 grade bicycle instructors classified school sites as rural or urban locales.

N: Referred to the total number of reported (returned) questionnaires.

df: Referred to chi-square degrees of freedom (# row cells -1) (# column cells - 1).

Chi-square: Referred to computed chi-square "cross tabulation" value for each contrast, corrected for possible variation due to uneven reported cell sizes.

$p \leq .05$: Referred to the probability that the computed chi-square "cross tabulation" value would fall at or below the .05 alpha level.

H:o Decision: No significant relationship exists between the contrasted variables--no significant differences exist between the contrasted variables--Do Not Reject.

A significant relationship exists between the contrasted variables. A significant difference exists between the contrasted variables--Reject.

Immediately following the summary narratives for each cluster, the chi-square "cross tabulation" contrast results were presented in tabular form.

Bicycle safety education program content material contained in the "Bicycle Safety Education Questionnaire" items was contrasted with the Kindergarten, grade 1, grade 2 and grade 3 bicycle instructor responses. These contrasts were reported as chi-square "cross-tabulation" data. These data were the basis for the decision to reject or to not reject the null hypotheses.

Reference to "insufficient data" contained in the following cluster tables refers to comparisons between the variables of study not performed by the computer due to the presence of "affirmative only" or "totally negative" responses noted for grade 3 bicycle instructor status and other designated variables.

Reference to "insufficient data" reported in the following summary-analyses/interpretations sections indicates complete absence of contrasted variables due to presence of "affirmative only" or "totally negative" responses noted for grade 3 bicycle instructor status and other designated variables.

Summary - Data Analyses/Interpretations

Contrast 1
Bicycle Safety Education Program Descriptors

Reported School, Bicycle Instructor Characteristics

There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs with respect to contrasted instructor sex, school location (urban vs. rural locales), Kindergarten bicycle instructors, grade 1 bicycle instructors, Kindergarten bicycle safety education programs, grade 1 bicycle safety education programs and grade 2 bicycle safety education programs as school, bicycle instructor characteristics. Chi-square values of 3.841 or higher were needed for significance at the .05 level. The null hypotheses (HO_1, HO_2, HO_3, and HO_4) were rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts. Grade 3 bicycle safety education programs and bicycle safety education programs were conducted in every reported K-3 grade site; hence, contrasts could not be performed for these variables. Insufficient reported data was also noted for grade 3 bicycle safety education programs and reported bicycle safety education programs in K-3 grades in the survey region. The contrasts for "Reported School, Bicycle Instructor Characteristics" are reported in tabular form in Table 7.

Reported Student Enrollment Levels

There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs with respect to "Student Enrollment Levels" as reported by Kindergarten, grade 1 and grade 2 bicycle instructors. Chi-square values of 11.070 or higher were needed for significance at the .05 level. Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_9) was rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts. The contrasts for "Reported Student Enrollment Levels" are reported in tabular form in Table 7.

Reported Instructional Formats

A significant difference at the .05 level of significance was indicated in K-3 grade bicycle safety education programs with respect to "Separate Unit" format, "Integrated Within Existing Classes" format, and "Assemblies" format as reported by Kindergarten, grade 1 and grade 2 bicycle instructors. Chi-square values of 3.841 or higher were needed for significance at the .05 level. Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{10}) was rejected for these variables. Insignificant X^2 values were obtained for "Other Instructional Formats (Special Assignments)." Insignificant X^2 values were also obtained for partial contrasts performed with respect to "Bicycle Safety

Education Programs Not Offered by Bicycle Instructors."[1] The null hypothesis (HO_{10}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts. "Totally negative" responses from responding K-3 grade bicycle instructors with respect to partial contrasts performed for "Bicycle Safety Education Programs Not Offered by Bicycle Instructors" prevented chi-square "cross-tabulation contrasts" being performed for this variable. Insufficient reported data was also noted for partial contrasts performed with respect to "Bicycle Safety Education Programs Not Offered by Bicycle Instructors." The contrasts for "Reported Instructional Formats" are reported in tabular form in Table 7.

Reported Resource Personnel

A significant difference at the .05 level of significance was indicated in K-3 grade bicycle safety education programs with respect to the following "Resource Personnel Utilized in Classroom Programs" as reported by Kindergarten, grade 1 and grade 2 bicycle instructors: "Classroom Guest Speakers," "Police Officers," and "Other Personnel (Jaycees, YMCA, etc.)." Chi-square values of 3.841 or higher were needed for significance at the .05 level. Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{11}) was rejected for these variables. Chi-square values were insignificant for "Park and Recreation Department Personnel," "Local Bicycle Shop Representatives," and "Amateur Cyclists." The null hypothesis (HO_{11}) was not rejected for these

variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts. Since "Judicial Department Representatives" received "totally negative" responses from K-3 grade responding bicycle instructors, contrasts could not be performed for this variable. Insufficient reported data was also noted for "Judicial Department Representatives." The contrasts for "Reported Resource Personnel" are reported in tabular form in Table 7.

One hundred twenty-eight aggregate responses and narrative findings with respect to "Individuals Used as Resource Personnel" in K-3 grade bicycle safety education programs in the St. Cloud, Minnesota area were reported in Part I findings.

Reported Bicycle Safety Education Curricula, Guide(s)

A significant difference at the .05 level of significance was indicated in K-3 grade bicycle safety education programs with respect to the following "Bicycle Safety Education Curricula, Guide(s)" utilized by: Kindergarten, grade 1 and grade 2 bicycle instructors. "School Developed Bicycle Safety Education Curriculum," Minnesota K-3 Traffic Safety Curriculum Guide and "Other Prepared Unit Guide (e.g. "Essentials of Good Bicycling")." Chi-square values of 3.841 or higher were needed for significance at the .05 level. Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{12}) was rejected for these variables.

Insignificant X^2 values were obtained for "Other State(s) Curriculum Guide(s)" and "Commercially Prepared Curriculum Guide(s)." Hence, the null hypothesis (HO_{12}) was not rejected for these items. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts. The contrasts for "Reported Bicycle Safety Education Curricula, Guide(s)" are reported in tabular form in Table 7.

Reported "Instructional Techniques"

A significant difference at the .05 level of significance was indicated in selected K-3 grade bicycle safety education programs with respect to the following "Instructional Techniques" utilized by Kindergarten, grade 1 and grade 2 bicycle instructors: "Teacher-Led Discussions," "Teacher Lecture Format," "Teacher-Led Informal Discussions," "Guest Speakers/Bicycle Safety Experts," "Audio-Visual Aids/Models," "Student-Led Small Group Work," and "Use of Prepared Curricula/Instructional Material." Chi-square values of 3.841 or higher were needed for significance at the .05 level. Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{15}) was rejected for these variables. Insignificant X^2 values were obtained for "Teacher-Led Small Group Activities," "Student-Led Formal Presentations," "Student-Led Informal Discussions/Activities" and "Other Procedures (Independent Assignments)." The null hypothesis (HO_{15}) was not rejected for these items.

Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be

performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts. The contrasts for "Reported Instructional Techniques" are reported in tabular form in Table 7.

Reported Bicycle Safety Education Activities

A significant difference at the .05 level of significance was indicated in K-3 grade bicycle safety education programs with respect to the following types of "Bicycle Safety Education Activities" offered by Kindergarten, grade 1 and grade 2 bicycle instructors: "Classroom Presentations," "Off-Road Skill Test(s)," "Bicycle Maintenance," "Special Assemblies/Seminars." Chi-square values of 3.841 or higher were needed for significance at the .05 level. Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{16}) was rejected for these variables. Insignificant X^2 values were obtained for "On-Street Riding," "Bicycle Hikes/Trips," "Bicycle Registration" and "Bicycle Licensing Procedures." Insignificant X^2 values were also obtained for partial contrasts performed with respect to "Special Instruction" and for contrasts performed for "Handicapped Instruction," "Special Education Instruction" and "Other Bicycle Safety Education Activities (Special Groups)." The null hypothesis (HO_{16}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items and "Adult Programs" received "totally negative" responses from K-3 bicycle instructors, contrasts could not be performed for these variables.

"Totally negative" responses were also noted for partial contrasts performed with respect to "Special Instruction;" hence, contrasts could not be performed for this variable. Insufficient reported data was noted for grade 3 bicycle instructor contrasts, contrasts perfromed for "Adult Programs" and partial contrasts performed with respect to "Special Instruction." The contrasts for "Reported Bicycle Safety Education Activities" are reported in tabular form in Table 7.

Reported "Minnesota Bicycle Laws"

A significant difference at the .05 level of significance was indicated in K-3 grade bicycle safety education programs with respect to the following "Minnesota Bicycle Laws" as reported by Kindergarten, grade 1, and grade 2 bicycle instructors:

- Bicycle as a vehicle
- Obeyance of traffic signs, signals, pavement markings and sidewalk crossing ordinances
- Licensing or registration of bicycles
- Riding in self-propelled fashion
- Riding with flow of traffic outside Central Business District
- Proper riding techniques inside Central Business District
- Riding procedures to insure proper visibility
- Riding no more than two abreast
- Riding on the right hand side of the roadway
- Riding within single lane of travel on laned roadways
- Riding close to right curb edge
- Yield the right of way to pedestrians/other vehicles

- Carrying only number designed for bicycle
- Keeping hand(s) on handlebars except when signaling, or stopped and prepared to complete turn
- When walking a bicycle, face traffic
- Staying off roadways that prohibit bicycle riding
- Use of bicycle paths or lanes when provided
- Use of sidewalks when encouraged
- Use of bell or horn when necessary
- Use of light during night riding
- Authorized use of highly visible reflective clothing during night riding
- Procedures for operation of special events (e.g. parades, contests, or races) and
- It is a misdemeanor to break safety laws

Chi-square values of 3.841 or higher were needed for significance at the .05 level. Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{17}) was rejected for these variables. Insignificant X^2 values were obtained for partial contrasts performed with respect to "Minnesota Bicycle Laws Not Offered by Bicycle Instructors." Insignificant X^2 values were also obtained for "Other Minnesota Bicycle Laws Offered (Seminar Violation Procedures)." The null hypothesis (HO_{17}) was not rejected for these variables.

Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items and partial responses from Kindergarten bicycle instructors were incorrectly reported by computer operators, complete contrasts could not be performed for these variables.[2] "Totally negative" responses for partial contrasts

performed with respect to "Minnesota Bicycle Laws Not Offered by Bicycle Instructors" also prevented contrasts for this variable. Insufficient reported data was noted for contrasts performed for grade 3 bicycle instructors, complete contrasts performed with respect to Kindergarten bicycle instructors and partial contrasts performed with respect to "Minnesota Bicycle Laws Not Offered by Bicycle Instructors." The contrasts for "Reported Minnesota Bicycle Laws" are reported in tabular form in Table 7.

Bicycle Safety Education - Required Subject

A significant difference at the .05 level of significance was indicated in K-3 grade bicycle safety education programs with respect to offering bicycle safety education as a required subject by Kindergarten bicycle instructors. A X^2 value of 5.991 or higher was needed for significance at the .05 level. Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{24}) was rejected for this variable. Insignificant X^2 values were obtained for grade 1 and grade 2 bicycle instructors. The null hypothesis (HO_{24}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts. The contrasts for "Bicycle Safety Education as a Required Subject" are reported in tabular form in Table 7.

Bicycle Safety Education as
Required Subject Rank Offerings

A significant difference at the .05 level of significance was indicated in K-3 grade bicycle safety education programs with respect to the rank ordering by K-3 grade bicycle instructors concerning offering bicycle safety education as a required subject at the Kindergarten, grade 1, grade 2 and grade 3 levels by responding:

1. Kindergarten bicycle instructors concerning offering bicycle safety education as a required subject at the Kindergarten level;

2. Kindergarten bicycle instructors concerning offering bicycle safety education as a required subject at the grade 1 level;

3. Kindergarten bicycle instructors concerning offering bicycle safety education as a required subject at the grade 2 level;

4. Kindergarten bicycle instructors concerning offering bicycle safety education as a required subject at the grade 3 level.

A X^2 value of 7.815 or higher was needed for significance at the .05 level for Kindergarten, grade 1, and grade 2 level bicycle instructors; a X^2 value of 9.488 or higher was needed for significance at the .05 level for grade 3 bicycle instructors.

Since the p values obtained were lower than the .05 level of significance, the null hypothesis (HO_{24}) was rejected for these variables. Insignificant X^2 values were obtained for grade 1 and grade 2 bicycle instructors concerning "Offering Bicycle Safety Education as a Required Subject at the Kindergarten, grade 1, grade 2 and grade 3 Levels." The null hypothesis (HO_{24}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts

could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts. The contrasts for "Bicycle Safety Education as a Required Subject by K-3 Grade Bicycle Instructors" are reported in tabular form in Table 7.

Rank Ordering of Instructional Groups/Required Bicycle Safety Education

A significant difference at the .05 level of significance was indicated in K-3 grade bicycle safety education programs with respect to the "Rank Ordering of The Following Instructional Groups" as reported by Kindergarten, grade 1, and grade 2 bicycle instructors:

- Elementary teachers, K-3
- Elementary teachers, 4-6
- Youth agency leaders (Y's, Scouts, etc.)
- Bicycle organization representatives (American Youth Hostels, Gopher Wheelman)
- Police department personnel
- Parks and recreation department personnel
- Bicycle shop representatives
- Parental groups, and
- Other instructional groups (special groups)

Chi-square values of 12.592 or higher were needed for significance at the .05 level for "Elementary Teachers, K-3" and "Elementary Teachers, 4-6." A X^2 value of 14.067 or higher was needed for significance at the .05 level for "Pre-Elementary Teachers." Chi-square values of 15.507 or higher were needed for significance at

the .05 level for "Police Department Personnel" and "Judicial Department Representatives." Chi-square values of 16.919 or higher were needed for significance at the .05 level for "Bicycle Shop Representatives" and "Parental Groups." Chi-square values of 18.307 or higher were needed for significance at the .05 level for "Junior High Teachers (7-8 or 7-9)," "Senior High Teachers (9-12 or 10-12)" and "Bicycle Organization Representatives (American Youth Hostels, Gopher Wheelman)." Chi-square values of 19.675 or higher were needed for significance at the .05 level for "Park/Recreation Department Personnel" and "Community Broad-Based Support Groups (e.g. Educational Personnel, Police Personnel, Judicial Representatives, Parental Groups and Community Agencies)." A X^2 value of 21.026 or higher was needed for significance at the .05 level for "Youth Agency Leaders (Y's, Scouts, etc.)." A X^2 value of 5.991 or higher was needed for significance at the .05 level for "Other Formats (Special Groups)." Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{25}) was rejected for these variables. Insignificant X^2 values were obtained for "Pre-Elementary Grade Teachers," "Junior High Teachers (7-8 or 7-9)," "Senior High Teachers (9-12 or 10-12)," "Judicial Department Representatives" and "Community Broad-Based Support Groups (e.g. Educational Personnel, Police Personnel, Judicial Representatives, Parental Groups and Community Agencies)." The null hypothesis (HO_{25}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this

variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts. The contrasts for "Rank Ordering of Instructional Groups Concerning Offering Bicycle Safety Education as a Required Subject" are reported in tabular form in Table 7.

Reported Responses to Formal Bicycle Instructor Preparation Levels

A significant difference at the .05 level of significance was indicated in K-3 grade bicycle safety education programs with respect to the following "Bicycle Safety Education Formal Bicycle Instructor Preparation Levels" as reported by Kindergarten, grade 1 and grade 2 bicycle instructors:

- I have received no formal instruction in bicycle safety education
- Formal course in bicycle safety education
- Formal course in traffic safety education with bicycle safety component (e.g., K-6 traffic safety education)
- In-service workshop or seminar in bicycle safety education

A X^2 value of 7.815 or higher was needed for significance at the .05 level. Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_5) was rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts. The contrasts for "Reported Responses to Bicycle Safety Education

Formal Bicycle Instructor Preparation Levels" are reported in tabular form in Table 7.

Interest in Receiving a Copy of the Minnesota K-3 Traffic Safety Curriculum Guide

A significant difference at the .05 level of significance was indicated in K-3 grade bicycle safety education programs with respect to "Expressed Interest in Receiving a Copy of The Minnesota K-3 Traffic Safety Curriculum Guide" as reported by Kindergarten bicycle instructors. A X^2 value of 5.991 or higher was needed for significance at the .05 level. Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{27}) was rejected for this variable. Insignificant X^2 values were obtained for grade 1 and grade 2 bicycle instructors; hence, the null hypothesis (HO_{27}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts. The contrasts for "Interest in Receiving a Copy of The Minnesota K-3 Traffic Safety Curriculum Guide" are reported in tabular form in Table 7.

Interest in Nearby K-3 Grade Reported Bicycle Safety Education Program Contents and Instructor Practices

No significant difference was indicated in K-3 grade bicycle safety education programs with respect to "Interest in Nearby K-3 Grade Bicycle Safety Education Program Contents And Instructor

Practices." A X^2 value of 5.991 or higher was needed for significance at the .05 level. Since the p values attained for Kindergarten, grade 1 and grade 2 bicycle instructors were higher than the .05 level of significance, the null hypothesis (HO_{27}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts. The contrasts for "Interest in Nearby K-3 Grade Reported Bicycle Safety Education Program Contents and Instructor Practices" are reported in tabular form in Table 7.

Contrast 2
Concept Utilization

Reported "Bicycle Riding and Safety" Concepts

A significant difference at the .05 level of significance was indicated in K-3 grade bicycle safety education programs with respect to the following "Bicycle Riding and Safety" concepts as reported by Kindergarten, grade 1 and grade 2 bicycle instructors:

- Bicycle riding and safety concepts not offered by bicycle instructors (partial contrasts)
- Proper mount and dismount
- Proper riding positions astride bicycle
- Proper pedaling
- Proper braking
- Proper stopping procedures

TABLE 7

CONTRASTS FOR CLUSTER #1

BICYCLE SAFETY EDUCATION PROGRAM DESCRIPTORS

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Instr.Sex Vs. Sch.Loc.	97	1	.006	.936	Do Not Reject
Instr.Sex Vs. Grade K	97	1	.264	.608	Do Not Reject
Instr.Sex Vs. Grade 1	97	1	12.346	.0004	Reject
Instr.Sex Vs. Grade 2	97	1	18.997	.0000	Reject
Instr.Sex Vs. Grade 3	Insufficient Data				
Instr.Sex Vs. Ques.#1	Insufficient Data				
SchoolLoc.Vs. Grade K	97	1	13.915	.0002	Reject
SchoolLoc.Vs. Grade 1	97	1	.272	.6017	Do Not Reject
SchoolLoc.Vs. Grade 2	97	1	.085	.7707	Do Not Reject
SchoolLoc.Vs. Grade 3	Insufficient Data				
SchoolLoc.Vs. Ques.#1	Insufficient Data				
GradeKIns.Vs. Grade1Prog.	97	1	10.398	.0013	Reject
GradeKIns.Vs. Grade2Prog.	97	1	7.045	.0079	Reject
GradeKIns.Vs. Grade3Prog.	Insufficient Data				
GradeKIns.Vs. Ques.#1	Insufficient Data				
Grade1Ins.Vs. Grade2Prog.	97	1	58.814	.0000	Reject
Grade1Ins.Vs. Grade3Prog.	Insufficient Data				
Grade1Ins.Vs. Ques.#1	Insufficient Data				
Grade2Ins.Vs. Grade3Prog.	Insufficient Data				
Grade2Ins.Vs. Ques.#1	Insufficient Data				
Grade3Ins.Vs. Ques.#1	Insufficient Data				
GradeKIns.Vs. Ques.#5-K	97	5	78.188	.0000	Reject
GradeKIns.Vs. Ques.#5-1	97	5	15.656	.0079	Reject
GradeKIns.Vs. Ques.#5-2	97	5	14.068	.0152	Reject
GradeKIns.Vs. Ques.#5-3	97	5	9.550	.0891	Do Not Reject
Grade1Ins.Vs. Ques.#5-K	97	5	11.625	.0403	Reject
Grade1Ins.Vs. Ques.#5-1	97	5	75.526	.0000	Reject
Grade1Ins.Vs. Ques.#5-2	97	5	51.574	.0000	Reject
Grade1Ins.Vs. Ques.#5-3	97	5	3.783	.5810	Do Not Reject
Grade2Ins.Vs. Ques.#5-K	97	5	9.250	.0995	Do Not Reject
Grade2Ins.Vs. Ques.#5-1	97	5	51.764	.0000	Reject
Grade2Ins.Vs. Ques.#5-2	97	5	71.151	.0000	Reject
Grade2Ins.Vs. Ques.#5-3	97	5	4.839	.4358	Do Not Reject
Grade3Ins.Vs. Ques.#5-K	Insufficient Data				
Grade3Ins.Vs. Ques.#5-1	Insufficient Data				
Grade3Ins.Vs. Ques.#5-2	Insufficient Data				
Grade3Ins.Vs. Ques.#5-3	Insufficient Data				
GradeKIns.Vs. Ques.#6A-K	97	1	9.134	.0025	Reject
GradeKIns.Vs. Ques.#6A-1	97	1	10.959	.0009	Reject
GradeKIns.Vs. Ques.#6A-2	97	1	9.134	.0025	Reject
GradeKIns.Vs. Ques.#6A-3	97	1	1.345	.2461	Do Not Reject

TABLE 7 (Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradeKIns.Vs. Ques.#6B-K	97	1	14.687	.0001	Reject
GradeKIns.Vs. Ques.#6B-1	97	1	4.546	.0330	Reject
GradeKIns.Vs. Ques.#6B-2	97	1	6.356	.0117	Reject
GradeKIns.Vs. Ques.#6B-3	97	1	8.937	.0028	Reject
GradeKIns.Vs. Ques.#6C-K	97	1	25.060	.0000	Reject
GradeIIns.Vs. Ques.#6C-1	97	1	19.568	.0000	Reject
GradeKIns.Vs. Ques.#6C-2	97	1	18.487	.0000	Reject
GradeKIns.Vs. Ques.#6C-3	97	1	18.487	.0000	Reject
GradeKIns.Vs. Ques.#6D-K	97	1	.714	.3983	Do Not Reject
GradeKIns.Vs. Ques.#6D-1	97	1	36.250	.0000	Reject
GradeKIns.Vs. Ques.#6D-2	97	1	38.852	.0000	Reject
GradeKIns.Vs. Ques.#6D-3	97	1	38.852	.0000	Reject
GradeKIns.Vs. Ques.#6E-K	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#6E-1	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#6E-2	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#6E-3	Insufficient Data				
Grade1Ins.Vs. Ques.#6A-K	97	1	.473	.4917	Do Not Reject
Grade1Ins.Vs. Ques.#6A-1	97	1	.664	.4150	Do Not Reject
Grade1Ins.Vs. Ques.#6A-2	97	1	.473	.4917	Do Not Reject
Grade1Ins.Vs. Ques.#6A-3	97	1	5.603	.0179	Reject
Grade1Ins.Vs. Ques.#6B-K	97	1	2.996	.0835	Do Not Reject
Grade1Ins.Vs. Ques.#6B-1	97	1	11.983	.0005	Reject
Grade1Ins.Vs. Ques.#6B-2	97	1	4.685	.0304	Reject
Grade1Ins.Vs. Ques.#6B-3	97	1	3.739	.0532	Do Not Reject
Grade1Ins.Vs. Ques.#6C-K	97	1	.800	.3712	Do Not Reject
Grade1Ins.Vs. Ques.#6C-1	97	1	1.390	.2384	Do Not Reject
Grade1Ins.Vs. Ques.#6C-2	97	1	.291	.5896	Do Not Reject
Grade1Ins.Vs. Ques.#6C-3	97	1	.046	.8310	Do Not Reject
Grade1Ins.Vs. Ques.#6D-K	97	1	.290	.5902	Do Not Reject
Grade1Ins.Vs. Ques.#6D-1	97	1	2.486	.1149	Do Not Reject
Grade1Ins.Vs. Ques.#6D-2	97	1	.700	.4029	Do Not Reject
Grade1Ins.Vs. Ques.#6D-3	97	1	.700	.4029	Do Not Reject
Grade1Ins.Vs. Ques.#6E-K	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#6E-1	97	1	2.328	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#6E-2	97	1	2.328	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#6E-3	Insufficient Data				
Grade2Ins.Vs. Ques.#6A-K	97	1	.193	.6607	Do Not Reject
Grade2Ins.Vs. Ques.#6A-1	97	1	.309	.5781	Do Not Reject
Grade2Ins.Vs. Ques.#6A-2	97	1	.193	.6607	Do Not Reject
Grade2Ins.Vs. Ques.#6A-3	97	1	4.636	.0313	Reject
Grade2Ins.Vs. Ques.#6B-K	97	1	1.880	.1703	Do Not Reject
Grade2Ins.Vs. Ques.#6B-1	97	1	8.155	.0043	Reject
Grade2Ins.Vs. Ques.#6B-2	97	1	9.468	.0021	Reject
Grade2Ins.Vs. Ques.#6B-3	97	1	3.933	.0473	Reject

TABLE 7 Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade2Ins.Vs. Ques.#6C-K	97	1	.085	.6674	Do Not Reject
Grade2Ins.Vs. Ques.#6C-1	97	1	.468	.4938	Do Not Reject
Grade2Ins.Vs. Ques.#6C-2	97	1	.615	.4329	Do Not Reject
Grade2Ins.Vs. Ques.#6C-3	97	1	.006	.9400	Do Not Reject
Grade2Ins.Vs. Ques.#6D-K	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#6D-1	97	1	1.528	.2164	Do Not Reject
Grade2Ins.Vs. Ques.#6D-2	97	1	1.642	.2001	Do Not Reject
Grade2Ins.Vs. Ques.#6D-3	97	1	1.642	.2001	Do Not Reject
Grade2Ins.Vs. Ques.#6E-K	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#6E-1	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#6E-2	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#6E-3	Insufficient Data				
Grade3Ins.Vs. Ques.#6A-K	Insufficient Data				
Grade3Ins.Vs. Ques.#6A-1	Insufficient Data				
Grade3Ins.Vs. Ques.#6A-2	Insufficient Data				
Grade3Ins.Vs. Ques.#6A-3	Insufficient Data				
Grade3Ins.Vs. Ques.#6B-K	Insufficient Data				
Grade3Ins.Vs. Ques.#6B-1	Insufficient Data				
Grade3Ins.Vs. Ques.#6B-2	Insufficient Data				
Grade3Ins.Vs. Ques.#6B-3	Insufficient Data				
Grade3Ins.Vs. Ques.#6C-K	Insufficient Data				
Grade3Ins.Vs. Ques.#6C-1	Insufficient Data				
Grade3Ins.Vs. Ques.#6C-2	Insufficient Data				
Grade3Ins.Vs. Ques.#6C-3	Insufficient Data				
Grade3Ins.Vs. Ques.#6D-K	Insufficient Data				
Grade3Ins.Vs. Ques.#6D-1	Insufficient Data				
Grade3Ins.Vs. Ques.#6D-2	Insufficient Data				
Grade3Ins.Vs. Ques.#6D-3	Insufficient Data				
Grade3Ins.Vs. Ques.#6E-K	Insufficient Data				
Grade3Ins.Vs. Ques.#6E-1	Insufficient Data				
Grade3Ins.Vs. Ques.#6E-2	Insufficient Data				
Grade3Ins.Vs. Ques.#6E-3	Insufficient Data				
GradeKIns.Vs. Ques.#7A-K	97	1	4.955	.0260	Reject
GradeKIns.Vs. Ques.#7A-1	97	1	4.372	.0365	Reject
GradeKIns.Vs. Ques.#7A-2	97	1	3.643	.0563	Do Not Reject
GradeKIns.Vs. Ques.#7A-3	97	1	.769	.3806	Do Not Reject
GradeKIns.Vs. Ques.#7B-K	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#7B-1	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#7B-2	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#7B-3	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#7C-K	97	1	39.458	.0000	Reject
GradeKIns.Vs. Ques.#7C-1	97	1	.027	.8695	Do Not Reject
GradeKIns.Vs. Ques.#7C-2	97	1	.199	.6557	Do Not Reject
GradeKIns.Vs. Ques.#7C-3	97	1	.443	.5059	Do Not Reject
GradeKIns.Vs. Ques.#7D-K	Insufficient Data				

TABLE 7 (Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradeKIns.Vs. Ques.#7D-1	Insufficient Data				
GradeKIns.Vs. Ques.#7D-2	Insufficient Data				
GradeKIns.Vs. Ques.#7D-3	Insufficient Data				
GradeKIns.Vs. Ques.#7E-K	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#7E-1	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#7E-2	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#7E-3	97	1	.210	.6465	Do Not Reject
GradeKIns.Vs. Ques.#7F-K	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#7F-1	97	1	.013	.9102	Do Not Reject
GradeKIns.Vs. Ques.#7F-2	97	1	.013	.9102	Do Not Reject
GradeKIns.Vs. Ques.#7F-3	97	1	.013	.9102	Do Not Reject
GradeKIns.Vs. Ques.#7G-K	97	1	4.182	.0409	Reject
GradeKIns.Vs. Ques.#7G-1	97	1	2.286	.1305	Do Not Reject
GradeKIns.Vs. Ques.#7G-2	97	1	2.946	.0861	Do Not Reject
GradeKIns.Vs. Ques.#7G-3	97	1	2.138	.1437	Do Not Reject
Grade1Ins.Vs. Ques.#7A-K	97	1	.095	.7579	Do Not Reject
Grade1Ins.Vs. Ques.#7A-1	97	1	.301	.5830	Do Not Reject
Grade1Ins.Vs. Ques.#7A-2	97	1	.225	.6355	Do Not Reject
Grade1Ins.Vs. Ques.#7A-3	97	1	.072	.7884	Do Not Reject
Grade1Ins.Vs. Ques.#7B-K	97	1	2.328	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#7B-1	97	1	2.328	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#7B-2	97	1	2.328	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#7B-3	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#7C-K	97	1	4.635	.0313	Reject
Grade1Ins.Vs. Ques.#7C-1	97	1	18.859	.0000	Reject
Grade1Ins.Vs. Ques.#7C-2	97	1	7.819	.0052	Reject
Grade1Ins.Vs. Ques.#7C-3	97	1	2.207	.1374	Do Not Reject
Grade1Ins.Vs. Ques.#7D-K	Insufficient Data				
Grade1Ins.Vs. Ques.#7D-1	Insufficient Data				
Grade1Ins.Vs. Ques.#7D-2	Insufficient Data				
Grade1Ins.Vs. Ques.#7D-3	Insufficient Data				
Grade1Ins.Vs. Ques.#7E-K	97	1	2.327	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#7E-1	97	1	2.327	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#7E-2	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#7E-3	97	1	.021	.8837	Do Not Reject
Grade1Ins.Vs. Ques.#7F-K	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#7F-1	97	1	.100	.7522	Do Not Reject
Grade1Ins.Vs. Ques.#7F-2	97	1	.100	.7522	Do Not Reject
Grade1Ins.Vs. Ques.#7F-3	97	1	.100	.7522	Do Not Reject
Grade1Ins.Vs. Ques.#7G-K	97	1	.046	.8302	Do Not Reject
Grade1Ins.Vs. Ques.#7G-1	97	1	.095	.7579	Do Not Reject
Grade1Ins.Vs. Ques.#7G-2	97	1	.155	.6934	Do Not Reject
Grade1Ins.Vs. Ques.#7G-3	97	1	.301	.5830	Do Not Reject
Grade2Ins.Vs. Ques.#7A-K	97	1	.007	.9343	Do Not Reject

TABLE 7 (Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade2Ins.Vs. Ques.#7A-1	97	1	.096	.7565	Do Not Reject
Grade2Ins.Vs. Ques.#7A-2	97	1	.058	.8105	Do Not Reject
Grade2Ins.Vs. Ques.#7A-3	97	1	.445	.5048	Do Not Reject
Grade2Ins.Vs. Ques.#7B-K	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#7B-1	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#7B-2	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#7B-3	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#7C-K	97	1	3.018	.0823	Do Not Reject
Grade2Ins.Vs. Ques.#7C-1	97	1	12.973	.0003	Reject
Grade2Ins.Vs. Ques.#7C-2	97	1	13.714	.0002	Reject
Grade2Ins.Vs. Ques.#7C-3	97	1	4.636	.0313	Reject
Grade2Ins.Vs. Ques.#7D-K	Insufficient Data				
Grade2Ins.Vs. Ques.#7D-1	Insufficient Data				
Grade2Ins.Vs. Ques.#7D-2	Insufficient Data				
Grade2Ins.Vs. Ques.#7D-3	Insufficient Data				
Grade2Ins.Vs. Ques.#7E-K	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#7E-1	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#7E-2	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#7E-3	97	1	.132	.7162	Do Not Reject
Grade2Ins.Vs. Ques.#7F-K	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#7F-1	97	1	.287	.5924	Do Not Reject
Grade2Ins.Vs. Ques.#7F-2	97	1	.287	.5924	Do Not Reject
Grade2Ins.Vs. Ques.#7F-3	97	1	.287	.5924	Do Not Reject
Grade2Ins.Vs. Ques.#7G-K	97	1	.000	.9937	Do Not Reject
Grade2Ins.Vs. Ques.#7G-1	97	1	.007	.9343	Do Not Reject
Grade2Ins.Vs. Ques.#7G-2	97	1	.027	.8695	Do Not Reject
Grade2Ins.Vs. Ques.#7G-3	97	1	.096	.7565	Do Not Reject
Grade3Ins.Vs. Ques.#7A-K	Insufficient Data				
Grade3Ins.Vs. Ques.#7A-1	Insufficient Data				
Grade3Ins.Vs. Ques.#7A-2	Insufficient Data				
Grade3Ins.Vs. Ques.#7A-3	Insufficient Data				
Grade3Ins.Vs. Ques.#7B-K	Insufficient Data				
Grade3Ins.Vs. Ques.#7B-1	Insufficient Data				
Grade3Ins.Vs. Ques.#7B-2	Insufficient Data				
Grade3Ins.Vs. Ques.#7B-3	Insufficient Data				
Grade3Ins.Vs. Ques.#7C-K	Insufficient Data				
Grade3Ins.Vs. Ques.#7C-1	Insufficient Data				
Grade3Ins.Vs. Ques.#7C-2	Insufficient Data				
Grade3Ins.Vs. Ques.#7C-3	Insufficient Data				
Grade3Ins.Vs. Ques.#7D-K	Insufficient Data				
Grade3Ins.Vs. Ques.#7D-1	Insufficient Data				
Grade3Ins.Vs. Ques.#7D-2	Insufficient Data				
Grade3Ins.Vs. Ques.#7D-3	Insufficient Data				
Grade3Ins.Vs. Ques.#7E-K	Insufficient Data				

TABLE 7 (Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade3Ins.Vs. Ques.#7E-1	Insufficient Data				
Grade3Ins.Vs. Ques.#7E-2	Insufficient Data				
Grade3Ins.Vs. Ques.#7E-3	Insufficient Data				
Grade3Ins.Vs. Ques.#7F-K	Insufficient Data				
Grade3Ins.Vs. Ques.#7F-1	Insufficient Data				
Grade3Ins.Vs. Ques.#7F-2	Insufficient Data				
Grade3Ins.Vs. Ques.#7F-3	Insufficient Data				
Grade3Ins.Vs. Ques.#7G-K	Insufficient Data				
Grade3Ins.Vs. Ques.#7G-1	Insufficient Data				
Grade3Ins.Vs. Ques.#7G-2	Insufficient Data				
Grade3Ins.Vs. Ques.#7G-3	Insufficient Data				
GradeKIns.Vs. Ques.#8A-K	97	1	.615	.4329	Do Not Reject
GradeKIns.Vs. Ques.#8A-1	97	1	33.513	.0000	Reject
GradeKIns.Vs. Ques.#8A-2	97	1	33.513	.0000	Reject
GradeKIns.Vs. Ques.#8A-3	97	1	33.525	.0000	Reject
GradeKIns.Vs. Ques.#8B-K	97	1	23.503	.0000	Reject
GradeKIns.Vs. Ques.#8B-1	97	1	2.712	.0996	Do Not Reject
GradeKIns.Vs. Ques.#8B-2	97	1	4.859	.0275	Reject
GradeKIns.Vs. Ques.#8B-3	97	1	7.747	.0054	Reject
GradeKIns.Vs. Ques.#8C-1	97	1	.013	.9102	Do Not Reject
GradeKIns.Vs. Ques.#8C-2	97	1	.013	.9102	Do Not Reject
GradeKIns.Vs. Ques.#8C-3	97	1	.210	.6465	Do Not Reject
GradeKIns.Vs. Ques.#8D-K	97	1	1.700	.1963	Do Not Reject
GradeKIns.Vs. Ques.#8D-1	97	1	1.072	.3004	Do Not Reject
GradeKIns.Vs. Ques.#8D-2	97	1	1.072	.3004	Do Not Reject
GradeKIns.Vs. Ques.#8D-3	97	1	.363	.5468	Do Not Reject
GradeKIns.Vs. Ques.#8E-K	97	1	8.255	.0041	Reject
GradeKIns.Vs. Ques.#8E-1	97	1	13.875	.0002	Reject
GradeKIns.Vs. Ques.#8E-2	97	1	15.695	.0001	Reject
GradeKIns.Vs. Ques.#8E-3	97	1	27.287	.0000	Reject
Grade1Ins.Vs. Ques.#8A-K	97	1	.000	.9937	Do Not Reject
Grade1Ins.Vs. Ques.#8A-1	97	1	2.650	.1035	Do Not Reject
Grade1Ins.Vs. Ques.#8A-2	97	1	2.650	.1035	Do Not Reject
Grade1Ins.Vs. Ques.#8A-3	97	1	.088	.7664	Do Not Reject
Grade1Ins.Vs. Ques.#8B-K	97	1	3.177	.0747	Do Not Reject
Grade1Ins.Vs. Ques.#8B-1	97	1	13.858	.0002	Reject
Grade1Ins.Vs. Ques.#8B-2	97	1	5.427	.0198	Reject
Grade1Ins.Vs. Ques.#8B-3	97	1	.088	.7669	Do Not Reject
Grade1Ins.Vs. Ques.#8C-K	97	1	.100	.7522	Do Not Reject
Grade1Ins.Vs. Ques.#8C-1	97	1	.100	.7522	Do Not Reject
Grade1Ins.Vs. Ques.#8C-2	97	1	.100	.7522	Do Not Reject
Grade1Ins.Vs. Ques.#8C-3	97	1	.021	.8837	Do Not Reject
Grade1Ins.Vs. Ques.#8D-K	97	1	.046	.8302	Do Not Reject
Grade1Ins.Vs. Ques.#8D-1	97	1	.155	.6934	Do Not Reject

TABLE 7 (Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade1Ins.Vs. Ques.#8D-2	97	1	.155	.6934	Do Not Reject
Grade1Ins.Vs. Ques.#8D-3	97	1	.225	.6355	Do Not Reject
Grade1Ins.Vs. Ques.#8E-K	97	1	.384	.5353	Do Not Reject
Grade1Ins.Vs. Ques.#8E-1	97	1	4.182	.0409	Reject
Grade1Ins.Vs. Ques.#8E-2	97	1	1.819	.1774	Do Not Reject
Grade1Ins.Vs. Ques.#8E-3	97	1	.023	.8802	Do Not Reject
Grade2Ins.Vs. Ques.#8A-K	97	1	.051	.8216	Do Not Reject
Grade2Ins.Vs. Ques.#8A-1	97	1	1.642	.2001	Do Not Reject
Grade2Ins.Vs. Ques.#8A-2	97	1	1.642	.2001	Do Not Reject
Grade2Ins.Vs. Ques.#8A-3	97	1	.086	.7687	Do Not Reject
Grade2Ins.Vs. Ques.#8B-K	97	1	2.005	.1567	Do Not Reject
Grade2Ins.Vs. Ques.#8B-1	97	1	9.468	.0021	Reject
Grade2Ins.Vs. Ques.#8B-2	97	1	10.485	.0012	Reject
Grade2Ins.Vs. Ques.#8B-3	97	1	.720	.3961	Do Not Reject
Grade2Ins.Vs. Ques.#8C-K	97	1	.287	.5924	Do Not Reject
Grade2Ins.Vs. Ques.#8C-1	97	1	.287	.5924	Do Not Reject
Grade2Ins.Vs. Ques.#8C-2	97	1	.287	.5924	Do Not Reject
Grade2Ins.Vs. Ques.#8C-3	97	1	.132	.7162	Do Not Reject
Grade2Ins.Vs. Ques.#8D-K	97	1	.000	.9937	Do Not Reject
Grade2Ins.Vs. Ques.#8D-1	97	1	.027	.8695	Do Not Reject
Grade2Ins.Vs. Ques.#8D-2	97	1	.027	.8695	Do Not Reject
Grade2Ins.Vs. Ques.#8D-3	97	1	.058	.8105	Do Not Reject
Grade2Ins.Vs. Ques.#8E-K	97	1	.142	.7067	Do Not Reject
Grade2Ins.Vs. Ques.#8E-1	97	1	2.702	.1002	Do Not Reject
Grade2Ins.Vs. Ques.#8E-2	97	1	2.857	.0910	Do Not Reject
Grade2Ins.Vs. Ques.#8E-3	97	1	.000	.9824	Do Not Reject
Grade3Ins.Vs. Ques.#8A-K	Insufficient Data				
Grade3Ins.Vs. Ques.#8A-1	Insufficient Data				
Grade3Ins.Vs. Ques.#8A-2	Insufficient Data				
Grade3Ins.Vs. Ques.#8A-3	Insufficient Data				
Grade3Ins.Vs. Ques.#8B-K	Insufficient Data				
Grade3Ins.Vs. Ques.#8B-1	Insufficient Data				
Grade3Ins.Vs. Ques.#8B-2	Insufficient Data				
Grade3Ins.Vs. Ques.#8B-3	Insufficient Data				
Grade3Ins.Vs. Ques.#8C-K	Insufficient Data				
Grade3Ins.Vs. Ques.#8C-1	Insufficient Data				
Grade3Ins.Vs. Ques.#8C-2	Insufficient Data				
Grade3Ins.Vs. Ques.#8C-3	Insufficient Data				
Grade3Ins.Vs. Ques.#8D-K	Insufficient Data				
Grade3Ins.Vs. Ques.#8D-1	Insufficient Data				
Grade3Ins.Vs. Ques.#8D-2	Insufficient Data				
Grade3Ins.Vs. Ques.#8D-3	Insufficient Data				
Grade3Ins.Vs. Ques.#8E-K	Insufficient Data				
Grade3Ins.Vs. Ques.#8E-1	Insufficient Data				

TABLE 7 (Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade3Ins.Vs. Ques.#8E-2	Insufficient Data				
Grade3Ins.Vs. Ques.#8E-3	Insufficient Data				
GradeKIns.Vs. Ques.#11A-K	97	1	45.355	.0000	Reject
GradeKIns.Vs. Ques.#11A-1	97	1	.372	.5419	Do Not Reject
GradeKIns.Vs. Ques.#11A-2	97	1	.282	.5952	Do Not Reject
GradeKIns.Vs. Ques.#11A-3	97	1	.092	.7611	Do Not Reject
GradeKIns.Vs. Ques.#11B-K	97	1	.291	.5896	Do Not Reject
GradeKIns.Vs. Ques.#11B-1	97	1	33.525	.0000	Reject
GradeKIns.Vs. Ques.#11B-2	97	1	33.733	.0000	Reject
GradeKIns.Vs. Ques.#11B-3	97	1	37.300	.0000	Reject
GradeKIns.Vs. Ques.#11C-K	97	1	10.959	.0009	Reject
GradeKIns.Vs. Ques.#11C-1	97	1	8.045	.0046	Reject
GradeKIns.Vs. Ques.#11C-2	97	1	4.617	.0317	Reject
GradeKIns.Vs. Ques.#11C-3	97	1	1.185	.2764	Do Not Reject
GradeKIns.Vs. Ques.#11D-K	97	1	.063	.8013	Do Not Reject
GradeKIns.Vs. Ques.#11D-1	97	1	.007	.9326	Do Not Reject
GradeKIns.Vs. Ques.#11D-2	97	1	.106	.7441	Do Not Reject
GradeKIns.Vs. Ques.#11D-3	97	1	.006	.9395	Do Not Reject
GradeKIns.Vs. Ques.#11E-K	97	1	23.740	.0000	Reject
GradeKIns.Vs. Ques.#11E-1	97	1	2.043	.1529	Do Not Reject
GradeKIns.Vs. Ques.#11E-2	97	1	4.050	.0442	Reject
GradeKIns.Vs. Ques.#11E-3	97	1	3.329	.0681	Do Not Reject
GradeKIns.Vs. Ques.#11F-K	97	1	27.899	.0000	Reject
GradeKIns.Vs. Ques.#11F-1	97	1	.183	.6686	Do Not Reject
GradeKIns.Vs. Ques.#11F-2	97	1	.954	.3286	Do Not Reject
GradeKIns.Vs. Ques.#11F-3	97	1	3.965	.0464	Reject
GradeKIns.Vs. Ques.#11G-K	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#11G-1	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#11G-2	97	1	.124	.7253	Do Not Reject
GradeKIns.Vs. Ques.#11G-3	97	1	.013	.9102	Do Not Reject
GradeKIns.Vs. Ques.#11H-K	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#11H-1	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#11H-2	97	1	.124	.7253	Do Not Reject
GradeKIns.Vs. Ques.#11H-3	97	1	.013	.9102	Do Not Reject
GradeKIns.Vs. Ques.#11I-K	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#11I-1	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#11I-2	97	1	.124	.7253	Do Not Reject
GradeKIns.Vs. Ques.#11I-3	97	1	.210	.6465	Do Not Reject
GradeKIns.Vs. Ques.#11J-K	97	1	10.525	.0012	Reject
GradeKIns.Vs. Ques.#11J-1	97	1	8.269	.0040	Reject
GradeKIns.Vs. Ques.#11J-2	97	1	8.937	.0028	Reject
GradeKIns.Vs. Ques.#11J-3	97	1	14.715	.0001	Reject
GradeKIns.Vs. Ques.#11K-K	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#11K-1	97	1	.714	.3983	Do Not Reject
GradeKIns.Vs. Ques.#11K-2	97	1	.714	.3983	Do Not Reject

TABLE 7 Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradeKIns.Vs. Ques.#11K-3	97	1	.013	.9102	Do Not Reject
Grade1Ins.Vs. Ques.#11A-K	97	1	5.381	.0204	Reject
Grade1Ins.Vs. Ques.#11A-1	97	1	23.644	.0000	Reject
Grade1Ins.Vs. Ques.#11A-2	97	1	18.259	.0000	Reject
Grade1Ins.Vs. Ques.#11A-3	97	1	.072	.7884	Do Not Reject
Grade1Ins.Vs. Ques.#11B-K	97	1	.046	.8302	Do Not Reject
Grade1Ins.Vs. Ques.#11B-1	97	1	3.365	.0666	Do Not Reject
Grade1Ins.Vs. Ques.#11B-2	97	1	1.390	.2384	Do Not Reject
Grade1Ins.Vs. Ques.#11B-3	97	1	.001	.9786	Do Not Reject
Grade1Ins.Vs. Ques.#11C-K	97	1	.664	.4150	Do Not Reject
Grade1Ins.Vs. Ques.#11C-1	97	1	1.100	.2943	Do Not Reject
Grade1Ins.Vs. Ques.#11C-2	97	1	.077	.7817	Do Not Reject
Grade1Ins.Vs. Ques.#11C-3	97	1	7.266	.0070	Reject
Grade1Ins.Vs. Ques.#11D-K	97	1	.012	.9122	Do Not Reject
Grade1Ins.Vs. Ques.#11D-1	97	1	.095	.7579	Do Not Reject
Grade1Ins.Vs. Ques.#11D-2	97	1	.155	.6934	Do Not Reject
Grade1Ins.Vs. Ques.#11D-3	97	1	1.997	.1576	Do Not Reject
Grade1Ins.Vs. Ques.#11E-K	97	1	1.819	.1774	Do Not Reject
Grade1Ins.Vs. Ques.#11E-1	97	1	10.971	.0009	Reject
Grade1Ins.Vs. Ques.#11E-2	97	1	3.505	.0612	Do Not Reject
Grade1Ins.Vs. Ques.#11E-3	97	1	1.935	.1642	Do Not Reject
Grade1Ins.Vs. Ques.#11F-K	97	1	3.177	.0747	Do Not Reject
Grade1Ins.Vs. Ques.#11F-1	97	1	15.310	.0001	Reject
Grade1Ins.Vs. Ques.#11F-2	97	1	6.280	.0122	Reject
Grade1Ins.Vs. Ques.#11F-3	97	1	.168	.6818	Do Not Reject
Grade1Ins.Vs. Ques.#11G-K	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#11G-1	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#11G-2	97	1	.290	.5902	Do Not Reject
Grade1Ins.Vs. Ques.#11G-3	97	1	.100	.7522	Do Not Reject
Grade1Ins.Vs. Ques.#11H-K	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#11H-1	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#11H-2	97	1	.290	.5902	Do Not Reject
Grade1Ins.Vs. Ques.#11H-3	97	1	.100	.7522	Do Not Reject
Grade1Ins.Vs. Ques.#11I-K	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#11I-1	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#11I-2	97	1	.290	.5902	Do Not Reject
Grade1Ins.Vs. Ques.#11I-3	97	1	12.145	.0005	Reject
Grade1Ins.Vs. Ques.#11J-K	97	1	2.820	.0931	Do Not Reject
Grade1Ins.Vs. Ques.#11J-1	97	1	10.898	.0010	Reject
Grade1Ins.Vs. Ques.#11J-2	97	1	7.277	.0070	Reject
Grade1Ins.Vs. Ques.#11J-3	97	1	.000	.9836	Do Not Reject
Grade1Ins.Vs. Ques.#11K-K	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#11K-1	97	1	.290	.5902	Do Not Reject
Grade1Ins.Vs. Ques.#11K-2	97	1	.290	.5902	Do Not Reject

TABLE 7 (Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade1Ins.Vs. Ques.#11K-3	97	1	.100	.7522	Do Not Reject
Grade2Ins.Vs. Ques.#11A-K	97	1	3.538	.0600	Do Not Reject
Grade2Ins.Vs. Ques.#11A-1	97	1	16.327	.0001	Reject
Grade2Ins.Vs. Ques.#11A-2	97	1	18.484	.0000	Reject
Grade2Ins.Vs. Ques.#11A-3	97	1	.445	.5048	Do Not Reject
Grade2Ins.Vs. Ques.#11B-K	97	1	.000	.9937	Do Not Reject
Grade2Ins.Vs. Ques.#11B-1	97	1	2.135	.1439	Do Not Reject
Grade2Ins.Vs. Ques.#11B-2	97	1	2.409	.1206	Do Not Reject
Grade2Ins.Vs. Ques.#11B-3	97	1	.007	.9336	Do Not Reject
Grade2Ins.Vs. Ques.#11C-K	97	1	.309	.5781	Do Not Reject
Grade2Ins.Vs. Ques.#11C-1	97	1	.589	.4425	Do Not Reject
Grade2Ins.Vs. Ques.#11C-2	97	1	.751	.3863	Do Not Reject
Grade2Ins.Vs. Ques.#11C-3	97	1	2.962	.0853	Do Not Reject
Grade2Ins.Vs. Ques.#11D-K	97	1	.012	.9131	Do Not Reject
Grade2Ins.Vs. Ques.#11D-1	97	1	.007	.9343	Do Not Reject
Grade2Ins.Vs. Ques.#11D-2	97	1	.027	.8695	Do Not Reject
Grade2Ins.Vs. Ques.#11D-3	97	1	.578	.4470	Do Not Reject
Grade2Ins.Vs. Ques.#11E-K	97	1	.696	.4042	Do Not Reject
Grade2Ins.Vs. Ques.#11E-1	97	1	6.208	.0127	Reject
Grade2Ins.Vs. Ques.#11E-2	97	1	7.083	.0078	Reject
Grade2Ins.Vs. Ques.#11E-3	97	1	1.140	.2857	Do Not Reject
Grade2Ins.Vs. Ques.#11F-K	97	1	2.005	.1567	Do Not Reject
Grade2Ins.Vs. Ques.#11F-1	97	1	10.485	.0012	Reject
Grade2Ins.Vs. Ques.#11F-2	97	1	11.643	.0006	Reject
Grade2Ins.Vs. Ques.#11F-3	97	1	.000	.9879	Do Not Reject
Grade2Ins.Vs. Ques.#11G-K	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#11G-1	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#11G-2	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#11G-3	97	1	.287	.5924	Do Not Reject
Grade2Ins.Vs. Ques.#11H-K	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#11H-1	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#11H-2	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#11H-3	97	1	.287	.5924	Do Not Reject
Grade2Ins.Vs. Ques.#11I-K	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#11I-1	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#11I-2	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#11I-3	97	1	.132	.7162	Do Not Reject
Grade2Ins.Vs. Ques.#11J-K	97	1	1.759	.1848	Do Not Reject
Grade2Ins.Vs. Ques.#11J-1	97	1	7.395	.0065	Reject
Grade2Ins.Vs. Ques.#11J-2	97	1	8.155	.0043	Reject
Grade2Ins.Vs. Ques.#11J-3	97	1	.105	.7457	Do Not Reject
Grade2Ins.Vs. Ques.#11K-K	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#11K-1	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#11K-2	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#11K-3	97	1	.287	.5924	Do Not Reject

TABLE 7 (Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade3Ins.Vs. Ques.#11A-K	Insufficient Data				
Grade3Ins.Vs. Ques.#11A-1	Insufficient Data				
Grade3Ins.Vs. Ques.#11A-2	Insufficient Data				
Grade3Ins.Vs. Ques.#11A-3	Insufficient Data				
Grade3Ins.Vs. Ques.#11B-K	Insufficient Data				
Grade3Ins.Vs. Ques.#11B-1	Insufficient Data				
Grade3Ins.Vs. Ques.#11B-2	Insufficient Data				
Grade3Ins.Vs. Ques.#11B-3	Insufficient Data				
Grade3Ins.Vs. Ques.#11C-K	Insufficient Data				
Grade3Ins.Vs. Ques.#11C-1	Insufficient Data				
Grade3Ins.Vs. Ques.#11C-2	Insufficient Data				
Grade3Ins.Vs. Ques.#11C-3	Insufficient Data				
Grade3Ins.Vs. Ques.#11D-K	Insufficient Data				
Grade3Ins.Vs. Ques.#11D-1	Insufficient Data				
Grade3Ins.Vs. Ques.#11D-2	Insufficient Data				
Grade3Ins.Vs. Ques.#11D-3	Insufficient Data				
Grade3Ins.Vs. Ques.#11E-K	Insufficient Data				
Grade3Ins.Vs. Ques.#11E-1	Insufficient Data				
Grade3Ins.Vs. Ques.#11E-2	Insufficient Data				
Grade3Ins.Vs. Ques.#11E-3	Insufficient Data				
Grade3Ins.Vs. Ques.#11F-K	Insufficient Data				
Grade3Ins.Vs. Ques.#11F-1	Insufficient Data				
Grade3Ins.Vs. Ques.#11F-2	Insufficient Data				
Grade3Ins.Vs. Ques.#11F-3	Insufficient Data				
Grade3Ins.Vs. Ques.#11G-K	Insufficient Data				
Grade3Ins.Vs. Ques.#11G-1	Insufficient Data				
Grade3Ins.Vs. Ques.#11G-2	Insufficient Data				
Grade3Ins.Vs. Ques.#11G-3	Insufficient Data				
Grade3Ins.Vs. Ques.#11H-K	Insufficient Data				
Grade3Ins.Vs. Ques.#11H-1	Insufficient Data				
Grade3Ins.Vs. Ques.#11H-2	Insufficient Data				
Grade3Ins.Vs. Ques.#11H-3	Insufficient Data				
Grade3Ins.Vs. Ques.#11I-K	Insufficient Data				
Grade3Ins.Vs. Ques.#11I-1	Insufficient Data				
Grade3Ins.Vs. Ques.#11I-2	Insufficient Data				
Grade3Ins.Vs. Ques.#11I-3	Insufficient Data				
Grade3Ins.Vs. Ques.#11J-K	Insufficient Data				
Grade3Ins.Vs. Ques.#11J-1	Insufficient Data				
Grade3Ins.Vs. Ques.#11J-2	Insufficient Data				
Grade3Ins.Vs. Ques.#11J-3	Insufficient Data				
Grade3Ins.Vs. Ques.#11K-K	Insufficient Data				
Grade3Ins.Vs. Ques.#11K-1	Insufficient Data				
Grade3Ins.Vs. Ques.#11K-2	Insufficient Data				
Grade3Ins.Vs. Ques.#11K-3	Insufficient Data				
GradeKIns.Vs. Ques.#12A-K	97	1	28.017	.0000	Reject

TABLE 7 (Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradeKIns.Vs. Ques.#12A-1	97	1	.199	.6557	Do Not Reject
GradeKIns.Vs. Ques.#12A-2	97	1	1.459	.2270	Do Not Reject
GradeKIns.Vs. Ques.#12A-3	97	1	5.403	.0201	Reject
GradeKIns.Vs. Ques.#12B-K	97	1	4.182	.0409	Reject
GradeKIns.Vs. Ques.#12B-1	97	1	26.572	.0000	Reject
GradeKIns.Vs. Ques.#12B-2	97	1	22.662	.0000	Reject
GradeKIns.Vs. Ques.#12B-3	07	1	23.558	.0000	Reject
GradeKIns.Vs. Ques.#12C-K	97	1	1.332	.2484	Do Not Reject
GradeKIns.Vs. Ques.#12C-1	97	1	2.001	.1572	Do Not Reject
GradeKIns.Vs. Ques.#12C-2	97	1	2.702	.1002	Do Not Reject
GradeKIns.Vs. Ques.#12C-3	97	1	.637	.4247	Do Not Reject
GradeKIns.Vs. Ques.#12D-K	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#12D-1	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#12D-2	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#12D-3	97	1	1.332	.2484	Do Not Reject
GradeKIns.Vs. Ques.#12E-K	97	1	.228	.6327	Do Not Reject
GradeKIns.Vs. Ques.#12E-1	97	1	.615	.4329	Do Not Reject
GradeKIns.Vs. Ques.#12E-2	97	1	.615	.4329	Do Not Reject
GradeKIns.Vs. Ques.#12E-3	97	1	1.670	.1963	Do Not Reject
GradeKIns.Vs. Ques.#12F-K	97	1	2.001	.1572	Do Not Reject
GradeKIns.Vs. Ques.#12F-1	97	1	2.702	.1002	Do Not Reject
GradeKIns.Vs. Ques.#12F-2	97	1	3.431	.0640	Do Not Reject
GradeKIns.Vs. Ques.#12F-3	97	1	3.431	.0640	Do Not Reject
GradeKIns.Vs. Ques.#12G-K	97	1	3.431	.0640	Do Not Reject
GradeKIns.Vs. Ques.#12G-1	97	1	4.955	.0260	Reject
GradeKIns.Vs. Ques.#12G-2	97	1	4.955	.0260	Reject
GradeKIns.Vs. Ques.#12G-3	97	1	.769	.3806	Do Not Reject
GradeKIns.Vs. Ques.#12H-K	97	1	22.393	.0000	Reject
GradeKIns.Vs. Ques.#12H-1	97	1	23.705	.0000	Reject
GradeKIns.Vs. Ques.#12H-2	97	1	25.059	.0000	Reject
GradeKIns.Vs. Ques.#12H-3	97	1	19.483	.0000	Reject
GradeKIns.Vs. Ques.#12I-K	Insufficient Data				
GradeKIns.Vs. Ques.#12I-1	Insufficient Data				
GradeKIns.Vs. Ques.#12I-2	Insufficient Data				
GradeKIns.Vs. Ques.#12I-3	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#12J-K	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#12J-1	97	1	.714	.3983	Do Not Reject
GradeKIns.Vs. Ques.#12J-2	97	1	.714	.3983	Do Not Reject
GradeKIns.Vs. Ques.#12J-3	97	1	.714	.3983	Do Not Reject
GradeKIns.Vs. Ques.#12K-K	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#12K-1	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#12K-2	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#12K-3	97	1	.714	.3983	Do Not Reject
GradeKIns.Vs. Ques.#12L-K	Insufficient Data				
GradeKIns.Vs. Ques.#12L-1	Insufficient Data				

TABLE 7 (Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradeKIns.Vs. Ques.#12L-2	Insufficient Data				
GradeKIns.Vs. Ques.#12L-3	Insufficient Data				
GradeKIns.Vs. Ques.#12M-K	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#12M-1	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#12M-2	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#12M-3	97	1	.196	.6576	Do Not Reject
Grade1Ins.Vs. Ques.#12A-K	97	1	4.404	.0358	Reject
Grade1Ins.Vs. Ques.#12A-1	97	1	19.917	.0000	Reject
Grade1Ins.Vs. Ques.#12A-2	97	1	8.418	.0037	Reject
Grade1Ins.Vs. Ques.#12A-3	97	1	.019	.8915	Do Not Reject
Grade1Ins.Vs. Ques.#12B-K	97	1	.046	.8302	Do Not Reject
Grade1Ins.Vs. Ques.#12B-1	97	1	3.558	.0592	Do Not Reject
Grade1Ins.Vs. Ques.#12B-2	97	1	3.967	.0464	Reject
Grade1Ins.Vs. Ques.#12B-3	97	1	.516	.4727	Do Not Reject
Grade1Ins.Vs. Ques.#12C-K	97	1	.100	.7522	Do Not Reject
Grade1Ins.Vs. Ques.#12C-1	97	1	.021	.8837	Do Not Reject
Grade1Ins.Vs. Ques.#12C-2	97	1	.000	.9937	Do Not Reject
Grade1Ins.Vs. Ques.#12C-3	97	1	.929	.3351	Do Not Reject
Grade1Ins.Vs. Ques.#12D-K	97	1	2.327	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#12D-1	97	1	2.327	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#12D-2	97	1	2.327	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#12D-3	97	1	.100	.7522	Do Not Reject
Grade1Ins.Vs. Ques.#12E-K	97	1	.021	.8837	Do Not Reject
Grade1Ins.Vs. Ques.#12E-1	97	1	.000	.9937	Do Not Reject
Grade1Ins.Vs. Ques.#12E-2	97	1	.000	.9937	Do Not Reject
Grade1Ins.Vs. Ques.#12E-3	97	1	.046	.8302	Do Not Reject
Grade1Ins.Vs. Ques.#12F-K	97	1	.021	.8837	Do Not Reject
Grade1Ins.Vs. Ques.#12F-1	97	1	.000	.9937	Do Not Reject
Grade1Ins.Vs. Ques.#12F-2	97	1	.012	.9122	Do Not Reject
Grade1Ins.Vs. Ques.#12F-3	97	1	.012	.9122	Do Not Reject
Grade1Ins.Vs. Ques.#12G-K	97	1	.012	.9122	Do Not Reject
Grade1Ins.Vs. Ques.#12G-1	97	1	.095	.7579	Do Not Reject
Grade1Ins.Vs. Ques.#12G-2	97	1	.095	.7579	Do Not Reject
Grade1Ins.Vs. Ques.#12G-3	97	1	1.662	.1973	Do Not Reject
Grade1Ins.Vs. Ques.#12H-K	97	1	2.486	.1149	Do Not Reject
Grade1Ins.Vs. Ques.#12H-1	97	1	2.650	.1035	Do Not Reject
Grade1Ins.Vs. Ques.#12H-2	97	1	2.820	.0931	Do Not Reject
Grade1Ins.Vs. Ques.#12H-3	97	1	.055	.8140	Do Not Reject
Grade1Ins.Vs. Ques.#12I-K	Insufficient Data				
Grade1Ins.Vs. Ques.#12I-1	Insufficient Data				
Grade1Ins.Vs. Ques.#12I-2	Insufficient Data				
Grade1Ins.Vs. Ques.#12I-3	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#12J-K	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#12J-1	97	1	.290	.5902	Do Not Reject
Grade1Ins.Vs. Ques.#12J-2	97	1	.290	.5902	Do Not Reject

TABLE 7 Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade1Ins.Vs. Ques.#12J-3	97	1	.290	.5902	Do Not Reject
Grade1Ins.Vs. Ques.#12K-K	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#12K-1	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#12K-2	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#12K-3	97	1	.290	.5902	Do Not Reject
Grade1Ins.Vs. Ques.#12L-K	Insufficient Data				
Grade1Ins.Vs. Ques.#12L-1	Insufficient Data				
Grade1Ins.Vs. Ques.#12L-2	Insufficient Data				
Grade1Ins.Vs. Ques.#12L-3	Insufficient Data				
Grade1Ins.Vs. Ques.#12M-K	97	1	2.328	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#12M-1	97	1	2.328	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#12M-2	97	1	2.328	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#12M-3	97	1	.757	.3842	Do Not Reject
Grade2Ins.Vs. Ques.#12A-K	97	1	2.857	.0910	Do Not Reject
Grade2Ins.Vs. Ques.#12A-1	97	1	13.714	.0002	Reject
Grade2Ins.Vs. Ques.#12A-2	97	1	14.516	.0001	Reject
Grade2Ins.Vs. Ques.#12A-3	97	1	.075	.7842	Do Not Reject
Grade2Ins.Vs. Ques.#12B-K	97	1	.000	.9937	Do Not Reject
Grade2Ins.Vs. Ques.#12B-1	97	1	2.270	.1319	Do Not Reject
Grade2Ins.Vs. Ques.#12B-2	97	1	2.553	.1101	Do Not Reject
Grade2Ins.Vs. Ques.#12B-3	97	1	.007	.9336	Do Not Reject
Grade2Ins.Vs. Ques.#12C-K	97	1	.287	.5924	Do Not Reject
Grade2Ins.Vs. Ques.#12C-1	97	1	.132	.7162	Do Not Reject
Grade2Ins.Vs. Ques.#12C-2	97	1	.051	.8216	Do Not Reject
Grade2Ins.Vs. Ques.#12C-3	97	1	.007	.9343	Do Not Reject
Grade2Ins.Vs. Ques.#12D-K	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#12D-1	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#12D-2	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#12D-3	97	1	.287	.5924	Do Not Reject
Grade2Ins.Vs. Ques.#12E-K	97	1	.132	.7162	Do Not Reject
Grade2Ins.Vs. Ques.#12E-1	97	1	.051	.8216	Do Not Reject
Grade2Ins.Vs. Ques.#12E-2	97	1	.051	.8216	Do Not Reject
Grade2Ins.Vs. Ques.#12E-3	97	1	.000	.9937	Do Not Reject
Grade2Ins.Vs. Ques.#12F-K	97	1	.132	.7162	Do Not Reject
Grade2Ins.Vs. Ques.#12F-1	97	1	.051	.8216	Do Not Reject
Grade2Ins.Vs. Ques.#12F-2	97	1	.012	.9131	Do Not Reject
Grade2Ins.Vs. Ques.#12F-3	97	1	.012	.9131	Do Not Reject
Grade2Ins.Vs. Ques.#12G-K	97	1	.012	.9131	Do Not Reject
Grade2Ins.Vs. Ques.#12G-1	97	1	.007	.9343	Do Not Reject
Grade2Ins.Vs. Ques.#12G-2	97	1	.007	.9343	Do Not Reject
Grade2Ins.Vs. Ques.#12G-3	97	1	3.360	.0668	Do Not Reject
Grade2Ins.Vs. Ques.#12H-K	97	1	1.528	.2164	Do Not Reject
Grade2Ins.Vs. Ques.#12H-1	97	1	1.642	.2001	Do Not Reject
Grade2Ins.Vs. Ques.#12H-2	97	1	1.759	.1848	Do Not Reject

TABLE 7 Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade2Ins.Vs. Ques.#12H-3	97	1	.284	.5942	Do Not Reject
Grade2Ins.Vs. Ques.#12I-K	Insufficient Data				
Grade2Ins.Vs. Ques.#12I-1	Insufficient Data				
Grade2Ins.Vs. Ques.#12I-2	Insufficient Data				
Grade2Ins.Vs. Ques.#12I-3	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#12J-K	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#12J-1	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#12J-2	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#12J-3	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#12K-K	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#12K-1	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#12K-2	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#12K-3	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#12L-K	Insufficient Data				
Grade2Ins.Vs. Ques.#12L-1	Insufficient Data				
Grade2Ins.Vs. Ques.#12L-2	Insufficient Data				
Grade2Ins.Vs. Ques.#12L-3	Insufficient Data				
Grade2Ins.Vs. Ques #12M-K	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#12M-1	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#12M-2	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#12M-3	97	1	1.246	.2644	Do Not Reject
Grade3Ins.Vs. Ques.#12A-K	Insufficient Data				
Grade3Ins.Vs. Ques.#12A-1	Insufficient Data				
Grade3Ins.Vs. Ques.#12A-2	Insufficient Data				
Grade3Ins.Vs. Ques.#12B-K	Insufficient Data				
Grade3Ins.Vs. Ques.#12B-1	Insufficient Data				
Grade3Ins.Vs. Ques.#12B-2	Insufficient Data				
Grade3Ins.Vs. Ques.#12B-3	Insufficient Data				
Grade3Ins.Vs. Ques.#12C-K	Insufficient Data				
Grade3Ins.Vs. Ques.#12C-1	Insufficient Data				
Grade3Ins.Vs. Ques.#12C-2	Insufficient Data				
Grade3Ins.Vs. Ques.#12C-3	Insufficient Data				
Grade3Ins.Vs. Ques.#12D-K	Insufficient Data				
Grade3Ins.Vs. Ques.#12D-1	Insufficient Data				
Grade3Ins.Vs. Ques.#12D-2	Insufficient Data				
Grade3Ins.Vs. Ques.#12D-3	Insufficient Data				
Grade3Ins.Vs. Ques.#12E-K	Insufficient Data				
Grade3Ins.Vs. Ques.#12E-1	Insufficient Data				
Grade3Ins.Vs. Ques.#12E-2	Insufficient Data				
Grade3Ins.Vs. Ques.#12E-3	Insufficient Data				
Grade3Ins.Vs. Ques.#12F-K	Insufficient Data				
Grade3Ins.Vs. Ques.#12F-1	Insufficient Data				
Grade3Ins.Vs. Ques.#12F-2	Insufficient Data				

TABLE 7 (Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade3Ins.Vs. Ques.#12F-3	Insufficient Data				
Grade3Ins.Vs. Ques.#12G-K	Insufficient Data				
Grade3Ins.Vs. Ques.#12G-1	Insufficient Data				
Grade3Ins.Vs. Ques.#12G-2	Insufficient Data				
Grade3Ins.Vs. Ques.#12G-3	Insufficient Data				
Grade3Ins.Vs. Ques.#12H-K	Insufficient Data				
Grade3Ins.Vs. Ques.#12H-1	Insufficient Data				
Grade3Ins.Vs. Ques.#12H-2	Insufficient Data				
Grade3Ins.Vs. Ques.#12H-3	Insufficient Data				
Grade3Ins.Vs. Ques.#12I-K	Insufficient Data				
Grade3Ins.Vs. Ques.#12I-1	Insufficient Data				
Grade3Ins.Vs. Ques.#12I-2	Insufficient Data				
Grade3Ins.Vs. Ques.#12I-3	Insufficient Data				
Grade3Ins.Vs. Ques.#12J-K	Insufficient Data				
Grade3Ins.Vs. Ques.#12J-1	Insufficient Data				
Grade3Ins.Vs. Ques.#12J-2	Insufficient Data				
Grade3Ins.Vs. Ques.#12J-3	Insufficient Data				
Grade3Ins.Vs. Ques.#12K-K	Insufficient Data				
Grade3Ins.Vs. Ques.#12K-1	Insufficient Data				
Grade3Ins.Vs. Ques.#12K-2	Insufficient Data				
Grade3Ins.Vs. Ques.#12K-3	Insufficient Data				
Grade3Ins.Vs. Ques.#12L-K	Insufficient Data				
Grade3Ins.Vs. Ques.#12L-1	Insufficient Data				
Grade3Ins.Vs. Ques.#12L-2	Insufficient Data				
Grade3Ins.Vs. Ques.#12L-3	Insufficient Data				
Grade3Ins.Vs. Ques.#12M-K	Insufficient Data				
Grade3Ins.Vs. Ques.#12M-1	Insufficient Data				
Grade3Ins.Vs. Ques.#12M-2	Insufficient Data				
Grade3Ins.Vs. Ques.#12M-3	Insufficient Data				
GradeKIns.Vs. Ques.#13A-K	Insufficient Data				
GradeKIns.Vs. Ques.#13A-1	Insufficient Data				
GradeKIns.Vs. Ques.#13A-2	Insufficient Data				
GradeKIns.Vs. Ques.#13A-3	Insufficient Data				
GradeKIns.Vs. Ques.#13A-K	Insufficient Data				
GradeKIns.Vs. Ques.#13B-1	Insufficient Data				
GradeKIns.Vs. Ques.#13B-2	Insufficient Data				
GradeKIns.Vs. Ques.#13B-3	Insufficient Data				
GradeKIns.Vs. Ques.#13C-K	Insufficient Data				
GradeKIns.Vs. Ques.#13C-1	Insufficient Data				
GradeKIns.Vs. Ques.#13C-2	Insufficient Data				
GradeKIns.Vs. Ques.#13C-3	Insufficient Data				
GradeKIns.Vs. Ques.#13D-K	Insufficient Data				
GradeKIns.Vs. Ques.#13D-1	Insufficient Data				
GradeKIns.Vs. Ques.#13D-2	Insufficient Data				

TABLE 7 (Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradeKIns.Vs. Ques.#13D-3	Insufficient Data				
GradeKIns.Vs. Ques.#13E-K	Insufficient Data				
GradeKIns.Vs. Ques.#13E-1	Insufficient Data				
GradeKIns.Vs. Ques.#13E-2	Insufficient Data				
GradeKIns.Vs. Ques.#12E-3	Insufficient Data				
GradeKIns.Vs. Ques.#13F-K	Insufficient Data				
GradeKIns.Vs. Ques.#13E-1	Insufficient Data				
GradeKIns.Vs. Ques.#13F-2	Insufficient Data				
GradeKIns.Vs. Ques.#13F-3	Insufficient Data				
GradeKIns.Vs. Ques.#13G-K	Insufficient Data				
GradeKIns.Vs. Ques.#13G-1	Insufficient Data				
GradeKIns.Vs. Ques.#13G-2	Insufficient Data				
GradeKIns.Vs. Ques.#13G-3	Insufficient Data				
GradeKIns.Vs. Ques.#13H-K	Insufficient Data				
GradeKIns.Vs. Ques.#13H-1	Insufficient Data				
GradeKIns.Vs. Ques.#13H-2	Insufficient Data				
GradeKIns.Vs. Ques.#13H-3	Insufficient Data				
GradeKIns.Vs. Ques.#13I-K	97	1	29.386	.0000	Reject
GradeKIns.Vs. Ques.#13I-1	97	1	.063	.8012	Do Not Reject
GradeKIns.Vs. Ques.#13I-2	97	1	1.588	.2076	Do Not Reject
GradeKIns.Vs. Ques.#13I-3	97	1	4.617	.0312	Reject
GradeKIns.Vs. Ques.#13J-K	97	1	38.003	.0000	Reject
GradeKIns.Vs. Ques.#13J-1	97	1	.001	.9773	Do Not Reject
GradeKIns.Vs. Ques.#13J-2	97	1	.005	.9421	Do Not Reject
GradeKIns.Vs. Ques.#13J-3	97	1	3.399	.0652	Do Not Reject
GradeKIns.Vs. Ques.#13K-K	97	1	21.120	.0000	Reject
GradeKIns.Vs. Ques.#13K-1	97	1	2.271	.1318	Do Not Reject
GradeKIns.Vs. Ques.#13K-2	97	1	4.546	.0330	Reject
GradeKIns.Vs. Ques.#13K-3	97	1	7.014	.0081	Rejec
GradeKIns.Vs. Ques.#13L-K	97	1	30.928	.0000	Reject
GradeKIns.Vs. Ques.#13L-1	97	1	.027	.8695	Do Not Reject
GradeKIns.Vs. Ques.#13L-2	97	1	.540	.4626	Do Not Reject
GradeKIns.Vs. Ques.#13L-3	97	1	4.664	.0308	Reject
GradeKIns.Vs. Ques.#13M-K	97	1	35.868	.0000	Reject
GradeKIns.Vs. Ques.#13M-1	97	1	.027	.8695	Do Not Reject
GradeKIns.Vs. Ques.#13M-2	97	1	.540	.4626	Do Not Reject
GradeKIns.Vs. Ques.#13M-3	97	1	4.664	.0308	Reject
GradeKIns.Vs. Ques.#13N-K	97	1	34.367	.0000	Reject
GradeKIns.Vs. Ques.#13N-1	97	1	.068	.7940	Do Not Reject
GradeKIns.Vs. Ques.#13N-3	97	1	1.064	.3023	Do Not Reject
GradeKIns.Vs. Ques.#13N-3	97	1	5.575	.0182	Reject
GradeKIns.Vs. Ques.#13O-K	97	1	35.868	.0000	Reject
GradeKIns.Vs. Ques.#13O-1	97	1	.392	.5311	Do Not Reject
GradeKIns.Vs. Ques.#13O-2	97	1	1.064	.3023	Do Not Reject
GradeKIns.Vs. Ques.#13O-3	97	1	6.367	.0116	Reject

TABLE 7 Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradeKIns.Vs. Ques.#13P-K	97	1	23.705	.0000	Reject
GradeKIns.Vs. Ques.#13P-1	97	1	1.389	.2385	Do Not Reject
GradeKIns.Vs. Ques.#13P-2	97	1	3.276	.0203	Do Not Reject
GradeKIns.Vs. Ques.#13P-3	97	1	9.532	.0020	Reject
GradeKIns.Vs. Ques.#13Q-K	97	1	21.120	.0000	Reject
GradeKIns.Vs. Ques.#13Q-1	97	1	3.716	.0539	Do Not Reject
GradeKIns.Vs. Ques.#13Q-2	97	1	5.773	.0163	Reject
GradeKIns.Vs. Ques.#13Q-3	97	1	14.715	.0001	Reject
GradeKIns.Vs. Ques.#13R-K	97	1	16.392	.0001	Reject
GradeKIns.Vs. Ques.#13R-1	97	1	6.631	.0100	Reject
GradeKIns.Vs. Ques.#13R-2	97	1	7.668	.0056	Reject
GradeKIns.Vs. Ques.#13R-3	97	1	14.797	.0001	Reject
GradeKIns.Vs. Ques.#13S-K	97	1	16.392	.0001	Reject
GradeKIns.Vs. Ques.#13S-1	97	1	4.662	.0308	Reject
GradeKIns.Vs. Ques.#13S-2	97	1	6.294	.0121	Reject
GradeKIns.Vs. Ques.#13S-3	97	1	12.752	.0004	Reject
GradeKIns.Vs. Ques.#13T-K	97	1	26.457	.0000	Reject
GradeKIns.Vs. Ques.#13T-1	97	1	1.464	.2263	Do Not Reject
GradeKIns.Vs. Ques.#13T-2	97	1	3.540	.0599	Do Not Reject
GradeKIns.Vs. Ques.#13T-3	97	1	9.846	.0017	Reject
GradeKIns.Vs. Ques.#13U-K	97	1	32.519	.0000	Reject
GradeKIns.Vs. Ques.#13U-1	97	1	.027	.8695	Do Not Reject
GradeKIns.Vs. Ques.#13U-2	97	1	1.064	.3023	Do Not Reject
GradeKIns.Vs. Ques.#13U-3	97	1	6.367	.0116	Reject
GradeKIns.Vs. Ques.#13V-K	97	1	36.152	.0000	Reject
GradeKIns.Vs. Ques.#13V-1	97	1	.045	.8319	Do Not Reject
GradeKIns.Vs. Ques.#13V-2	97	1	.443	.5059	Do Not Reject
GradeKIns.Vs. Ques.#13V-3	97	1	6.367	.0116	Reject
GradeKIns.Vs. Ques.#13W-K	97	1	3.431	.0640	Do Not Reject
GradeKIns.Vs. Ques.#13W-1	97	1	1.670	.1963	Do Not Reject
GradeKIns.Vs. Ques.#13W-2	97	1	1.670	.1963	Do Not Reject
GradeKIns.Vs. Ques.#13W-3	97	1	.002	.9597	Do Not Reject
GradeKIns.Vs. Ques.#13X-K	97	1	13.194	.0003	Reject
GradeKIns.Vs. Ques.#13X-1	97	1	9.394	.0022	Reject
GradeKIns.Vs. Ques.#13X-2	97	1	11.607	.0007	Reject
GradeKIns.Vs. Ques.#13X-3	97	1	17.208	.0000	Reject
GradeKIns.Vs. Ques.#13Y-K	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#13Y-1	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#13Y-2	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#13Y-3	97	1	.040	.8409	Do Not Reject
Grade1Ins.Vs. Ques.#13A-K	97	1	.046	.8302	Do Not Reject
Grade1Ins.Vs. Ques.#13A-1	97	1	.095	.7579	Do Not Reject

TABLE 7 (Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradelIns.Vs. Ques.#13A-2	97	1	.095	.7579	Do Not Reject
GradelIns.Vs. Ques.#13A-3	97	1	.095	.7579	Do Not Reject
GradelIns.Vs. Ques.#13B-K	97	1	3.759	.0525	Do Not Reject
GradelIns.Vs. Ques.#13B-1	97	1	13.858	.0002	Reject
GradelIns.Vs. Ques.#13B-2	97	1	10.336	.0013	Reject
GradelIns.Vs. Ques.#13B-3	97	1	.088	.7669	Do Not Reject
GradelIns.Vs. Ques.#13C-K	97	1	4.635	.0313	Reject
GradelIns.Vs. Ques.#13C-1	97	1	21.060	.0000	Reject
GradelIns.Vs. Ques.#13C-2	97	1	10.553	.0012	Reject
GradelIns.Vs. Ques.#13C-3	97	1	.072	.7884	Do Not Reject
GradelIns.Vs. Ques.#13D-K	97	1	1.342	.2466	Do Not Reject
GradelIns.Vs. Ques.#13D-1	97	1	6.834	.0089	Reject
GradelIns.Vs. Ques.#13D-2	97	1	7.863	.0050	Reject
GradelIns.Vs. Ques.#13D-3	97	1	2.300	.1293	Do Not Reject
GradelIns.Vs. Ques.#13E-K	97	1	2.022	.1550	Do Not Reject
GradelIns.Vs. Ques.#13E-1	97	1	9.039	.0026	Reject
GradelIns.Vs. Ques.#13E-2	97	1	6.110	.0134	Reject
GradelIns.Vs. Ques.#13E-3	97	1	.088	.7664	Do Not Reject
GradelIns.Vs. Ques.#13F-K	97	1	2.996	.0835	Do Not Reject
GradelIns.Vs. Ques.#13F-1	97	1	13.858	.0002	Reject
GradelIns.Vs. Ques.#13F-2	97	1	8.664	.0032	Reject
GradelIns.Vs. Ques.#13F-3	97	1	.198	.6561	Do Not Reject
GradelIns.Vs. Ques.#13G-K	97	1	2.326	.1272	Do Not Reject
GradelIns.Vs. Ques.#13G-1	97	1	9.470	.0021	Reject
GradelIns.Vs. Ques.#13G-2	97	1	5.761	.0164	Reject
GradelIns.Vs. Ques.#13G-3	97	1	.008	.9305	Do Not Reject
GradelIns.Vs. Ques.#13H-K	97	1	2.820	.0931	Do Not Reject
GradelIns.Vs. Ques.#13H-1	97	1	11.426	.0007	Reject
GradelIns.Vs. Ques.#13H-2	97	1	4.685	.0304	Reject
GradelIns.Vs. Ques.#13H-3	97	1	.024	.8765	Do Not Reject
GradelIns.Vs. Ques.#13I-K	97	1	3.967	.0464	Reject
GradelIns.Vs. Ques.#13I-1	97	1	16.108	.0001	Reject
GradelIns.Vs. Ques.#13I-2	97	1	6.755	.0093	Reject
GradelIns.Vs. Ques.#13I-3	97	1	.077	.7817	Do Not Reject
GradelIns.Vs. Ques.#13J-K	97	1	5.123	.0236	Reject
GradelIns.Vs. Ques.#13J-1	97	1	26.721	.0000	Reject
GradelIns.Vs. Ques.#13J-2	97	1	13.379	.0003	Reject
GradelIns.Vs. Ques.#13J-3	97	1	.132	.7168	Do Not Reject
GradelIns.Vs. Ques.#13K-K	97	1	2.326	.1272	Do Not Reject
GradelIns.Vs. Ques.#13K-1	97	1	9.922	.0016	Reject
GradelIns.Vs. Ques.#13K-2	97	1	3.739	.0532	Do Not Reject
GradelIns.Vs. Ques.#13K-3	97	1	.002	.9642	Do Not Reject
GradelIns.Vs. Ques.#13L-K	97	1	3.558	.0592	Do Not Reject
GradelIns.Vs. Ques.#13L-1	97	1	18.859	.0000	Reject

TABLE 7 (Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradelIns.Vs. Ques.#13L-2	97	1	8.418	.0037	Reject
GradelIns.Vs. Ques.#13L-3	97	1	.004	.9503	Do Not Reject
GradelIns.Vs. Ques.#13M-K	97	1	4.182	.0409	Reject
GradelIns.Vs. Ques.#13M-1	97	1	18.859	.0000	Reject
GradelIns.Vs. Ques.#13M-2	97	1	8.418	.0037	Reject
GradelIns.Vs. Ques.#13M-3	97	1	.004	.9503	Do Not Reject
GradelIns.Vs. Ques.#13N-K	97	1	4.635	.0313	Reject
GradelIns.Vs. Ques.#13N-1	97	1	21.060	.0000	Reject
GradelIns.Vs. Ques.#13N-2	97	1	9.086	.0026	Reject
GradelIns.Vs. Ques.#13N-3	97	1	.009	.9242	Do Not Reject
GradelIns.Vs. Ques.#13O-K	97	1	4.182	.0409	Reject
GradelIns.Vs. Ques.#13O-1	97	1	18.859	.0000	Reject
GradelIns.Vs. Ques.#13O-2	97	1	9.068	.0026	Reject
GradelIns.Vs. Ques.#13O-3	97	1	.000	.9883	Do Not Reject
GradelIns.Vs. Ques.#13P-K	97	1	2.650	.1035	Do Not Reject
GradelIns.Vs. Ques.#13P-1	97	1	10.989	.0010	Reject
GradelIns.Vs. Ques.#13P-2	97	1	4.349	.0370	Reject
GradelIns.Vs. Ques.#13P-3	97	1	.434	.5098	Do Not Reject
GradelIns.Vs. Ques.#13Q-K	97	1	2.326	.1272	Do Not Reject
GradelIns.Vs. Ques.#13Q-1	97	1	9.922	.0016	Reject
GradelIns.Vs. Ques.#13Q-2	97	1	4.034	.0446	Reject
GradelIns.Vs. Ques.#13Q-3	97	1	.605	.4366	Do Not Reject
GradelIns.Vs. Ques.#13R-K	97	1	1.737	.1875	Do Not Reject
GradelIns.Vs. Ques.#13R-1	97	1	8.237	.0041	Reject
GradelIns.Vs. Ques.#13R-2	97	1	2.724	.0984	Do Not Reject
GradelIns.Vs. Ques.#13R-3	97	1	.128	.7201	Do Not Reject
GradelIns.Vs. Ques.#13S-K	97	1	1.737	.1875	Do Not Reject
GradelIns.Vs. Ques.#13S-1	97	1	8.237	.0041	Reject
GradelIns.Vs. Ques.#13S-2	97	1	2.506	.1134	Do Not Reject
GradelIns.Vs. Ques.#13S-3	97	1	.116	.7333	Do Not Reject
GradelIns.Vs. Ques.#13T-K	97	1	2.996	.0835	Do Not Reject
GradelIns.Vs. Ques.#13T-1	97	1	13.858	.0002	Reject
GradelIns.Vs. Ques.#13T-2	97	1	6.280	.0122	Reject
GradelIns.Vs. Ques.#13T-3	97	1	.077	.7817	Do Not Reject
GradelIns.Vs. Ques.#13U-K	97	1	3.759	.0525	Do Not Reject
GradelIns.Vs. Ques.#13U-1	97	1	18.859	.0000	Reject
GradelIns.Vs. Ques.#13U-2	97	1	9.068	.0026	Reject
GradelIns.Vs. Ques.#13U-3	97	1	.000	.9883	Do Not Reject
GradelIns.Vs. Ques.#13V-K	97	1	4.875	.0273	Reject
GradelIns.Vs. Ques.#13V-1	97	1	21.060	.0000	Reject
GradelIns.Vs. Ques.#13V-2	97	1	10.553	.0012	Reject
GradelIns.Vs. Ques.#13V-3	97	1	.000	.9883	Do Not Reject
GradelIns.Vs. Ques.#13W-K	97	1	.012	.9122	Do Not Reject
GradelIns.Vs. Ques.#13W-1	97	1	.046	.8302	Do Not Reject
GradelIns.Vs. Ques.#13W-2	97	1	.046	.8302	Do Not Reject

TABLE 7 (Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade1Ins.Vs. Ques.#13W-3	97	1	3.438	.0637	Do Not Reject
Grade1Ins.Vs. Ques.#13X-K	97	1	1.342	.2466	Do Not Reject
Grade1Ins.Vs. Ques.#13X-1	97	1	7.163	.0074	Reject
Grade1Ins.Vs. Ques.#13X-2	97	1	1.924	.1654	Do Not Reject
Grade1Ins.Vs. Ques.#13X-3	97	1	.230	.6316	Do Not Reject
Grade1Ins.Vs. Ques.#13Y-K	97	1	2.328	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#13Y-1	97	1	2.328	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#13Y-2	97	1	2.328	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#13Y-3	97	1	2.328	.1271	Do Not Reject
Grade2Ins.Vs. Ques.#13A-K	97	1	.000	.9937	Do Not Reject
Grade2Ins.Vs. Ques.#13A-1	97	1	.007	.9343	Do Not Reject
Grade2Ins.Vs. Ques.#13A-2	97	1	.007	.9343	Do Not Reject
Grade2Ins.Vs. Ques.#13A-3	97	1	.007	.9343	Do Not Reject
Grade2Ins.Vs. Ques.#13B-K	97	1	2.409	.1206	Do Not Reject
Grade2Ins.Vs. Ques.#13B-1	97	1	9.468	.0021	Reject
Grade2Ins.Vs. Ques.#13B-2	97	1	11.045	.0009	Reject
Grade2Ins.Vs. Ques.#13B-3	97	1	.011	.9180	Do Not Reject
Grade2Ins.Vs. Ques.#13C-K	97	1	3.018	.0823	Do Not Reject
Grade2Ins.Vs. Ques.#13C-1	97	1	14.516	.0001	Reject
Grade2Ins.Vs. Ques.#13C-2	97	1	17.357	.0000	Reject
Grade2Ins.Vs. Ques.#13C-3	97	1	.249	.6180	Do Not Reject
Grade2Ins.Vs. Ques.#13D-K	97	1	.751	.3863	Do Not Reject
Grade2Ins.Vs. Ques.#13D-1	97	1	4.552	.0329	Reject
Grade2Ins.Vs. Ques.#13D-2	97	1	5.271	.0217	Reject
Grade2Ins.Vs. Ques.#13D-3	97	1	.589	.4429	Do Not Reject
Grade2Ins.Vs. Ques.#13E-K	97	1	1.211	.2712	Do Not Reject
Grade2Ins.Vs. Ques.#13E-1	97	1	6.094	.0136	Reject
Grade2Ins.Vs. Ques.#13E-2	97	1	7.045	.0079	Reject
Grade2Ins.Vs. Ques.#13E-3	97	1	.086	.7687	Do Not Reject
Grade2Ins.Vs. Ques.#13F-K	97	1	1.880	.1703	Do Not Reject
Grade2Ins.Vs. Ques.#13F-1	97	1	9.468	.0021	Reject
Grade2Ins.Vs. Ques.#13F-2	97	1	9.468	.0021	Reject
Grade2Ins.Vs. Ques.#13F-3	97	1	.000	.9879	Do Not Reject
Grade2Ins.Vs. Ques.#13G-K	97	1	1.419	.2336	Do Not Reject
Grade2Ins.Vs. Ques.#13G-1	97	1	6.396	.0114	Reject
Grade2Ins.Vs. Ques.#13G-2	97	1	6.712	.0096	Reject
Grade2Ins.Vs. Ques.#13G-3	97	1	.073	.7868	Do Not Reject
Grade2Ins.Vs. Ques.#13H-K	97	1	1.759	.1848	Do Not Reject
Grade2Ins.Vs. Ques.#13H-1	97	1	7.765	.0053	Reject
Grade2Ins.Vs. Ques.#13H-2	97	1	9.468	.0021	Reject
Grade2Ins.Vs. Ques.#13H-3	97	1	.046	.8292	Do Not Reject
Grade2Ins.Vs. Ques.#13I-K	97	1	2.553	.1101	Do Not Reject
Grade2Ins.Vs. Ques.#13I-1	97	1	11.045	.0009	Reject

TABLE 7 (Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade2Ins.Vs. Ques.#13I-2	97	1	12.284	.0005	Reject
Grade2Ins.Vs. Ques.#13I-3	97	1	.020	.8886	Do Not Reject
Grade2Ins.Vs. Ques.#13J-K	97	1	3.358	.0669	Do Not Reject
Grade2Ins.Vs. Ques.#13J-1	97	1	18.484	.0000	Reject
Grade2Ins.Vs. Ques.#13J-2	97	1	21.096	.0000	Reject
Grade2Ins.Vs. Ques.#13J-3	97	1	.193	.6607	Do Not Reject
Grade2Ins.Vs. Ques.#13K-K	97	1	1.419	.2336	Do Not Reject
Grade2Ins.Vs. Ques.#13K-1	97	1	6.712	.0096	Reject
Grade2Ins.Vs. Ques.#13K-2	97	1	8.155	.0043	Reject
Grade2Ins.Vs. Ques.#13K-3	97	1	.277	.5986	Do Not Reject
Grade2Ins.Vs. Ques.#13L-K	97	1	2.270	.1319	Do Not Reject
Grade2Ins.Vs. Ques.#13L-1	97	1	12.973	.0003	Reject
Grade2Ins.Vs. Ques.#13L-2	97	1	14.516	.0001	Reject
Grade2Ins.Vs. Ques.#13L-3	97	1	.119	.7302	Do Not Reject
Grade2Ins.Vs. Ques.#13M-K	97	1	2.702	.1002	Do Not Reject
Grade2Ins.Vs. Ques.#13M-1	97	1	12.973	.0003	Reject
Grade2Ins.Vs. Ques.#13M-2	97	1	14.516	.0001	Reject
Grade2Ins.Vs. Ques.#13M-3	97	1	.119	.7302	Do Not Reject
Grade2Ins.Vs. Ques.#13N-K	97	1	3.018	.0823	Do Not Reject
Grade2Ins.Vs. Ques.#13N-1	97	1	14.516	.0001	Reject
Grade2Ins.Vs. Ques.#13N-2	97	1	15.384	.0001	Reject
Grade2Ins.Vs. Ques.#13N-3	97	1	.247	.6191	Do Not Reject
Grade2Ins.Vs. Ques.#13O-K	97	1	2.702	.1002	Do Not Reject
Grade2Ins.Vs. Ques.#13O-1	97	1	12.973	.0003	Reject
Grade2Ins.Vs. Ques.#13O-2	97	1	15.334	.0001	Reject
Grade2Ins.Vs. Ques.#13O-3	97	1	.176	.6751	Do Not Reject
Grade2Ins.Vs. Ques.#13P-K	97	1	1.642	.2001	Do Not Reject
Grade2Ins.Vs. Ques.#13P-1	97	1	7.395	.0065	Reject
Grade2Ins.Vs. Ques.#13P-2	97	1	9.005	.0027	Reject
Grade2Ins.Vs. Ques.#13P-3	97	1	.046	.8292	Do Not Reject
Grade2Ins.Vs. Ques.#13Q-K	97	1	1.419	.2336	Do Not Reject
Grade2Ins.Vs. Ques.#13Q-1	97	1	6.712	.0096	Reject
Grade2Ins.Vs. Ques.#13Q-2	97	1	8.568	.0034	Reject
Grade2Ins.Vs. Ques.#13Q-3	97	1	.105	.7457	Do Not Reject
Grade2Ins.Vs. Ques.#13R-K	97	1	1.017	.3133	Do Not Reject
Grade2Ins.Vs. Ques.#13R-1	97	1	5.533	.0187	Reject
Grade2Ins.Vs. Ques.#13R-2	97	1	6.712	.0096	Reject
Grade2Ins.Vs. Ques.#13R-3	97	1	.057	.8116	Do Not Reject
Grade2Ins.Vs. Ques.#13S-K	97	1	1.017	.3133	Do Not Reject
Grade2Ins.Vs. Ques.#13S-1	97	1	5.533	.0197	Reject
Grade2Ins.Vs. Ques.#13S-2	97	1	6.396	.0114	Reject
Grade2Ins.Vs. Ques.#13S-3	97	1	.034	.8545	Do Not Reject
Grade2Ins.Vs. Ques.#13T-K	97	1	1.880	.1703	Do Not Reject
Grade2Ins.Vs. Ques.#13T-1	97	1	9.468	.0021	Reject
Grade2Ins.Vs. Ques.#13T-2	97	1	11.643	.0006	Reject

TABLE 7 Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤05	H:o Decision
Grade2Ins.Vs. Ques.#13T-3	97	1	.020	.8886	Do Not Reject
Grade2Ins.Vs. Ques.#13U-K	97	1	2.409	.1206	Do Not Reject
Grade2Ins.Vs. Ques.#13U-1	97	1	12.973	.0003	Reject
Grade2Ins.Vs. Ques.#13U-2	97	1	15.384	.0001	Reject
Grade2Ins.Vs. Ques.#13U-3	97	1	.176	.6751	Do Not Reject
Grade2Ins.Vs. Ques.#13V-K	97	1	3.185	.0743	Do Not Reject
Grade2Ins.Vs. Ques.#13V-1	97	1	14.516	.0001	Reject
Grade2Ins.Vs. Ques.#13V-2	97	1	17.357	.0000	Reject
Grade2Ins.Vs. Ques.#13V-3	97	1	.176	.6751	Do Not Reject
Grade2Ins.Vs. Ques.#13W-K	97	1	.012	.9131	Do Not Reject
Grade2Ins.Vs. Ques.#13W-1	97	1	.000	.9937	Do Not Reject
Grade2Ins.Vs. Ques.#13W-2	97	1	.000	.9937	Do Not Reject
Grade2Ins.Vs. Ques.#13W-3	97	1	5.850	.0156	Reject
Grade2Ins.Vs. Ques.#13X-K	97	1	.751	.3863	Do Not Reject
Grade2Ins.Vs. Ques.#13X-1	97	1	4.782	.0288	Reject
Grade2Ins.Vs. Ques.#13X-2	97	1	5.533	.0187	Reject
Grade2Ins.Vs. Ques.#13X-3	97	1	.017	.8973	Do Not Reject
Grade2Ins.Vs. Ques.#13Y-K	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#13Y-1	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#13Y-2	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#13Y-3	97	1	3.343	.0675	Do Not Reject
Grade3Ins.Vs. Ques.#13A-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13A-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13A-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13A-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13B-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13B-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13B-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13B-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13C-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13C-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13C-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13C-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13D-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13D-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13D-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13D-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13E-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13E-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13E-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13E-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13F-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13F-1	Insufficient Data				

TABLE 7 (Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade3Ins.Vs. Ques.#13F-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13F-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13G-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13G-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13G-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13G-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13H-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13H-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13H-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13H-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13I-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13I-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13I-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13I-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13J-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13J-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13J-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13J-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13K-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13K-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13K-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13K-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13L-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13L-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13L-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13L-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13M-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13M-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13M-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13M-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13N-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13N-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13N-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13N-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13O-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13O-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13O-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13O-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13P-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13P-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13P-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13P-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13Q-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13Q-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13Q-2	Insufficient Data				

TABLE 7 (Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade3Ins.Vs. Ques.#13Q-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13R-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13R-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13R-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13R-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13S-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13S-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13S-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13S-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13T-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13T-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13T-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13T-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13U-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13U-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13U-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13U-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13V-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13V-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13V-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13V-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13W-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13W-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13W-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13W-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13X-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13X-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13X-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13X-3	Insufficient Data				
Grade3Ins.Vs. Ques.#13Y-K	Insufficient Data				
Grade3Ins.Vs. Ques.#13Y-1	Insufficient Data				
Grade3Ins.Vs. Ques.#13Y-2	Insufficient Data				
Grade3Ins.Vs. Ques.#13Y-3	Insufficient Data				
GradeKIns.Vs. Ques.#20	97	2	18.982	.0001	Reject
GradeKIns.Vs. Ques.#21-K	97	3	17.309	.0006	Reject
GradeKIns.Vs. Ques.#21-1	97	3	17.029	.0007	Reject
GradeKIns.Vs. Ques.#21-2	97	3	18.780	.0003	Reject
GradeKIns.Vs. Ques.#21-3	97	4	17.424	.0016	Reject
GradeKIns.Vs. Ques.#22-1	97	7	9.282	.2331	Do Not Reject
GradeKIns.Vs. Ques.#22-2	97	6	18.703	.0047	Reject
GradeKIns.Vs. Ques.#22-3	97	6	14.978	.0204	Reject
GradeKIns.Vs. Ques.#22-4	97	10	13.176	.2140	Do Not Reject
GradeKIns.Vs. Ques.#22-5	97	10	7.202	.7063	Do Not Reject

TABLE 7 (Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradeKIns.Vs. Ques.#22-6	97	12	12.884	.3775	Do Not Reject
GradeKIns.Vs. Ques.#22-7	97	10	12.134	.2762	Do Not Reject
GradeKIns.Vs. Ques.#22-8	97	8	15.228	.0549	Do Not Reject
GradeKIns.Vs. Ques.#22-9	97	8	4.449	.8145	Do Not Reject
GradeKIns.Vs. Ques.#22-10	97	11	14.688	.1972	Do Not Reject
GradeKIns.Vs. Ques.#22-11	97	9	8.321	.5021	Do Not Reject
GradeKIns.Vs. Ques.#22-12	97	9	7.689	.5658	Do Not Reject
GradeKIns.Vs. Ques.#22-13	97	11	11.786	.3799	Do Not Reject
GradeKIns.Vs. Ques.#22-14	97	2	1.595	.4505	Do Not Reject
GradeKIns.Vs. Ques.#24	97	2	2.309	.3151	Do Not Reject
GradeKIns.Vs. Ques.#25	97	2	15.646	.0004	Reject
GradeKIns.Vs. Ques.#26	97	3	162.280*	.0000	Reject
Grade1Ins.Vs. Ques.#20	97	2	4.269	.1183	Do Not Reject
Grade1Ins.Vs. Ques.#21-K	97	3	.541	.9098	Do Not Reject
Grade1Ins.Vs. Ques.#21-1	97	3	.126	.9886	Do Not Reject
Grade1Ins.Vs. Ques.#21-2	97	3	.956	.8119	Do Not Reject
Grade1Ins.Vs. Ques.#21-3	97	4	.702	.9510	Do Not Reject
Grade1Ins.Vs. Ques.#22-1	97	7	10.093	.1834	Do Not Reject
Grade1Ins.Vs. Ques.#22-2	97	6	9.936	.1274	Do Not Reject
Grade1Ins.Vs. Ques.#22-3	97	6	3.712	.7156	Do Not Reject
Grade1Ins.Vs. Ques.#22-4	97	10	5.875	.8256	Do Not Reject
Grade1Ins.Vs. Ques.#22-5	97	10	10.093	.4324	Do Not Reject
Grade1Ins.Vs. Ques.#22-6	97	12	28.397	.0048	Reject
Grade1Ins.Vs. Ques.#22-7	97	10	28.347	.0016	Reject
Grade1Ins.Vs. Ques.#22-8	97	8	31.477	.0001	Reject
Grade1Ins.Vs. Ques.#22-9	97	8	7.957	.4377	Do Not Reject
Grade1Ins.Vs. Ques.#22-10	97	11	30.333	.0014	Reject
Grade1Ins.Vs. Ques.#22-11	97	9	26.145	.0019	Reject
Grade1Ins.Vs. Ques.#22-12	97	9	23.136	.0059	Reject
Grade1Ins.Vs. Ques.#22-13	97	11	8.534	.6649	Do Not Reject
Grade1Ins.Vs. Ques.#22-14	97	2	11.384	.0034	Reject
Grade1Ins.Vs. Ques.#24	97	2	.376	.8288	Do Not Reject
Grade1Ins.Vs. Ques.#25	97	2	5.639	.0596	Do Not Reject
Grade1Ins.Vs. Ques.#26	97	3	191.090*	.0000	Reject
Grade2Ins.Vs. Ques.#20	97	2	2.883	.2366	Do Not Reject
Grade2Ins.Vs. Ques.#21-K	97	3	.553	.9072	Do Not Reject
Grade2Ins.Vs. Ques.#21-1	97	3	1.365	.7138	Do Not Reject
Grade2Ins.Vs. Ques.#21-2	97	3	1.174	.7591	Do Not Reject
Grade2Ins.Vs. Ques.#21-3	97	4	.886	.9266	Do Not Reject
Grade2Ins.Vs. Ques.#22-1	97	7	7.289	.3994	Do Not Reject
Grade2Ins.Vs. Ques.#22-2	97	6	12.417	.0533	Do Not Reject
Grade2Ins.Vs. Ques.#22-3	97	6	4.632	.5918	Do Not Reject

*Actual Raw (chi-square) value

TABLE 7 (Cont'd)

Cluster #1 Contrast	N	df	Chi-square	P_.05	H:o Decision
Grade2Ins.Vs. Ques.#22-4	97	10	7.444	.6538	Do Not Reject
Grade2Ins.Vs. Ques.#22-5	97	10	7.289	.6979	Do Not Reject
Grade2Ins.Vs. Ques.#22-6	97	12	22.857	.0290	Reject
Grade2Ins.Vs. Ques.#22-7	97	10	22.816	.0114	Reject
Grade2Ins.Vs. Ques.#22-8	97	8	27.942	.0005	Reject
Grade2Ins.Vs. Ques.#22-9	97	8	4.477	.8117	Do Not Reject
Grade2Ins.Vs. Ques.#22-10	97	11	34.366	.0003	Reject
Grade2Ins.Vs. Ques.#22-11	97	9	19.944	.0183	Reject
Grade2Ins.Vs. Ques.#22-12	97	9	16.324	.0604	Do Not Reject
Grade2Ins.Vs. Ques.#22-13	97	11	5.332	.9140	Do Not Reject
Grade2Ins.Vs. Ques.#22-14	97	2	15.420	.0004	Reject
Grade2Ins.Vs. Ques.#24	97	2	.710	.7010	Do Not Reject
Grade2Ins.Vs. Ques.#25	97	2	3.337	.1886	Do Not Reject
Grade2Ins.Vs. Ques.#26	97	3	189.960*	.0000	Reject
Grade3Ins.Vs. Ques.#20	Insufficient Data				
Grade3Ins.Vs. Ques.#21-K	Insufficient Data				
Grade3Ins.Vs. Ques.#21-1	Insufficient Data				
Grade3Ins.Vs. Ques.#21-2	Insufficient Data				
Grade3Ins.Vs. Ques.#21-3	Insufficient Data				
Grade3Ins.Vs. Ques.#22-1	Insufficient Data				
Grade3Ins.Vs. Ques.#22-2	Insufficient Data				
Grade3Ins.Vs. Ques.#22-3	Insufficient Data				
Grade3Ins.Vs. Ques.#22-4	Insufficient Data				
Grade3Ins.Vs. Ques.#22-5	Insufficient Data				
Grade3Ins.Vs. Ques.#22-6	Insufficient Data				
Grade3Ins.Vs. Ques.#22-7	Insufficient Data				
Grade3Ins.Vs. Ques.#22-8	Insufficient Data				
Grade3Ins.Vs. Ques.#22-9	Insufficient Data				
Grade3Ins.Vs. Ques.#22-10	Insufficient Data				
Grade3Ins.Vs. Ques.#22-11	Insufficient Data				
Grade3Ins.Vs. Ques.#22-12	Insufficient Data				
Grade3Ins.Vs. Ques.#22-13	Insufficient Data				
Grade3Ins.Vs. Ques.#22-14	Insufficient Data				
Grade3Ins.Vs. Ques.#24	Insufficient Data				
Grade3Ins.Vs. Ques.#25	Insufficient Data				
Grade3Ins.Vs. Ques.#26	Insufficient Data				

*Actual Raw (chi-square) value

- Proper procedures for turning
- Emergency stopping and maneuvering
- Defensive riding
- Hazards that face the bicyclist (weather, pavement, vehicles)
- Crossing railroad tracks
- Crossing intersections
- Correct lane placement
- Overtaking other bicycles, vehicles
- Night-time riding
- Using safety flags
- Using reflective materials
- Proper clothing for increased visibility
- Skill and performance tests

Chi-square values of 3.841 or higher were needed for significance at the .05 level. Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{18}) was rejected for these variables. Insignificant X^2 values were obtained for:

- Bicycle riding and safety concepts not offered by bicycle instructors (partial contrasts)
- Bicycle tour techniques/packing procedures
- Trip-planning techniques
- Conducting special bicycle events (e.g., parades, contests or races) and
- Other "Bicycle riding and safety" event concepts (special demonstrations)

The null hypothesis (HO_{18}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable. Insufficient reported data was noted for grade 3 bicycle instructor contrasts. The contrasts for "Reported Bicycle Riding and Safety Concepts" are reported in tabular form in Table 8.

Reported "Bicycle Safety Equipment" Concepts

A significant difference at the .05 level of significance was indicated in K-3 grade bicycle safety education programs with respect to the following "Bicycle Safety Equipment" concepts as reported by Kindergarten, grade 1 and grade 2 bicycle instructors:

- Bicycle safety equipment concepts not offered by bicycle instructors (partial contrasts)
- How to measure a bicycle for proper size and fit
- Bicycle anatomy (e.g., pedals, seats, frame)
- Classification of bicycles (e.g., lightweight, touring, 3-speed)
- Selection of bicycles, accessories
- Required equipment (e.g., brakes, horn/bell)
- Required equipment on newly sold bicycles (e.g., pedal, wheel reflectors)
- Required equipment for night riding (e.g., lights, reflectors)
- Recommended equipment (e.g., rear taillight, basket, grips)
- Optional equipment for visibility, safety (e.g., flags, clothing, mirrors)

Chi-square values of 3.841 or higher were needed for significance at the .05 level. Since the p values attained were lower

than the .05 level of significance, the null hypothesis (HO_{19}) was rejected for these variables. Insignificant X^2 values were obtained for:

- Bicycle safety equipment concepts not offered by bicycle instructors (partial contrasts)
- History of bicycling
- Bicycle trips/touring/traveling equipment (e.g., bags, tool kit) and
- Other "Bicycle safety equipment" concepts (bicycle frame construction)

The null hypothesis (HO_{19}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable. Insufficient reported data was noted for grade 3 bicycle instructor contrasts. The contrasts for "Reported Bicycle Safety Equipment Concepts" are reported in tabular form in Table 8.

Reported "Bicycle Care and Maintenance" Concepts

A significant difference at the .05 level of significance was indicated in K-3 grade bicycle safety education programs with respect to the following "Bicycle Care and Maintenance" concepts as reported by Kindergarten, grade 1 and grade 2 bicycle instructors:

- Bicycle care and maintenance concepts not offered by bicycle instructors (partial contrasts)
- Proper bicycle storage
- Theft prevention
- Parking procedures
- Brakes (e.g., adjustment for even wear)
- Saddle (seat) (e.g., adjustment for proper size)

- Handlebars (e.g., tighten often, proper height)
- Wheels (e.g., nuts tight to prevent sway, uneven wear on rim)
- Tires (e.g., properly inflated, no defects)
- Spokes (e.g., tight, wear)
- Pedals (e.g., spin freely, tight)
- Chain (e.g., wear, lubrication)
- Gears (e.g., adjustment, replacement of cables)
- Keeping all working parts clean and lubricated

Chi-square values of 3.841 or higher were needed for significance at the .05 level. Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{20}) was rejected for these variables. Insignificant X^2 values were obtained for:

- Bicycle care and maintenance concepts not offered by bicycle instructors (partial contrasts)
- Other "Bicycle care and maintenance" procedures (maintenance schedules)

The null hypothesis (HO_{20}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable. "Totally negative" responses recorded for partial contrasts performed with respect to Kindergarten bicycle instructors also prevented complete contrasts being performed for this variable. Insufficient reported data was noted for grade 3 bicycle instructor contrasts and for partial contrasts performed with respect to Kindergarten bicycle instructors. The contrasts for "Reported Bicycle Care and Maintenance Concepts" are reported in tabular form in Table 8.

TABLE 8

BICYCLE SAFETY EDUCATION CONCEPT UTILIZATION

Cluster #2 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradeKIns.Vs. Ques.#14A-K	97	1	4.373	.0365	Reject
GradeKIns.Vs. Ques.#14A-1	97	1	4.373	.0365	Reject
GradeKIns.Vs. Ques.#14A-2	97	1	5.132	.0235	Reject
GradeKIns.Vs. Ques.#14A-3	97	1	6.563	.0104	Reject
GradeKIns.Vs. Ques.#14B-K	97	1	14.229	.0002	Reject
GradeKIns.Vs. Ques.#14B-1	97	1	8.008	.0047	Reject
GradeKIns.Vs. Ques.#14B-2	97	1	14.615	.0001	Reject
GradeKIns.Vs. Ques.#14B-3	97	1	17.208	.0000	Reject
GradeKIns.Vs. Ques.#14C-K	97	1	17.522	.0000	Reject
GradeKIns.Vs. Ques.#14C-1	97	1	5.515	.0189	Reject
GradeKIns.Vs. Ques.#14C-2	97	1	7.668	.0056	Reject
GradeKIns.Vs. Ques.#14C-3	97	1	15.846	.0001	Reject
GradeKIns.Vs. Ques.#14D-K	97	1	14.229	.0002	Reject
GradeKIns.Vs. Ques.#14D-1	97	1	7.124	.0076	Reject
GradeKIns.Vs. Ques.#14D-2	97	1	9.940	.0016	Reject
GradeKIns.Vs. Ques.#14D-3	97	1	15.033	.0001	Reject
GradeKIns.Vs. Ques.#14E-K	97	1	13.827	.0002	Reject
GradeKIns.Vs. Ques.#14E-1	97	1	4.787	.0287	Reject
GradeKIns.Vs. Ques.#14E-2	97	1	10.174	.0014	Reject
GradeKIns.Vs. Ques.#14E-3	97	1	15.840	.0001	Reject
GradeKIns.Vs. Ques.#14F-K	97	1	17.167	.0000	Reject
GradeKIns.Vs. Ques.#14F-1	97	1	3.887	.0487	Reject
GradeKIns.Vs. Ques.#14F-2	97	1	8.937	.0028	Reject
GradeKIns.Vs. Ques.#14F-3	97	1	12.508	.0004	Reject
GradeKIns.Vs. Ques.#14G-K	97	1	21.120	.0000	Reject
GradeKIns.Vs. Ques.#14G-1	97	1	2.712	.0996	Do Not Reject
GradeKIns.Vs. Ques.#14G-2	97	1	6.356	.0117	Reject
GradeKIns.Vs. Ques.#14G-3	97	1	12.568	.0004	Reject
GradeKIns.Vs. Ques.#14H-K	97	1	4.182	.0409	Reject
GradeKIns.Vs. Ques.#14H-1	97	1	20.513	.0000	Reject
GradeKIns.Vs. Ques.#14H-2	97	1	22.336	.0000	Reject
GradeKIns.Vs. Ques.#14H-3	97	1	27.789	.0000	Reject
GradeKIns.Vs. Ques.#14I-K	97	1	18.353	.0000	Reject
GradeKIns.Vs. Ques.#14I-1	97	1	5.515	.0189	Reject
GradeKIns.Vs. Ques.#14I-2	97	1	4.787	.0287	Reject
GradeKIns.Vs. Ques.#14I-3	97	1	9.564	.0020	Reject
GradeKIns.Vs. Ques.#14J-K	97	1	18.353	.0000	Reject
GradeKIns.Vs. Ques.#14J-1	97	1	3.716	.0539	Do Not Reject
GradeKIns.Vs. Ques.#14J-2	97	1	5.523	.0219	Reject
GradeKIns.Vs. Ques.#14J-3	97	1	14.715	.0001	Reject
GradeKIns.Vs. Ques.#14K-K	97	1	14.905	.0001	Reject
GradeKIns.Vs. Ques.#14K-1	97	1	12.508	.0004	Reject
GradeKIns.Vs. Ques.#14K-2	97	1	8.751	.0031	Reject

TABLE 8 (Cont'd)

Cluster #2 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradeKIns.Vs. Ques.#14K-3	97	1	4.109	.0427	Reject
GradeKIns.Vs. Ques.#14L-K	97	1	24.900	.0000	Reject
GradeKIns.Vs. Ques.#14L-1	97	1	22.646	.0000	Reject
GradeKIns.Vs. Ques.#14L-2	97	1	15.390	.0001	Reject
GradeKIns.Vs. Ques.#14L-3	97	1	7.930	.0049	Reject
GradeKIns.Vs. Ques.#14M-K	97	1	11.551	.0007	Reject
GradeKIns.Vs. Ques.#14M-1	97	1	13.623	.0002	Reject
GradeKIns.Vs. Ques.#14M-2	97	1	14.715	.0001	Reject
GradeKIns.Vs. Ques.#14M-3	97	1	8.937	.0028	Reject
GradeKIns.Vs. Ques.#14N-K	97	1	10.261	.0014	Reject
GradeKIns.Vs. Ques.#14N-1	97	1	6.987	.0082	Reject
GradeKIns.Vs. Ques.#14N-2	97	1	6.107	.0135	Reject
GradeKIns.Vs. Ques.#14N-3	97	1	4.177	.0410	Reject
GradeKIns.Vs. Ques.#14O-K	97	1	25.060	.0000	Reject
GradeKIns.Vs. Ques.#14O-1	97	1	22.128	.0000	Reject
GradeKIns.Vs. Ques.#14O-2	97	1	14.185	.0002	Reject
GradeKIns.Vs. Ques.#14O-3	97	1	8.896	.0029	Reject
GradeKIns.Vs. Ques.#14P-K	97	1	6.987	.0082	Reject
GradeKIns.Vs. Ques.#14P-1	97	1	6.202	.0128	Reject
GradeKIns.Vs. Ques.#14P-2	97	1	6.596	.0102	Reject
GradeKIns.Vs. Ques.#14P-3	97	1	8.896	.0029	Reject
GradeKIns.Vs. Ques.#14Q-K	97	1	19.568	.0000	Reject
GradeKIns.Vs. Ques.#14Q-1	97	1	.761	.3831	Do Not Reject
GradeKIns.Vs. Ques.#14Q-2	97	1	4.177	.0410	Reject
GradeKIns.Vs. Ques.#14Q-3	97	1	7.831	.0051	Reject
GradeKIns.Vs. Ques.#14R-K	97	1	17.016	.0000	Reject
GradeKIns.Vs. Ques.#14R-1	97	1	2.373	.1235	Do Not Reject
GradeKIns.Vs. Ques.#14R-2	97	1	5.585	.0181	Reject
GradeKIns.Vs. Ques.#14R-3	97	1	10.568	.0012	Reject
GradeKIns.Vs. Ques.#14S-K	97	1	.291	.5846	Do Not Reject
GradeKIns.Vs. Ques.#14S-1	97	1	26.255	.0000	Reject
GradeKIns.Vs. Ques.#14S-2	97	1	24.282	.0000	Reject
GradeKIns.Vs. Ques.#14S-3	97	1	24.919	.0000	Reject
GradeKIns.Vs. Ques.#14T-K	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#14T-1	97	1	.124	.7253	Do Not Reject
GradeKIns.Vs. Ques.#14T-2	97	1	.124	.7253	Do Not Reject
GradeKIns.Vs. Ques.#14T-3	97	1	.013	.9102	Do Not Reject
GradeKIns.Vs. Ques.#14U-K	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#14U-1	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#14U-2	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#14U-3	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#14V-K	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#14V-1	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#14V-2	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#14V-3	97	1	.124	.7253	Do Not Reject

TABLE 8 (Cont'd)

Cluster #2 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradeKIns.Vs. Ques.#14W-K	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#14W-1	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#14W-2	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#14W-3	97	1	.714	.3983	Do Not Reject
Grade1Ins.Vs. Ques.#14A-K	97	1	.301	.5830	Do Not Reject
Grade1Ins.Vs. Ques.#14A-1	97	1	.301	.5830	Do Not Reject
Grade1Ins.Vs. Ques.#14A-2	97	1	.215	.6430	Do Not Reject
Grade1Ins.Vs. Ques.#14A-3	97	1	.225	.6355	Do Not Reject
Grade1Ins.Vs. Ques.#14B-K	97	1	1.470	.2254	Do Not Reject
Grade1Ins.Vs. Ques.#14B-1	97	1	8.629	.0033	Reject
Grade1Ins.Vs. Ques.#14B-2	97	1	1.924	.1654	Do Not Reject
Grade1Ins.Vs. Ques.#14B-3	97	1	.076	.7820	Do Not Reject
Grade1Ins.Vs. Ques.#14C-K	97	1	1.878	.1706	Do Not Reject
Grade1Ins.Vs. Ques.#14C-1	97	1	9.922	.0016	Reject
Grade1Ins.Vs. Ques.#14C-2	97	1	5.761	.0164	Reject
Grade1Ins.Vs. Ques.#14C-3	97	1	.002	.9642	Do Not Reject
Grade1Ins.Vs. Ques.#14D-K	97	1	1.470	.2254	Do Not Reject
Grade1Ins.Vs. Ques.#14D-1	97	1	9.039	.0026	Reject
Grade1Ins.Vs. Ques.#14D-2	97	1	7.863	.0050	Reject
Grade1Ins.Vs. Ques.#14D-3	97	1	.046	.8310	Do Not Reject
Grade1Ins.Vs. Ques.#14E-K	97	1	1.878	.1706	Do Not Reject
Grade1Ins.Vs. Ques.#14E-1	97	1	10.398	.0013	Reject
Grade1Ins.Vs. Ques.#14E-2	97	1	2.724	.0989	Do Not Reject
Grade1Ins.Vs. Ques.#14E-3	97	1	.055	.8140	Do Not Reject
Grade1Ins.Vs. Ques.#14F-K	97	1	2.326	.1272	Do Not Reject
Grade1Ins.Vs. Ques.#14F-1	97	1	12.572	.0004	Reject
Grade1Ins.Vs. Ques.#14F-2	97	1	3.739	.0532	Do Not Reject
Grade1Ins.Vs. Ques.#14F-3	97	1	.002	.9642	Do Not Reject
Grade1Ins.Vs. Ques.#14G-K	97	1	2.326	.1272	Do Not Reject
Grade1Ins.Vs. Ques.#14G-1	97	1	13.858	.0002	Reject
Grade1Ins.Vs. Ques.#14G-2	97	1	4.685	.0304	Reject
Grade1Ins.Vs. Ques.#14G-3	97	1	.024	.8765	Do Not Reject
Grade1Ins.Vs. Ques.#14H-K	97	1	.046	.8302	Do Not Reject
Grade1Ins.Vs. Ques.#14H-1	97	1	3.759	.0525	Do Not Reject
Grade1Ins.Vs. Ques.#14H-2	97	1	3.558	.0592	Do Not Reject
Grade1Ins.Vs. Ques.#14H-3	97	1	.001	.9786	Do Not Reject
Grade1Ins.Vs. Ques.#14I-K	97	1	2.486	.1149	Do Not Reject
Grade1Ins.Vs. Ques.#14I-1	97	1	9.922	.0016	Reject
Grade1Ins.Vs. Ques.#14I-2	97	1	10.398	.0013	Reject
Grade1Ins.Vs. Ques.#14I-3	97	1	.557	.4553	Do Not Reject
Grade1Ins.Vs. Ques.#14J-K	97	1	2.486	.1149	Do Not Reject
Grade1Ins.Vs. Ques.#14J-1	97	1	9.922	.0016	Reject
Grade1Ins.Vs. Ques.#14J-2	97	1	6.866	.0088	Reject
Grade1Ins.Vs. Ques.#14J-3	97	1	.605	.4366	Do Not Reject
Grade1Ins.Vs. Ques.#14K-K	97	1	2.022	.1550	Do Not Reject

TABLE 8 (Cont'd)

Cluster #2 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradelIns.Vs. Ques.#14K-1	97	1	2.650	.1035	Do Not Reject
GradelIns.Vs. Ques.#14K-2	97	1	.906	.3412	Do Not Reject
GradelIns.Vs. Ques.#14K-3	97	1	1.067	.3017	Do Not Reject
GradelIns.Vs. Ques.#14L-K	97	1	3.365	.0666	Do Not Reject
GradelIns.Vs. Ques.#14L-1	97	1	4.875	.0273	Reject
GradelIns.Vs. Ques.#14L-2	97	1	.516	.4727	Do Not Reject
GradelIns.Vs. Ques.#14L-3	97	1	3.520	.0606	Do Not Reject
GradelIns.Vs. Ques.#14M-K	97	1	2.022	.1550	Do Not Reject
GradelIns.Vs. Ques.#14M-1	97	1	2.326	.1272	Do Not Reject
GradelIns.Vs. Ques.#14M-2	97	1	2.486	.1149	Do Not Reject
GradelIns.Vs. Ques.#14M-3	97	1	.128	.7201	Do Not Reject
GradelIns.Vs. Ques.#14N-K	97	1	.985	.3210	Do Not Reject
GradelIns.Vs. Ques.#14N-1	97	1	1.342	.2466	Do Not Reject
GradelIns.Vs. Ques.#14N-2	97	1	1.601	.2057	Do Not Reject
GradelIns.Vs. Ques.#14N-3	97	1	.000	.9836	Do Not Reject
GradelIns.Vs. Ques.#14O-K	97	1	2.820	.0931	Do Not Reject
GradelIns.Vs. Ques.#14O-1	97	1	3.558	.0592	Do Not Reject
GradelIns.Vs. Ques.#14O-2	97	1	.434	.5101	Do Not Reject
GradelIns.Vs. Ques.#14O-3	97	1	3.295	.0695	Do Not Reject
GradelIns.Vs. Ques.#14P-K	97	1	1.342	.2466	Do Not Reject
GradelIns.Vs. Ques.#14P-1	97	1	5.928	.0149	Reject
GradelIns.Vs. Ques.#14P-2	97	1	6.520	.0107	Reject
GradelIns.Vs. Ques.#14P-3	97	1	1.160	.2815	Do Not Reject
GradelIns.Vs. Ques.#14Q-K	97	1	3.759	.0525	Do Not Reject
GradelIns.Vs. Ques.#14Q-1	97	1	15.310	.0001	Reject
GradelIns.Vs. Ques.#14Q-2	97	1	5.839	.0157	Reject
GradelIns.Vs. Ques.#14Q-3	97	1	.119	.7305	Do Not Reject
GradelIns.Vs. Ques.#14R-K	97	1	2.820	.0931	Do Not Reject
GradelIns.Vs. Ques.#14R-1	97	1	12.572	.0004	Reject
GradelIns.Vs. Ques.#14R-2	97	1	5.014	.0247	Reject
GradelIns.Vs. Ques.#14R-3	97	1	.288	.5913	Do Not Reject
GradelIns.Vs. Ques.#14S-K	97	1	.046	.8302	Do Not Reject
GradelIns.Vs. Ques.#14S-1	97	1	2.820	.0931	Do Not Reject
GradelIns.Vs. Ques.#14S-2	97	1	3.365	.0666	Do Not Reject
GradelIns.Vs. Ques.#14S-3	97	1	.046	.8310	Do Not Reject
GradelIns.Vs. Ques.#14T-K	97	1	.757	.3842	Do Not Reject
GradelIns.Vs. Ques.#14T-1	97	1	.290	.5902	Do Not Reject
GradelIns.Vs. Ques.#14T-2	97	1	.290	.5902	Do Not Reject
GradelIns.Vs. Ques.#14T-3	97	1	.100	.7522	Do Not Reject
GradelIns.Vs. Ques.#14U-K	97	1	2.328	.1271	Do Not Reject
GradelIns.Vs. Ques.#14U-1	97	1	2.328	.1271	Do Not Reject
GradelIns.Vs. Ques.#14U-2	97	1	2.328	.1271	Do Not Reject
GradelIns.Vs. Ques.#14U-3	97	1	2.328	.1271	Do Not Reject
GradelIns.Vs. Ques.#14V-K	97	1	2.328	.1271	Do Not Reject
GradelIns.Vs. Ques.#14V-1	97	1	.757	.3842	Do Not Reject

TABLE 8 (Cont'd)

Cluster #2 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade1Ins.Vs. Ques.#14V-2	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#14V-3	97	1	.290	.5902	Do Not Reject
Grade1Ins.Vs. Ques.#14W-K	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#14W-1	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#14W-2	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#14W-3	97	1	.290	.5902	Do Not Reject
Grade2Ins.Vs. Ques.#14A-K	97	1	.096	.7565	Do Not Reject
Grade2Ins.Vs. Ques.#14A-1	97	1	.096	.7565	Do Not Reject
Grade2Ins.Vs. Ques.#14A-2	97	1	.142	.7067	Do Not Reject
Grade2Ins.Vs. Ques.#14A-3	97	1	.058	.8105	Do Not Reject
Grade2Ins.Vs. Ques.#14B-K	97	1	.836	.3605	Do Not Reject
Grade2Ins.Vs. Ques.#14B-1	97	1	5.807	.0160	Reject
Grade2Ins.Vs. Ques.#14B-2	97	1	5.533	.0187	Reject
Grade2Ins.Vs. Ques.#14B-3	97	1	.017	.8973	Do Not Reject
Grade2Ins.Vs. Ques.#14C-K	97	1	1.112	.2916	Do Not Reject
Grade2Ins.Vs. Ques.#14C-1	97	1	6.712	.0096	Reject
Grade2Ins.Vs. Ques.#14C-2	97	1	6.712	.0096	Reject
Grade2Ins.Vs. Ques.#14C-3	97	1	.142	.7059	Do Not Reject
Grade2Ins.Vs. Ques.#14D-K	97	1	.836	.3605	Do Not Reject
Grade2Ins.Vs. Ques.#14D-1	97	1	6.094	.0136	Reject
Grade2Ins.Vs. Ques.#14D-2	97	1	5.271	.0217	Reject
Grade2Ins.Vs. Ques.#14D-3	97	1	.006	.9400	Do Not Reject
Grade2Ins.Vs. Ques.#14E-K	97	1	1.112	.2916	Do Not Reject
Grade2Ins.Vs. Ques.#14E-1	97	1	7.045	.0079	Reject
Grade2Ins.Vs. Ques.#14E-2	97	1	6.712	.0096	Reject
Grade2Ins.Vs. Ques.#14E-3	97	1	.284	.5942	Do Not Reject
Grade2Ins.Vs. Ques.#14F-K	97	1	1.419	.2336	Do Not Reject
Grade2Ins.Vs. Ques.#14F-1	97	1	8.568	.0034	Reject
Grade2Ins.Vs. Ques.#14F-2	97	1	8.155	.0043	Reject
Grade2Ins.Vs. Ques.#14F-3	97	1	.142	.7059	Do Not Reject
Grade2Ins.Vs. Ques.#14G-K	97	1	1.419	.2336	Do Not Reject
Grade2Ins.Vs. Ques.#14G-1	97	1	9.468	.0021	Reject
Grade2Ins.Vs. Ques.#14G-2	97	1	9.468	.0021	Reject
Grade2Ins.Vs. Ques.#14G-3	97	1	.046	.8292	Do Not Reject
Grade2Ins.Vs. Ques.#14H-K	97	1	.000	.9937	Do Not Reject
Grade2Ins.Vs. Ques.#14H-1	97	1	2.409	.1206	Do Not Reject
Grade2Ins.Vs. Ques.#14H-2	97	1	2.270	.1319	Do Not Reject
Grade2Ins.Vs. Ques.#14H-3	97	1	.589	.4429	Do Not Reject
Grade2Ins.Vs. Ques.#14I-K	97	1	1.528	.2164	Do Not Reject
Grade2Ins.Vs. Ques.#14I-1	97	1	6.712	.0096	Reject
Grade2Ins.Vs. Ques.#14I-2	97	1	7.045	.0079	Reject
Grade2Ins.Vs. Ques.#14I-3	97	1	.142	.7059	Do Not Reject
Grade2Ins.Vs. Ques.#14J-K	97	1	1.528	.2164	Do Not Reject
Grade2Ins.Vs. Ques.#14J-1	97	1	6.712	.0096	Reject
Grade2Ins.Vs. Ques.#14J-2	97	1	7.765	.0053	Reject

TABLE 8 (Cont'd)

Cluster #2 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade2Ins.Vs. Ques.#14J-3	97	1	.105	.7457	Do Not Reject
Grade2Ins.Vs. Ques.#14K-K	97	1	1.211	.2712	Do Not Reject
Grade2Ins.Vs. Ques.#14K-1	97	1	1.642	.2001	Do Not Reject
Grade2Ins.Vs. Ques.#14K-2	97	1	1.880	.1703	Do Not Reject
Grade2Ins.Vs. Ques.#14K-3	97	1	.985	.3209	Do Not Reject
Grade2Ins.Vs. Ques.#14L-K	97	1	2.135	.1439	Do Not Reject
Grade2Ins.Vs. Ques.#14L-1	97	1	3.185	.0743	Do Not Reject
Grade2Ins.Vs. Ques.#14L-2	97	1	3.185	.0743	Do Not Reject
Grade2Ins.Vs. Ques.#14L-3	97	1	1.666	.1968	Do Not Reject
Grade2Ins.Vs. Ques.#14M-K	97	1	1.211	.2712	Do Not Reject
Grade2Ins.Vs. Ques.#14M-1	97	1	1.419	.2336	Do Not Reject
Grade2Ins.Vs. Ques.#14M-2	97	1	1.528	.2164	Do Not Reject
Grade2Ins.Vs. Ques.#14M-3	97	1	.057	.8116	Do Not Reject
Grade2Ins.Vs. Ques.#14N-K	97	1	.514	.4733	Do Not Reject
Grade2Ins.Vs. Ques.#14N-1	97	1	.751	.3863	Do Not Reject
Grade2Ins.Vs. Ques.#14N-2	97	1	.925	.3362	Do Not Reject
Grade2Ins.Vs. Ques.#14N-3	97	1	.105	.7457	Do Not Reject
Grade2Ins.Vs. Ques.#14O-K	97	1	1.759	.1848	Do Not Reject
Grade2Ins.Vs. Ques.#14O-1	97	1	2.270	.1314	Do Not Reject
Grade2Ins.Vs. Ques.#14O-2	97	1	3.018	.0823	Do Not Reject
Grade2Ins.Vs. Ques.#14O-3	97	1	1.534	.2155	Do Not Reject
Grade2Ins.Vs. Ques.#14P-K	97	1	.751	.3863	Do Not Reject
Grade2Ins.Vs. Ques.#14P-1	97	1	3.919	.0477	Reject
Grade2Ins.Vs. Ques.#14P-2	97	1	4.333	.0374	Reject
Grade2Ins.Vs. Ques.#14P-3	97	1	.156	.6925	Do Not Reject
Grade2Ins.Vs. Ques.#14Q-K	97	1	2.409	.1206	Do Not Reject
Grade2Ins.Vs. Ques.#14Q-1	97	1	10.485	.0012	Reject
Grade2Ins.Vs. Ques.#14Q-2	97	1	11.045	.0009	Reject
Grade2Ins.Vs. Ques.#14Q-3	97	1	.006	.9389	Do Not Reject
Grade2Ins.Vs. Ques.#14R-K	97	1	1:759	.1848	Do Not Reject
Grade2Ins.Vs. Ques.#14R-1	97	1	8.568	.0034	Reject
Grade2Ins.Vs. Ques.#14R-2	97	1	9.961	.0016	Reject
Grade2Ins.Vs. Ques.#14R-3	97	1	.011	.9180	Do Not Reject
Grade2Ins.Vs. Ques.#14S-K	97	1	.000	.9937	Do Not Reject
Grade2Ins.Vs. Ques.#14S-1	97	1	1.759	.1848	Do Not Reject
Grade2Ins.Vs. Ques.#14S-2	97	1	2.135	.1439	Do Not Reject
Grade2Ins.Vs. Ques.#14S-3	97	1	.006	.9400	Do Not Reject
Grade2Ins.Vs. Ques.#14T-K	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#14T-1	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#14T-2	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#14T-3	97	1	.287	.5924	Do Not Reject
Grade2Ins.Vs. Ques.#14U-K	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#14U-1	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#14U-2	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#14U-3	97	1	3.343	.0675	Do Not Reject

TABLE 8 (Cont'd)

Cluster #2 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade2Ins.Vs. Ques.#14V-K	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#14V-1	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#14V-2	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#14V-3	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#14W-K	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#14W-1	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#14W-2	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#14W-3	97	1	.586	.4440	Do Not Reject
Grade3Ins.Vs. Ques.#14A-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14A-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14A-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14A-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14B-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14B-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14B-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14B-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14C-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14C-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14C-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14C-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14D-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14D-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14D-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14D-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14E-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14E-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14E-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14E-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14F-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14F-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14F-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14F-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14G-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14G-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14G-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14G-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14H-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14H-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14H-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14H-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14I-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14I-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14I-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14I-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14J-K	Insufficient Data				

TABLE 8 (Cont'd)

Cluster #2 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade3Ins.Vs. Ques.#14J-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14J-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14J-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14K-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14K-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14K-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14K-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14L-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14L-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14L-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14L-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14M-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14M-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14M-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14M-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14N-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14N-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14N-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14N-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14O-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14O-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14O-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14O-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14P-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14P-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14P-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14P-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14Q-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14Q-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14Q-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14Q-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14R-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14R-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14R-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14R-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14S-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14S-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14S-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14S-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14T-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14T-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14T-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14T-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14U-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14U-1	Insufficient Data				

TABLE 8 (Cont'd)

Cluster #2 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade3Ins.Vs. Ques.#14U-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14U-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14V-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14V-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14V-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14V-3	Insufficient Data				
Grade3Ins.Vs. Ques.#14W-K	Insufficient Data				
Grade3Ins.Vs. Ques.#14W-1	Insufficient Data				
Grade3Ins.Vs. Ques.#14W-2	Insufficient Data				
Grade3Ins.Vs. Ques.#14W-3	Insufficient Data				
GradeKIns.Vs. Ques.#15A-K	97	1	5.919	.0150	Reject
GradeKIns.Vs. Ques.#15A-1	97	1	5.132	.0235	Reject
GradeKIns.Vs. Ques.#15A-2	97	1	5.919	.0150	Reject
GradeKIns.Vs. Ques.#15A-3	97	1	5.132	.0235	Reject
GradeKIns.Vs. Ques.#15B-K	97	1	3.643	.0563	Do Not Reject
GradeKIns.Vs. Ques.#15B-1	97	1	2.138	.1437	Do Not Reject
GradeKIns.Vs. Ques.#15B-2	97	1	1.102	.2939	Do Not Reject
GradeKIns.Vs. Ques.#15B-3	97	1	.529	.4671	Do Not Reject
GradeKIns.Vs. Ques.#15C-K	97	1	15.295	.0001	Reject
GradeKIns.Vs. Ques.#15C-1	97	1	5.822	.0158	Reject
GradeKIns.Vs. Ques.#15C-2	97	1	7.124	.0076	Reject
GradeKIns.Vs. Ques.#15C-3	97	1	9.889	.0017	Reject
GradeKIns.Vs. Ques.#15D-K	97	1	15.295	.0001	Reject
GradeKIns.Vs. Ques.#15D-1	97	1	7.494	.0062	Reject
GradeKIns.Vs. Ques.#15D-2	97	1	8.946	.0028	Reject
GradeKIns.Vs. Ques.#15D-3	97	1	13.868	.0002	Reject
GradeKIns.Vs. Ques.#15E-K	97	1	9.339	.0022	Reject
GradeKIns.Vs. Ques.#15E-1	97	1	7.190	.0073	Reject
GradeKIns.Vs. Ques.#15E-2	97	1	5.403	.0201	Reject
GradeKIns.Vs. Ques.#15E-3	97	1	6.908	.0086	Reject
GradeKIns.Vs. Ques.#15F-K	97	1	8.444	.0037	Reject
GradeKIns.Vs. Ques.#15F-1	97	1	6.367	.0116	Reject
GradeKIns.Vs. Ques.#15F-2	97	1	4.664	.0308	Reject
GradeKIns.Vs. Ques.#15F-3	97	1	6.107	.0135	Reject
GradeKIns.Vs. Ques.#15G-K	97	1	21.120	.0000	Reject
GradeKIns.Vs. Ques.#15G-1	97	1	3.481	.0621	Do Not Reject
GradeKIns.Vs. Ques.#15G-2	97	1	7.171	.0074	Reject
GradeKIns.Vs. Ques.#15G-3	97	1	10.488	.0012	Reject
GradeKIns.Vs. Ques.#15H-K	97	1	12.188	.0005	Reject
GradeKIns.Vs. Ques.#15H-1	97	1	7.486	.0062	Reject
GradeKIns.Vs. Ques.#15H-2	97	1	8.896	.0029	Reject
GradeKIns.Vs. Ques.#15H-3	97	1	13.422	.0002	Reject
GradeKIns.Vs. Ques.#15I-K	97	1	19.578	.0000	Reject
GradeKIns.Vs. Ques.#15I-1	97	1	18.279	.0000	Reject
GradeKIns.Vs. Ques.#15I-2	97	1	11.936	.0006	Reject

TABLE 8 (Cont'd)

Cluster #2 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradeKIns.Vs. Ques.#15I-3	97	1	8.415	.0037	Reject
GradeKIns.Vs. Ques.#15J-K	97	1	17.522	.0000	Reject
GradeKIns.Vs. Ques.#15J-1	97	1	14.715	.0001	Reject
GradeKIns.Vs. Ques.#15J-2	97	1	10.525	.0012	Reject
GradeKIns.Vs. Ques.#15J-3	97	1	5.515	.0189	Reject
GradeKIns.Vs. Ques.#15K-K	97	1	10.261	.0014	Reject
GradeKIns.Vs. Ques.#15K-1	97	1	6.487	.0082	Reject
GradeKIns.Vs. Ques.#15K-2	97	1	6.107	.0135	Reject
GradeKIns.Vs. Ques.#15K-3	97	1	1.732	.1881	Do Not Reject
GradeKIns.Vs. Ques.#15L-K	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#15L-1	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#15L-2	97	1	.124	.7253	Do Not Reject
GradeKIns.Vs. Ques.#15L-3	97	1	.013	.9102	Do Not Reject
GradeKIns.Vs. Ques.#15M-K	97	1	.124	.7253	Do Not Reject
GradeKIns.Vs. Ques.#15M-1	97	1	.124	.7253	Do Not Reject
GradeKIns.Vs. Ques.#15M-2	97	1	.124	.7253	Do Not Reject
GradeKIns.Vs. Ques.#15M-3	97	1	.124	.7253	Do Not Reject
Grade1Ins.Vs. Ques.#15A-K	97	1	.132	.7168	Do Not Reject
Grade1Ins.Vs. Ques.#15A-1	97	1	.215	.6430	Do Not Reject
Grade1Ins.Vs. Ques.#15A-2	97	1	.132	.7168	Do Not Reject
Grade1Ins.Vs. Ques.#15A-3	97	1	.215	.6430	Do Not Reject
Grade1Ins.Vs. Ques.#15B-K	97	1	.225	.6355	Do Not Reject
Grade1Ins.Vs. Ques.#15B-1	97	1	.301	.5830	Do Not Reject
Grade1Ins.Vs. Ques.#15B-2	97	1	.215	.6430	Do Not Reject
Grade1Ins.Vs. Ques.#15B-3	97	1	.009	.9242	Do Not Reject
Grade1Ins.Vs. Ques.#15C-K	97	1	1.601	.2057	Do Not Reject
Grade1Ins.Vs. Ques.#15C-1	97	1	8.629	.0033	Reject
Grade1Ins.Vs. Ques.#15C-2	97	1	5.115	.0237	Reject
Grade1Ins.Vs. Ques.#15C-3	97	1	1.211	.2711	Do Not Reject
Grade1Ins.Vs. Ques.#15D-K	97	1	1.601	.2057	Do Not Reject
Grade1Ins.Vs. Ques.#15D-1	97	1	7.863	.0050	Reject
Grade1Ins.Vs. Ques.#15D-2	97	1	4.531	.0333	Reject
Grade1Ins.Vs. Ques.#15D-3	97	1	.076	.7820	Do Not Reject
Grade1Ins.Vs. Ques.#15E-K	97	1	.874	.3499	Do Not Reject
Grade1Ins.Vs. Ques.#15E-1	97	1	.985	.3210	Do Not Reject
Grade1Ins.Vs. Ques.#15E-2	97	1	.019	.8915	Do Not Reject
Grade1Ins.Vs. Ques.#15E-3	97	1	.137	.7116	Do Not Reject
Grade1Ins.Vs. Ques.#15F-K	97	1	.767	.3812	Do Not Reject
Grade1Ins.Vs. Ques.#15F-1	97	1	.874	.3499	Do Not Reject
Grade1Ins.Vs. Ques.#15F-2	97	1	.004	.9503	Do Not Reject
Grade1Ins.Vs. Ques.#15F-3	97	1	.168	.6818	Do Not Reject
Grade1Ins.Vs. Ques.#15G-K	97	1	2.326	.1272	Do Not Reject
Grade1Ins.Vs. Ques.#15G-1	97	1	11.426	.0007	Reject
Grade1Ins.Vs. Ques.#15G-2	97	1	4.349	.0370	Reject
Grade1Ins.Vs. Ques.#15G-3	97	1	.008	.9305	Do Not Reject

TABLE 8 (Cont'd)

Cluster #2 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradelIns.Vs. Ques.#15H-K	97	1	1.219	.2696	Do Not Reject
GradelIns.Vs. Ques.#15H-1	97	1	6.218	.0126	Reject
GradelIns.Vs. Ques.#15H-2	97	1	3.295	.0695	Do Not Reject
GradelIns.Vs. Ques.#15H-3	97	1	.001	.9725	Do Not Reject
GradelIns.Vs. Ques.#15I-K	97	1	2.650	.1035	Do Not Reject
GradelIns.Vs. Ques.#15I-1	97	1	3.558	.0592	Do Not Reject
GradelIns.Vs. Ques.#15I-2	97	1	.291	.5896	Do Not Reject
GradelIns.Vs. Ques.#15I-3	97	1	1.591	.2072	Do Not Reject
GradelIns.Vs. Ques.#15J-K	97	1	1.878	.1706	Do Not Reject
GradelIns.Vs. Ques.#15J-1	97	1	2.486	.1149	Do Not Reject
GradelIns.Vs. Ques.#15J-2	97	1	.800	.3712	Do Not Reject
GradelIns.Vs. Ques.#15J-3	97	1	.811	.3678	Do Not Reject
GradelIns.Vs. Ques.#15K-K	97	1	.985	.3210	Do Not Reject
GradelIns.Vs. Ques.#15K-1	97	1	1.342	.2466	Do Not Reject
GradelIns.Vs. Ques.#15K-2	97	1	.168	.6818	Do Not Reject
GradelIns.Vs. Ques.#15K-3	97	1	2.366	.1240	Do Not Reject
GradelIns.Vs. Ques.#15L-K	97	1	.757	.3842	Do Not Reject
GradelIns.Vs. Ques.#15L-1	97	1	.757	.3842	Do Not Reject
GradelIns.Vs. Ques.#15L-2	97	1	.290	.5902	Do Not Reject
GradelIns.Vs. Ques.#15L-3	97	1	.100	.7522	Do Not Reject
GradelIns.Vs. Ques.#15M-K	97	1	.290	.5902	Do Not Reject
GradelIns.Vs. Ques.#15M-1	97	1	.290	.5902	Do Not Reject
GradelIns.Vs. Ques.#15M-2	97	1	.290	.5902	Do Not Reject
GradelIns.Vs. Ques.#15M-3	97	1	.290	.5902	Do Not Reject
Grade2Ins.Vs. Ques.#15A-K	97	1	.193	.6607	Do Not Reject
Grade2Ins.Vs. Ques.#15A-1	97	1	.142	.7067	Do Not Reject
Grade2Ins.Vs. Ques.#15A-2	97	1	.193	.6607	Do Not Reject
Grade2Ins.Vs. Ques.#15A-3	97	1	.142	.7067	Do Not Reject
Grade2Ins.Vs. Ques.#15B-K	97	1	.058	.8105	Do Not Reject
Grade2Ins.Vs. Ques.#15B-1	97	1	.096	.7565	Do Not Reject
Grade2Ins.Vs. Ques.#15B-2	97	1	.142	.7067	Do Not Reject
Grade2Ins.Vs. Ques.#15B-3	97	1	.247	.6191	Do Not Reject
Grade2Ins.Vs. Ques.#15C-K	97	1	.925	.3362	Do Not Reject
Grade2Ins.Vs. Ques.#15C-1	97	1	5.807	.0160	Reject
Grade2Ins.Vs. Ques.#15C-2	97	1	6.094	.0136	Reject
Grade2Ins.Vs. Ques.#15C-3	97	1	1.105	.2932	Do Not Reject
Grade2Ins.Vs. Ques.#15D-K	97	1	.925	.3362	Do Not Reject
Grade2Ins.Vs. Ques.#15D-1	97	1	5.271	.0217	Reject
Grade2Ins.Vs. Ques.#15D-2	97	1	5.533	.0187	Reject
Grade2Ins.Vs. Ques.#15D-3	97	1	.017	.8973	Do Not Reject
Grade2Ins.Vs. Ques.#15E-K	97	1	.442	.5060	Do Not Reject
Grade2Ins.Vs. Ques.#15E-1	97	1	.514	.4733	Do Not Reject
Grade2Ins.Vs. Ques.#15E-2	97	1	.590	.4425	Do Not Reject
Grade2Ins.Vs. Ques.#15E-3	97	1	.002	.9643	Do Not Reject
Grade2Ins.Vs. Ques.#15F-K	97	1	.374	.5409	Do Not Reject

TABLE 8 (Cont'd)

Cluster #2 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade2Ins.Vs. Ques.#15F-1	97	1	.442	.5060	Do Not Reject
Grade2Ins.Vs. Ques.#15F-2	97	1	.514	.4733	Do Not Reject
Grade2Ins.Vs. Ques.#15F-3	97	1	.000	.9879	Do Not Reject
Grade2Ins.Vs. Ques.#15G-K	97	1	1.419	.2336	Do Not Reject
Grade2Ins.Vs. Ques.#15G-1	97	1	7.765	.0053	Reject
Grade2Ins.Vs. Ques.#15G-2	97	1	9.005	.0027	Reject
Grade2Ins.Vs. Ques.#15G-3	97	1	.423	.5156	Do Not Reject
Grade2Ins.Vs. Ques.#15H-K	97	1	.668	.4135	Do Not Reject
Grade2Ins.Vs. Ques.#15H-1	97	1	4.122	.0423	Reject
Grade2Ins.Vs. Ques.#15H-2	97	1	4.333	.0374	Reject
Grade2Ins.Vs. Ques.#15H-3	97	1	.018	.8922	Do Not Reject
Grade2Ins.Vs. Ques.#15I-K	97	1	1.642	.2001	Do Not Reject
Grade2Ins.Vs. Ques.#15I-1	97	1	2.270	.1319	Do Not Reject
Grade2Ins.Vs. Ques.#15I-2	97	1	2.702	.1002	Do Not Reject
Grade2Ins.Vs. Ques.#15I-3	97	1	.305	.5805	Do Not Reject
Grade2Ins.Vs. Ques.#15J-K	97	1	1.112	.2916	Do Not Reject
Grade2Ins.Vs. Ques.#15J-1	97	1	1.528	.2164	Do Not Reject
Grade2Ins.Vs. Ques.#15J-2	97	1	1.759	.1848	Do Not Reject
Grade2Ins.Vs. Ques.#15J-3	97	1	.000	.9824	Do Not Reject
Grade2Ins.Vs. Ques.#15K-K	97	1	.514	.4733	Do Not Reject
Grade2Ins.Vs. Ques.#15K-1	97	1	.751	.3863	Do Not Reject
Grade2Ins.Vs. Ques.#15K-2	97	1	.925	.3362	Do Not Reject
Grade2Ins.Vs. Ques.#15K-3	97	1	2.046	.1526	Do Not Reject
Grade2Ins.Vs. Ques.#15L-K	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#15L-1	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#15L-2	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#15L-3	97	1	.287	.5924	Do Not Reject
Grade2Ins.Vs. Ques.#15M-K	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#15M-1	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#15M-2	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#15M-3	97	1	.586	.4440	Do Not Reject
Grade3Ins.Vs. Ques.#15A-K	Insufficient Data				
Grade3Ins.Vs. Ques.#15A-1	Insufficient Data				
Grade3Ins.Vs. Ques.#15A-2	Insufficient Data				
Grade3Ins.Vs. Ques.#15A-3	Insufficient Data				
Grade3Ins.Vs. Ques.#15B-K	Insufficient Data				
Grade3Ins.Vs. Ques.#15B-1	Insufficient Data				
Grade3Ins.Vs. Ques.#15B-2	Insufficient Data				
Grade3Ins.Vs. Ques.#15B-3	Insufficient Data				
Grade3Ins.Vs. Ques.#15C-K	Insufficient Data				
Grade3Ins.Vs. Ques.#15C-1	Insufficient Data				
Grade3Ins.Vs. Ques.#15C-2	Insufficient Data				
Grade3Ins.Vs. Ques.#15C-3	Insufficient Data				
Grade3Ins.Vs. Ques.#15D-K	Insufficient Data				
Grade3Ins.Vs. Ques.#15D-1	Insufficient Data				

TABLE 8 (Cont'd)

Cluster #2 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade3Ins.Vs. Ques.#15D-2	Insufficient Data				
Grade3Ins.Vs. Ques.#15D-3	Insufficient Data				
Grade3Ins.Vs. Ques.#15E-K	Insufficient Data				
Grade3Ins.Vs. Ques.#15E-1	Insufficient Data				
Grade3Ins.Vs. Ques.#15E-2	Insufficient Data				
Grade3Ins.Vs. Ques.#15E-3	Insufficient Data				
Grade3Ins.Vs. Ques.#15F-K	Insufficient Data				
Grade3Ins.Vs. Ques.#15F-1	Insufficient Data				
Grade3Ins.Vs. Ques.#15F-2	Insufficient Data				
Grade3Ins.Vs. Ques.#15F-3	Insufficient Data				
Grade3Ins.Vs. Ques.#15G-K	Insufficient Data				
Grade3Ins.Vs. Ques.#15G-1	Insufficient Data				
Grade3Ins.Vs. Ques.#15G-2	Insufficient Data				
Grade3Ins.Vs. Ques.#15G-3	Insufficient Data				
Grade3Ins.Vs. Ques.#15H-K	Insufficient Data				
Grade3Ins.Vs. Ques.#15H-1	Insufficient Data				
Grade3Ins.Vs. Ques.#15H-2	Insufficient Data				
Grade3Ins.Vs. Ques.#15H-3	Insufficient Data				
Grade3Ins.Vs. Ques.#15I-K	Insufficient Data				
Grade3Ins.Vs. Ques.#15I-1	Insufficient Data				
Grade3Ins.Vs. Ques.#15I-2	Insufficient Data				
Grade3Ins.Vs. Ques.#15I-3	Insufficient Data				
Grade3Ins.Vs. Ques.#15J-K	Insufficient Data				
Grade3Ins.Vs. Ques.#15J-1	Insufficient Data				
Grade3Ins.Vs. Ques.#15J-2	Insufficient Data				
Grade3Ins.Vs. Ques.#15J-3	Insufficient Data				
Grade3Ins.Vs. Ques.#15K-K	Insufficient Data				
Grade3Ins.Vs. Ques.#15K-1	Insufficient Data				
Grade3Ins.Vs. Ques.#15K-2	Insufficient Data				
Grade3Ins.Vs. Ques.#15K-3	Insufficient Data				
Grade3Ins.Vs. Ques.#15L-K	Insufficient Data				
Grade3Ins.Vs. Ques.#15L-1	Insufficient Data				
Grade3Ins.Vs. Ques.#15L-2	Insufficient Data				
Grade3Ins.Vs. Ques.#15L-3	Insufficient Data				
Grade3Ins.Vs. Ques.#15M-K	Insufficient Data				
Grade3Ins.Vs. Ques.#15M-1	Insufficient Data				
Grade3Ins.Vs. Ques.#15M-2	Insufficient Data				
Grade3Ins.Vs. Ques.#15M-3	Insufficient Data				
GradeKIns.Vs. Ques.#16A-K	97	1	11.906	.0006	Reject
GradeKIns.Vs. Ques.#16A-1	97	1	8.444	.0037	Reject
GradeKIns.Vs. Ques.#16A-2	97	1	10.959	.0009	Reject
GradeKIns.Vs. Ques.#16A-3	97	1	10.035	.0015	Reject
GradeKIns.Vs. Ques.#16B-K	97	1	5.575	.0182	Reject
GradeKIns.Vs. Ques.#16B-1	97	1	2.683	.1014	Do Not Reject
GradeKIns.Vs. Ques.#16B-2	97	1	2.737	.0981	Do Not Reject

TABLE 8 (Cont'd)

Cluster #2 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradeKIns.Vs. Ques.#16B-3	97	1	2.190	.1389	Do Not Reject
GradeKIns.Vs. Ques.#16C-K	97	1	18.686	.0000	Reject
GradeKIns.Vs. Ques.#16C-1	97	1	13.577	.0002	Reject
GradeKIns.Vs. Ques.#16C-2	97	1	9.684	.0019	Reject
GradeKIns.Vs. Ques.#16C-3	Insufficient Data				
GradeKIns.Vs. Ques.#16D-K	97	1	13.194	.0003	Reject
GradeKIns.Vs. Ques.#16D-1	97	1	9.621	.0019	Reject
GradeKIns.Vs. Ques.#16D-2	97	1	9.537	.0020	Reject
GradeKIns.Vs. Ques.#16D-3	97	1	4.343	.0372	Reject
GradeKIns.Vs. Ques.#16E-K	97	1	10.261	.0014	Reject
GradeKIns.Vs. Ques.#16E-1	97	1	6.987	.0082	Reject
GradeKIns.Vs. Ques.#16E-2	97	1	7.747	.0054	Reject
GradeKIns.Vs. Ques.#16E-3	97	1	4.859	.0275	Reject
GradeKIns.Vs. Ques.#16F-K	97	1	12.188	.0005	Reject
GradeKIns.Vs. Ques.#16F-1	97	1	9.394	.0022	Reject
GradeKIns.Vs. Ques.#16F-2	97	1	13.422	.0002	Reject
GradeKIns.Vs. Ques.#16F-3	97	1	11.203	.0008	Reject
GradeKIns.Vs. Ques.#16G-K	97	1	12.188	.0005	Reject
GradeKIns.Vs. Ques.#16G-1	97	1	9.394	.0022	Reject
GradeKIns.Vs. Ques.#16G-2	97	1	13.422	.0002	Reject
GradeKIns.Vs. Ques.#16G-3	97	1	13.035	.0003	Reject
GradeKIns.Vs. Ques.#16H-K	97	1	11.210	.0008	Reject
GradeKIns.Vs. Ques.#16H-1	97	1	10.434	.0012	Reject
GradeKIns.Vs. Ques.#16H-2	97	1	10.993	.0009	Reject
GradeKIns.Vs. Ques.#16H-3	97	1	12.285	.0005	Reject
GradeKIns.Vs. Ques.#16I-K	97	1	11.210	.0008	Reject
GradeKIns.Vs. Ques.#16I-1	97	1	11.538	.0007	Reject
GradeKIns.Vs. Ques.#16I-2	97	1	10.993	.0009	Reject
GradeKIns.Vs. Ques.#16I-3	97	1	11.203	.0008	Reject
GradeKIns.Vs. Ques.#16J-K	97	1	9.339	.0022	Reject
GradeKIns.Vs. Ques.#16J-1	97	1	13.947	.0002	Reject
GradeKIns.Vs. Ques.#16J-2	97	1	13.282	.0003	Reject
GradeKIns.Vs. Ques.#16J-3	97	1	12.285	.0005	Reject
GradeKIns.Vs. Ques.#16K-K	97	1	10.261	.0014	Reject
GradeKIns.Vs. Ques.#16K-1	97	1	12.708	.0004	Reject
GradeKIns.Vs. Ques.#16K-2	97	1	10.993	.0009	Reject
GradeKIns.Vs. Ques.#16K-3	97	1	13.422	.0002	Reject
GradeKIns.Vs. Ques.#16L-K	97	1	11.210	.0008	Reject
GradeKIns.Vs. Ques.#16L-1	97	1	11.538	.0007	Reject
GradeKIns.Vs. Ques.#16L-2	97	1	9.940	.0016	Reject
GradeKIns.Vs. Ques.#16L-3	97	1	14.185	.0002	Reject
GradeKIns.Vs. Ques.#16M-K	97	1	7.576	.0059	Reject
GradeKIns.Vs. Ques.#16M-1	97	1	4.664	.0308	Reject
GradeKIns.Vs. Ques.#16M-2	97	1	5.343	.0208	Reject
GradeKIns.Vs. Ques.#16M-3	97	1	2.404	.1210	Do Not Reject

TABLE 8 (Cont'd)

Cluster #2 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradeKIns.Vs. Ques.#16N-K	97	1	11.210	.0008	Reject
GradeKIns.Vs. Ques.#16N-1	97	1	7.831	.0051	Reject
GradeKIns.Vs. Ques.#16N-2	97	1	6.123	.0133	Reject
GradeKIns.Vs. Ques.#16N-3	97	1	5.585	.1081	Reject
GradeKIns.Vs. Ques.#16O-K	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#16O-1	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#16O-2	97	1	.124	.7253	Do Not Reject
GradeKIns.Vs. Ques.#16O-3	97	1	.714	.3983	Do Not Reject
Grade1Ins.Vs. Ques.#16A-K	97	1	.767	.3812	Do Not Reject
Grade1Ins.Vs. Ques.#16A-1	97	1	.767	.3812	Do Not Reject
Grade1Ins.Vs. Ques.#16A-2	97	1	.664	.4150	Do Not Reject
Grade1Ins.Vs. Ques.#16A-3	97	1	.566	.4518	Do Not Reject
Grade1Ins.Vs. Ques.#16B-K	97	1	.767	.3812	Do Not Reject
Grade1Ins.Vs. Ques.#16B-1	97	1	.985	.3210	Do Not Reject
Grade1Ins.Vs. Ques.#16B-2	97	1	.077	.7817	Do Not Reject
Grade1Ins.Vs. Ques.#16B-3	97	1	.043	.8353	Do Not Reject
Grade1Ins.Vs. Ques.#16C-K	97	1	2.022	.1550	Do Not Reject
Grade1Ins.Vs. Ques.#16C-1	97	1	2.820	.0931	Do Not Reject
Grade1Ins.Vs. Ques.#16C-2	97	1	1.018	.3130	Do Not Reject
Grade1Ins.Vs. Ques.#16C-3	97	1	.811	.3678	Do Not Reject
Grade1Ins.Vs. Ques.#16D-K	97	1	1.342	.2466	Do Not Reject
Grade1Ins.Vs. Ques.#16D-1	97	1	1.737	.1875	Do Not Reject
Grade1Ins.Vs. Ques.#16D-2	97	1	.434	.5098	Do Not Reject
Grade1Ins.Vs. Ques.#16D-3	97	1	.368	.5443	Do Not Reject
Grade1Ins.Vs. Ques.#16E-K	97	1	.985	.3210	Do Not Reject
Grade1Ins.Vs. Ques.#16E-1	97	1	1.342	.2466	Do Not Reject
Grade1Ins.Vs. Ques.#16E-2	97	1	1.878	.1706	Do Not Reject
Grade1Ins.Vs. Ques.#16E-3	97	1	.002	.9642	Do Not Reject
Grade1Ins.Vs. Ques.#16F-K	97	1	1.219	.2696	Do Not Reject
Grade1Ins.Vs. Ques.#16F-1	97	1	7.163	.0074	Reject
Grade1Ins.Vs. Ques.#16F-2	97	1	2.107	.1466	Do Not Reject
Grade1Ins.Vs. Ques.#16F-3	97	1	2.506	.1134	Do Not Reject
Grade1Ins.Vs. Ques.#16G-K	97	1	1.219	.2696	Do Not Reject
Grade1Ins.Vs. Ques.#16G-1	97	1	7.163	.0074	Reject
Grade1Ins.Vs. Ques.#16G-2	97	1	2.107	.1466	Do Not Reject
Grade1Ins.Vs. Ques.#16G-3	97	1	.811	.3678	Do Not Reject
Grade1Ins.Vs. Ques.#16H-K	97	1	1.100	.2943	Do Not Reject
Grade1Ins.Vs. Ques.#16H-1	97	1	6.834	.0089	Reject
Grade1Ins.Vs. Ques.#16H-2	97	1	7.505	.0062	Reject
Grade1Ins.Vs. Ques.#16H-3	97	1	2.300	.1293	Do Not Reject
Grade1Ins.Vs. Ques.#16I-K	97	1	1.100	.2943	Do Not Reject
Grade1Ins.Vs. Ques.#16I-1	97	1	6.520	.0107	Reject
Grade1Ins.Vs. Ques.#16I-2	97	1	7.505	.0062	Reject
Grade1Ins.Vs. Ques.#16I-3	97	1	2.506	.1134	Do Not Reject
Grade1Ins.Vs. Ques.#16J-K	97	1	.874	.3499	Do Not Reject

TABLE 8 (Cont'd)

Cluster #2 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradelIns.Vs. Ques.#16J-1	97	1	5.928	.0149	Reject
GradelIns.Vs. Ques.#16J-2	97	1	6.834	.0089	Reject
GradelIns.Vs. Ques.#16J-3	97	1	2.300	.1293	Do Not Reject
GradelIns.Vs. Ques.#16K-K	97	1	.985	.3210	Do Not Reject
GradelIns.Vs. Ques.#16K-1	97	1	6.218	.0126	Reject
GradelIns.Vs. Ques.#16K-2	97	1	7.505	.0062	Reject
GradelIns.Vs. Ques.#16K-3	97	1	2.107	.1466	Do Not Reject
GradelIns.Vs. Ques.#16L-K	97	1	1.100	.2943	Do Not Reject
GradelIns.Vs. Ques.#16L-1	97	1	6.520	.0107	Reject
GradelIns.Vs. Ques.#16L-2	97	1	7.863	.0050	Reject
GradelIns.Vs. Ques.#16L-3	97	1	.698	.4033	Do Not Reject
GradelIns.Vs. Ques.#16M-K	97	1	.664	.4150	Do Not Reject
GradelIns.Vs. Ques.#16M-1	97	1	.985	.3210	Do Not Reject
GradelIns.Vs. Ques.#16M-2	97	1	1.470	.2254	Do Not Reject
GradelIns.Vs. Ques.#16M-3	97	1	.051	.8220	Do Not Reject
GradelIns.Vs. Ques.#16N-K	97	1	1.100	.2943	Do Not Reject
GradelIns.Vs. Ques.#16N-1	97	1	1.470	.2254	Do Not Reject
GradelIns.Vs. Ques.#16N-2	97	1	.358	.5495	Do Not Reject
GradelIns.Vs. Ques.#16N-3	97	1	.012	.9130	Do Not Reject
GradelIns.Vs. Ques.#16O-K	97	1	.757	.3842	Do Not Reject
GradelIns.Vs. Ques.#16O-1	97	1	.757	.3842	Do Not Reject
GradelIns.Vs. Ques.#16O-2	97	1	.290	.5902	Do Not Reject
GradelIns.Vs. Ques.#16O-3	97	1	.290	.5902	Do Not Reject
Grade2Ins.Vs. Ques.#16A-K	97	1	.374	.5409	Do Not Reject
Grade2Ins.Vs. Ques.#16A-1	97	1	.374	.5409	Do Not Reject
Grade2Ins.Vs. Ques.#16A-2	97	1	.309	.5781	Do Not Reject
Grade2Ins.Vs. Ques.#16A-3	97	1	.249	.6180	Do Not Reject
Grade2Ins.Vs. Ques.#16B-K	97	1	.374	.5409	Do Not Reject
Grade2Ins.Vs. Ques.#16B-1	97	1	.524	.4733	Do Not Reject
Grade2Ins.Vs. Ques.#16B-2	97	1	.751	.3863	Do Not Reject
Grade2Ins.Vs. Ques.#16B-3	97	1	.042	.8370	Do Not Reject
Grade2Ins.Vs. Ques.#16C-K	97	1	1.211	.2712	Do Not Reject
Grade2Ins.Vs. Ques.#16C-1	97	1	1.759	.1848	Do Not Reject
Grade2Ins.Vs. Ques.#16C-2	97	1	2.005	.1567	Do Not Reject
Grade2Ins.Vs. Ques.#16C-3	97	1	.000	.9824	Do Not Reject
Grade2Ins.Vs. Ques.#16D-K	97	1	.751	.3863	Do Not Reject
Grade2Ins.Vs. Ques.#16D-1	97	1	1.017	.3133	Do Not Reject
Grade2Ins.Vs. Ques.#16D-2	97	1	1.313	.2518	Do Not Reject
Grade2Ins.Vs. Ques.#16D-3	97	1	.167	.6832	Do Not Reject
Grade2Ins.Vs. Ques.#16E-K	97	1	.514	.4733	Do Not Reject
Grade2Ins.Vs. Ques.#16E-1	97	1	.751	.3863	Do Not Reject
Grade2Ins.Vs. Ques.#16E-2	97	1	1.112	.2916	Do Not Reject
Grade2Ins.Vs. Ques.#16E-3	97	1	.142	.7059	Do Not Reject
Grade2Ins.Vs. Ques.#16F-K	97	1	.669	.4135	Do Not Reject
Grade2Ins.Vs. Ques.#16F-1	97	1	4.782	.0288	Reject

TABLE 8 (Cont'd)

Cluster #2 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade2Ins.Vs. Ques.#16F-2	97	1	5.807	.0160	Reject
Grade2Ins.Vs. Ques.#16F-3	97	1	.676	.4108	Do Not Reject
Grade2Ins.Vs. Ques.#16G-K	97	1	.669	.4135	Do Not Reject
Grade2Ins.Vs. Ques.#16G-1	97	1	4.782	.0288	Reject
Grade2Ins.Vs. Ques.#16G-2	97	1	5.807	.0160	Reject
Grade2Ins.Vs. Ques.#16G-3	97	1	.771	.3798	Do Not Reject
Grade2Ins.Vs. Ques.#16H-K	97	1	.590	.4425	Do Not Reject
Grade2Ins.Vs. Ques.#16H-1	97	1	4.552	.0329	Reject
Grade2Ins.Vs. Ques.#16H-2	97	1	5.021	.0250	Reject
Grade2Ins.Vs. Ques.#16H-3	97	1	.589	.4429	Do Not Reject
Grade2Ins.Vs. Ques.#16I-K	97	1	.590	.4425	Do Not Reject
Grade2Ins.Vs. Ques.#16I-1	97	1	4.333	.0374	Reject
Grade2Ins.Vs. Ques.#16I-2	97	1	5.021	.0250	Reject
Grade2Ins.Vs. Ques.#16I-3	97	1	.676	.4108	Do Not Reject
Grade2Ins.Vs. Ques.#16J-K	97	1	.442	.5060	Do Not Reject
Grade2Ins.Vs. Ques.#16J-1	97	1	3.919	.0477	Reject
Grade2Ins.Vs. Ques.#16J-2	97	1	4.552	.0329	Reject
Grade2Ins.Vs. Ques.#16J-3	97	1	.589	.4429	Do Not Reject
Grade2Ins.Vs. Ques.#16K-K	97	1	.514	.4733	Do Not Reject
Grade2Ins.Vs. Ques.#16K-1	97	1	4.122	.0423	Reject
Grade2Ins.Vs. Ques.#16K-2	97	1	5.021	.0250	Reject
Grade2Ins.Vs. Ques.#16K-3	97	1	.508	.4759	Do Not Reject
Grade2Ins.Vs. Ques.#16L-K	97	1	.590	.4425	Do Not Reject
Grade2Ins.Vs. Ques.#16L-1	97	1	4.333	.0324	Reject
Grade2Ins.Vs. Ques.#16L-2	97	1	5.271	.0217	Reject
Grade2Ins.Vs. Ques.#16L-3	97	1	.676	.4108	Do Not Reject
Grade2Ins.Vs. Ques.#16M-K	97	1	.309	.5781	Do Not Reject
Grade2Ins.Vs. Ques.#16M-1	97	1	.514	.4733	Do Not Reject
Grade2Ins.Vs. Ques.#16M-2	97	1	.836	.3605	Do Not Reject
Grade2Ins.Vs. Ques.#16M-3	97	1	.026	.8729	Do Not Reject
Grade2Ins.Vs. Ques.#16N-K	97	1	.590	.4425	Do Not Reject
Grade2Ins.Vs. Ques.#16N-1	97	1	.836	.3605	Do Not Reject
Grade2Ins.Vs. Ques.#16N-2	97	1	1.211	.2712	Do Not Reject
Grade2Ins.Vs. Ques.#16N-3	97	1	.185	.6674	Do Not Reject
Grade2Ins.Vs. Ques.#16O-K	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#16O-1	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#16O-2	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#16O-3	97	1	.586	.4440	Do Not Reject
Grade3Ins.Vs. Ques.#16A-K	Insufficient Data				
Grade3Ins.Vs. Ques.#16A-1	Insufficient Data				
Grade3Ins.Vs. Ques.#16A-2	Insufficient Data				
Grade3Ins.Vs. Ques.#16A-3	Insufficient Data				
Grade3Ins.Vs. Ques.#16B-K	Insufficient Data				
Grade3Ins.Vs. Ques.#16B-1	Insufficient Data				
Grade3Ins.Vs. Ques.#16B-2	Insufficient Data				

TABLE 8 (Cont'd)

Cluster #2 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade3Ins.Vs. Ques.#16B-3	Insufficient Data				
Grade3Ins.Vs. Ques.#16C-K	Insufficient Data				
Grade3Ins.Vs. Ques.#16C-1	Insufficient Data				
Grade3Ins.Vs. Ques.#16C-2	Insufficient Data				
Grade3Ins.Vs. Ques.#16C-3	Insufficient Data				
Grade3Ins.Vs. Ques.#16D-K	Insufficient Data				
Grade3Ins.Vs. Ques.#16D-1	Insufficient Data				
Grade3Ins.Vs. Ques.#16D-2	Insufficient Data				
Grade3Ins.Vs. Ques.#16D-3	Insufficient Data				
Grade3Ins.Vs. Ques.#16E-K	Insufficient Data				
Grade3Ins.Vs. Ques.#16E-1	Insufficient Data				
Grade3Ins.Vs. Ques.#16E-2	Insufficient Data				
Grade3Ins.Vs. Ques.#16E-3	Insufficient Data				
Grade3Ins.Vs. Ques.#16F-K	Insufficient Data				
Grade3Ins.Vs. Ques.#16F-1	Insufficient Data				
Grade3Ins.Vs. Ques.#16F-2	Insufficient Data				
Grade3Ins.Vs. Ques.#16F-3	Insufficient Data				
Grade3Ins.Vs. Ques.#16G-K	Insufficient Data				
Grade3Ins.Vs. Ques.#16G-1	Insufficient Data				
Grade3Ins.Vs. Ques.#16G-2	Insufficient Data				
Grade3Ins.Vs. Ques.#16G-3	Insufficient Data				
Grade3Ins.Vs. Ques.#16H-K	Insufficient Data				
Grade3Ins.Vs. Ques.#16H-1	Insufficient Data				
Grade3Ins.Vs. Ques.#16H-2	Insufficient Data				
Grade3Ins.Vs. Ques.#16H-3	Insufficient Data				
Grade3Ins.Vs. Ques.#16I-K	Insufficient Data				
Grade3Ins.Vs. Ques.#16I-1	Insufficient Data				
Grade3Ins.Vs. Ques.#16I-2	Insufficient Data				
Grade3Ins.Vs. Ques.#16I-3	Insufficient Data				
Grade3Ins.Vs. Ques.#16J-K	Insufficient Data				
Grade3Ins.Vs. Ques.#16J-1	Insufficient Data				
Grade3Ins.Vs. Ques.#16J-2	Insufficient Data				
Grade3Ins.Vs. Ques.#16J-3	Insufficient Data				
Grade3Ins.Vs. Ques.#16K-K	Insufficient Data				
Grade3Ins.Vs. Ques.#16K-1	Insufficient Data				
Grade3Ins.Vs. Ques.#16K-2	Insufficient Data				
Grade3Ins.Vs. Ques.#16K-3	Insufficient Data				
Grade3Ins.Vs. Ques.#16L-K	Insufficient Data				
Grade3Ins.Vs. Ques.#16L-1	Insufficient Data				
Grade3Ins.Vs. Ques.#16L-2	Insufficient Data				
Grade3Ins.Vs. Ques.#16L-3	Insufficient Data				
Grade3Ins.Vs. Ques.#16M-K	Insufficient Data				
Grade3Ins.Vs. Ques.#16M-1	Insufficient Data				
Grade3Ins.Vs. Ques.#16M-2	Insufficient Data				
Grade3Ins.Vs. Ques.#16M-3	Insufficient Data				

TABLE 8 (Cont'd)

Cluster #2 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade3Ins.Vs. Ques.#16N-K	Insufficient Data				
Grade3Ins.Vs. Ques.#16N-1	Insufficient Data				
Grade3Ins.Vs. Ques.#16N-2	Insufficient Data				
Grade3Ins.Vs. Ques.#16N-3	Insufficient Data				
Grade3Ins.Vs. Ques.#16O-K	Insufficient Data				
Grade3Ins.Vs. Ques.#16O-1	Insufficient Data				
Grade3Ins.Vs. Ques.#16O-2	Insufficient Data				
Grade3Ins.Vs. Ques.#16O-3	Insufficient Data				

Contrast 3
Program Evaluation Practices

Reported "On-Bike" Performance
or Skill Test Exercises

A significant difference at the .05 level of significance was indicated in K-3 grade bicycle safety education programs with respect to the following reported "Specific Skill Exercises Offered in Conjunction With 'On-Bike' Performance or Skill Tests" as reported by Kindergarten bicycle instructors:

- "On-bike" performance/skill exercises not offered by bicycle instructors (partial contrasts)
- Sign, signal, pavement marking recognition
- Balancing exercises (e.g., straight line, weave, zig-zag)
- Serpentine, Slalom, or weave riding
- Slow-poke races (coasting races)
- Circling and balance exercise
- Stopping drills
- Braking with, without skids
- Riding on rough surfaces (e.g., gravel, wet/bumpy, grassy areas

Chi-square values of 3.841 or higher were needed for significance at the .05 level. Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{21}) was rejected for these variables. Insignificant X^2 values were obtained for grade 1 and grade 2 bicycle instructors.

Insignificant X^2 values were also obtained for the following variables:

- "On-bike" performance/skill exercises not offered by bicycle instructors (partial contrasts)
- Relay races (partial contrasts)
- Riding planks, narrow surfaces
- Ride and pitch exercise (hit the target, bean bag toss) (partial contrasts)
- Traffic mix situations (partial contrasts)
- Timed speed races
- Figure-8 with weave
- U or Y turn-about exercises
- Evasive riding exercise(s) (partial contrasts)
- Riding on wet surfaces (partial contrasts)
- Pair or group riding exercise (partial contrasts)
- Passing exercise
- Merging exercise
- Simulated turning exercises (e.g., one-way, two-way, 4-lane, divided and undivided roadways)
- Do you provide awards or certificates to participants (If yes, circle appropriate grades)
- Do you utilize reflectorized tape in conjunction with inspections (If yes, circle appropriate levels)

The null hypothesis (HO_{21}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable. "Totally negative" responses for partial contrasts performed with respect to "Relay Races," "Ride And Pitch Exercise(s) (Hit The Target, Bean Bag Toss)," "Traffic Mix Situations," "Evasive Riding Exercise(s)," "Riding on Wet Surfaces" and "Pair, Group Riding Exercises" also prevented chi-square "cross

tabulation" contrasts being performed for these variables. Insufficient reported data was noted for grade 3 bicycle instructor contrasts and for partial contrasts performed with respect to "Relay Races," "Ride And Pitch Exercise(s) (Hit The Target, Bean Bag Toss)," "Traffic Mix Situations," "Evasive Riding Exercise(s)," "Riding on Wet Surfaces" and "Pair, Group Riding Exercises." The contrasts for "Reported 'On-Bike' Performance or Skill Test Exercises" are reported in tabular form in Table 9.

Reported Utilization of Expertise at Performance/Skill Tests

A significant difference at the .05 level of significance was indicated in K-3 grade bicycle safety education programs with respect to the "Utilization of Expertise From Others in Their Own Community at Performance, Skill Test Activities" as reported by Kindergarten bicycle instructors. A X^2 value of 7.815 or higher was needed for significance at the .05 level. Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{22}) was rejected for this variable. Insignificant X^2 values were obtained for grade 1 and grade 2 bicycle instructors. The null hypothesis (HO_{22}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts. The contrasts for "Reported Utilization of Expertise at Performance or Skill Tests" are reported in tabular form in Table 9.

Reported Bicycle Skill Tests or Evaluation Performance Program at Local Driver Education Range/ Off-Street Practice Area

No significant difference was indicated in K-3 grade bicycle safety education programs with respect to "Incorporation of The Bicycle Safety Skill Test or an Evaluation Performance Program at The Local Driver Education Range/Off-Street Practice Area" as reported by Kindergarten, grade 1 and grade 2 bicycle instructors. A X^2 value of 5.991 or higher was needed for significance at the .05 level. Since the p values attained were higher than the .05 level of significance for these variables, the null hypothesis (HO_{23}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts. The contrasts for "Reported Bicycle Skill Tests or Evaluation Performance Program at The Local Driver Education Range/ Off-Street Practice Area" are reported in tabular form in Table 9.

Reported Bicycle Safety-Related Accidents and Fatalities

A significant difference at the .05 level of significance in K-3 grade bicycle safety education programs with respect to "Bicycle Safety-Related Accidents and Fatalities on School Grounds During the 1977-78 School Year" as reported by Kindergarten, grade 1 and grade 2 bicycle instructors. A X^2 value of 5.991 or higher was needed for significance at the .05 level. Since the p values attained

were lower than the .05 level of significance, the null hypothesis (HO_{26}) was rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable. Insufficient reported data was noted for grade 3 bicycle instructor contrasts. The contrasts for "Reported Bicycle Safety-Related Accidents And Fatalities" are reported in tabular form in Table 9.

Contrast 4
Bicycle Safety Education Program Duration

Reported Seasonal Offerings

A significant difference at the .05 level of significance was indicated in K-3 grade bicycle safety education programs with respect to "Time of Year (Seasonal) Offerings" as reported by Kindergarten bicycle instructors for "Fall Term Bicycle Safety Education Programs." Chi-square values of 3.841 or higher were needed for significance at the .05 level. Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_6) was rejected for this variable. Insignificant X^2 values were obtained for grade 1 bicycle instructors and grade 2 bicycle instructors, "Spring Bicycle Safety Education Programs," "Summer Bicycle Safety Education Programs" and "Bicycle Safety Education Programs Integrated Within Existing Classes on a Year-Round Basis." The null hypothesis (HO_6) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items and "Winter Term"

TABLE 9

BICYCLE SAFETY EDUCATION PROGRAM EVALUATION PRACTICES

Cluster #3 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradeKIns.Vs. Ques.#17A-K	97	1	33.037	.0000	Reject
GradeKIns.Vs. Ques.#17A-1	97	1	29.043	.0000	Reject
GradeKIns.Vs. Ques.#17A-2	97	1	22.301	.0000	Reject
GradeKIns.Vs. Ques.#17A-3	97	1	17.857	.0000	Reject
GradeKIns.Vs. Ques.#17B-K	97	1	1.670	.1963	Do Not Reject
GradeKIns.Vs. Ques.#17B-1	97	1	26.572	.0000	Reject
GradeKIns.Vs. Ques.#17B-2	97	1	24.556	.0000	Reject
GradeKIns.Vs. Ques.#17B-3	97	1	27.287	.0000	Reject
GradeKIns.Vs. Ques.#17C-K	97	1	1.670	.1963	Do Not Reject
GradeKIns.Vs. Ques.#17C-1	97	1	28.718	.0000	Reject
GradeKIns.Vs. Ques.#17C-2	97	1	24.556	.0000	Reject
GradeKIns.Vs. Ques.#17C-3	97	1	25.371	.0000	Reject
GradeKIns.Vs. Ques.#17D-K	Insufficient Data				
GradeKIns.Vs. Ques.#17D-1	Insufficient Data				
GradeKIns.Vs. Ques.#17D-2	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#17D-3	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#17E-K	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#17E-1	97	1	.714	.3983	Do Not Reject
GradeKIns.Vs. Ques.#17E-2	97	1	.714	.3983	Do Not Reject
GradeKIns.Vs. Ques.#17E-3	97	1	.013	.9102	Do Not Reject
GradeKIns.Vs. Ques.#17F-K	97	1	.228	.6327	Do Not Reject
GradeKIns.Vs. Ques.#17F-1	97	1	36.058	.0000	Reject
GradeKIns.Vs. Ques.#17F-2	97	1	33.448	.0000	Reject
GradeKIns.Vs. Ques.#17F-3	97	1	33.733	.0000	Reject
GradeKIns.Vs. Ques.#17G-K	97	1	.124	.7253	Do Not Reject
GradeKIns.Vs. Ques.#17G-1	97	1	41.846	.0000	Reject
GradeKIns.Vs. Ques.#17G-2	97	1	38.852	.0000	Reject
GradeKIns.Vs. Ques.#17G-3	97	1	44.324	.0000	Reject
GradeKIns.Vs. Ques.#17H-K	Insufficient Data				
GradeKIns.Vs. Ques.#17H-1	Insufficient Data				
GradeKIns.Vs. Ques.#17H-2	Insufficient Data				
GradeKIns.Vs. Ques.#17H-3	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#17I-K	Insufficient Data				
GradeKIns.Vs. Ques.#17I-1	Insufficient Data				
GradeKIns.Vs. Ques.#17I-2	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#17I-3	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#17J-K	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#17J-1	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques-#17J-2	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#17J-3	97	1	.124	.7253	Do Not Reject
GradeKIns.Vs. Ques.#17K-K	97	1	.063	.8013	Do Not Reject
GradeKIns.Vs. Ques.#17K-1	97	1	30.923	.0000	Reject

TABLE 9 (Cont'd)

Cluster #3 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradeKIns.Vs. Ques.#17K-2	97	1	28.584	.0000	Reject
GradeKIns.Vs. Ques.#17K-3	97	1	26.572	.0000	Reject
GradeKIns.Vs. Ques.#17L-K	97	1	1.332	.2484	Do Not Reject
GradeKIns.Vs. Ques.#17L-1	97	1	2.001	.1572	Do Not Reject
GradeKIns.Vs. Ques.#17L-2	97	1	2.702	.1002	Do Not Reject
GradeKIns.Vs. Ques.#17L-3	97	1	.637	.4247	Do Not Reject
GradeKIns.Vs. Ques.#17M-K	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#17M-1	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#17M-2	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#17M-3	97	1	.124	.7253	Do Not Reject
GradeKIns.Vs. Ques.#17N-K	97	1	.615	.4329	Do Not Reject
GradeKIns.Vs. Ques.#17N-1	97	1	33.448	.0000	Reject
GradeKIns.Vs. Ques.#17N-2	97	1	28.718	.0000	Reject
GradeKIns.Vs. Ques.#17N-3	97	1	31.460	.0000	Reject
GradeKIns.Vs. Ques.#17O-K	97	1	.013	.9102	Do Not Reject
GradeKIns.Vs. Ques.#17O-1	97	1	41.846	.0000	Reject
GradeKIns.Vs. Ques.#17O-2	97	1	38.852	.0000	Reject
GradeKIns.Vs. Ques.#17O-3	97	1	38.695	.0000	Reject
GradeKIns.Vs. Ques.#17P-K	Insufficient Data				
GradeKIns.Vs. Ques.#17P-1	Insufficient Data				
GradeKIns.Vs. Ques.#17P-2	Insufficient Data				
GradeKIns.Vs. Ques.#17P-3	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#17Q-K	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#17Q-1	97	1	42.362	.0000	Reject
GradeKIns.Vs. Ques.#17Q-2	97	1	39.192	.0000	Reject
GradeKIns.Vs. Ques.#17Q-3	97	1	39.192	.0000	Reject
GradeKIns.Vs. Ques.#17R-K	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#17R-1	Insufficient Data				
GradeKIns.Vs. Ques.#17R-2	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#17R-3	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#17S-K	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#17S-1	Insufficient Data				
GradeKIns.Vs. Ques.#17S-2	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#17S-3	Insufficient Data				
GradeKIns.Vs. Ques.#17T-K	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#17T-1	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#17T-2	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#17T-3	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#17U-K	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Ques.#17U-1	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#17U-2	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#17U-3	97	1	.040	.8409	Do Not Reject
GradeKIns.Vs. Ques.#17V-K	97	1	.714	.3983	Do Not Reject
GradeKIns.Vs. Ques.#17V-1	97	1	.714	.3983	Do Not Reject
GradeKIns.Vs. Ques.#17V-2	97	1	.714	.3983	Do Not Reject

TABLE 9 (Cont'd)

Cluster #3 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradeKIns.Vs. Ques.#17V-3	97	1	.714	.3983	Do Not Reject
GradeKIns.Vs. Ques.#17W-K	97	1	1.106	.2928	Do Not Reject
GradeKIns.Vs. Ques.#17W-1	97	1	1.106	.2928	Do Not Reject
GradeKIns.Vs. Ques.#17W-2	97	1	1.670	.1963	Do Not Reject
GradeKIns.Vs. Ques.#17W-3	97	1	.363	.5468	Do Not Reject
GradeKIns.Vs. Ques.#17X-K	97	1	1.106	.2928	Do Not Reject
GradeKIns.Vs. Ques.#17X-1	97	1	2.286	.1305	Do Not Reject
GradeKIns.Vs. Ques.#17X-2	97	1	3.643	.0563	Do Not Reject
GradeKIns.Vs. Ques.#17X-3	97	1	2.138	.1437	Do Not Reject
Grade1Ins.Vs. Ques.#17A-K	97	1	2.312	.1284	Do Not Reject
Grade1Ins.Vs. Ques.#17A-1	97	1	2.875	.0900	Do Not Reject
Grade1Ins.Vs. Ques.#17A-2	97	1	.077	.7811	Do Not Reject
Grade1Ins.Vs. Ques.#17A-3	97	1	.115	.7349	Do Not Reject
Grade1Ins.Vs. Ques.#17B-K	97	1	.046	.8302	Do Not Reject
Grade1Ins.Vs. Ques.#17B-1	97	1	3.558	.0592	Do Not Reject
Grade1Ins.Vs. Ques.#17B-2	97	1	3.759	.0525	Do Not Reject
Grade1Ins.Vs. Ques.#17B-3	97	1	.359	.5491	Do Not Reject
Grade1Ins.Vs. Ques.#17C-K	97	1	.046	.8302	Do Not Reject
Grade1Ins.Vs. Ques.#17C-1	97	1	3.365	.0666	Do Not Reject
Grade1Ins.Vs. Ques.#17C-2	97	1	3.759	.0525	Do Not Reject
Grade1Ins.Vs. Ques.#17C-3	97	1	.434	.5101	Do Not Reject
Grade1Ins.Vs. Ques.#17D-K	Insufficient Data				
Grade1Ins.Vs. Ques.#17D-1	Insufficient Data				
Grade1Ins.Vs. Ques.#17D-2	97	1	2.328	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#17D-3	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#17E-K	97	1	.757	.3842	Do Not Reject
Grade1Ins.Vs. Ques.#17E-1	97	1	.290	.5902	Do Not Reject
Grade1Ins.Vs. Ques.#17E-2	97	1	.290	.5902	Do Not Reject
Grade1Ins.Vs. Ques.#17E-3	97	1	.100	.7522	Do Not Reject
Grade1Ins.Vs. Ques.#17F-K	97	1	.021	.8837	Do Not Reject
Grade1Ins.Vs. Ques.#17F-1	97	1	2.820	.0931	Do Not Reject
Grade1Ins.Vs. Ques.#17F-2	97	1	2.946	.0835	Do Not Reject
Grade1Ins.Vs. Ques.#17F-3	97	1	.176	.6751	Do Not Reject
Grade1Ins.Vs. Ques.#17G-K	97	1	.290	.5902	Do Not Reject
Grade1Ins.Vs. Ques.#17G-1	97	1	2.486	.1149	Do Not Reject
Grade1Ins.Vs. Ques.#17G-2	97	1	2.650	.1035	Do Not Reject
Grade1Ins.Vs. Ques.#17G-3	97	1	.030	.8629	Do Not Reject
Grade1Ins.Vs. Ques.#17H-K	Insufficient Data				
Grade1Ins.Vs. Ques.#17H-1	Insufficient Data				
Grade1Ins.Vs. Ques.#17H-2	Insufficient Data				
Grade1Ins.Vs. Ques.#17H-3	97	1	2.328	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#17I-K	Insufficient Data				
Grade1Ins.Vs. Ques.#17I-1	Insufficient Data				
Grade1Ins.Vs. Ques.#17I-2	97	1	2.328	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#17I-3	97	1	.757	.3842	Do Not Reject

TABLE 9 (Cont'd)

Cluster #3 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradelIns.Vs. Ques.#17J-K	97	1	2.328	.1271	Do Not Reject
GradelIns.Vs. Ques.#17J-1	97	1	.757	.3842	Do Not Reject
GradelIns.Vs. Ques.#17J-2	97	1	.757	.3842	Do Not Reject
GradelIns.Vs. Ques.#17J-3	97	1	.290	.5902	Do Not Reject
GradelIns.Vs. Ques.#17K-K	97	1	.012	.9122	Do Not Reject
GradelIns.Vs. Ques.#17K-1	97	1	2.820	.0931	Do Not Reject
GradelIns.Vs. Ques.#17K-2	97	1	2.996	.0835	Do Not Reject
GradelIns.Vs. Ques.#17K-3	97	1	1.260	.2617	Do Not Reject
GradelIns.Vs. Ques.#17L-K	97	1	.100	.7522	Do Not Reject
GradelIns.Vs. Ques.#17L-1	97	1	.021	.8837	Do Not Reject
GradelIns.Vs. Ques.#17L-2	97	1	.000	.9937	Do Not Reject
GradelIns.Vs. Ques.#17L-3	97	1	.929	.3351	Do Not Reject
GradelIns.Vs. Ques.#17M-K	97	1	.757	.3842	Do Not Reject
GradelIns.Vs. Ques.#17M-1	97	1	.757	.3842	Do Not Reject
GradelIns.Vs. Ques.#17M-2	97	1	.757	.3842	Do Not Reject
GradelIns.Vs. Ques.#17M-3	97	1	.290	.5902	Do Not Reject
GradelIns.Vs. Ques.#17N-K	97	1	.000	.9937	Do Not Reject
GradelIns.Vs. Ques.#17N-1	97	1	2.996	.0835	Do Not Reject
GradelIns.Vs. Ques.#17N-2	97	1	3.365	.0666	Do Not Reject
GradelIns.Vs. Ques.#17N-3	97	1	.230	.6316	Do Not Reject
GradelIns.Vs. Ques.#17O-K	97	1	.100	.7522	Do Not Reject
GradelIns.Vs. Ques.#17O-1	97	1	2.486	.1149	Do Not Reject
GradelIns.Vs. Ques.#17O-2	97	1	2.650	.1073	Do Not Reject
GradelIns.Vs. Ques.#17O-3	97	1	.906	.3412	Do Not Reject
GradelIns.Vs. Ques.#17P-K	Insufficient Data				
GradelIns.Vs. Ques.#17P-1	Insufficient Data				
GradelIns.Vs. Ques.#17P-2	Insufficient Data				
GradelIns.Vs. Ques.#17P-3	97	1	2.328	.1271	Do Not Reject
GradelIns.Vs. Ques.#17Q-K	97	1	.757	.3842	Do Not Reject
GradelIns.Vs. Ques.#17Q-1	97	1	2.172	.1406	Do Not Reject
GradelIns.Vs. Ques.#17Q-2	97	1	2.326	.1272	Do Not Reject
GradelIns.Vs. Ques.#17Q-3	97	1	2.326	.1272	Do Not Reject
GradelIns.Vs. Ques.#17R-K	97	1	2.328	.1271	Do Not Reject
GradelIns.Vs. Ques.#17R-1	Insufficient Data				
GradelIns.Vs. Ques.#17R-2	97	1	2.328	.1271	Do Not Reject
GradelIns.Vs. Ques.#17R-3	97	1	2.328	.1271	Do Not Reject
GradelIns.Vs. Ques.#17S-K	97	1	2.328	.1271	Do Not Reject
GradelIns.Vs. Ques.#17S-1	Insufficient Data				
GradelIns.Vs. Ques.#17S-2	97	1	2.328	.1271	Do Not Reject
GradelIns.Vs. Ques.#17S-3	Insufficient Data				
GradelIns.Vs. Ques.#17T-K	97	1	.757	.3842	Do Not Reject
GradelIns.Vs. Ques.#17T-1	97	1	.757	.3842	Do Not Reject
GradelIns.Vs. Ques.#17T-2	97	1	.757	.3842	Do Not Reject
GradelIns.Vs. Ques.#17T-3	97	1	.757	.3842	Do Not Reject
GradelIns.Vs. Ques.#17U-K	97	1	.757	.3842	Do Not Reject

TABLE 9 (Cont'd)

Cluster #3 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade1Ins.Vs. Ques.#17U-1	97	1	2.328	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#17U-2	97	1	2.328	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#17U-3	97	1	2.328	.1271	Do Not Reject
Grade1Ins.Vs. Ques.#17V-K	97	1	.290	.5902	Do Not Reject
Grade1Ins.Vs. Ques.#17V-1	97	1	.290	.5902	Do Not Reject
Grade1Ins.Vs. Ques.#17V-2	97	1	.290	.5902	Do Not Reject
Grade1Ins.Vs. Ques.#17V-3	97	1	.290	.5902	Do Not Reject
Grade1Ins.Vs. Ques.#17W-K	97	1	.012	.9122	Do Not Reject
Grade1Ins.Vs. Ques.#17W-1	97	1	.012	.9122	Do Not Reject
Grade1Ins.Vs. Ques.#17W-2	97	1	.046	.8302	Do Not Reject
Grade1Ins.Vs. Ques.#17W-3	97	1	.476	.4902	Do Not Reject
Grade1Ins.Vs. Ques.#17X-K	97	1	.012	.9122	Do Not Reject
Grade1Ins.Vs. Ques.#17X-1	97	1	.095	.7579	Do Not Reject
Grade1Ins.Vs. Ques.#17X-2	97	1	.225	.6355	Do Not Reject
Grade1Ins.Vs. Ques.#17X-3	97	1	.301	.5830	Do Not Reject
Grade2Ins.Vs. Ques.#17A-K	97	1	.968	.3251	Do Not Reject
Grade2Ins.Vs. Ques.#17A-1	97	1	1.290	.2561	Do Not Reject
Grade2Ins.Vs. Ques.#17A-2	97	1	1.409	.2353	Do Not Reject
Grade2Ins.Vs. Ques.#17A-3	97	1	.156	.6925	Do Not Reject
Grade2Ins.Vs. Ques.#17B-K	97	1	.000	.9937	Do Not Reject
Grade2Ins.Vs. Ques.#17B-1	97	1	2.270	.1319	Do Not Reject
Grade2Ins.Vs. Ques.#17B-2	97	1	2.409	.1206	Do Not Reject
Grade2Ins.Vs. Ques.#17B-3	97	1	.000	.9824	Do Not Reject
Grade2Ins.Vs. Ques.#17C-K	97	1	.000	.9937	Do Not Reject
Grade2Ins.Vs. Ques.#17C-1	97	1	2.135	.1439	Do Not Reject
Grade2Ins.Vs. Ques.#17C-2	97	1	2.409	.1206	Do Not Reject
Grade2Ins.Vs. Ques.#17C-3	97	1	.001	.9754	Do Not Reject
Grade2Ins.Vs. Ques.#17D-K	Insufficient Data				
Grade2Ins.Vs. Ques.#17D-1	Insufficient Data				
Grade2Ins.Vs. Ques.#17D-2	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#17D-3	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#17E-K	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#17E-1	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#17E-2	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#17E-3	97	1	.287	.5924	Do Not Reject
Grade2Ins.Vs. Ques.#17F-K	97	1	.132	.7162	Do Not Reject
Grade2Ins.Vs. Ques.#17F-1	97	1	1.759	.1848	Do Not Reject
Grade2Ins.Vs. Ques.#17F-2	97	1	1.880	.1703	Do Not Reject
Grade2Ins.Vs. Ques.#17F-3	97	1	.034	.8545	Do Not Reject
Grade2Ins.Vs. Ques.#17G-K	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#17G-1	97	1	1.528	.2164	Do Not Reject
Grade2Ins.Vs. Ques.#17G-2	97	1	1.642	.2001	Do Not Reject
Grade2Ins.Vs. Ques.#17G-3	97	1	.166	.6832	Do Not Reject
Grade2Ins.Vs. Ques.#17H-K	Insufficient Data				
Grade2Ins.Vs. Ques.#17H-1	Insufficient Data				

TABLE 9 (Cont'd)

Cluster #3 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade2Ins.Vs. Ques.#17H-2	Insufficient Data				
Grade2Ins.Vs. Ques.#17H-3	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#17I-K	Insufficient Data				
Grade2Ins.Vs. Ques.#17I-1	Insufficient Data				
Grade2Ins.Vs. Ques.#17I-2	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#17I-3	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#17J-K	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#17J-1	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#17J-2	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#17J-3	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#17K-K	97	1	.012	.9131	Do Not Reject
Grade2Ins.Vs. Ques.#17K-1	97	1	1.759	.1848	Do Not Reject
Grade2Ins.Vs. Ques.#17K-2	97	1	1.880	.1703	Do Not Reject
Grade2Ins.Vs. Ques.#17K-3	97	1	.402	.5260	Do Not Reject
Grade2Ins.Vs. Ques.#17L-K	97	1	.287	.5924	Do Not Reject
Grade2Ins.Vs. Ques.#17L-1	97	1	.132	.7162	Do Not Reject
Grade2Ins.Vs. Ques.#17L-2	97	1	.051	.8216	Do Not Reject
Grade2Ins.Vs. Ques.#17L-3	97	1	1.878	.1706	Do Not Reject
Grade2Ins.Vs. Ques.#17M-K	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#17M-1	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#17M-2	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#17M-3	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#17N-K	97	1	.051	.8216	Do Not Reject
Grade2Ins.Vs. Ques.#17N-1	97	1	1.880	.1703	Do Not Reject
Grade2Ins.Vs. Ques.#17N-2	97	1	2.135	.1439	Do Not Reject
Grade2Ins.Vs. Ques.#17N-3	97	1	.017	.8973	Do Not Reject
Grade2Ins.Vs. Ques.#17O-K	97	1	.287	.5924	Do Not Reject
Grade2Ins.Vs. Ques.#17O-1	97	1	1.528	.2164	Do Not Reject
Grade2Ins.Vs. Ques.#17O-2	97	1	1.642	.2001	Do Not Reject
Grade2Ins.Vs. Ques.#17O-3	97	1	.232	.6302	Do Not Reject
Grade2Ins.Vs. Ques.#17P-K	Insufficient Data				
Grade2Ins.Vs. Ques.#17P-1	Insufficient Data				
Grade2Ins.Vs. Ques.#17P-2	Insufficient Data				
Grade2Ins.Vs. Ques.#17P-3	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#17Q-K	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#17Q-1	97	1	1.313	.2518	Do Not Reject
Grade2Ins.Vs. Ques.#17Q-2	97	1	1.419	.2336	Do Not Reject
Grade2Ins.Vs. Ques.#17Q-3	97	1	1.419	.2336	Do Not Reject
Grade2Ins.Vs. Ques.#17R-K	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#17R-1	Insufficient Data				
Grade2Ins.Vs. Ques.#17R-2	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#17R-3	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#17S-K	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#17S-1	Insufficient Data				
Grade2Ins.Vs. Ques.#17S-2	97	1	3.343	.0675	Do Not Reject

TABLE 9 (Cont'd)

Cluster #3 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade2Ins.Vs. Ques.#17S-3	Insufficient Data				
Grade2Ins.Vs. Ques.#17T-K	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#17T-1	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#17T-2	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#17T-3	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#17U-K	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Ques.#17U-1	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#17U-2	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#17U-3	97	1	3.343	.0675	Do Not Reject
Grade2Ins.Vs. Ques.#17V-K	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#17V-1	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#17V-2	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#17V-3	97	1	.586	.4440	Do Not Reject
Grade2Ins.Vs. Ques.#17W-K	97	1	.012	.9131	Do Not Reject
Grade2Ins.Vs. Ques.#17W-1	97	1	.012	.9131	Do Not Reject
Grade2Ins.Vs. Ques.#17W-2	97	1	.000	.9937	Do Not Reject
Grade2Ins.Vs. Ques.#17W-3	97	1	1.187	.2760	Do Not Reject
Grade2Ins.Vs. Ques.#17X-K	97	1	.012	.9131	Do Not Reject
Grade2Ins.Vs. Ques.#17X-1	97	1	.007	.9343	Do Not Reject
Grade2Ins.Vs. Ques.#17X-2	97	1	.058	.8105	Do Not Reject
Grade2Ins.Vs. Ques.#17X-3	97	1	.096	.7565	Do Not Reject
Grade3Ins.Vs. Ques.#17A-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17A-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17A-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17A-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17B-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17B-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17B-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17B-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17C-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17C-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17C-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17C-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17D-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17D-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17D-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17D-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17E-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17E-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17E-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17E-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17F-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17F-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17F-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17F-3	Insufficient Data				

TABLE 9 (Cont'd)

Cluster #3 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade3Ins.Vs. Ques.#17G-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17G-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17G-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17G-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17H-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17H-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17H-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17H-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17I-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17I-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17I-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17I-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17J-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17J-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17J-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17J-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17K-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17K-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17K-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17K-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17L-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17L-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17L-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17L-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17M-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17M-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17M-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17M-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17N-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17N-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17N-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17N-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17O-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17O-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17O-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17O-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17P-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17P-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17P-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17P-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17Q-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17Q-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17Q-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17Q-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17R-K	Insufficient Data				

TABLE 9 (Cont'd)

Cluster #3 Contrast	N	df	Chi-square	P≤.05	H:o Decision
Grade3Ins.Vs. Ques.#17R-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17R-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17R-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17S-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17S-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17S-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17S-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17T-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17T-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17T-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17T-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17U-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17U-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17U-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17U-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17V-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17V-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17V-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17V-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17W-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17W-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17W-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17W-3	Insufficient Data				
Grade3Ins.Vs. Ques.#17X-K	Insufficient Data				
Grade3Ins.Vs. Ques.#17X-1	Insufficient Data				
Grade3Ins.Vs. Ques.#17X-2	Insufficient Data				
Grade3Ins.Vs. Ques.#17X-3	Insufficient Data				
GradeKIns.Vs. Ques.#18	97	3	18.468	.0004	Reject
GradeKIns.Vs. Ques.#19	97	2	1.504	.4714	Do Not Reject
GradeKIns.Vs. Ques.#23	97	2	27.986	.0000	Reject
Grade1Ins.Vs. Ques.#18	97	3	1.698	.6375	Do Not Reject
Grade1Ins.Vs. Ques.#19	97	2	1.380	.5016	Do Not Reject
Grade1Ins.Vs. Ques.#23	97	2	11.241	.0036	Reject
Grade2Ins.Vs. Ques.#18	97	3	3.819	.2817	Do Not Reject
Grade2Ins.Vs. Ques.#19	97	2	1.730	.4210	Do Not Reject
Grade2Ins.Vs. Ques.#23	97	2	15.338	.0005	Reject
Grade3Ins.Vs. Ques.#18	Insufficient Data				
Grade3Ins.Vs. Ques.#19	Insufficient Data				
Grade3Ins.Vs. Ques.#23	Insufficient Data				

bicycle safety education programs received "totally negative" responses from K-3 grade bicycle instructors, contrasts could not be performed for these variables. Insufficient reported data was noted for grade 3 bicycle instructor contrasts and for "Winter Term" bicycle safety education program contrasts. The contrasts for "Reported Seasonal Offerings" are reported in tabular form in Table 10.

Reported Student Contact Hours

A significant difference at the .05 level of significance was indicated in K-3 grade bicycle safety education programs with respect to "Student Contact Hours" as reported by Kindergarten, grade 1 and grade 2 bicycle instructors. Chi-square values of 9.488 or higher were needed for significance at the .05 level. Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_7) was rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts. The contrasts for "Reported Student Contact Hours" are reported in tabular form in Table 10.

Reported Bicycle Safety Education Program Meeting Times

No significant difference was indicated in K-3 grade bicycle safety education programs with respect to the following "Program Meeting Times" as reported by Kindergarten, grade 1 and grade 2

bicycle instructors: "Before School Programs," "During School Hour Programs," "After School Programs," "Saturday Programs" and "Other Program Meeting Times (Holidays)." A X^2 value of 3.841 or higher was needed for significance at the .05 level. Since frequency results indicated K-3 grade bicycle safety education programs were conducted "During School Hours" and "After School Hours," chi-square "cross tabulation" statistical treatments were made for these two variables as reported by Kindergarten, grade 1 and grade 2 bicycle instructors. Since the p values attained were higher than the .05 level of significance on these variables, the null hypothesis (HO_8) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts. The contrasts for "Reported Bicycle Safety Education Program Meeting Times" are reported in tabular form in Table 10.

Summary - Statistical Analysis of the Data Revealed

1. There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within a 60 mile radius of St. Cloud, Minnesota with respect to "Urban vs. Rural Programs" as reported by Kindergarten bicycle instructors. (X^2 = 13.915) There were more "Rural Programs" than "Urban Programs" offered by Kindergarten bicycle instructors. Since the p values attained were lower than the .05 level of

TABLE 10

BICYCLE SAFETY EDUCATION

PROGRAM DURATION

Cluster #4 Contrast	N	df	Chi-square	P≤.05	H:o Decision
GradeKIns.Vs. Fall Term	97	1	13.623	.0002	Reject
GradeKIns.Vs. Winter Term	Insufficient Data				
GradeKIns.Vs. Spring Term	97	1	.063	.8013	Do Not Reject
GradeKIns.Vs. Summer Term	97	1	.196	.6576	Do Not Reject
GradeKIns.Vs. Integ.Prog.	97	1	.013	.9102	Do Not Reject
GradelIns.Vs. Fall Term	97	1	.008	.9305	Do Not Reject
GradelIns.Vs. Winter Term	Insufficient Data				
GradelIns.Vs. Spring Term	97	1	.012	.9122	Do Not Reject
GradelIns.Vs. Summer Term	97	1	.757	.3842	Do Not Reject
GradelIns.Vs. Integ.Prog.	97	1	.100	.7522	Do Not Reject
Grade2Ins.Vs. Fall Term	97	1	.073	.7868	Do Not Reject
Grade2Ins.Vs. Winter Term	Insufficient Data				
Grade2Ins.Vs. Spring Term	97	1	.012	.9131	Do Not Reject
Grade2Ins.Vs. Summer Term	97	1	1.246	.2644	Do Not Reject
Grade2Ins.Vs. Integ. Prog.	97	1	.287	.5924	Do Not Reject
Grade3Ins.Vs. Fall Term	Insufficient Data				
Grade3Ins.Vs. Winter Term	Insufficient Data				
Grade3Ins.Vs. Spring Term	Insufficient Data				
Grade3Ins.Vs. Summer Term	Insufficient Data				
Grade3Ins.Vs. Integ.Prog.	Insufficient Data				
GradeKIns.Vs. Ques.#3-K	97	4	77.344	.0000	Reject
GradeKIns.Vs. Ques.#3-1	97	4	50.786	.0000	Reject
GradeKIns.Vs. Ques.#3-2	97	4	54.661	.0000	Reject
GradeKIns.Vs. Ques.#3-3	97	4	38.763	.0000	Reject
GradelIns.Vs. Ques.#3-K	97	4	8.660	.0702	Do Not Reject
GradelIns.Vs. Ques.#3-1	97	4	72.611	.0000	Reject
GradelIns.Vs. Ques.#3-2	97	4	59.558	.0000	Reject
GradelIns.Vs. Ques.#3-3	97	4	9.852	.0430	Reject
Grade2Ins.Vs. Ques.#3-K	97	4	5.383	.2502	Do Not Reject
Grade2Ins.Vs. Ques.#3-1	97	4	47.963	.0000	Reject
Grade2Ins.Vs. Ques.#3-2	97	4	80.341	.0000	Reject
Grade2Ins.Vs. Ques.#3-3	97	4	11.913	.0180	Reject
Grade3Ins.Vs. Ques.#3-K	Insufficient Data				
Grade3Ins.Vs. Ques.#3-1	Insufficient Data				
Grade3Ins.Vs. Ques.#3-2	Insufficient Data				
Grade3Ins.Vs. Ques.#3-3	Insufficient Data				
GradeKIns.Vs. Ques.#4	97	1	.040	.8409	Do Not Reject
GradelIns.Vs. Ques.#4	97	1	2.328	.1271	Do Not Reject
Grade2Ins.Vs. Ques.#4	97	1	3.343	.0675	Do Not Reject
Grade3Ins.Vs. Ques.#4	Insufficient Data				

significance, the null hypothesis (HO_1) was rejected for this variable. Insignificant X^2 values were obtained for grade 1 and grade 2 bicycle instructors. The null hypothesis (HO_1) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts.

2. There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within a 60 mile radius of St. Cloud, Minnesota with respect to "Instructor Sex Status" as reported by grade 1 (X^2 = 12.346) and grade 2 (X^2 = 18.997) bicycle instructors. There were more "Males" than "Females" as grade 1 and grade 2 bicycle instructors. Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_2) was rejected for these variables. Insignificant X^2 values were obtained for Kindergarten bicycle instructors. The null hypothesis (HO_2) was not rejected for this variable. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts. Since bicycle safety education program activities were offered in every reported K-3 site, contrasts could not be performed for

this variable. Insufficient reported data was also noted for bicycle safety education program activity contrasts.

3. There was no significance test calculated in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to "Bicycle Safety Education Program Instructor Occupations." Since reported data for the 97 conducted K-3 grade bicycle safety education programs indicated K-3 grade teachers were identified as K-3 grade bicycle instructors, "affirmative only" responses prevented chi-square "cross tabulation" contrasts for the K-3 grade bicycle instructors.

4. There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to contrasts performed between "Kindergarten Bicycle Instructors and Grade 1 Bicycle Safety Education Programs" (X^2 = 10.398), "Kindergarten Bicycle Instructors and Grade 2 Bicycle Safety Education Programs" (X^2 = 7.045) and "Grade 1 Bicycle Instructors and Grade 2 Bicycle Safety Education Programs" (X^2 = 58.814). There were more "Kindergarten Bicycle Instructors" than "Grade 1 or Grade 2 Bicycle Instructors" involved with "Grade 1 and Grade 2 Bicycle Safety Education Programs;" there were more "Grade 1 Bicycle Instructors" than "Kindergarten or Grade 2 Bicycle Instructors" involved with "Grade 2 Bicycle Programs." Since the p values attained were lower than the .05 level of

significance, the null hypothesis (HO_4) was rejected for these variables. Insignificant X^2 values were obtained for "Grade 2 Bicycle Instructors" and "Kindergarten Level Programs." The null hypothesis (HO_4) was not rejected for these variables. Since "Grade 3 Bicycle Instructors" reported "affirmative only" responses for all the questionnaire items, "Grade 3 Bicycle Programs" were offered at every reported site and "Bicycle Safety Education Program Activities" were offered in every reported K-3 site, contrasts could not be performed for these variables. Insufficient reported data was noted for "Grade 3 Bicycle Instructors," "Grade 3 Bicycle Programs" and "Bicycle Safety Education Program Activities" contrasts.

5. There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the following "Bicycle Safety Education Formal Instructor Preparation Levels" as reported by Kindergarten, grade 1 and grade 2 bicycle instructors:

   - I have received no formal instruction in bicycle safety education
   - Formal course in bicycle safety education
   - Formal course in traffic safety education with bicycle safety component
   - In-service workshop or seminar in bicycle safety education
   - By the Kindergarten bicycle instructors ($X^2 = 162.280$)

- By the grade 1 bicycle instructors (X^2 = 191.090)
- By the grade 2 bicycle instructors (X^2 = 189.960)

There were more K-2 grade bicycle instructor responses for the "No Formal Instruction in Bicycle Safety Education" category than for the "Formal Course in Bicycle Safety Education," "Formal Workshop in Bicycle Safety Education" or "In-Service Program in Bicycle Safety Education" categories. Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_5) was rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts.

6. There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to "Time of Year (Seasonal) Offerings" as reported by Kindergarten bicycle instructors for "Fall Term Bicycle Safety Education Programs" (X^2 = 13.623). Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_6) was rejected for this variable. Insignificant X^2 values were obtained for grade 1 bicycle instructors, grade 2 bicycle instructors, "Spring Bicycle Safety Education Programs," "Summer Bicycle Safety Education Programs" and "Bicycle Safety Education Programs Integrated Within Existing Classes on a Year-Round Basis." The

null hypothesis (HO_6) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items and "Winter Term" bicycle safety education programs received "totally negative" responses from K-3 grade bicycle instructors, contrasts could not be performed for these variables. Insufficient reported data was noted for grade 3 bicycle instructor contrasts and "Winter Term" bicycle safety education program contrasts.

7. There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to "Student Contact Hours" as reported by Kindergarten, grade 1 and grade 2 bicycle instructors:

   - Kindergarten bicycle instructors (X^2 = 77.344 with "1-2 Contact Hours")
   - Grade 1 bicycle instructors (X^2 = 72.611 with "1-2 Contact Hours," "3-5 Contact Hours," "6-8 Contact Hours")
   - Grade 2 bicycle instructors (X^2 = 80.341 with "1-2 Contact Hours," "3-5 Contact Hours," "6-8 Contact Hours")

   Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_7) was rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts.

8. There was no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the following "Program Meeting Times" as reported by Kindergarten, grade 1 and grade 2 bicycle instructors: "Before School Programs," "During School Programs," "After School Programs," "Saturday Programs" and "Other Program Meeting Times (Holidays)." Reported frequencies indicated most of the programs were conducted "During School Hours" with one program conducted "After School Hours;" hence chi-square "cross-tabulation" contrasts were made for these two variables as reported by Kindergarten, grade 1 and grade 2 bicycle instructors. Since the p values attained were higher than the .05 level of significance, the null hypothesis (HO_8) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts.

9. There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to "Student Enrollment Levels" as reported by Kindergarten, grade 1 and grade 2 bicycle instructors:

   - Kindergarten bicycle instructors (X^2 = 78.188 with class sizes of "60 or More Students")
   - Grade 1 bicycle instructors (X^2 = 75.526 with class sizes of "60 or More Students")

- Grade 2 bicycle instructors (X^2 = 71.151 with class sizes of "60 or More Students")

Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_9) was rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts.

10. There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the following "Instructional Formats" as reported by Kindergarten, grade 1 and grade 2 bicycle instructors:

    - Separate unit (X^2 = 9.134-Kindergarten bicycle instructors)
      (X^2 = 5.603-grade 1 bicycle instructors)
      (X^2 = 4.636-grade 2 bicycle instructors)

    - Integrated in existing courses
      (X^2 = 14.687-Kindergarten bicycle instructors)
      (X^2 = 11.983-grade 1 bicycle instructors)
      (X^2 = 9.468-grade 2 bicycle instructors)

    - Assemblies (X^2 = 25.060-Kindergarten bicycle instructors)

Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{10}) was rejected for these variables. Insignificant X^2 values were obtained for "Other Instructional Formats (Special Assignments)" and partial contrasts performed with respect to "Bicycle Safety Education

Programs Not Offered by Bicycle Instructors." The null hypothesis (HO_{10}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for the questionnaire items, contrasts could not be performed for this variable. In addition, partial contrasts performed with respect to "Bicycle Safety Education Programs Not Offered by Bicycle Instructors" received "totally negative" responses from responding K-3 grade bicycle instructors. Hence, contrasts could not be performed for this variable. Insufficient reported data was noted for grade 3 bicycle instructors and for partial contrasts performed with respect to "Bicycle Safety Education Programs Not Offered by Bicycle Instructors."

11. There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the following "Resource Personnel Utilized in Classroom Programs" as reported by Kindergarten, grade 1 and grade 2 bicycle instructors:

    - Classroom guest speakers
      (X^2 = 4.955-Kindergarten bicycle instructors)

    - Police officers
      (X^2 = 39.458-Kindergarten bicycle instructors)
      (X^2 = 18.859-grade 1 bicycle instructors)
      (X^2 = 13.714-grade 2 bicycle instructors)

    - Other personnel
      (X^2 = 4.182-Kindergarten bicycle instructors)

Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{11}) was rejected for these variables. Insignificant X^2 values were obtained for "Park and Recreation Department Personnel," "Local Bicycle Shop Representatives" and "Amateur Cyclists." The null hypothesis (HO_{11}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items and "Judicial Department Representatives" received "totally negative" responses from K-3 grade bicycle instructors, complete contrasts could not be performed for these variables. Insufficient reported data was noted for grade 3 bicycle instructors and "Judicial Department Representatives." One hundred twenty-eight aggregate responses and narrative findings with respect to "Individual Used as Resource Personnel" in K-3 grade bicycle safety education programs in the St. Cloud, Minnesota area were reported in Part I findings.

12. There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the following "Bicycle Safety Education Curricula, Guide(s) Utilized" by reporting Kindergarten, grade 1 and grade 2 bicycle instructors:

    - School developed curriculum
      (X^2 = 33.513-Kindergarten bicycle instructors)

    - Minnesota K-3 Traffic Safety Curriculum Guide
      (X^2 = 23.503-Kindergarten bicycle instructors)
      (X^2 = 13.858-grade 1 bicycle instructors)
      (X^2 = 10.485-grade 2 bicycle instructors)

- Other prepared unit, guide
  (X^2 = 27.287-Kindergarten bicycle instructors)
  (X^2 = 4.182-grade 1 bicycle instructors)

Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{12}) was rejected for these variables. Insignificant X^2 values were obtained for "Use of Other State(s) Curriculum Guide(s)" and "Commercially Developed Curriculum Guide(s)." The null hypothesis (HO_{12}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts.

13. There were no chi-square "cross-tabulation" contrasts performed with respect to "Audio-Visual Aids or Models" used in K-3 grade bicycle safety education programs in the St. Cloud, Minnesota area. There were twenty-two separate responses from K-3 grade bicycle instructors in the central Minnesota area. Specific responses and narrative findings were reported in Part I findings.

14. There were no chi-square "cross-tabulation" contrasts performed with respect to "Outside Agencies Involved" in K-3 grade bicycle safety education programs in the St. Cloud, Minnesota area. There were twenty-one separate responses from K-3 grade bicycle instructors in the central Minnesota area. Specific responses and narrative findings were reported in Part I findings.

15. There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the following "Instructional Techniques" utilized by reporting Kindergarten, grade 1 and grade 2 bicycle instructors:

- Teacher-led discussions
  (X^2 = 45.355-Kindergarten bicycle instructors)
  (X^2 = 23.644-grade 1 bicycle instructors)
  (X^2 = 18.484-grade 2 bicycle instructors)

- Teacher lecture format
  (X^2 = 37.300-Kindergarten bicycle instructors)

- Teacher-led informal discussions
  (X^2 = 7.266-grade 1 bicycle instructors)

- Guest speakers/experts
  (X^2 = 23.740-Kindergarten bicycle instructors)
  (X^2 = 10.971-grade 1 bicycle instructors)
  (X^2 = 7.083-grade 2 bicycle instructors)

- Audio-visual aids/models
  (X^2 = 27.899-Kindergarten bicycle instructors)
  (X^2 = 15.310-grade 1 bicycle instructors)
  (X^2 = 11.643-grade 2 bicycle instructors)

- Student-led small group work
  (X^2 = 12.145-grade 1 bicycle instructors)

- Use of prepared curricula
  (X^2 = 10.525 Kindergarten bicycle instructors)
  (X^2 = 10.898-grade 1 bicycle instructors)
  (X^2 = 8.155-grade 2 bicycle instructors)

Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{15}) was rejected for these variables. Insignificant X^2 values were obtained for "Teacher-Led Small Group Activities," "Student-Led Formal Presentations," "Student-Led Informal Discussions/Activities" and "Other Instructional Techniques (Independent Assignments)."

The null hypothesis (HO_{15}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts.

16. There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the following types of "Bicycle Safety Education Activities" as reported by Kindergarten, grade 1 and grade 2 bicycle instructors:

    - Classroom presentations
      (X^2 = 23.017-Kindergarten bicycle instructors)
      (X^2 = 19.917-grade 1 bicycle instructors)
      (X^2 = 14.516-grade 2 bicycle instructors)

    - Off-road skill test(s)
      (X^2 = 4.182-Kindergarten bicycle instructors)
      (X^2 = 3.967-grade 1 bicycle instructors)

    - Bicycle maintenance
      (X^2 = 4.955-Kindergarten bicycle instructors)

    - Special assemblies/seminars
      (X^2 = 22.393-Kindergarten bicycle instructors)

    Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{16}) was rejected for these variables. Insignificant X^2 values were obtained for "On-Street Riding," "Bicycle Hikes/Trips," "Bicycle Registration" and "Bicycle Licensing Procedures." Insignificant X^2 values were also obtained for partial contrasts performed with

respect to "Special Instruction" and for contrasts performed for "Handicapped Instruction," "Special Education Instruction" and "Other Activities (Special Groups)." The null hypothesis (HO_{16}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses to all the questionnaire items and "Adult Programs" received "totally negative" responses from K-3 grade bicycle instructors, contrasts could not be performed for these variables. "Totally negative" responses were also noted for partial contrasts performed with respect to "Special Instruction;" hence, contrasts could not be performed for this variable. Insufficient reported data was noted for grade 3 bicycle instructor contrasts, contrasts performed for "Adult Programs" and partial contrasts performed with respect to "Special Instruction."

17. There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the following "Minnesota Bicycle Laws" as reported by Kindergarten, grade 1 and grade 2 bicycle instructors:

- Bicycle as a vehicle
  (X^2 = 13.858-grade 1 bicycle instructors)
  (X^2 = 11.045-grade 2 bicycle instructors)

- Obeyance of signs/signals, pavement markings and crosswalk ordinances
  (X^2 = 21.060-grade 1 bicycle instructors)
  (X^2 = 17.357-grade 2 bicycle instructors)

- Licensing/registration of bicycles
  (X^2 = 6.834-grade 1 bicycle instructors)
  (X^2 = 5.271-grade 2 bicycle instructors)

- Riding in self-propelled fashion
  (X^2 = 9.039-grade 1 bicycle instructors)
  (X^2 = 7.045-grade 2 bicycle instructors)

- Riding with traffic outside central business district
  (X^2 = 13.858-grade 1 bicycle instructors)
  (X^2 = 9.468-grade 2 bicycle instructors)

- Riding techniques inside central business district
  (X^2 = 9.470-grade 1 bicycle instructors)
  (X^2 = 6.712-grade 2 bicycle instructors)

- Riding procedures to insure visibility
  (X^2 = 11.426-grade 1 bicycle instructors)
  (X^2 = 9.468-grade 2 bicycle instructors)

- Riding no more than two abreast
  (X^2 = 29.386-Kindergarten bicycle instructors)
  (X^2 = 16.108-grade 1 bicycle instructors)
  (X^2 = 12.284-grade 2 bicycle instructors)

- Riding on right side of roadway
  (X^2 = 38.003-Kindergarten bicycle instructors)
  (X^2 = 26.721-grade 1 bicycle instructors)
  (X^2 = 21.096-grade 2 bicycle instructors)

- Riding within a single lane of traffic
  (X^2 = 21.120-Kindergarten bicycle instructors)
  (X^2 = 9.922-grade 1 bicycle instructors)
  (X^2 = 8.155-grade 2 bicycle instructors)

- Riding close to right curb edge
  (X^2 = 30.928-Kindergarten bicycle instructors)
  (X^2 = 18.859-grade 1 bicycle instructors)
  (X^2 = 14.516-grade 2 bicycle instructors)

- Yield right of way to pedestrians, other vehicles
  (X^2 = 35.868-Kindergarten bicycle instructors)
  (X^2 = 18.859-grade 1 bicycle instructors)
  (X^2 = 14.516-grade 2 bicycle instructors)

- Carrying only number designed for vehicle
  (X^2 = 34.367-Kindergarten bicycle instructors)
  (X^2 = 21.060-grade 1 bicycle instructors)
  (X^2 = 15.384-grade 2 bicycle instructors)

- Keep hands on handlebars, except when signaling, stopped (prepared to turn)
  (X^2 = 35.868-Kindergarten bicycle instructors)
  (X^2 = 18.859-grade 1 bicycle instructors)
  (X^2 = 15.384-grade 2 bicycle instructors)

- When walking bicycle, face traffic
  (X^2 = 23.705-Kindergarten bicycle instructors)
  (X^2 = 10.898-grade 1 bicycle instructors)
  (X^2 = 9.005-grade 2 bicycle instructors)

- Staying off roadways prohibiting bicycle riding
  (X^2 = 21.120-Kindergarten bicycle instructors)
  (X^2 = 9.922-grade 1 bicycle instructors)
  (X^2 = 8.568-grade 2 bicycle instructors)

- Use of bicycle paths/lanes when provided
  (X^2 = 16.392-Kindergarten bicycle instructors)
  (X^2 = 8.237-grade 1 bicycle instructors)
  (X^2 = 6.712-grade 2 bicycle instructors)

- Use of sidewalks when encouraged
  (X^2 = 16.392-Kindergarten bicycle instructors)
  (X^2 = 8.237-grade 1 bicycle instructors)
  (X^2 = 6.396-grade 2 bicycle instructors)

- Use of bell/horn when necessary
  (X^2 = 26.457-Kindergarten bicycle instructors)
  (X^2 = 13.858-grade 1 bicycle instructors)
  (X^2 = 11.643-grade 2 bicycle instructors)

- Use of light during night riding
  (X^2 = 32.519-Kindergarten bicycle instructors)
  (X^2 = 18.859-grade 1 bicycle instructors)
  (X^2 = 15.384-grade 2 bicycle instructors)

- Use of highly visible reflective clothing during night riding
  (X^2 = 36.152-Kindergarten bicycle instructors)
  (X^2 = 21.060-grade 1 bicycle instructors)
  (X^2 = 17.357-grade 2 bicycle instructors)

- Procedures for operation of special events
  (X^2 = 5.850-grade 2 bicycle instructors)

- It is a misdemeanor to break safety laws
  (X^2 = 13.194-Kindergarten bicycle instructors)
  (X^2 = 7.163-grade 1 bicycle instructors)
  (X^2 = 5.533-grade 2 bicycle instructors)

Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{17}) was rejected for these variables. Insignificant X^2 values were obtained for partial contrasts with respect to "Minnesota Bicycle Laws Not

Offered by Bicycle Instructors." Insignificant X^2 values were also obtained for "Other Minnesota Bicycle Laws Offered (Seminar Violation Procedures)." The null hypothesis (HO_{17}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items and partial responses from Kindergarten bicycle instructors were incorrectly reported by computer operators, complete contrasts could not be performed for these variables. "Totally negative" responses for partial contrasts performed with respect to "Minnesota Bicycle Laws Not Offered by Bicycle Instructors" also prevented contrasts for this variable. Insufficient reported data was noted for contrasts performed for grade 3 bicycle instructors, complete contrasts performed with respect to Kindergarten bicycle instructors and partial contrasts performed with respect to "Minnesota Bicycle Laws Not Offered by Bicycle Instructors."

18. There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the following "Bicycle Riding and Safety" concepts as reported by Kindergarten, grade 1 and grade 2 bicycle instructors:

    - Bicycle riding and safety concepts not offered by bicycle instructors (partial contrasts)
      (X^2 = 4.373-Kindergarten bicycle instructors)

- Proper mount and dismount
  (X^2 = 14.229-Kindergarten bicycle instructors)
  (X^2 = 8.629-grade 1 bicycle instructors)
  (X^2 = 5.533-grade 2 bicycle instructors)

- Proper riding positions astride bicycle
  (X^2 = 17.522-Kindergarten bicycle instructors)
  (X^2 = 9.922-grade 1 bicycle instructors)
  (X^2 = 6.712-grade 2 bicycle instructors)

- Proper pedaling
  (X^2 = 14.229-Kindergarten bicycle instructors)
  (X^2 = 9.039-grade 1 bicycle instructors)
  (X^2 = 5.271-grade 2 bicycle instructors)

- Proper braking
  (X^2 = 13.827-Kindergarten bicycle instructors)
  (X^2 = 10.398-grade 1 bicycle instructors)
  (X^2 = 6.712-grade 2 bicycle instructors)

- Proper stopping procedures
  (X^2 = 17.167-Kindergarten bicycle instructors)
  (X^2 = 12.572-grade 1 bicycle instructors)
  (X^2 = 8.155-grade 2 bicycle instructors)

- Proper procedures for turning
  (X^2 = 21.120-Kindergarten bicycle instructors)
  (X^2 = 13.858-grade 1 bicycle instructors)
  (X^2 = 9.468-grade 2 bicycle instructors)

- Emergency stopping/maneuvering
  (X^2 = 4.182-Kindergarten bicycle instructors)
  (X^2 = 3.759-grade 1 bicycle instructors)
  (X^2 = 2.270-grade 2 bicycle instructors)

- Defensive riding
  (X^2 = 18.353-Kindergarten bicycle instructors)
  (X^2 = 9.922-grade 1 bicycle instructors)
  (X^2 = 7.045-grade 2 bicycle instructors)

- Hazards facing bicyclist (weather, pavement, vehicles)
  (X^2 = 18.353-Kindergarten bicycle instructors)
  (X^2 = 9.922-grade 1 bicycle instructors)
  (X^2 = 7.765-grade 2 bicycle instructors)

- Crossing railroad tracks
  (X^2 = 14.905-Kindergarten bicycle instructors)

- Crossing intersections
  (X^2 = 24.900-Kindergarten bicycle instructors)
  (X^2 = 4.875-grade 1 bicycle instructors)

- Correct lane placement
  (X^2 = 11.551-Kindergarten bicycle instructors)

- Overtaking bicycles/vehicles
  (X^2 = 10.261-Kindergarten bicycle instructors)

- Night-time riding
  (X^2 = 25.060-Kindergarten bicycle instructors)

- Using safety flags
  (X^2 = 6.987-Kindergarten bicycle instructors)
  (X^2 = 5.928-grade 1 bicycle instructors)
  (X^2 = 4.333-grade 2 bicycle instructors)

- Using reflective materials
  (X^2 = 19.568-Kindergarten bicycle instructors)
  (X^2 = 15.310-grade 1 bicycle instructors)
  (X^2 = 11.045-grade 2 bicycle instructors)

- Proper clothing for increased visibility
  (X^2 = 17.016-Kindergarten bicycle instructors)
  (X^2 = 12.572-grade 1 bicycle instructors)
  (X^2 = 9.961-grade 2 bicycle instructors)

- Skill and performance tests
  (X^2 = 26.255-Kindergarten bicycle instructors)

Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{18}) was rejected for these variables. Insignificant X^2 values were attained for "Bicycle Riding And Safety Concepts Not Offered by Bicycle Instructors (Partial Contrasts)," "Bicycle Tours/Packing Procedures," "Bicycle Trip Planning Techniques," "Conducting Special Bicycle Events (e.g. Parades, Contests, Races)" and "Other Bicycle Riding And Safety Event Concepts (Special Demonstrations)." The null hypothesis (HO_{18}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this

variable. Insufficient reported data was noted for grade 3 bicycle instructor contrasts.

19. There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the following "Bicycle Safety Equipment" concepts as reported by Kindergarten, grade 1 and grade 2 bicycle instructors:

- Bicycle safety equipment concepts not offered by bicycle instructors (partial contrasts)
  (X^2 = 5.919-Kindergarten bicycle instructors)

- How to measure for proper size and fit
  (X^2 = 15.295-Kindergarten bicycle instructors)
  (X^2 = 8.629-grade 1 bicycle instructors)
  (X^2 = 6.094-grade 2 bicycle instructors)

- Bicycle anatomy (e.g., pedals, seats, frame)
  (X^2 = 15.295-Kindergarten bicycle instructors)
  (X^2 = 7.863-grade 1 bicycle instructors)
  (X^2 = 5.533-grade 2 bicycle instructors)

- Classification of bicycles (e.g., lightweight, touring, 3-speed)
  (X^2 = 9.339-Kindergarten bicycle instructors)

- Selection of bicycles, accessories
  (X^2 = 8.444-Kindergarten bicycle instructors)

- Required equipment (e.g., brakes, horn/bell)
  (X^2 = 21.120-Kindergarten bicycle instructors)
  (X^2 = 11.426-grade 1 bicycle instructors)
  (X^2 = 9.005-grade 2 bicycle instructors)

- Required equipment on newly sold bicycle (e.g. pedal, wheel reflectors)
  (X^2 = 12.188-Kindergarten bicycle instructors)
  (X^2 = 6.218-grade 1 bicycle instructors)
  (X^2 = 4.333-grade 2 bicycle instructors)

- Required equipment for night riding
  (X^2 = 19.578-Kindergarten bicycle instructors)

- Recommended equipment (e.g. rear tail light, basket, grips)
  (X^2 = 17.522-Kindergarten bicycle instructors)

- Optional equipment for visibility, safety (e.g. flags, clothing, mirrors)
  (X^2 = 10.261-Kindergarten bicycle instructors)

Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{19}) was rejected for these variables. Insignificant X^2 values obtained for "Bicycle Safety Equipment Concepts Not Offered by Bicycle Instructors (Partial Contrasts)," for "Bicycle Touring/Traveling Equipment (e.g. bags, tool kit)," for "Bicycle History" and for "Other Bicycle Safety Equipment Concepts (Bicycle Frame Construction)." The null hypothesis (HO_{19}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable. Insufficient reported data was noted for grade 3 bicycle instructor contrasts.

20. There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the following "Bicycle Care and Maintenance" concepts as reported by Kindergarten, grade 1 and grade 2 bicycle instructors:

- Bicycle care and maintenance concepts not offered by bicycle instructors (partial contrasts)
  (X^2 = 11.906-Kindergarten bicycle instructors)

- Proper bicycle storage
  (X^2 = 5.575-Kindergarten bicycle instructors)

- Theft prevention
  (X^2 = 18.686-Kindergarten bicycle instructors)

- Parking procedures
  (X^2 = 13.194-Kindergarten bicycle instructors)

- Brakes (adjustment for even wear)
  (X^2 - 10.261-Kindergarten bicycle instructors)

- Saddle (seat) (e.g. adjustment for proper size)
  (X^2 = 12.188-Kindergarten bicycle instructors)
  (X^2 = 7.163-grade 1 bicycle instructors)
  (X^2 = 5.807-grade 2 bicycle instructors)

- Handlebars (e.g. tighten often, proper height)
  (X^2 = 12.188-Kindergarten bicycle instructors)
  (X^2 = 7.163-grade 1 bicycle instructors)
  (X^2 = 5.807-grade 2 bicycle instructors)

- Wheels (e.g. nuts tight to prevent sway, uneven wear on rim
  (X^2 = 11.210-Kindergarten bicycle instructors)
  (X^2 = 6.834-grade 1 bicycle instructors)
  (X^2 = 5.021-grade 2 bicycle instructors)

- Tires (e.g. properly inflated, no defects)
  (X^2 = 11.210-Kindergarten bicycle instructors)
  (X^2 = 6.520-grade 1 bicycle instructors)
  (X^2 = 5.021-grade 2 bicycle instructors)

- Spokes (e.g. tight, wear)
  (X^2 = 9.339-Kindergarten bicycle instructors)
  (X^2 = 5.928-grade 1 bicycle instructors)
  (X^2 = 4.552-grade 2 bicycle instructors)

- Pedals (e.g. spin freely, tight)
  (X^2 = 10.261-Kindergarten bicycle instructors)
  (X^2 = 6.218-grade 1 bicycle instructors)
  (X^2 = 5.021-grade 2 bicycle instructors)

- Chain (e.g. wear, lubricated)
  (X^2 = 11.210-Kindergarten bicycle instructors)
  (X^2 = 6.520-grade 1 bicycle instructors)
  (X^2 = 5.271-grade 2 bicycle instructors)

- Gears (e.g. adjustment, replacement of cables)
  (X^2 = 7.576-Kindergarten bicycle instructors)

- Keeping all working parts clean and lubricated
  (X^2 = 11.210-Kindergarten bicycle instructors)

Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{20}) was rejected for these variables. Insignificant X^2 values were obtained for "Bicycle Care and Maintenance Concepts Not Offered by Bicycle Instructors (Partial Contrasts)" and "Other Bicycle Care and Maintenance Procedures (Maintenance Schedules)." The null hypothesis (HO_{20}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable. "Totally negative" responses recorded for partial contrasts performed with respect to Kindergarten bicycle instructors also prevented complete contrasts being performed for this variable. Insufficient reported data was noted for grade 3 bicycle instructor contrasts and for partial contrasts performed with respect to Kindergarten bicycle instructors.

21. There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the following "Specific Skill Exercises Offered in Conjunction With 'On-Bike' Performance or Skill Tests" as reported by Kindergarten bicycle instructors:

- "On-bike" performance/skill tests exercises not offered by bicycle instructors (partial contrasts) (X^2 = 33.037-Kindergarten bicycle instructors)

- Sign, signal, pavement marking recognition (X^2 = 26.572-Kindergarten bicycle instructors)

- Balancing exercises (e.g. straight line, weave, zig-zag)
  (X^2 = 28.718-Kindergarten bicycle instructors)

- Serpentine, slalom, or weave riding
  (X^2 = 36.058-Kindergarten bicycle instructors)

- Slow-poke races (coasting races)
  (X^2 = 41.846-Kindergarten bicycle instructors)

- Circling and balance exercises
  (X^2 = 30.923-Kindergarten bicycle instructors)

- Stopping drills
  (X^2 = 33.448-Kindergarten bicycle instructors)

- Braking with, without skids
  (X^2 = 41.846-Kindergarten bicycle instructors)

- Riding on rough surfaces (e.g. gravel, wet/bumpy, grassy areas)
  (X^2 = 42.362-Kindergarten bicycle instructors)

Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{21}) was rejected for these variables. Insignificant X^2 values were obtained for grade 1 and grade 2 bicycle instructors. Insignificant X^2 values were also obtained for "Riding Planks, Narrow Surfaces," "Timed Speed Races," "Figure 8 With Weave," "U or Y Turn-About Exercises," "Passing Exercises," "Merging Exercises," "Simulated Turning Exercises (e.g. One Way, Two Way, 4-Lanes, Divided And Undivided Roadways)," "Providing Awards, Certificates to Participants" and "Utilizing Reflectorized Tape in Conjunction With Inspections." In addition, insignificant X^2 values were also obtained for partial contrasts performed with respect to "Relay Races," "Ride And Pitch Exercises," "Traffic Mix Situations," "Evasive Riding Exercises," "Riding on Wet Surfaces," "Pair, Group Riding Exercises" and "On-Bike Performance/Skill

Test Exercises Not Offered by Bicycle Instructors (Partial Contrasts)." The null hypothesis (HO_{21}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable. "Totally negative" responses for partial contrasts performed with respect to "Relay Races," "Ride And Pitch Exercises (Hit The Target, Bean Bag Toss)," "Traffic Mix Situations," "Evasive Riding Exercise(s)," "Riding on Wet Surfaces" and "Pair, Group Riding Exercises" also prevented contrasts being performed for these variables. Insufficient reported data was noted for grade 3 bicycle instructor contrasts and partial contrasts performed with respect to "Relay Races," "Ride And Pitch Exercises (Hit The Target, Bean Bag Toss)," "Traffic Mix Situations," "Evasive Riding Exercise(s)," "Riding on Wet Surfaces" and "Pair, Group Riding Exercises."

22. There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the "Utilization of Expertise From Others in Their Own Community at Performance, Skill Test Activities" as reported by Kindergarten bicycle instructors ($X^2 = 18.468$). There were more Kindergarten bicycle instructors than grade 1 or grade 2 bicycle instructors that reported "Utilization of Expertise From others in Their Own Community at Performance, Skill Test Activities."

Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{22}) was rejected for this variable. Insignificant X^2 values were obtained for grade 1 and grade 2 bicycle instructors. The null hypothesis (HO_{22}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts.

23. There was no significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to "Incorporation of The Bicycle Safety Skill Test or an Evaluation Performance Program at The Local High School Driver Education Range/ Off-Street Practice Area." Since the p values attained for Kindergarten, grade 1 and grade 2 bicycle instructors were higher than the .05 level of significance, the null hypothesis (HO_{23}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts.

24. There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within

a 60-mile radius of St. Cloud, Minnesota with respect to "Offering Bicycle Safety Education as a Required Subject" by Kindergarten bicycle instructors. (X^2 = 18.982) There were more Kindergarten bicycle instructors than grade 1 or grade 2 bicycle instructors who responded affirmatively concerning "Offering Bicycle Safety Education as a Required Subject." Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{24}) was rejected for this variable. Insignificant X^2 values were obtained for grade 1 and grade 2 bicycle instructors. The null hypothesis (HO_{24}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts.

There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the "Rank Ordering by K-3 Grade Bicycle Instructors." Concerning "Offering Bicycle Safety Education as a Required Subject at The K-3 Grade Levels," bicycle instructor responses were reported as follows:

- Kindergarten bicycle instructors concerning offering bicycle safety education as a required subject at the Kindergarten level (X^2 = 17.309).
- Kindergarten bicycle instructors concerning offering bicycle safety education as a required subject at the grade 1 level (X^2 = 17.029).

- Kindergarten bicycle instructors concerning offering bicycle safety education as a required subject at the grade 2 level (X^2 = 18.780).

- Kindergarten bicycle instructors concerning offering bicycle safety education as a required subject at the grade 3 level (X^2 = 17.424).

Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{24}) was rejected for these variables. Insignificant X^2 values were obtained for grade 1 and grade 2 bicycle instructors concerning "Offering Bicycle Safety Education as Required Subject at The K-3 Grade Levels." The null hypothesis (HO_{24}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts.

25. There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to the "Rank Ordering of The Following Instructional Groups" as reported by Kindergarten, grade 1 and grade 2 bicycle instructors:

- Elementary teachers, K-3
  (X^2 = 18.703-Kindergarten bicycle instructors)

- Elementary teachers, 4-6
  (X^2 = 14.978-Kindergarten bicycle instructors)

- Youth agency leaders (Y's, Scouts, etc.)
  (X^2 = 28.397-grade 1 bicycle instructors)
  (X^2 = 22.857-grade 2 bicycle instructors)

- Bicycle organization representatives (AYH, Gopher Wheelman)
  (X^2 = 28.347-grade 1 bicycle instructors)
  (X^2 = 22.816-grade 2 bicycle instructors)

- Police department personnel
  (X^2 = 31.477-grade 1 bicycle instructors)
  (X^2 = 27.942-grade 2 bicycle instructors)

- Park and recreation department personnel
  (X^2 = 30.333-grade 1 bicycle instructors)
  (X^2 = 34.366-grade 2 bicycle instructors)

- Bicycle shop representative
  (X^2 = 26.145-grade 1 bicycle instructors)
  (X^2 = 19.944-grade 2 bicycle instructors)

- Parental groups
  (X^2 = 23.136-grade 1 bicycle instructors)

- Other instructional groups (special groups)
  (X^2 = 11.384 grade 1 bicycle instructors)
  (X^2 = 15.420-grade 2 bicycle instructors)

Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{25}) was rejected for these variables. Insignificant X^2 values were obtained for "Pre-Elementary Grade Teachers," "Junior High Teachers (7-8 or 7-9)," "Senior High Teachers (9-12 or 10-12)," "Judicial Department Representatives" and "Community Broad-Based Support Groups (e.g. Educational Personnel, Police Personnel, Judicial Representatives, Parental Groups and Community Agencies)." The null hypothesis (HO_{25}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not

be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts.

26. There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs with respect to "Bicycle Safety-Related Accidents And Fatalities on School Grounds During The 1977-78 School Year" as reported by Kindergarten ($X^2 = 27.986$), grade 1 ($X^2 = 11.241$) and grade 2 bicycle instructors ($X^2 = 15.338$). Kindergarten, grade 1 and grade 2 bicycle instructors responded more frequently to the "Data Unavailable" category than to the "Reported Accidents" or the "Reported Fatality" categories. K-3 grade bicycle instructors also reported one accident occurred during the 1977-78 school year. This datum was reported by a female, grade 3 bicycle instructor from the rural locales of Central Minnesota. Many Kindergarten, grade 1 and grade 2 bicycle instructors did not respond to this item. Since the p values attained were lower than the .05 level of significance, the null hypothesis (HO_{26}) was rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable. Insufficient data was noted for grade 3 bicycle instructor contrasts.

27. There was <u>no</u> significant difference in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to "Interest in Nearby K-3

Grade Bicycle Safety Education Program Contents And Instructor Practices." Since the p values attained for Kindergarten, grade 1 and grade 2 bicycle instructors were higher than the .05 level of significance, the null hypothesis (HO_{27}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts.

There was a significant difference at the .05 level of significance in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota with respect to "Expressed Interest in Receiving a Copy of The Minnesota K-3 Traffic Safety Curriculum Guide" as reported by Kindergarten bicycle instructors ($X^2 = 15.646$). There were more Kindergarten bicycle instructors than grade 1 or grade 2 bicycle instructors who responded affirmatively to receiving a copy of the state guide. Since the p values attained for Kindergarten bicycle instructors were lower than the .05 level of significance, the null hypothesis (HO_{27}) was rejected for this variable. Insignificant X^2 values were obtained for grade 1 and grade 2 bicycle instructors. The null hypothesis (HO_{27}) was not rejected for these variables. Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, contrasts could

not be performed for this variable; hence, insufficient reported data was noted for grade 3 bicycle instructor contrasts.

There were no chi-square "cross-tabulation" contrasts performed with respect to "Reported Additional K-3 Grade Bicycle Instructor Comments Relative to Bicycle Safety Education Instructional Practices Not Listed in The Bicycle Safety Education Questionnaire." There were twelve separate responses from K-3 grade bicycle instructors in the St. Cloud, Minnesota area. Specific responses and narrative findings were reported in Part I findings.

Chapter IV contained the general research questions of the study, the specific research hypotheses in null form, the nominal findings of the study, the chi-square "cross-tabulated" statistical findings with corresponding interpretations plus a summary of the data analyses.

In Chapter V, the summary, the conclusions, the recommendations, the discussion and the recommendations for further study were presented.

CHAPTER IV: FOOTNOTES

[1]Partial Contrasts--some K-3 grade bicycle instructors did not respond to all the questionnaire items. Therefore, chi-square "cross-tabulations" were performed on the questionnaire items to which there were responses.

[2]Complete Contrasts--though K-3 grade bicycle instructors responded to all the questionnaire items, computer operators failed to complete chi-square "cross-tabulations" for all variables.

CHAPTER V

SUMMARY, CONCLUSIONS, RECOMMENDATIONS, DISCUSSION AND RECOMMENDATIONS FOR FURTHER STUDY

The concluding chapter of this study includes: (1) a summation of the study, including methods and findings; (2) the conclusions warranted by the resulting data; (3) the recommendations based on study results; (4) a discussion of the study implications and (5) recommendations for further study.

Summary

The primary purpose of this study was to describe the nature, the extent, the reported differences and to analyze the factors associated with K-3 grade bicycle safety education programs of instruction in elementary schools within a 60-mile radius of St. Cloud, Minnesota. The study was conducted by utilizing a "Bicycle Safety Education Questionnaire" to solicit K-3 grade bicycle instructor responses with respect to classroom and "on-bike" programs of instruction in 101 K-3 grade schools in the St. Cloud, Minnesota area.

The sample population of this study consisted of 101 K-3 grade teachers identified as bicycle instructors in each K-3 grade school within a 60-mile radius of St. Cloud Minnesota. Final returns resulted in returned questionnaires from 97 K-3 grade bicycle instructors. Aggregate frequency responses revealed

classroom and "on-bike" phases of instruction were conducted in ninety-seven of the 101 K-3 grade sites.

To determine the presence of significant differences with respect to reported practices of K-3 grade bicycle instructors and reported school characteristics, contrasted selected school characteristics; i.e., school location--urban vs. rural locales, instructor sex, etc. and Kindergarten, grade 1, grade 2 and grade 3 bicycle instructor status versus reported bicycle safety education program components; i.e., course scheduling practices, enrollment levels, etc. contained in the 27 "Bicycle Safety Education Questionnaire" items. Two types of formats were prepared to present the study findings. A summary and analyses of the frequency responses for each of the questionnaire items was presented in the first part of Chapter IV. Four cluster tables and summary interpretations of the data created by chi-square "cross-tabulation" contrasts was presented in the second part of Chapter IV. Significant findings and hypotheses statements were summarized at the close of Chapter IV.

Specifically, this study investigated the following questions and produced the corresponding results.

1. Are there any significant differences in K-3 grade bicycle safety education programs within a 60-mile radius of St. Cloud, Minnesota, with respect to reported school and bicycle instructor characteristics (e.g., "urban vs. rural locales," "instructor sex," "actual bicycle instructor occupation," "grade levels utilized" and "bicycle instructor preparation levels")?

Chi-square "cross-tabulation" contrasts between selected school and bicycle instructor characteristics indicated significant differences

at the .05 level with respect to four separate school and bicycle instructor contrasted characteristics:

Types of formal instruction in bicycle safety education in favor of: "No formal instruction in bicycle safety education" for Kindergarten, grade 1 and grade 2 bicycle instructors.

K-3 bicycle safety education programs as reported by K-3 bicycle instructors in favor of: Kindergarten bicycle instructors involved with "Grade 1 and grade 2 bicycle safety education programs." Grade 1 bicycle instructors involved with "grade 2 bicycle safety education programs."

Male-female bicycle instructors in favor of: "Male bicycle instructors" for "Grade 1 and grade 2 bicycle safety education programs."

Rural-urban bicycle safety education programs in favor of: "Rural bicycle safety education programs" for Kindergarten bicycle instructors. ("Instructor sex" vs. "School location," "Instructor sex" vs. "Kindergarten bicycle safety education programs," "School location" vs. "Grade 1 bicycle safety education programs" and "School location" vs. "Grade 2 bicycle safety education programs" yielded no significant differences for these contrasts).

Since grade 3 bicycle instructors reported "affirmative only" responses for all the questionnaire items, "Grade 3 bicycle safety education programs" were offered at every reported K-3 grade site and "Bicycle safety education activities" were offered in every reported site, chi-square "cross-tabulation" contrasts could not be performed with respect to these variables. Hence, this major

research question could not be completely answered for all contrasts. Insufficient reported data was noted for grade 3 bicycle instructor contrasts, "Grade 3 bicycle safety education program" contrasts and "Bicycle safety education program activity" contrasts.

2. Are there any significant differences in K-3 grade classroom bicycle safety education instructional components as reported by K-3 grade bicycle instructors within a 60-mile radius of St. Cloud, Minnesota?

Contrasts between selected Kindergarten, grade 1, grade 2 and grade 3 bicycle instructors and K-3 grade classroom bicycle safety education instructional components indicated significant differences at the .05 level with respect to eighteen separate K-3 grade classroom instructional components and strategies:

Seasonal bicycle safety education offerings in favor of: "Fall programs" for Kindergarten level bicycle instructors.

Student contact hours in favor of: "1-2 hours" for Kindergarten bicycle instructors; "1-2 hours, 3-5 hours, 6-8 hours" for grade 1 bicycle instructors, and "1-2 hours, 3-5 hours, 6-8 hours" for grade 2 bicycle instructors.

Student enrollment levels in favor of: "60 plus hours" for Kindergarten bicycle instructors; "60 plus hours" for grade 1 bicycle instructors and "60 plus hours" for grade 2 bicycle instructors.

Bicycle safety education instructional formats in favor of: "Separate unit instruction" and "Integrated within existing classes" for Kindergarten, grade 1 and grade 2 bicycle instructors and "Assembly format" for Kindergarten bicycle instructors.

Resource personnel utilized in favor of: "Classroom guest speakers" for Kindergarten bicycle instructors; "Police Personnel" for

Kindergarten, grade 1 and grade 2 bicycle instructors and "Other special bicycle specialists (e.g. Scouts)" for Kindergarten bicycle instructors.

Bicycle safety curricula, guide(s) utilized in favor of: "Minnesota K-3 Traffic Safety Curriclum Guide," "School developed curriculum" and "Other prepared unit, guide (e.g., "Essentials of Good Bicycling") for Kindergarten bicycle instructors; "Minnesota K-3 Traffic Safety Curriculum Guide" and "Other Prepared Unit/Guide (e.g., "Essentials of Good Bicycling") for grade 1 bicycle instructors and "Minnesota K-3 Traffic Safety Curriculum Guide" for grade 2 bicycle instructors.

"Instructional techniques" utilized in favor of: "Teacher-led discussions" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Teacher lecture format" for Kindergarten bicycle instructors; "Guest speakers, experts" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Audio visual aids, models" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Student-led small group work" for grade 1 bicycle instructors and "Use of prepared curricula" for Kindergarten, grade 1 and grade 2 bicycle instructors.

"Bicycle safety education activities" offered in favor of: "Classroom presentations" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Off-road skill tests" for Kindergarten and grade 1 bicycle instructors; "Bicycle maintenance activities" for Kindergarten bicycle instructors and "Special assemblies, seminars" for Kindergarten bicycle instructors.

"Minnesota bicycle laws" offered in favor of: "Bicycle as a vehicle" for grade 1 and grade 2 bicycle instructors; "Obeyance of signs, signals, pavement markings, crosswalk procedures" for grade 1 and grade 2 bicycle instructors; "Licensing, registration procedures" for grade 1 and grade 2 bicycle instructors: "Riding in self-propelled fashion" for grade 1 and grade 2 bicycle instructors; "Riding with the flow of traffic outside the central business district" for grade 1 and grade 2 bicycle instructors; "Riding techniques inside the central business district" for grade 1 and grade 2 bicycle instructors; "Riding to insure visibility" for grade 1 and grade 2 bicycle instructors; "Riding no more than 2 abreast" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Riding on the right side of the roadway" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Riding within a single lane of travel" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Riding close to the curb edge" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Yield the right of way to pedestrians, other vehicles" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Carrying only the number designed for the vehicle" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Keeping hands on the handlebars except when stopped or signaling for turns" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Face traffic when walking a bicycle" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Staying off roadways that prohibit bicycle riding" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Use of bicycle paths, lanes when provided" for Kindergarten, grade 1 and

grade 2 bicycle instructors; "Use of sidewalks when encouraged" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Use of bell, horn when necessary" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Use of light during night riding" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Use of highly visible clothing during night riding" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Procedures for operation of special events" for grade 2 bicycle instructors and "Misdemeanor penalties for breaking bicycle safety laws" for Kindergarten, grade 1 and grade 2 bicycle instructors.

"Bicycle riding and safety" concepts in favor of: "Proper mount, dismount procedures" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Proper riding positions astride the bicycle" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Proper pedaling procedures" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Proper braking procedures" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Proper stopping procedures" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Proper procedures for turning" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Emergency stopping, maneuvering" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Defensive riding procedures" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Hazards facing bicyclist" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Crossing railroad tracks" for Kindergarten bicycle instructors; "Crossing intersections" for Kindergarten and grade 1 bicycle instructors; "Correct lane placement" for

Kindergarten bicycle instructors; "Overtaking other bicycles, vehicles" for Kindergarten bicycle instructors; "Night-time riding procedures" for Kindergarten bicycle instructors; "Use of safety flags for safety, visibility" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Use of reflective materials" for Kindergarten, grade 1 and grade 2 bicycle instructors and "Proper clothing for increased visibility" for Kindergarten, grade 1 and grade 2 bicycle instructors.

"Bicycle safety equipment" concepts in favor of: "Measurement for proper size and fit" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Bicycle anatomy" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Bicycle classification procedures" for Kindergarten bicycle instructors; "Selection of bicycles, accessories" for Kindergarten bicycle instructors; "Required equipment" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Required equipment on newly sold bicycles" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Required equipment for night-riding" for Kindergarten bicycle instructors; "Recommended equipment" for Kindergarten bicycle instructors and "Optional equipment for visibility, safety" for Kindergarten bicycle instructors.

"Bicycle care and maintenance" concepts in favor of: "Proper bicycle storage" for Kindergarten bicycle instructors; "Theft prevention procedures" for Kindergarten bicycle instructors; "Parking procedures" for Kindergarten bicycle instructors; "Brake care, maintenance procedures" for Kindergarten bicycle instructors; "Saddle (seat) care, maintenance procedures" for Kindergarten, grade

1 and grade 2 bicycle instructors; "Handlebar care, maintenance procedures" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Wheel care, maintenance procedures" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Tire care, maintenance procedures" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Spoke care, maintenance procedures" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Pedal care, maintenance procedures" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Chain care, maintenance procedures" for Kindergarten, grade 1 and grade 2 bicycle instructors; "Gear care, maintenance procedures" for Kindergarten bicycle instructors and "Keeping all working parts clean, lubricated" for Kindergarten bicycle instructors.

Offering bicycle safety education as a required subject in favor of: Kindergarten bicycle instructors.

Offering bicycle safety education as a required subject at Kindergarten, grade 1, grade 2 and grade 3 levels in favor of: Kindergarten bicycle instructors at the "Kindergarten level"; Kindergarten bicycle instructors at the "Grade 1 level"; Kindergarten bicycle instructors at the "Grade 2 level"; Kindergarten bicycle instructors at the "Grade 3 level."

Rank ordering of bicycle safety education as a required subject by instructional groups in favor of: "K-3 grade teachers" for Kindergarten bicycle instructors; "Grade 4-6 teachers" for Kindergarten bicycle instructors; "Youth agency leaders (Y's, Scouts, etc.)" for grade 1 and grade 2 bicycle instructors; "Bicycle

organization representatives (American Youth Hostels, Gopher Wheelmen)" for grade 1 and grade 2 bicycle instructors; "Police personnel" for grade 1 and grade 2 bicycle instructors; "Park, recreation personnel" for grade 1 and grade 2 bicycle instructors; "Bicycle shop representatives" for grade 1 and grade 2 bicycle instructors; "Parental groups" for grade 1 bicycle instructors and "Special group instructors (Scouts)" for grade 1 and grade 2 bicycle instructors.

Reported bicycle safety-related accidents and fatalities in favor of: "Unavailable data" for grade 1 and grade 2 bicycle instructors; Reported frequency data in favor of "No response" for Kindergarten, grade 1 and grade 2 bicycle instructors.

Expressed interest in receiving a copy of Minnesota K-3 Traffic Safety Curriculum Guide in favor of: Kindergarten bicycle instructors.

Reported frequency responses to "open-ended" response items with regards to "Resource personnel utilized," "Audio-visual aids/ models utilized," "Resource agencies utilized" and "Additional Bicycle instructor practices, strategies" indicated: A variety of aggregate responses as reported by Kindergarten, grade 1, grade 2 and grade 3 bicycle instructors. ("Reported program meeting times" and "Interest in nearby programs, practices" when contrasted with Kindergarten, grade 1 and grade 2 bicycle instructor status yielded "No significant difference" for these contrasts). However, insufficient reported data with respect to: (1) Grade 3 bicycle instructor status; (2) Incorrectly reported Kindergarten bicycle instructor responses;

(3) "Winter term bicycle safety education programs;" (4) "Adult bicycle safety education programs," (5) "Judicial Department representatives" and (6) Partial contrasts performed with respect to Kindergarten bicycle instructor status, "Special instructions with respect to bicycle safety education activities," "Bicycle safety education programs not offered by bicycle instructors," and "Minnesota bicycle laws not offered by bicycle instructors" were noted. "Affirmative only" or "totally negative" responses by K-3 grade bicycle instructors prevented chi-square "cross-tabulation" contrasts being performed with respect to these variables. Hence, this major research question could not be completely answered.

3. Are there any significant differences in K-3 grade "on-bike" bicycle safety education instructional activities as reported by K-3 grade bicycle instructors within a 60-mile radius of St. Cloud, Minnesota?

Chi-square "cross-tabulation" contrasts between selected Kindergarten, grade 1, grade 2 and grade 3 bicycle instructors and K-3 grade "on-bike" instructional activities indicated significant differences at the .05 level with respect to two separate K-3 grade "on-bike" instructional activities:

Specific skill exercises offered in conjunction with "on-bike" performance/skill tests in favor of: "Sign, signal, pavement marking recognition" for Kindergarten bicycle instructors; "Balancing exercises" for Kindergarten bicycle instructors; "Serpentine, slalom, weave riding" for Kindergarten bicycle instructors; "Slow-poke races" for Kindergarten bicycle instructors; "Circling/balance

exercises" for Kindergarten bicycle instructors; "Stopping drills" for Kindergarten bicycle instructors; "Braking with, without skids" for Kindergarten bicycle instructors; and "Riding on rough surfaces" for Kindergarten bicycle instructors.

Utilization of expertise in their own community at performance, skill test activities in favor of: Kindergarten bicycle instructors.

Conclusions

The following conclusions were based on the findings in this study:

1. Kindergarten, grade 1, grade 2 or grade 3 bicycle instructor programs within a 60-mile radius of St. Cloud, Minnesota, were conducted at 97 of the 101 surveyed K-3 grades sites. However, they were not equally distributed with respect to:

    a. Instructor sex status;

    b. Kindergarten, grade 1, grade 2 and grade 3 conducted instructional bicycle safety education programs with classroom and "on-bike" activities.

2. Kindergarten, grade 1 and grade 2 bicycle instructors within a 60-mile radius of St. Cloud, Minnesota, offered a variety of classroom programs and practices.

3. Kindergarten, grade 1 and grade 2 bicycle instructors within a 60-mile radius of St. Cloud, Minnesota, offered a variety of "on-bike" instructional components and practices.

4. Grade 3 bicycle instructors offered classroom and "on-bike" instructional programs and practices at 97 of the 101 surveyed K-3 grade sites within a 60-mile radius of St. Cloud, Minnesota.

Recommendations

1. Disseminate the study results to traffic safety personnel in Minnesota state agencies, to Minnesota State Bicycle Committee members and to other interested individuals throughout Minnesota.

2. The "Bicycle Safety Education Questionnaire" indicated an obvious lack of any in-service training for K-3 grade bicycle instructors in the Central Minnesota area. Therefore, formal in-service bicycle safety education classes and seminars should be implemented with respect to:

   A. Recommended uses, practices contained in Minnesota K-3 Traffic Safety Curriculum Guide, "State of Minnesota Bicycle Safety Instructor Guide."

   B. Sharing K-3 grade bicycle instructor practices, programs with other bicycle instructors in study area;

   C. "On-bike" and other field experience phases of K-3 grade 3 bicycle safety education programs; and

   D. Evaluation and recognition programs, practices utilized in K-3 grade bicycle safety education programs.

3. Reported bicycle safety-related accident and fatality data, questionnaire results and local citizen input should be utilized by K-3 grade bicycle instructors in the Central Minnesota area to periodically update their bicycle safety education programs.

Discussion

Based on the findings of this study, it appeared that Kindergarten, grade 1, grade 2 and grade 3 bicycle instructor programs

and practices were offered in 97 of the 101 surveyed K-3 grade sites within a 60-mile radius of St. Cloud, Minnesota. Ninety-seven bicycle instructors offered a variety of classroom practices and few "on-bike" skill/performance test exercises as measured by the descriptive "Bicycle Safety Education Questionnaire." It is also significant to note that grade 3 bicycle safety education classroom and "on-bike" programs of instruction were conducted in every reported K-3 grade site in the surveyed area. As the frequency data indicated, bicycle safety education instruction was offered more frequently at the grade 1, grade 2 and grade 3 levels than at the Kindergarten level. It appears that bicycle instructors and K-3 grade administrators were convinced of the importance of bicycle safety education for 3rd graders. Aggregate responses revealed a majority of the K-3 grade bicycle instructors in the St. Cloud, Minnesota, area felt bicycle safety education should be a required subject. Rank ordering of bicycle safety education as a required subject by responding K-3 grade bicycle instructors favored K-3 grade instructors. These same educators next ranked grade 4-6 teachers. However, bicycle safety education programs as taught by pre-school, pre-elementary instructors received little response. Follow-up contact with the respondents revealed pre-elementary school programs in bicycle safety education instruction were practically non-existent in the survey area. Efforts to initiate such programs received little support prior to the questionnaire use.

It appears from the reported responses that K-3 grade bicycle instructors in the survey region received little formal

teacher preparation with respect to bicycle safety education programs and instructional practices prior to implementation of bicycle safety education programs of instruction at their sites. Few K-3 grade bicycle instructors identified workshop or course credentials in traffic safety education or bicycle safety instruction through teacher preparation or in-service education programs. K-3 grade bicycle instructor in-service activities coupled with dissemination and recommended use of the Minnesota K-3 Traffic Safety Curriculum Guide bicycle safety content and instructional practices were not offered to K-3 grade bicycle instructors on a regular basis. Insights with respect to recommended bicycle safety education course scheduling and "on-bike" field experiences (e.g., skill tests, tours) with the aid of local resource personnel (e.g., "Pedal Power" youth bicycle instructors) were lacking. Although the majority of the surveyed K-3 grade bicycle instructors indicated use of the State K-3 Guide, follow-up phone calls and visits to a majority of the bicycle instructors revealed few of the educators could recall specific recommended instructional strategies or activities for use in K-3 grades. Questionnaire responses also revealed many of these bicycle instructors requested a 2nd copy of the guide.

Responding K-3 grade bicycle instructors appeared to rely on teacher-oriented lecture and discussion classroom activities. Use of student-oriented discussions and small-group activites with outside assignments would provide opportunities for students with special needs to be served. In addition, assemblies, skill tests and classroom activities in the K-3 grade bicycle safety education programs in central Minnesota should include registration, licensing, maintenance procedures, on-street riding activities (trips, tours) and special events for other community members as the needs arise (e.g., adult programs, handicapped programs, etc.)

A significant majority of the K-3 grade bicycle safety education programs in the survey area were conducted during regular school hours and offered during Spring term. It appeared logical to conduct bicycle safety education instruction during student enrollment periods prior to the advent of the Summer bicycle operator season. However, it seemed unfortunate that additional K-3 grade bicycle instructors and administrators did not review or evaluate bicycle safety education practices at the start of the school year (Fall term) with bicycle classroom and "on-bike" field experiences. Remedial instruction and reinforced safe riding practices would appear necessary during the Fall season when K-3 cyclists (and others) are still highly visible on the roadways. This would also allow increased bicycle instructor student contact

hours, increased traffic safety activities at the K-3 grade levels and permit youth to assume an active role in life-saving educational activities.

It was interesting to note the prevalence of Kindergarten level bicycle instructors in grade 1 and grade 2 bicycle safety education programs of instruction. Also, it appeared that many of the K-3 grade schools utilized the same bicycle instructor in all of the grades. Follow-up contacts and visits to a majority of the surveyed sites confirmed these facts.

With respect to chi-square "cross-tabulation" treatments, it appeared that "Instructor sex" did not make a significant difference when contrasted with "School location." "Male and female bicycle instructors" did not significantly differ when contrasted with "Rural and urban bicycle safety education programs" (evenly divided in survey region). "Male and female bicycle instructors" were not significantly different when contrasted with "Kindergarten bicycle safety education programs." There was insufficient reported frequency variations (cell frequency data) with respect to the following contrasted K-3 grade bicycle safety education program and bicycle instructor variables: (1) "Urban-rural programs" with "Kindergarten level bicycle safety education programs;" (2) "Urban-rural programs" with "Grade 2 conducted bicycle safety education programs;" (3) "Reported bicycle safety education program meeting times" when contrasted with Kindergarten, grade 1 and grade 2 bicycle instructors in the survey area and (4) "Interest in nearby bicycle safety education programs, bicycle instructor practices"

when contrasted with Kindergarten, grade 1 and grade 2 bicycle instructors in the survey area. Hence, no significant differences were found for these contrasts.

Personal visits and contacts to a majority of the K-3 grade bicycle instructors in the survey area indicated:

1. Many K-3 grade bicycle instructors in the survey area were unaware of the National Safety Council "Bicycle Program Questionnaire" for local use. These bicycle instructors were not cognizant of the need for adequately measuring the differences in riding practices of the youth in their local communities.

2. Many K-3 grade bicycle instructors in the survey area were unaware of previous attempts by the traffic safety unit, Minnesota Department of Education to adequately measure programs and practices of K-3 grade bicycle instructors in the survey area. K-3 grade school administrators were highly receptive to the writer's attempts to secure the data. Many requested additional copies of the questionnaire results and the "Bicycle Safety Education Questionnaire" instrument to assist with future evaluations of local K-3 grade bicycle safety education programs of instruction. These officials were determined to implement local in-service instructor preparation programs in bicycle safety education for their bicycle instructors and to adopt local K-3 grade bicycle safety curricula, guide(s) and State of Minnesota "Bicycle Safety Education Instructor Guide" materials.

The "Bicycle Safety Education Questionnaire" produced a valid composite of the nature and extent of K-3 grade bicycle

instructor practices in K-3 grades in central Minnesota. Requests for additional use of the questionnaire were received from K-3 grade bicycle instructors and administrators outside the study area. Study results have also been requested by State agency personnel and out-of-state traffic safety personnel.

Recommendations for Further Study

1. The study should be replicated in the survey area following the completion of K-3 grade bicycle instructor in-service classes or seminars. These activities would assist K-3 grade bicycle instructors with bicycle safety education program evaluation procedures.

2. The study should be replicated in other areas of the state to assist State traffic safety agencies with traffic safety survey, evaluation procedures with respect to K-3 grade bicycle safety education programs.

3. The "Bicycle Safety Education Questionnaire" should be revised to survey grade 4-6 bicycle safety education programs in the state.

4. A follow-up study should be conducted in the survey area to measure the retention of bicycle safety education program principles and practices as demonstrated by K-3 grade students in later years.

5. A study should be conducted in the survey area comparing students exposed to K-3 grade bicycle safety education programs with students new to or outside the study area not exposed to bicycle instruction.

BIBLIOGRAPHY

BIBLIOGRAPHY

Study References

Babbie, Earl R. Survey Research Methods. Belmont, Calif.: Wadsworth Publishing Company, 1973.

Glass, Gene V. and Julian C. Stanley. Statistical Methods in Educational Psychology. Englewood Cliffs, N.J.: Prentice-Hall Inc., 1973.

Good, Carter V., ed. Dictionary of Education. Prepared under the auspices of Phi Delta Kappa. New York: McGraw-Hill, 1973.

Minnesota State Legislature. "State of Minnesota Legislature--An Act relating to Highway Traffic Regulations, specifically bicycles, motor vehicles and other human powered vehicles," H.F. No. 475, No. 169.222, Chapter 739. Legislative Law. St. Paul, Minn.: State of Minnesota Legislature, May 5, 1978, p. 2.

U.S. Department of Commerce, Bureau of the Census. 1970 Census of Population--Minnesota Publication. Washington, D.C.: U.S. Department of Commerce, Bureau of the Census, 1971.

Walpole, Ronald E. Introduction to Statistics -- 2nd Edition. New York: Macmillan Publishing Company, 1974.

Secondary Sources

Farrah, George. Professor of Education, St. Cloud, Minnesota. Interviews, September 1977-March 1980.

Kolb, Randy. Computer Center Director, St. Cloud, Minnesota. Interviews, November 1978-March 1980.

Shoemaker, Daniel. Michigan State University Office of Institutional Research. Interviews. May-June 1980.

Surveys from Other States

Automobile Club of Southern California. "American Automobile Association Special Survey on Bicycling and Bicycle Accident Records." Los Angeles: Automobile Club of Southern California Public Safety Department, 1972.

Chlapeka, Thomas W. Teacher Evaluation of the National Safety Council's "All About Bikes" Program. Chicago: National Safety Council, 1974.

Cleckner, Robert M. "The Long Look at Bicycle Safety." New York: Bicycle Institute of America, 1974.

Hammond, Beverly J. "Special Survey on Bicycling and Bicycle Accidents," Los Angeles: Automobile Club of Southern California Public Safety Department, 1972.

Michigan State Department of Education. "State of Michigan 1976 Bicycle Safety Education Concepts Questionnaire." Lansing: Michigan State Department of Education, 1976.

Minnesota Department of Education. "Bicycle and Pedestrian Safety Program Report." St Paul: Minnesota Department of Education, 1976.

Minnesota Department of Education. "Bicycle and Pedestrian Safety Program Report -- Survey Results." St. Paul: Minnesota Department of Education, 1976.

National Safety Council. "National Safety Council 1974 'All About Bikes' Instructor Evaluation Questionnaire." Chicago: National Safety Council, 1974.

National Safety Council. "National Safety Council 1974 'All About Bikes' Student Report Form." Chicago: National Safety Council, 1974.

Studies--Classroom, "On-Bike" Practices

Arnberg, Peter, et al. "The Ability of Preschool and School Children to Maneuver Their Bicycles." VTI Rapport, No. 149A (1978) I:1-39.

City of Santa Barbara Transportation Division. Bicycle Safety: A Program of Implementation and Study: A Final Report. Santa Barbara, Calif.: Transportation Division, 1975.

Dewar, Robert E. "Bicycle Riding and Safety Campaigns." Journal of Safety Research, 10:1 (1978): 40-41.

Drury, Colin G. "The Law and Bicycle Safety." Traffic Quarterly 32:4 (1978): 618-620.

Flagg, Jean and Walter Hawkins. School Pedestrian Safety for Elementary Schools. Dix Hills, N.Y.: Suffolk County Board of Education, 1976.

Governor's Highway Safety Program Office. K-9 Traffic Safety Resource Curriculum. Level A. Professional Guide. Raleigh, N.C.: Governor's Highway Safety Program Office; Durham, N.C.: Research Triangle Institute, 1975.

Governor's Highway Safety Program Office. K-9 Traffic Safety Resource Curriculum. Level B. Professional Guide. Raleigh, N.C.: Governor's Highway Safety Program Office; Durham, N.C.: Research Triangle Institute, 1975.

Lawson, Jane, et al. Travel On: Mini-Units and Learning Activities on Transportation for Grades K-3. Cambridge, Mass.: ABT Associates, Inc., 1977.

Popish, Lloyd N. and Roger B. Lytel. "A Study of Bicycle Motor Vehicle Accidents." Santa Barbara, California: Traffic Safety Program, 1973.

Trainen, Pekka. "Investigations Into Use and Outfit of Schoolchildren's Bicycles." Investigations Into Light Traffic, No. 152 (1979).

U.S. Department of Transportation, National Highway Traffic Safety Administration. Highway Safety Literature. HSL No. 7608. Washington, D.C.: U.S. Department of Transportation, 1976.

Curriculum Guides

Alaska State Department of Education. K-12 Traffic Safety Education Program for Alaska. Juneau: Alaska State Department of Education, 1974.

Board of Cooperative Educational Services and Suffolk County Organization for the Promotion of Education. School Pedestrian Safety for Elementary Schools (SCOPE/Boces). Suffolk County, Iowa: Board of Cooperative Educational Services and Suffolk County Organization for the Promotion of Education, 1973.

California State Department of Education. California Guide to Bicycle Education. Sacramento: California State Department of Education, 1977.

Colorado State Department of Education. Colorado Traffic Safety Education Guide. Denver: Colorado State Department of Education, 1974.

Illinois State Department of Education. Illinois Traffic Safety Education Guide. Springfield: Illinois State Department of Education, 1969.

Illinois State Department of Education. Safety Education Units for Illinois Schools. Springfield: Illinois State Department of Education, 1969.

Indiana State Department of Education. Indiana K-6 Traffic Safety Education Curriculum. Indianapolis: Indiana State Department of Education, 1975.

Iowa State Department of Education. Bicycle Safety Club Handbook for State of Iowa. Des Moines: Iowa State Deaprtment of Education, 1975.

Iowa State Department of Education. K-6 Traffic Safety Education for Iowa Schools. Des Moines: Iowa State Department of Education, 1975.

Kentucky State Department of Education. The Kentucky Bicycle Driver's Guide. Lexington: Kentucky State Department of Education, 1975.

Kokomo-Center Township Consolidated School Corporation. A Traffic Safety Multi-Media Program K-12. Kokomo, Ind.: Kokomo-Center Township Consolidated School Corporation, 1973.

Maryland State Department of Education. Maryland Safety Instructional System. Baltimore: Maryland State Department of Education, 1973.

Michigan State Department of Education. Curriculum Guide for Safety Education, Grades K-6. Lansing: Michigan State Department of Education, 1973.

Michigan State Department of Education. Traffic Safety Education Curriculum Guide Grades 7-9. Lansing: Michigan State Department of Education, 1975.

Minnesota State Department of Education. Minnesota K-3 Traffic Safety Curriculum Guide. St. Paul: Minnesota State Department of Education, 1970.

Minnesota Department of Public Safety. The Minnesota Bicycle Driver's Guide. St. Paul: Minnesota Department of Public Safety, 1978.

Montana State Department of Education. Traffic Education for Montana Elementary Schools--Bicycle Safety. Helena: Montana State Department of Education, 1974.

North Carolina State Department of Public Instruction and Governor's Highway Safety Program Office. Professional Guide: K-9 Traffic Safety Curriculum, Levels C and D. Raleigh: North Carolina State Department of Public Instruction and Governor's Highway Safety Program Office, 1975.

Ohio State Department of Education. The Bicycle Driver's Guide. Columbus: Ohio State Department of Education, 1975.

Oklahoma State Department of Education. Oklahoma Curriculum Guide and Student Handbook for Teaching Pedestrian Safety Education. Oklahoma City: Oklahoma State Department of Education, 1973.

Oregon State Department of Education. Traffic Safety Education for Oregon Schools, K-3; and Traffic Safety Education for Oregon Schools, 4-6. Eugene: Oregon State Department of Education, 1973.

South Carolina Department of Highways and Public Transportation. South Carolina Department of Highways and Public Transportation--South Carolina's Bicycle Driver's Handbook. Charleston: South Carolina Department of Highways and Public Transportation, 1978.

State of Washington, Department of Education. State of Washington Bicycle Driver's Guide. Olympia: State of Washington, Department of Education, 1975.

State of Washington, Department of Education. Washington Traffic Safety Education Guide. Olympia: State of Washington, Department of Education, 1973.

Transportation Consumer Education for Adults. Ride On! Pedal On! Cambridge, Mass.: Transportation Consumer Education for Adults, 1975.

West Virginia, State Department of Education. Safety Program Guide for West Virginia Schools. Wheeling: West Virginia State Department of Education, 1971.

Wisconsin State Department of Public Instruction. Project T.R.A.F.F.I.C. Madison: Wisconsin State Department of Public Instruction, 1976.

Wisconsin State Department of Public Instruction. Traffic Safety K-12 Curriculum Guide for Wisconsin. Madison: Wisconsin State Department of Public Instruction, 1972.

Wisconsin Department of Public Instruction and Governor's Office of Highway Safety Programs. Wisconsin Bicycle Driver's Guide. Madison: Wisconsin Department of Public Instruction and Governor's Office of Highway Safety Programs, 1978.

Privately Produced Programs

Aetna Safety Instructional Services National Office. Aetna's Pedestrian/Bicycle Safety Program. Binghampton, N.Y.: Aetna Safety Instructional Services, 1977.

American Automobile Association National Office. AAA Teacher's Guide to Bicycle Safety Activities and Projects. Falls Church, Va.: American Automobile Association, 1977.

Automotive Safety Foundation. Discovering Traffic Safety. Washington D.C.: Automotive Safety Foundation, 1977.

Boy Scouts of America National Office. Cub Scout Bicycle Safety Program. North Brunswick, N.J.: Boy Scouts of America, 1977.

Elisar Research Corporation. Traffic and Pedestrian Education Systems. New York: Elisar Research Corporation, 1971.

Film Loops, Inc. Just Like A Car. Princeton, N.J.: Film Loops, Inc., 1971.

Kilby Associates, Inc. "How Do You Drive a Bike (KIT)." Pendleton, Ore.: Kilby Associates, Inc., 1970.

Milner Fenwick, Inc. Bicycle Safety Program--Basic. Baltimore, Md.: Milner Fenwick, Inc., 1976.

National Safety Council National Office. All About Bikes: A Bicycle Safety Program. Chicago: National Safety Council, 1971, 1972.

Books

Coombs, Charles. Bicycling. New York: The William Morrow Publishing Co., 1972.

English, John W., Craig W. Conreth and Michael L. Gallavan. Bicycle Laws in the United States: Traffic Laws Commentary. Washington, D.C.: Superintendent of Documents; U.S. Department of Transportation, 1974, (III, No. 2).

Frankel, Lillian and Godfrey. The Bicycle Book. New York: Simon and Schuster Publishers, 1971.

Jackson, Robert B. Bicycle Racing. New York: Henry Z. Walck, Inc., 1971.

McPhee Gribble Publishers. Bicycles--All About Them. Baltimore, Md.: Penguin Books, Inc., 1976.

Sullivan, George. Better Bicycling for Boys and Girls. New York: Dodd, Mead and Co., 1974.

Pamphlets and Booklets

Allstate Insurance Company. "Allstate --the Joy of Bicycling." Chicago: Allstate Insurance Co., 1978.

Allstate Insurance Company. "Hi! Bike Pilots." Chicago: Allstate Insurance Co., 1977.

American Automobile Association. "Bicycle Driver's License." Falls Church, Va.: American Automobile Association, 1972.

American Automobile Association. "Bicycle Information Test." Falls Church, Va.: American Automobile Association, 1973.

American Automobile Association. "Bicycle Inspection Checklist." Falls Church, Va.: American Automobile Association, 1971.

American Automobile Association. "Bicycle Safety Skill Tests." Falls Church, Va.: American Automobile Association, 1973.

American Automobile Association. "Bicycling Is Great Fun." Falls Church, Va.: American Automobile Association, 1972.

American Automobile Association. "Bike Safety Posters." Falls Church, Va.: American Automobile Association, 1973.

American Automobile Association. "Teacher's Guide to Bicycle Safety Activities and Projects." Falls Church, Va.: American Automobile Association, 1977.

American Automobile Association. "Terry the Tricycle." Falls Church, Va.: American Automobile Association, 1975.

Kemper Insurance Company. "Bikes--and Boys and Girls." Long Grove, Ill.: Kemper Insurance Company, 1966.

Minnesota Agricultural Extension Service (U.S. Department of Agriculture--4H). "4-H Bicycle Program Unit I. Your Bicycle and You." St. Paul: University of Minnesota, 1971.

Minnesota Agricultural Extension Service (U.S. Department of Agriculture--4-H). "4-H Bicycle Program Unit II. Maintaining Your Bicycle." St. Paul: University of Minnesota, 1970.

Minnesota State Department of Education. "Minnesota 1977, 1978, 1979 Education Directories." St. Paul: Minnesota Department of Education, 1977, 1978, 1979.

Minnesota Department of Public Safety. "Be a Bike Expert." St. Paul: Minnesota Department of Public Safety, 1976.

Minnesota Department of Public Safety. "Be a Bike Expert--Have Fun, Know the Rules." St. Paul: Minnesota Department of Public Safety, 1978 revised.

Minnesota Department of Public Safety. "Bicycle Safety Program Kit." St. Paul: Minnesota Department of Public Safety, 1974.

Minnesota Department of Public Safety. "Bicycle Safety Quiz." St. Paul: Minnesota Department of Public Safety, 1975, 1977 (Revised).

Minnesota State Planning Agency, Development Planning Division, Planning Information Base. "Minnesota Pocket Data Book, 1976." St. Paul: Minnesota State Planning Agency, Development Planning Division, Planning Information Base, 1976.

Modern Woodmen of America. "Modern Woodmen Bicycle Safety Program." Rock Island, Ill.: Modern Woodmen of America, 1977.

National Safety Council. "Bicycle Safety Information Test." Chicago: National Safety Council, 1975, 1976.

National Safety Council. "Sidewalk Vehicles: Safety Education Data Sheet #17." Chicago: National Safety Council, 1967.

Schwinn Bicycle Company. "Bicycle Safety." Chicago: Schwinn Bicycle Company, 1972.

Schwinn Bicycle Company. "Lock Your Bike." Chicago: Schwinn Bicycle Company, 1972.

Schwinn Bicycle Company. "Tire Care Guide." Chicago: Schwinn Bicycle Company, 1972.

U.S. Consumer Product Safety Commission. "A Bicycle Built for You." Washington, D.C.: U.S. Consumer Product Safety Commission, Superintendent of Documents, 1977.

U.S. Consumer Product Safety Commission. "Bicycles: Buy Right . . . Drive Right." Washington, D.C.: U.S. Consumer Product Safety Commission, Superintendent of Documents, 1976.

U.S. Consumer Product Safety Commission. "Bicycles--Fact Sheet No. 10." Washington D.C.: U.S. Consumer Product Safety Commission, Superintendent of Documents, 1975.

U.S. Consumer Product Safety Commission. "Bicycling: Fun With Safety." Washington, D.C.: U.S. Consumer Product Safety Commission, Superintendent of Documents, 1975.

U.S. Consumer Product Safety Commission. "Catalogue of Publications." Washington, D.C.: U.S. Consumer Product Safety Commission, Superintendent of Documents, 1977.

U.S. Consumer Product Safety Commission. "Sprocket Man." Washington, D.C.: U.S. Consumer Product Safety Commission, Superintendent of Documents, 1975.

U.S. Consumer Product Safety Commission. "Your Life Rides on Your Tires." Washington, D.C.: Consumer Product Safety Commission, Superintendent of Documents, 1975.

State and Local Programs

North Carolina Office of Transportation Planning
"The Bicycle Awareness Project (survey)";
"Bicycle Highways (bikeways manual)";
"Bicycle Safety Rodeo Manual";
"Bike Information Service (literature, films, research)"; and
"Bicycle Safety Cities (Model Bicycle Safety Education Program)."
Raleigh: North Carolina Office of Transportation Planning, 1977.

St. Cloud Public Schools. "Guidelines for Teaching Bicycle Safety Education." St. Cloud, Minn.: St. Cloud Public Schools, 1975.

Wisconsin Department of Public Instruction, and Wisconsin Division of Highway Safety Coordinators:

"It's Your Move" (nine 25-minute, 1977; three, 15 minute Instructional Television (ITV) Bicycle Pedestrian Safety Education Programs);
"Bicycle Inspection Sheet"
"Bicycle Law Sheet #4"
"Bicycle and Pedestrian Safety Films (LIST)"
"Bicycle Rights and Rules"
"Bicycle Safety Certificate,"
"Bicycle Safety Test for Grades K-3"
"Guidelines for Bicycle Club Rides and BikeAthons"
"Leaflet Order Form"
"My Safety Coloring Book--Teacher's Guide to Coloring Book"
"Model Programs in Pedestrian and Bicycle Safety for Wisconsin Communities, 1977"
"Planning Guide for the Development of Pedestrian and Bicycle Facilities, 1977"
"Planning the Bicycle Tour"
"Reasons for not Driving a Bicycle on Left Side of Roadway"
"Rules to Live By"
"Suggested Bicycle Touring Equipment"
"Ways Youth Groups Can Assist in Bicycle Safety Programs"
"Wisconsin Pedestrian and Bicycle Safety Plan, 1977"

APPENDICES

APPENDIX A

"MINNESOTA BICYCLE AND PEDESTRIAN SAFETY PROGRAM REPORT - 1976"

Please return to:
Joseph E. Meyerring
Department of Education
681 Capitol Square Building
St. Paul, Minnesota 55101
612-196-4899

F41-152 (5-76)

BICYCLE AND PEDESTRIAN SAFETY PROGRAM REPORT

There are two parts: BICYCLE and PEDESTRIAN safety. Please complete those that apply to your case. Thanks!

Respondent's Name _____ Title _____ Area Phone: Code _____ Number _____ Ext. ____

PART I: BICYCLE SAFETY

1. Does your school have any activities that could be termed bicycle safety (such as individual teacher efforts, special events, community school events, etc.)?

   Yes ____ No ____

   If no, do you think a bike education program would be worthwhile?

   Yes ____ No ____

2. Would you be interested in learning what other schools are doing in bike safety?

   Yes ____ No ____

IF YOUR SCHOOL DOES NOT HAVE BICYCLE SAFETY ACTIVITIES, PLEASE GO RIGHT TO THE PEDESTRIAN PART. OTHERWISE GO ON TO NUMBER 3. THANKS!

3. Who are the people primarily responsible for your bicycle safety education program?

Person	Title	Phone Number

4. Does your bike program have a(n):

   established curriculum? Yes ____ No ____
   curriculum being developed? Yes ____ No ____

5. What would be your estimate of the time (hours) spent by a student, per year, in your bike program?

K _____	3 _____	6 _____	9 _____	12 _____
1 _____	4 _____	7 _____	10 _____	
2 _____	5 _____	8 _____	11 _____	

6. How many students are involved, per year, in your school's bike program?

K _____	3 _____	6 _____	9 _____	12 _____
1 _____	4 _____	7 _____	10 _____	
2 _____	5 _____	8 _____	11 _____	

7. What curriculum(s) or curriculum guide(s) do you use in your bike program?

(over)

8. Do you have "on-the-bike" lab safety activities?

Yes _____ No _____

9. With which of the following groups does your bike program work?

no outside assistance	____	traffic court	____
police department	____	local business	____
community groups	____	other	____

PART II: PEDESTRIAN SAFETY

1. Does your school have any activities that could be termed pedestrian safety (such as individual teacher efforts, special events, community school events, etc.)?

Yes _____ No _____

If no, do you think a pedestrian safety education program would be worthwhile?

Yes _____ No _____

2. Would you be interested in learning what other schools are doing in pedestrian safety?

Yes _____ No _____

IF YOUR SCHOOL DOES NOT HAVE PEDESTRIAN SAFETY ACTIVITIES, YOU NEED NOT CONTINUE. OTHERWISE, COMPLETE THE LAST FEW ITEMS THAT FOLLOW. THANK YOU VERY MUCH FOR THE HELP!

3. Who are the people primarily responsible for your pedestrian safety education program?

Person	Title	Phone Number

4. Does your pedestrian safety program have a(n):

established curriculum?	Yes ____	No ____
curriculum being developed?	Yes ____	No ____

5. What would be your estimate of time (hours) spent by a student, per year, in your pedestrian program?

K _____	3 _____	6 _____	9 _____	12 _____
1 _____	4 _____	7 _____	10 _____	
2 _____	5 _____	8 _____	11 _____	

6. How many students are involved, per year, in your school's pedestrian program?

K _____	3 _____	6 _____	9 _____	12 _____
1 _____	4 _____	7 _____	10 _____	
2 _____	5 _____	8 _____	11 _____	

7. What curriculum(s) or curriculum guide(s) do you use in your pedestrian program?

8. Do you conduct "on-the-street" pedestrian safety activities?

Yes _____ No _____

9. With which of the following groups does your pedestrian program work?

no outside assistance	____	traffic court	____
police department	____	local business	____
community groups	____	other	____

THANK YOU FOR YOUR COOPERATION!

APPENDIX B

NATIONAL SAFETY COUNCIL "1974 ALL ABOUT BIKES STUDENT REPORT FORM"

STUDENT FORM

1. My name is _____

2. I am a [ ] boy [ ] girl 3. I am _____ years old

4. Today is _____ _____ _____ _____
(Day of Week) (Month) (Day) (Year)

5. The last day I rode a bike was [ ] yesterday [ ] 2 days ago

[ ] 3 days ago [ ] 4 days ago [ ] 1 week ago [ ] 1 month ago

[ ] more than 1 month ago

		Yes	No	Don't Know
6.	On that day I fell off my bike when I was riding.	[ ]	[ ]	[ ]
7.	Since the beginning of last summer up to now, I have had to go to a doctor or hospital because I hurt myself when I was riding a bike.	[ ]	[ ]	[ ]
8.	I am too young to be a "rider."	[ ]	[ ]	[ ]
9.	It is harder to balance on a high-rise than on other kinds of bikes.	[ ]	[ ]	[ ]
10.	A bike is the right size if I have to stretch a little to reach the pedals.	[ ]	[ ]	[ ]
11.	When starting up I should keep my eyes on by bike.	[ ]	[ ]	[ ]
12.	Standing on the pedals is dangerous when I am braking.	[ ]	[ ]	[ ]
13.	It is unsafe to play games on a bicycle.	[ ]	[ ]	[ ]
14.	A traffic area is anyplace cars, trucks, and buses go.	[ ]	[ ]	[ ]
15.	Car drivers will always stop for stop signs and red lights.	[ ]	[ ]	[ ]

		Yes	No	Don't Know
16.	A bicyclist should signal a right turn with his hand.	[ ]	[ ]	[ ]
17.	Playing bike games in the street is dumb.	[ ]	[ ]	[ ]

---

18. On a bike, I wish I could _____

19. On a bike, I am good at _____

20. If I were going to show others about bike driving, I would be sure they learned _____

21. The most dangerous thing I do on a bike is _____

22. I think I could keep from having bike accidents if I _____

_____

23. My favorite bike game is _____

APPENDIX C

NATIONAL SAFETY COUNCIL "1974 ALL ABOUT BIKES INSTRUCTOR EVALUATION QUESTIONNAIRE"

APPENDIX C

1974 ALL ABOUT BIKES INSTRUCTOR EVALUATION

Since October 1972 the ALL ABOUT BIKES program has been distributed to educational institutions, local safety councils, and various civic groups. The purpose of the curriculum is to instruct and motivate the young "bicycle driver" toward safer use of his bicycle both as a toy and as a vehicle. The course was pilot-tested in actual elementary school situations before it was implemented and extensive changes were made on the basis of teacher recommendations. Again, before the second edition is written and the teaching aids compiled, a field evaluation of the course is being conducted.

The primary purpose of this current ALL ABOUT BIKES evaluation is to collect constructive criticism from users so that the second edition may more closely meet contemporary teaching needs. Our records indicate that at some point in the recent past, you used part or all of the ALL ABOUT BIKES program. Please answer the following questions that pertain to any sections you used.

Give your name only if you wish. All information will be kept confidential and a summary report will be available to all participants. If you are now in the process of administering ALL ABOUT BIKES, please complete this form after the course is completed. Please give the short student quiz to those children who participated in the program, and return completed forms by June 1, 1974.

IF YOU CAN NOT PARTICIPATE in the evaluation, CHECK ONE OF THE FOLLOWING and return this form.

[ ] Not involved with ALL ABOUT BIKES

[ ] Unable to do evaluation

[ ] Other _____

Thank you.

Are you a: [ ] volunteer instructor
[ ] professional teacher

Years of professional teaching _____

Does your background for teaching safety include:

[ ] in-service
[ ] pre-service
[ ] classroom experience
[ ] none of these
[ ] other _____

Is your attitude toward teaching bicycle safety in school:

[ ] very positive
[ ] positive
[ ] neutral
[ ] somewhat negative
[ ] very negative

In your school, is safety taught as:

[ ] a separate curriculum subject
[ ] part of a broader subject _____
[ ] a related subject in many areas of the curriculum
[ ] other_____

Is your personal experience with bicycle riding:

[ ] extensive
[ ] moderate
[ ] minimal
[ ] non-existent

Rank order of importance the three most important causes of bicycle accidents:

[ ] faulty bicycle design
[ ] improper bicycle maintenance
[ ] inadequate rider education
[ ] lack of parental supervision
[ ] lack of law enforcement
[ ] dangerous traffic conditions
[ ] miscellaneous road hazards
[ ] kids being kids

What was the age level of your ALL ABOUT BIKES (AAB) class?_____

Number of boys and girls in you AAB class: [ ] Boys
[ ] Girls

APPENDIX D

AMERICAN AUTOMOBILE ASSOCIATION "SPECIAL SURVEY ON BICYCLING AND BICYCLE ACCIDENT RECORDS"

_____ City_____ State_____

SPECIAL SURVEY ON BICYCLING AND BICYCLE ACCIDENT RECORDS

The recent explosive popularity of the bicycle as a commuter vehicle as well as for recreation has created new and greater traffic problems that must be understood and identified to effectively provide for safer roadway use by all vehicles.

The purpose of this survey is to gain a greater understanding of the bicycle* accident problem and its relationship to current cycling trends and activities.

Your cooperation in completing the following questionnaire and returning it to your local AAA Club will be greatly appreciated. The data collected will be summarized and made available to the participants in the AAA Pedestrian Safety Inventory Program for use in strengthening their Traffic Safety programs.

*(Uniform Vehicle Code definition of bicycle: Every device propelled by human power upon which any person may ride, having two tandem wheels either of which is more than 14 inches in diameter. Revised 1968 – For the purpose of this survey, please include all bicycles regardless of wheel diameter size.)

1. Does your community have an ordinance specifying the rights and duties of bicycle drivers? YES_____ NO_____ If yes, please submit copy.

2. Are bicycles required to be ridden on sidewalks under certain circumstances? YES_____ NO_____

   Explain _____

3. Have recreational bike-paths or trails been established in your community? YES_____ NO_____ If yes, how have these been financed? _____

4. Have special routes or bikeways been provided for bicycle commuters to travel to and from work?

   YES_____ NO_____
   a. How are these provisions paid for? _____

5. Estimate the number of bicycle commuters per day in your city. _____ (estimate)

TRAFFIC ENGINEERING & SAFETY DEPARTMENT
American Automobile Association
Washington, D.C. 20006

6. Does your community open specific streets or lanes to bicycles exclusively and ban motor vehicles during certain days or hours? YES_____ NO_____ If yes, what has been your experience with this system? _____

_____

7. Are citations or written warnings issued to bicycle traffic violators? YES_____ NO_____

8. Does your community require bicycles to be registered? YES_____ NO_____

9. How many bicycle thefts occurred in 1971? _____

10. Are bicycle racks provided in the downtown area? YES_____ NO_____

11. Please describe briefly all bicycle safety activities such as rodeos, inspections, etc. which took place in your community during 1971. _____

_____

_____

APPENDIX E

STATE OF MICHIGAN 1976 "BICYCLE SAFETY EDUCATION CONCEPTS" QUESTIONNAIRE

BICYCLE SAFETY EDUCATION CONCEPTS

Directions: For each of the following questions place a check on the line that best characterizes how you teach bicycle safety.

Note: For the purpose of the study, the following definitions will be used: Bicycle safety concept--an idea that a child would be knowledgeable about or is able to demonstrate as it pertains to riding a bicycle; Bicycle laws--motor vehicle laws having direct application to bicycle riders.

1. Is bicycle safety included in the elementary currriculum of your school?

   _____ Yes

   _____ No

2. Do you teach any bicycle safety concepts to your students?

   _____ Yes

   _____ No

3. What time of year do you teach bicycle safety? (check as many as apply)

   _____ Fall

   _____ Winter

   _____ Spring

   _____ Integrated year-round in curriculum

4. How do you teach the bicycle safety concepts? (check as many as apply)

   _____ Separate unit

   _____ Integrated in existing courses (e.g., social studies, language arts)

   _____ Assemblies

   _____ Classroom guest speakers

      _____ Parks and recreation department personnel

      _____ Police officer

_____ Local bicycle shop representative

_____Amateur cyclist

_____ Other _____

_____ Other _____

5. Which of the following "Michigan bicycle laws" do you teach at your grade level?

_____ I do not teach bicycle laws

_____ Traffic signs and signals

_____ Licensing or registration of bicycles

_____ Riding with flow of traffic

_____ Riding on the right side of the roadway

_____ Turning and stopping hand signals

_____ Hitching a tow by holding on to a moving vehicle is illegal

_____ Riding between traffic lines is illegal

_____ Carrying only the number of persons designed for the bicycle

_____ Keeping both hands on handlebars except for signaling

_____ When walking a bicycle face the traffic

_____ Staying off limited-access highways

_____ Use of bicycle paths when provided

_____ Use of bell or horn

_____ Use of light during night riding

_____ It is a misdemeanor to break safety laws

_____ Other _____

6. Which of the following "bicycle riding and safety" concepts do you teach at your grade level? (check as many as apply)

_____ Proper mounting and dismounting

_____ Proper pedaling

_____ Proper braking

_____ Correct procedure for turning

_____ Emergency stopping and manuevering

_____ Defensive riding

_____ Overtaking other bicycles or vehicles

_____ Crossing intersections

_____ Bicycle hazards (e.g., weather, animals, pavement)

_____ Night-time riding

_____ Proper clothing for increased visibility

_____ Using safety flags and/or reflective materials

_____ Trip planning

_____ Skill and performance testing

_____ Touring techniques and packing

_____ Other _____

7. Which of the following "bicycle equipment" concepts do you teach at your grade level? (check as many as apply)

_____ I do not teach bicycle equipment concepts

_____ History of bicycling

_____ How to measure a bicycle for proper size and fit

_____ Bicycle anatomy (e.g., pedals, frame)

_____ Classification of bicycles (e.g., styles, types)

_____ Selection of bicycles and accessories

_____ Required equipment (e.g., brakes, horn/bell)

_____ Required equipment for night riding (e.g., lights, reflectors)

_____ Recommended equipment (e.g., front reflectors, rear tail light)

_____ Optional equipment for visibility and safety (e.g., flags, clothing)

_____ Tripping or traveling equipment (e.g., baskets, bags, tool kit)

_____ Other _____

8. Which of the following "bicycle care and maintenance" concepts do you teach at your grade level? (check as many as apply)

_____ I do not teach bicycle care and maintenance concepts

_____ Proper bicycle storage

_____ Theft prevention

_____ Brakes (e.g., adjustment for even wear)

_____ Saddle (seat) (e.g., adjustment for proper size)

_____ Handlebars (e.g., tighten often, proper height)

_____ Wheels (e.g., nuts tight to prevent sway, wear on rim)

_____ Tires (e.g., properly inflated, no defects)

_____ Spokes (e.g., tight, wear)

_____ Pedals (e.g., spin freely, tight)

_____ Chain (e.g., wear, lubrication)

_____ Gears (e.g., adjustment, replacement of cables)

_____ Keeping all working parts clean and lubricated

_____ Other _____

9. Do you think bicycle safety should be a required subject?

_____ Yes

_____ No

If yes, at which level(s) should it be taught? (rank order with 1 being highest)

_____ K-3

_____ 4-6

_____ 7-9

_____ 10-12

10. If bicycle safety is required, which of the following ways would be the most effective? (rank order with 1 being highest)

_____ Elementary teachers K-3

_____ Elementary teachers 4-6

_____ Junior high teachers 7-9

_____ Senior high teachers 10-12

_____ Youth agency leaders (Y's, Scounts, etc.)

_____ Bicycle organization representatives (American Youth Hostels, etc.)

_____ Police department personnel

_____ Parks and recreation department personnel

_____ Bicycle shop representatives

_____ Other _____

11. Are you aware of the Curriculum Guide for Safety Education: Grades K-6 published by the Michigan Department of Education which contains bicycle safety education concepts?

_____ Yes

_____ No

If Yes, have you used the guide?

_____ Yes

_____ No

If No, would you like a copy?

_____ Yes

_____ No

12. Are you aware of in-service workshops on safety (including bicycle safety) offered by the Michigan Department of Education?

_____ Yes

_____ No

The following space is provided for your individual comments. Please indicate if you desire a copy of the questionnaire results.

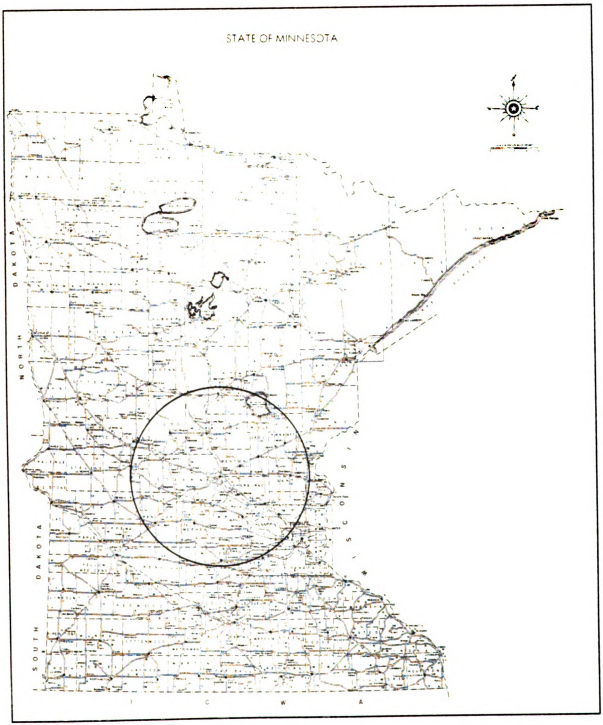
Thank you for your cooperation.

Return to:

Sally Janecek
370 W. Iroquois
Pontiac, Michigan 48053

APPENDIX F

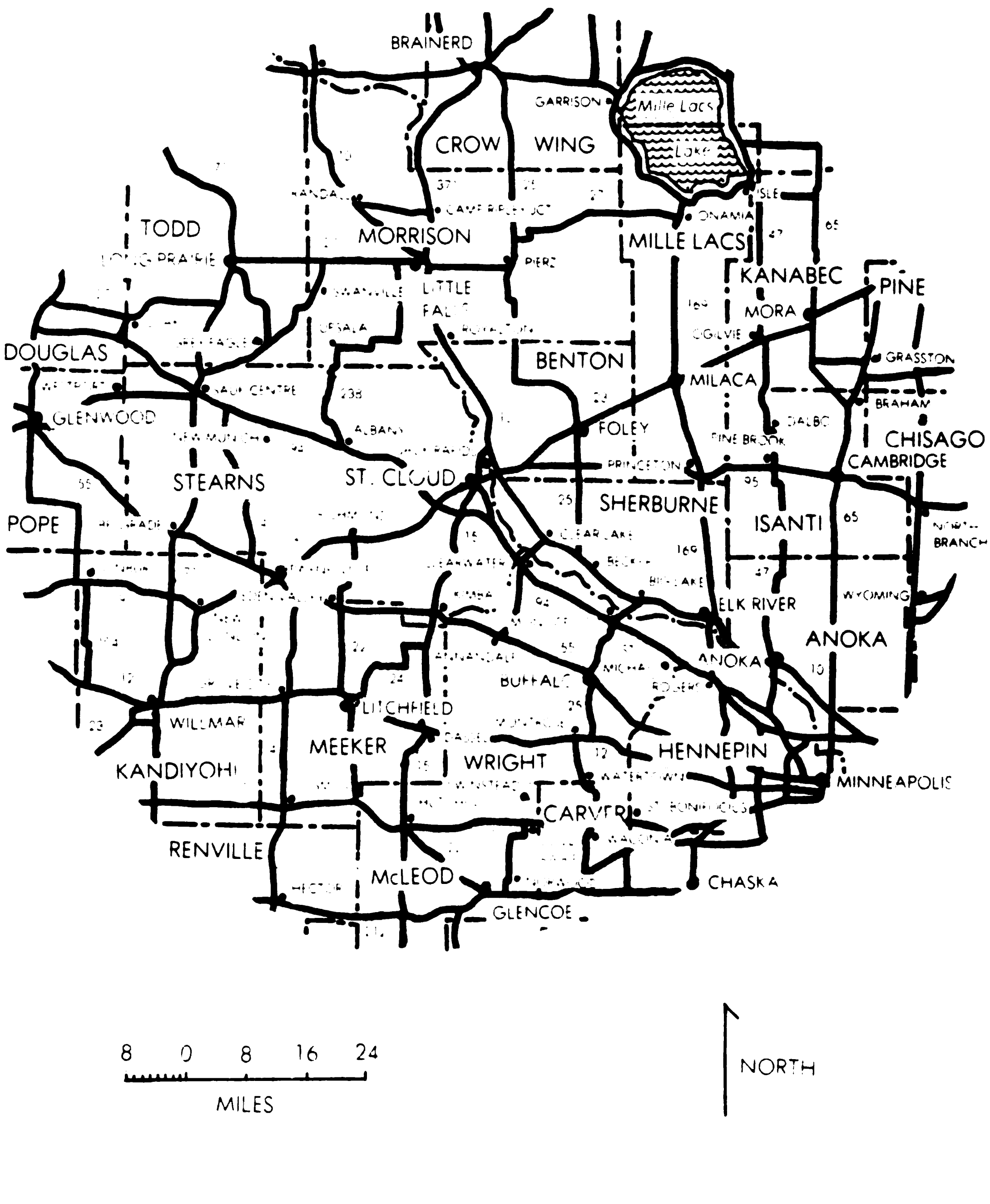
STATE OF MINNESOTA MAP/STUDY AREA


STATE OF MINNESOTA
NORTH DAKOTA
SOUTH DAKOTA
WISCONSIN
IOWA

APPENDIX G

STUDY AREA MAP

STUDY AREA



Cartography Center SCSU

1979

APPENDIX H

SURVEYED COUNTIES IN MINNESOTA

SURVEYED COUNTIES IN MINNESOTA

Aitkin
Anoka
Benton
Carver
Cass
Chippewa
Chisago
Crow Wing
Douglas
Hennepin
Isanti
Kandiyohi
McLeod
Meeker
Mille Lacs
Morrison
Pine
Ramsey
Renville
Sherburne
Stearns
Swift
Todd
Wright

24 counties out of 87 = 24%

APPENDIX I

SURVEYED SCHOOL DISTRICTS IN MINNESOTA

SURVEYED SCHOOL DISTRICTS IN MINNESOTA

Aitkin
Albany
Alexandria
Annandale
Anoka
Atwater
Becker
Belgrade
Benson
Bertha-Hewitt
Big Lake
Bird Island
Braham
Brainerd
Brooklyn Center
Brooten
Browerville
Buffalo Lake
Cambridge
Centennial
Chaska
Chisolm
Clarissa
Cold Spring
Columbia Heights
Cosmos
Crosby
Dassel-Cokato
Delano
Eagle Bend
Eden Valley-Watkins
Elk River
Foley
Fridley
Glencoe
Golden Valley
Grey Eagle
Grove City
Hector
Hinckley
Holdingford
Hopkins
Howard Lake
Hutchinson
Isle
Maple Lake
Melrose
Milaca
Minnetonka
Monticello
Mora
Motley
Mounds View
Murdock
New London-Spicer
North Branch
Norwood
Ogilvie
Olivia
Onamia
Orono
Osakis
Osseo
Paynesville
Pierz
Pillager
Pine City
Princeton
Raymond
Robbinsdale
Rockford
Royalton
Rush City
St. Cloud
St. Francis
St. Louis Park
St. Michael-Albertville
Sartell
Sauk Centre
Sauk Rapids
Silver Lake
Spring Lake Park
Staples
Stewart
Swanville
Upsala
Waconia
Wayzata
Winsted

95 School districts out of 443 = 21%

APPENDIX J

U. S. CENSUS BUREAU POPULATION CHARACTERISTICS, 1970 - STATE OF MINNESOTA

APPENDIX TABLE J.--U.S. Census Bureau Population Characteristics, 1970-State of Minnesota.

County	Age				Farm Population, 1970				Education, 1970									
									Persons 25 Years Old and Over					Persons 3-34 Years Old Enrolled in School				
											School Years Completed							
	Under 5 Years	18 Years and Over	65 Years and Over	Median Age	Rural non-farm population 1970	Total	Change, 1960-1970	Income in 1969	Persons Below Low Income Level in 1969	Total	Median	Years	4 years of high school or more	4 years of College or More	Kindergarten and Elementary	High School	Negro in elementary* and High School	Private elementary* and high School	College
	12	13	14	15	168	169	170	171	172	23	24	25	26	27	28	29	30	31	32
MINNESOTA	%	%	%	years			%	$	%								%	%	
The State	8.7	63.5	10.8	26.9	823,895	454,516	-22.6	6,757	20.1	1,990,367	12.2	2.4	57.6	11.1	722,642	303,987	1.0	11.7	144,167
Aitkin	6.1	66.2	19.2	39.1	8,240	3,163	-39.0	5,550	20.8	6,989	9.7	3.7	39.7	4.9	1,994	984	(B)	.9	43
Anoka	12.1	54.4	3.2	21.3	15,945	2,879	7.7	12,115	3.3	68,794	12.3	1.1	65.1	9.3	37,729	11,925	(B)	5.4	3,357
Becker	8.1	61.4	13.6	29.6	11,590	6,985	-25.6	5,761	24.9	13,197	10.3	4.0	42.3	6.1	5,002	2,247	(B)	1.5	126
Beltrami	7.8	65.7	10.4	22.6	11,803	3,111	-35.9	6,046	22.6	12,260	12.0	3.7	50.6	10.9	4,766	2,050	(B)	6.4	3,394
Benton	10.6	58.3	9.4	23.3	6,175	5,452	-10.2	6,830	22.1	9,866	12.0	3.8	50.4	8.4	4,346	1,819	(B)	17.7	650
Big Stone	7.3	64.4	16.4	33.9	2,517	2,577	-28.9	5,963	26.1	4,602	11.6	2.2	48.3	7.7	1,534	705	(B)	2.9	12
Blue Earth	7.4	69.1	10.2	23.1	12,848	8,579	-13.2	7,804	14.7	24,095	12.3	1.8	59.9	13.8	8,363	3,864	(B)	15.6	8,743
Brown	8.4	63.1	13.1	28.6	2,947	6,940	-13.1	7,304	24.0	15,476	10.5	2.8	45.0	5.9	5,673	2,370	(B)	41.1	726
Carlton	8.3	61.5	10.5	28.7	16,925	2,320	-47.1	8,000	14.5	15,038	12.0	4.7	50.3	6.3	5,595	2,451	(B)	2.2	425
Carver	9.7	59.7	10.1	25.8	12,875	6,244	-11.2	8,682	10.9	14,435	12.0	2.2	51.1	8.4	5,970	2,257	(B)	28.0	507
Cass	6.6	66.1	18.4	37.1	14,788	2,535	-47.2	5,954	22.4	10,377	10.6	3.6	42.1	5.0	3,142	1,457	(B)	.2	137
Chippewa	7.4	64.2	15.4	32.8	4,201	4,695	-22.4	6,220	22.2	8,749	12.0	2.1	50.2	6.7	2,841	1,437	(B)	2.8	125
Chisago	8.5	62.2	13.8	29.6	13,850	3,642	-31.8	8,993	8.8	9,638	12.0	2.3	50.7	6.3	3,512	1,261	(B)	1.1	86
Clay	7.9	65.6	8.5	22.5	9,327	5,274	-26.4	8,892	11.0	21,312	12.3	1.7	62.6	12.5	8,339	3,582	(B)	8.4	6,186
Clearwater	7.8	64.5	17.3	34.6	4,918	3,095	-29.8	4,964	24.6	4,646	8.8	6.0	31.2	5.6	1,406	590	(B)	-	97
Cook	7.4	65.4	12.2	32.7	3,423	-	-	-	-	2,011	12.2	1.9	57.9	9.4	598	238	(B)	-	17
Cottonwood	7.5	65.5	15.5	33.1	5,847	5,220	-26.5	6,472	21.0	8,650	11.4	2.7	47.8	7.6	2,751	1,185	(B)	4.4	195
Crow Wing	7.6	64.6	14.1	30.7	20,412	2,747	-28.3	6,039	25.8	19,438	11.9	5.2	49.5	7.0	6,287	2,809	(B)	2.2	531
Dakota	11.5	56.7	5.2	23.3	16,482	5,128	-23.9	9,363	15.2	66,457	12.5	1.3	68.0	14.6	32,142	10,930	(B)	14.5	2,714
Dodge	8.4	61.4	13.4	28.8	8,025	5,012	-21.4	6,786	17.4	7,085	12.1	2.0	52.4	6.5	2,638	1,179	(B)	.1	111
Douglas	7.5	65.2	15.2	31.6	9,566	6,353	-18.3	5,238	23.6	12,845	11.3	2.4	47.7	6.3	4,011	2,155	(B)	5.6	163
Fariba ult	7.2	64.8	15.6	33.1	7,094	7,046	-20.7	7,004	19.4	12,057	12.0	3.2	50.9	6.8	3,960	1,929	(B)	10.6	251
Fillmore	7.6	64.4	16.3	33.8	11,210	8,134	-22.2	5,746	24.5	12,771	11.5	1.7	48.2	6.3	4,061	1,865	(B)	1.7	144
Freeborn	8.1	63.9	12.0	29.3	11,058	7,588	-29.1	7,327	11.1	20,716	12.0	1.8	51.2	6.2	7,126	3,317	(B)	2.4	1,005
Goodhue	7.7	63.7	14.5	30.9	16,219	8,041	-21.5	7,511	17.0	19,481	12.1	1.6	52.6	7.4	6,475	3,059	(B)	4.8	161
Grant	6.4	65.8	18.2	38.1	4,452	3,010	-32.2	5,196	30.4	4,594	10.8	1.4	44.8	4.9	1,329	745	(B)	-	69
Hennepin	8.5	66.2	9.7	27.1	12,217	3,275	-46.4	9,860	13.6	507,799	12.5	1.6	67.9	16.0	168,948	70,233	2.5	11.7	46,296
Houston	9.0	62.1	13.4	27.9	6,673	5,122	-22.3	8,055	13.7	9,279	11.3	2.2	47.2	5.8	3,527	1,573	(B)	15.1	286
Hubbard	6.9	65.0	16.7	35.5	5,834	1,977	-25.1	4,697	27.9	6,268	11.3	2.7	46.2	6.5	1,875	869	(B)	3.7	99
Isanti	8.6	61.9	12.5	27.2	9,314	3,779	-27.4	8,893	5.8	8,740	10.5	6.4	43.4	5.7	2,999	1,199	(B)	.6	81
Itasca	7.7	61.8	11.3	29.1	25,990	2,293	-41.3	7,984	13.2	19,175	12.0	3.5	49.7	7.2	7,068	3,482	(B)	3.4	651
Jackson	7.2	64.3	14.9	32.6	4,270	6,532	-18.9	7,357	16.0	8,102	11.5	2.4	48.2	5.6	2,563	1,436	(B)	3.5	318
Kanabec	8.6	62.7	14.4	30.8	3,696	3,497	-24.8	6,985	16.5	5,466	10.9	2.7	45.4	5.4	1,783	793	(B)	-	60
Kandiyohi	7.6	65.2	13.4	31.2	10,110	7,569	-20.0	6,479	18.1	17,094	11.7	2.1	48.8	7.2	5,420	2,533	(B)	6.8	877
Kittson	7.0	65.3	15.5	35.7	4,578	2,275	-40.8	5,935	18.5	4,066	10.3	3.8	43.1	5.2	1,149	646	(B)	.5	35
Koochiching	8.2	61.9	9.7	27.5	9,776	903	-57.9	7,458	9.2	9,017	11.5	2.9	46.9	4.9	3,447	1,410	(B)	9.0	241
Lac qui Parle	7.1	64.6	17.5	37.0	5,908	5,256	-21.9	5,689	24.7	6,694	10.4	2.9	44.7	5.4	1,967	1,115	(B)	4.1	50
Lake	8.1	59.6	8.4	26.1	5,376	120	-56.7	(B)	29.2	6,868	12.2	1.8	58.1	7.5	3,121	1,269	(B)	.5	149
Lake of the Woods	7.2	64.0	12.4	30.5	3,002	985	-35.2	5,540	17.2	2,205	11.7	2.7	48.5	8.3	730	417	(B)	2.0	35
Le Sueur	9.5	62.1	14.2	28.9	10,291	6,322	-15.0	7,903	12.3	11,535	11.2	3.3	46.6	7.9	3,999	1,805	(B)	14.5	271
Lincoln	6.8	64.5	16.4	35.1	3,626	4,517	-15.0	4,938	33.5	4,790	9.0	3.1	40.5	3.4	1,504	677	(B)	1.5	41
Lyon	8.2	64.2	11.6	25.3	6,103	5,675	-19.6	6,171	28.4	12,214	11.9	2.1	49.5	9.1	4,464	1,976	(B)	10.5	1,663
McLeod	8.9	64.1	12.8	29.8	8,493	7,139	-18.4	7,258	15.7	15,304	10.8	3.2	45.6	6.4	4,911	2,284	(B)	18.8	203
Mahnomen	9.4	59.5	12.6	27.7	3,082	2,556	-23.7	6,263	24.9	2,959	9.0	3.8	38.0	6.3	1,228	436	(B)	7.4	61
Marshall	8.3	61.6	14.2	30.9	7,026	6,034	-23.3	5,486	30.4	7,287	9.0	3.9	37.6	4.5	2,479	1,167	(B)	1.6	31
Martin	7.4	65.7	14.7	32.8	6,319	7,246	-17.1	7,536	13.8	14,075	12.0	2.1	51.8	6.1	4,497	2,143	(B)	9.1	224
Meeker	7.9	63.8	14.8	32.2	6,980	6,568	-27.0	5,787	22.9	10,621	10.2	3.0	43.3	3.9	3,354	1,681	(B)	7.8	170
Mille Lacs	8.1	63.3	15.3	31.6	8,697	4,342	-24.6	6,747	17.7	8,888	10.5	4.4	43.6	5.9	2,913	1,317	(B)	2.2	213

APPENDIX TABLE J.--U.S. Census Bureau Population Characteristics, 1970-State of Minnesota.

County	Age: Under 5 Years	Age: 18 Years and Over	Age: 65 Years and Over	Age: Median Age	Farm Population, 1970: Rural non-farm population 1970	Farm Population, 1970: Total	Farm Population, 1970: Change, 1960-1970	Farm Population, 1970: Income in 1969	Farm Population, 1970: Persons Below Low Income Level in 1969	Education, 1970: Persons 25 Years Old and Over: Total	Median School Years Completed	Years	4 years of high school or more	4 years of College or More	Education, 1970: Persons 3-34 Years Old Enrolled in School: Kindergarten and Elementary	High School	Negro in elementary* and High School	Private elementary* and high School	College
	12	13	14	15	168	169	170	171	172	23	24	25	26	27	28	29	30	31	32
MINNESOTA	%	%	%	years			%	$	%										
The State	8.7	63.5	10.8	26.9	823,895	454,516	-22.6	6,757	20.1	1,990,367	12.2	2.4	57.6	11.1	722,642	303,987	1.0	11.7	144,167
Morrison	9.5	58.3	13.2	26.1	9,961	9,521	-19.6	5,680	20.6	13,751	9.0	4.8	37.7	5.4	5,771	2,554	(B)	15.1	154
Mower	7.7	62.5	11.0	29.4	11,450	7,302	-24.0	7,476	16.5	23,676	12.2	1.2	57.2	7.7	8,653	4,171	(B)	13.7	871
Murray	7.7	60.0	13.2	30.1	6,307	6,206	-23.4	5,973	20.0	6,818	10.3	1.9	43.6	4.6	2,587	1,270	(B)	14.4	111
Nicollet	8.1	66.1	9.8	24.2	3,580	5,428	-16.3	7,746	15.9	11,919	12.2	3.7	56.0	10.1	4,463	1,756	(B)	20.0	2,454
Nobles	8.4	62.4	12.3	28.9	6,108	7,275	-16.3	6,566	21.0	12,460	11.3	2.2	47.0	5.9	4,546	2,094	(B)	11.3	580
Norman	7.0	67.1	18.5	37.6	5,718	4,290	-27.0	5,539	23.8	6,119	9.6	3.5	38.9	2.9	1,722	766	(B)	.7	142
Olmsted	10.0	62.3	8.6	25.5	17,985	6,786	-25.1	7,549	14.1	42,760	12.6	1.0	70.2	18.0	16,729	5,735	(B)	6.2	2,734
Otter Tail	7.0	65.7	16.3	35.3	17,718	15,936	-24.8	5,508	22.3	27,108	9.9	4.4	42.6	6.2	8,160	3,902	(B)	3.2	659
Pennington	7.8	45.5	13.8	28.9	1,853	2,969	-24.6	6,900	18.2	7,171	11.0	4.2	46.4	7.3	2,408	989	(B)	3.8	416
Pine	7.3	63.6	15.8	33.4	10,771	6,050	-19.0	7,679	9.7	9,757	10.2	5.0	41.2	4.5	3,009	1,506	(B)	2.8	72
Pipestone	7.8	63.6	15.2	31.2	3,458	4,005	-22.2	4,937	32.8	7,080	9.9	1.8	41.8	6.6	2,473	1,051	(B)	9.6	204
Polk	7.5	63.3	14.4	30.5	9,708	8,776	-26.5	6,288	20.6	18,935	10.8	3.7	45.2	6.4	6,579	3,142	(B)	11.5	600
Pope	6.9	65.8	17.4	35.9	3,973	4,586	-23.3	8,779	15.5	6,627	11.0	2.1	45.8	6.2	1,976	926	(B)	.2	123
Ramsey	9.1	64.9	10.1	26.4	1,442	9	-97.4	(B)	(B)	246,335	12.3	2.3	62.6	14.3	86,309	36,106	2.9	22.9	23,360
Red Lake	9.2	58.9	13.1	27.0	2,817	2,571	-19.2	5,592	27.3	2,799	9.2	5.0	40.0	6.3	1,159	524	(B)	9.8	20
Redwood	8.5	62.0	14.7	31.7	7,098	8,105	-14.1	6,500	23.8	11,259	11.3	2.8	47.3	5.9	4,066	1,713	(B)	15.8	93
Renville	7.7	62.7	15.6	33.3	9,952	8,634	-24.7	6,573	15.2	12,056	10.3	2.5	44.0	5.4	4,118	1,954	(B)	16.9	78
Rice	7.9	65.4	11.2	24.3	7,738	7,124	-14.5	7,971	14.6	20,389	12.1	6.9	53.5	11.2	7,004	3,085	(B)	18.0	3,554
Rock	8.1	62.5	12.9	30.2	2,280	4,363	-15.6	7,366	13.7	6,200	10.2	2.1	43.5	5.7	2,221	1,060	(B)	4.4	119
Roseau	8.5	61.5	13.0	30.3	4,380	4,637	-27.5	6,575	23.7	6,329	9.0	5.8	36.7	5.5	2,263	1,010	(B)	.5	54
St. Louis	7.6	65.2	11.9	29.6	57,843	4,110	-29.7	8,737	8.9	120,608	12.2	3.3	56.5	9.4	40,348	18,421	.5	4.9	7,446
Scott	11.1	56.1	7.9	23.0	14,540	5,764	- .8	9,098	15.2	15,301	12.1	1.5	52.1	7.0	7,154	2,652	(B)	25.3	462
Sherburne	9.6	61.8	10.3	24.0	11,701	2,725	-12.2	9,509	10.1	8,806	12.2	2.1	55.8	10.5	3,607	1,394	(B)	8.0	515
Sibley	7.6	63.9	13.7	31.2	8,815	7,030	-15.0	7,214	21.5	8,985	8.9	2.8	36.3	4.3	3,116	1,314	(B)	9.9	138
Stearns	9.6	60.2	9.2	21.4	39,114	18,119	-14.4	6,117	34.9	42,251	11.5	2.7	48.3	9.3	19,729	8,087	(B)	25.6	8,036
Steele	8.5	62.9	11.5	28.0	6,286	5,304	-24.8	6,706	15.1	14,414	12.1	1.6	54.7	8.5	5,268	2,090	(B)	10.5	551
Stevens	7.3	65.3	12.1	24.0	2,405	3,373	-30.7	7,071	17.3	5,585	12.1	2.1	54.4	8.9	2,012	1,021	(B)	1.8	1,180
Swift	8.1	63.0	13.2	32.0	5,089	4,604	-23.0	5,469	27.5	7,481	10.5	3.0	43.8	6.6	2,281	1,264	(B)	5.1	99
Todd	8.0	62.3	15.0	31.6	9,695	9,778	-21.2	4,397	34.4	12,344	9.3	4.2	39.0	4.4	4,313	1,999	(B)	6.4	52
Traverse	7.1	62.7	16.5	34.5	3,797	2,457	-31.6	5,844	29.7	3,601	11.3	4.0	47.4	6.6	1,317	525	(B)	1.7	33
Wabasha	8.3	63.1	15.1	30.4	8,734	4,975	-19.4	8,388	18.5	9,566	11.5	2.5	48.1	5.3	3,379	1,419	(B)	7.7	105
Wadena	8.2	61.6	14.7	30.2	4,869	2,903	-37.7	4,627	28.9	6,747	10.0	4.6	42.3	6.5	2,496	1,145	(B)	7.7	97
Waseca	8.6	62.9	13.2	29.7	4,598	5,231	-16.3	7,707	14.7	9,134	12.0	2.5	50.1	8.1	3,189	1,454	(B)	13.1	281
Washington	11.0	55.5	5.9	22.8	21,918	3,825	-27.3	9,808	10.0	39,334	12.3	1.6	64.3	12.0	19,888	6,779	(B)	9.3	1,588
Watonwan	7.2	64.1	14.5	32.7	4,659	4,628	-14.7	6,700	19.4	7,645	11.1	1.3	46.2	4.9	2,624	1,113	(B)	5.3	149
Wilkin	7.9	61.1	13.4	28.8	1,743	3,542	-16.0	6,099	20.5	5,035	11.4	3.5	47.2	5.1	1,865	950	(B)	7.3	138
Winona	7.8	67.4	12.4	25.6	12,218	5,808	-20.3	6,269	23.6	22,447	12.1	2.0	52.7	10.2	7,450	3,405	(B)	16.3	4,546
Wright	10.1	58.8	11.6	25.7	23,874	9,784	-28.2	6,927	18.6	19.789	11.9	3.0	49.6	5.9	8,205	3,303	(B)	11.8	245
Yellow Medicine	6.9	63.4	15.4	32.9	5,605	6,231	-12.0	6,805	17.4	8,221	11.7	2.0	48.8	5.3	2,647	1,467	(B)	3.8	78

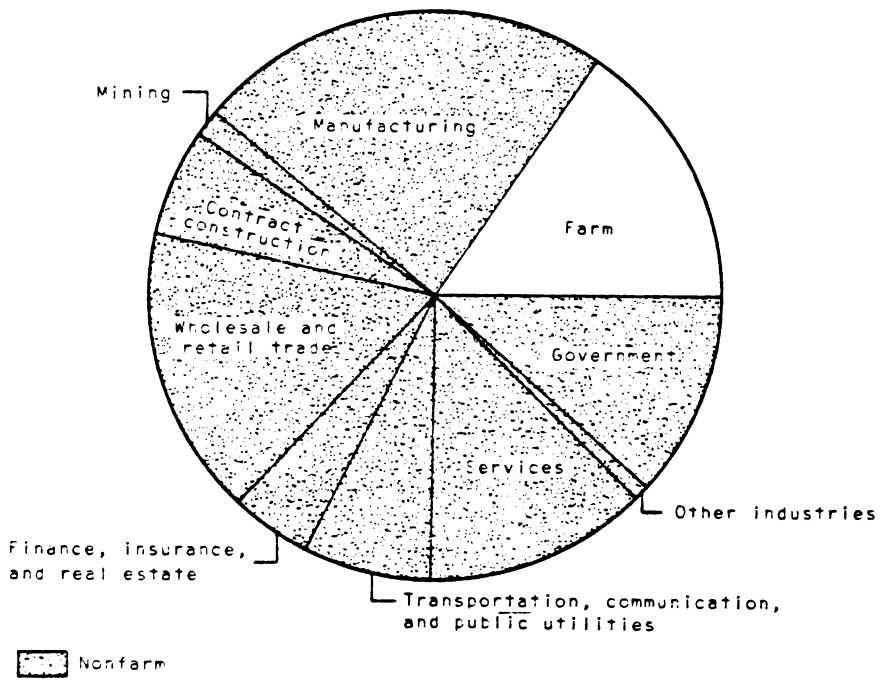
*Includes Kindergarten enrollment

(B) Data not shown where population is less than 400

APPENDIX K

MINNESOTA PERSONAL INCOME BY INDUSTRY CHART - 1973

PERSONAL INCOME IN MINNESOTA BY INDUSTRY, 1973



	Dollars in millions	Percent
Total labor and proprietors' income by place of work	16,241	100.0
Farm	2,498	15.4
Nonfarm	13,743	84.6
Manufacturing	3,697	22.8
Mining	177	1.1
Contract construction	931	5.7
Wholesale and retail trade	2,638	16.2
Finance, insurance and real estate	741	4.6
Transportation, communications and public utilities	1,168	7.2
Services	2,063	12.7
Other industries	34	.2
Government	2,294	14.1

SOURCE: U. S. DEPARTMENT OF COMMERCE, OFFICE OF BUSINESS ECONOMICS
(See: C-9)

APPENDIX L

WORK FORCE AND EMPLOYMENT IN MINNESOTA, 1970-1974

WORK FORCE AND EMPLOYMENT IN MINNESOTA 1970–1974

Annual average in thousands

	1971	1972	1973	1974[3]
Civilian Work Force	1655.0	1697.0	1766.9	1863.2
Unemployment	97.3	94.5	82.5	96.6
Unemployment rate (%)	5.4	5.6	4.7	5.2
Employment[1]	1557.7	1602.5	1684.4	1766.5
Agriculture	125.9	121.0	126.1	130.9
Non-agriculture[2]	1430.2	1477.0	1557.2	1635.6
Wage and salary	1311.6	1358.6	1436.6	1485.7
Manufacturing	299.4	310.8	331.0	343.0
Durable goods	165.8	174.8	190.7	200.0
Primary fabricated metal products	25.4	27.3	29.6	32.5
Non-electrical machinery	57.7	60.6	66.6	71.2
Electrical machinery	23.1	23.9	28.9	32.3
Transportation equipment	11.3	11.8	11.6	11.5
Wood, stone,clay, glass products	19.1	20.6	22.6	21.7
Other durable goods	29.3	30.6	31.4	30.8
Non-durable goods	133.6	136.0	140.3	143.0
Food and kindred products	53.8	52.6	51.5	51.6
Apparel, textile, fabric products	10.4	11.0	12.8	12.1
Paper and allied products	30.3	30.8	32.8	34.2
Printing and publishing	23.6	24.5	25.7	25.8
Other non-durable goods	15.6	17.0	17.7	19.3
Non-Manufacturing	1012.2	1047.6	1105.8	1142.8
Mining and quarrying	13.9	13.2	14.1	14.1
Construction	63.2	62.1	67.4	65.9
Transportation	56.0	56.7	60.0	62.1
Communication and public utilities	26.9	30.0	30.7	30.7
Retail trade	237.4	249.3	265.3	272.8
Wholesale trade	81.7	82.7	86.9	90.3
Finance, insurance, real estate	65.0	66.7	71.4	72.7
Services	225.7	240.8	254.8	268.7
Government	239.7	246.1	255.2	265.5

[1] Includes workers involved in labor-management disputes
[2] Includes domestic and non-agricultural self-employed and unpaid family workers not shown separately
[3] 1974 civilian work force figures are preliminary

SOURCE: MINNESOTA DEPARTMENT OF EMPLOYMENT SERVICES (See: C-4)

APPENDIX M

STATE PANEL OF BICYCLE SAFETY EDUCATION SPECIALISTS

MINNESOTA STATE PANEL OF BICYCLE SAFETY

EDUCATION SPECIALISTS

Mr. Joseph E. Meyerring, Specialist Traffic Safety Unit, Minnesota Department of Education.

Mr. Tom Powell, Director 4-H Programs, Minnesota Agricultural Extension Agency, University of Minnesota.

Mr. Paul Rooney, Director, Safety Education Programs, Independent School District #742, St. Cloud, MN.

Dr. Howard E. Matthias, Director, Center for Driver Education and Safety, St. Cloud State University, St. Cloud, MN.

Officer Jim Smith, Bicycle Safety Liaison Officer, St. Cloud Police Department, St. Cloud, MN.

APPENDIX N

LIST OF PILOT STUDY RATERS

LIST OF PILOT STUDY RATERS

Mr. Chuck Clausen, Garfield Elementary School, St. Cloud, MN.

Mr. Richard Savolainen, Lester Prairie Elementary School, Lester Prairie, MN.

Mrs. Marilyn Stanley, Madison Elementary School, St. Cloud District, 742, St. Cloud, MN.

Mr. Jack L. Horton, Lincoln Elementary School, St. Cloud District 742, St. Cloud, MN 56301.

Ms. Sue Rieland, Eden Valley-Watkins Elementary School, Eden Valley, MN.

Ms. Anita Spartz, Pleasantview Elementary School, Sauk Rapids, MN.

APPENDIX O

INTRODUCTORY LETTER TO K-3 GRADE BICYCLE INSTRUCTORS

ST. CLOUD STATE UNIVERSITY

CENTER FOR DRIVER EDUCATION & SAFETY
St. Cloud, Minnesota 56301
(612) 255-4251

February 8, 1979

Dear Educator:

Approximately 2 years ago, you were asked by the State Department of Education to respond to an "Annual Fact Sheet - Pedestrian and Bicycle Safety Education Survey Report." At that time, you responded to approximately 20 questions that dealt specifically with the nature and extent of Bicycle and Pedestrian Safety Education programs offered by your elementary school staff. Results of that survey eventually prompted concerned agencies to create a Bicycle Safety Committee, and to continue funding efforts to improve the levels of bicycle safety education activities within Minnesota.

Presently, it is not the intent of the Department of Education, Traffic Safety Section, to survey existing bicycle safety education programs in your area. However, I feel it is extremely important to provide such information to concerned agencies, and to fellow members of the State Bicycle Committee. Efforts to improve the levels of bicycle safety activities with funding and educational support can be more directly channeled once complete information is received. Your time and efforts to provide responses concerning the nature and extent of present bicycle safety education activities would assist me in providing this information to the appropriate agencies.

Therefore, a Bicycle Safety Education Survey will be forwarded to your office within the next three weeks. I would appreciate you or the designated bicycle instructor in your school to respond to the mailed questionnaire. Prompt return would be appreciated.

Thank you for your efforts to assist us in continuing to serve the teachers in your school and to provide input to concerned agencies with accurate, up-to-date data.

Sincerely,

Evan K. Rowe, Jr.
Bicycle/Pedestrian Safety Activities Coordinator

APPENDIX P

LETTER ACCOMPANYING "BICYCLE SAFETY EDUCATION QUESTIONNAIRE"

ST. CLOUD STATE UNIVERSITY

CENTER FOR DRIVER EDUCATION & SAFETY

St. Cloud, Minnesota 56301
(612) 255-4251

March 6, 1979

Dear Educator:

Approximately 2 weeks ago, you were contacted by the Center for Driver Education & Safety concerning the need to determine the status of bicycle safety education programs in your school.

Enclosed you will find the "Bicycle Safety Education Questionnaire" for your completion. Please be frank in your efforts to identify the extent of classroom and "on-bike" activities offered by you or the designated bicycle instructor in your school. A return within two weeks would be appreciated.

Thank you for your time and efforts to assist us in continuing to improve the levels of bicycle safety education activities and to serve the teachers in your school. Be assured the 15-20 minutes spent to respond to the enumerated items will assist various agencies charged with funding decisions.

Sincerely,

Evan K. Rowe, Jr.
Bicycle/Pedestrian Safety Activities Coordinator

APPENDIX Q

"BICYCLE SAFETY EDUCATION QUESTIONNAIRE"

APPENDIX

BICYCLE SAFETY EDUCATION QUESTIONNAIRE

Name:_____
Sex: M_____ F_____
School:_____
School Location: City_____ Rural____
Grade Level(s): K____ 1____ 2____ 3__

Directions: For each of the following questions, place a check on the line that best characterizes how you teach bicycle safety education.

Note: For the purpose of this study, the following definitions will be used:

Bicycle safety education concept—an idea that a child would be knowledgeable about and is able to demonstrate as it pertains to riding a bicycle.

Bicycle laws—Minnesota Motor Vehicle and Traffic Laws that have direct application to bicycle riders.

1. Does your school have any activity that could be termed bicycle safety education? (e.g., individual teacher efforts, special events, community/school events)

____ Yes
____ No

2. What time of year do you teach bicycle safety? (check as many as apply)

____ Fall
____ Winter
____ Spring
____ Summer
____ Integrated year-round in curriculum

3. What would be your estimate of the hours spent by a student, in each grade level, in your school's bicycle safety education program? (complete applicable grade totals)

Kindergarten	1st	2nd	3rd
____ 0-2	____ 0-2	____ 0-2	____ 0-2
____ 3-5	____ 3-5	____ 3-5	____ 3-5
____ 6-8	____ 6-8	____ 6-8	____ 6-8
____ 9-11	____ 9-11	____ 9-11	____ 9-11
____ 12 or more	____ 12 or more	____ 12 or more	____ 12 or more

4. When is your bicycle safety education program offered?

____ Before School	____ After School
____ During School	____ Saturdays
_____	____ Other Times (Specify)

5. How many students are involved per year, in each grade level, in your school's bicycle safety education program? (Complete applicable grade totals)

Kindergarten	1st	2nd	3rd
____ 0-15	____ 0-15	____ 0-15	____ 0-15
____ 16-30	____ 16-30	____ 16-30	____ 16-30
____ 31-45	____ 31-45	____ 31-45	____ 31-45
____ 46-60	____ 46-60	____ 46-60	____ 46-60
____ 61 or more	____ 61 or more	____ 61 or more	____ 61 or more

6. How do you teach your bicycle safety education program? (Circle appropriate grade levels for each format).

K	1	2	3	Separate Unit
K	1	2	3	Integrated in existing course (e.g., social studies, language arts)
K	1	2	3	Assemblies
K	1	2	3	Other _____
K	1	2	3	I do not teach a bicycle safety education program

7. Identify resource personnel utilized in your classroom bicycle safety education program. (Circle appropriate grade for each resource).

K	1	2	3	Classroom guest speakers
K	1	2	3	Parks and recreation department personnel
K	1	2	3	Police officer
K	1	2	3	Judicial department representative
K	1	2	3	Local bicycle shop representative
K	1	2	3	Amateur cyclist
K	1	2	3	Other (e.g., Jaycees, YMCA, YWCA, 4H, Scouts, FFA, etc.)

(Please complete section below)

Please identify the individuals used as resource personnel in your school's bicycle safety education program.

Name	Agency/Title	Role(s)/Grade(s)

8. Do you utilize or does your bicycle safety education program include: (Circle appropriate grade levels for each item)

K	1	2	3	School developed bicycle safety education curriculum
K	1	2	3	Minnesota K-3 Traffic Safety Curriculum Guide
K	1	2	3	Other state(s) curriculum guide(s)
K	1	2	3	Commercially developed curriculum guide(s)
K	1	2	3	Other prepared unit or guide (e.g., "Essentials of Good Bicycling.")

9. Identify specific audio-visual aids or models used in conjunction with your bicycle safety education program. (e.g., slides, transparencies, films, cassette/filmstrip)

Model/Title	Source	Topic	Grade(s)

10. Please identify any outside agencies involved in your bicycle safety education program. (e.g., Department of Education, Department of Public Safety.)

Agency	Topical Area	Grade(s)

11. Do you utilize any of the following instructional techniques in your bicycle safety education program? (Circle appropriate grade levels for each item)

K 1 2 3 Teacher-led discussions
K 1 2 3 Teacher lecture format
K 1 2 3 Teacher-led informal discussions
K 1 2 3 Teacher-led small group activities
K 1 2 3 Guest speakers, bicycle safety experts
K 1 2 3 Audio-visual aids, models
K 1 2 3 Student-led formal presentations
K 1 2 3 Student-led informal discussions, activities
K 1 2 3 Student-led small group work
K 1 2 3 Use of prepared curriculums or instruction materials
K 1 2 3 Other _____

12. Indicate type(s) of activities offered in your bicycle safety education program. (Circle appropriate grade levels for each item)

K 1 2 3 Classroom presentations
K 1 2 3 Off-road skill test(s)
K 1 2 3 On-street riding
K 1 2 3 Bicycle hikes, trips
K 1 2 3 Bicycle registration
K 1 2 3 Bicycle licensing
K 1 2 3 Bicycle maintenance
K 1 2 3 Special assemblies, seminars
K 1 2 3 Special instruction:
K 1 2 3 Handicapped
K 1 2 3 Special Education
K 1 2 3 Adult(s)
K 1 2 3 Other _____

13. Which of the following "Minnesota bicycle laws" do you teach at your grade level(s)? (Circle appropriate grade levels for each item.)

K	1	2	3	I do not teach bicycle safety education laws
				State of Minnesota bicycle rights and duties, which include:
K	1	2	3	Bicycle as a vehicle
K	1	2	3	Obeyance of traffic signs, signals, pavement markings, and sidewalk crossing ordinances
K	1	2	3	Licensing or registration of bicycles
K	1	2	3	Riding in self-propelled fashion
K	1	2	3	Riding with flow of traffic outside central business district
K	1	2	3	Proper riding techniques inside central business district
K	1	2	3	Riding procedures to insure proper visibility
K	1	2	3	Riding no more than 2 abreast
K	1	2	3	Riding on the right-hand side of the roadway
K	1	2	3	Riding within a single lane of travel on laned roadways
K	1	2	3	Riding close to the right curb edge
K	1	2	3	Yield the right of way to pedestrians and other vehicles
K	1	2	3	Carrying only the number of persons designed for the bicycle
K	1	2	3	Keeping hand(s) on the handlebars, except when signaling, or stopped and prepared to complete turn
K	1	2	3	When walking a bicycle face the traffic
K	1	2	3	Staying off roadways that prohibit bicycle riding
K	1	2	3	Use of bicycle paths or lanes when provided
K	1	2	3	Use of bell or horn when necessary
K	1	2	3	Use of light during night riding
K	1	2	3	Authorized use of highly visible reflective clothing during night riding
K	1	2	3	Procedures for operation of special bicycle events (e.g., parades, contests, or races)
K	1	2	3	It is a misdemeanor to break safety laws
K	1	2	3	Other _____

14. Which of the following "bicycle riding and safety" concepts do you teach at your grade level(s)? (Circle appropriate grade levels for each item.)

K	1	2	3	I do not teach bicycle safety riding and safety concepts
K	1	2	3	Proper mounting and dismount
K	1	2	3	Proper riding positions astride bicycle
K	1	2	3	Proper pedaling
K	1	2	3	Proper braking
K	1	2	3	Proper stopping procedures
K	1	2	3	Proper procedures for turning
K	1	2	3	Emergency stopping and maneuvering
K	1	2	3	Defensive riding
K	1	2	3	Hazards that face the bicyclist (e.g., weather, pavement, vehicles)
K	1	2	3	Crossing railroad tracks
K	1	2	3	Crossing intersections
K	1	2	3	Correct lane placement
K	1	2	3	Overtaking other bicycles or vehicles
K	1	2	3	Night-time riding
K	1	2	3	Using safety flags
K	1	2	3	Using reflective materials
K	1	2	3	Proper clothing for increased visibility
K	1	2	3	Skill and performance tests
K	1	2	3	Touring techniques and packing procedures
K	1	2	3	Trip-planning
K	1	2	3	Conducting special bicycle events (e.g., parades, contests, or races)
K	1	2	3	Other _____

15. Which of the following "bicycle safety equipment" concepts do you teach at your grade level(s)? (Circle appropriate grade levels for each item.)

K	1	2	3	I do not teach bicycle safety education equipment concepts
K	1	2	3	History of bicycling
K	1	2	3	How to measure a bicycle for proper size and fit
K	1	2	3	Bicycle anatomy (e.g., pedals, seats, frame)
K	1	2	3	Classification of bicycles (e.g., lightweight, touring, 3-speed)
K	1	2	3	Selection of bicycles and accessories
K	1	2	3	Required equipment (e.g., brakes, horn/bell)
K	1	2	3	Required equipment on newly sold bicycles (e.g., pedal and wheel reflectors)
K	1	2	3	Required equipment for night riding (e.g., lights, reflectors)
K	1	2	3	Recommended equipment (e.g., rear tail light, basket, grips)
K	1	2	3	Optional equipment for visibility and safety (e.g., flags, clothing, mirrors)
K	1	2	3	Tripping, touring, or traveling equipment (e.g., bags, tool kit)
K	1	2	3	Other _____

16. Which of the following "bicycle care and maintenance" concepts do you teach at your grade level(s)? (Circle appropriate grade levels for each item.)

K	1	2	3	I do not teach bicycle care and maintenance concepts
K	1	2	3	Proper bicycle storage
K	1	2	3	Theft prevention
K	1	2	3	Parking procedures
K	1	2	3	Brakes (e.g., adjustment for even wear)
K	1	2	3	Saddle (seat) (e.g., adjustment for proper size)
K	1	2	3	Handlebars (e.g., tighten often, proper height)
K	1	2	3	Wheels (e.g., nuts tight to prevent sway, uneven wear on rim)
K	1	2	3	Tires (e.g., properly inflated, no defects)
K	1	2	3	Spokes (e.g., tight, wear)
K	1	2	3	Pedals (e.g., spin freely, tight)

K 1 2 3 Chain (e.g., wear, lubrication)

K 1 2 3 Gears (e.g., adjustment, replacement of cables)

K 1 2 3 Keeping all working parts clean and lubricated

K 1 2 3 Other _____

17. If you offer "on the bike" performance or skill tests in conjunction with your bicycle safety education program, which of the following specific skill exercises do you provide? (Circle appropriate grade levels for each item.)

K 1 2 3 I do not offer "on the bike" performance or skill tests

K 1 2 3 Sign, signal, pavement marking recognition

K 1 2 3 Balancing exercises (e.g., straight line, weave, zig-zag)

K 1 2 3 Relay races

K 1 2 3 Riding planks, narrow surfaces

K 1 2 3 Serpentine, slalom, or weave riding

K 1 2 3 Slow-poke races (coasting races)

K 1 2 3 Ride and pitch exercise (hit the target, bean bag toss)

K 1 2 3 Traffic mix situations

K 1 2 3 Timed speed races

K 1 2 3 Circling and balance exercise

K 1 2 3 Figure-8 with weave

K 1 2 3 U or Y turn-about exercise

K 1 2 3 Stopping drills

K 1 2 3 Braking with/without skids

K 1 2 3 Evasive riding exercise(s)

K 1 2 3 Riding on rough surfaces (e.g., gravel, wet/bumpy grassy areas)

K 1 2 3 Riding on wet surfaces

K 1 2 3 Pair or group riding exercise

K 1 2 3 Passing exercise

K 1 2 3 Merging exercise

K 1 2 3 Simulated turning exercises (e.g., one ways, two ways, 4-lanes, divided and undivided roadways)

K 1 2 3 Do you provide awards or certificates to participants? (If yes, circle appropriate grades)

K 1 2 3 Do you utilize reflectorized tape in conjunction with inspections? (If yes, circle appropriate levels)

18. Do you attempt to utilize expertise from others in own community at performance, or skill test activities?

____ Yes If Yes, please identify _____
____ No
____ Would like to be able to utilize available area personnel

19. Do you incorporate the bicycle skill test or performance program at the site of the high school's Driver Education range/off-street practice area?

____ Yes ____ None available
____ No ____ Time conflicts

20. Do you think bicycle safety education should be a required subject?

____ Yes
____ No

21. If yes, at which level(s) should it be taught? (Rank order with 1 being highest priority)

____ Kindergarten ____ 2nd Grade
____ 1st Grade ____ 3rd Grade

22. If bicycle safety education instruction is required, which of the following ways would be the most effective? (Rank order with 1 being highest priority)

____ Pre-elementary grade teachers
____ Elementary teachers, K-3
____ Elementary teachers, 4-6
____ Junior high teachers, 7-8 or 7-9
____ Senior high teachers, 9-12 or 10-12
____ Youth agency leaders (Y's, Scouts, etc.)
____ Bicycle organization representatives (American Youth Hostels, Gopher Wheelman)
____ Police department personnel
____ Judicial department representative
____ Parks and recreation department personnel
____ Bicycle shop representative
____ Parental instruction
____ Community broad-based support groups (e.g., educational instructors, police personnel, judicial support, parental involvement, and community agency support
____ Other _____

23. How many bicycle safety-related accidents and fatalities occurred on your school grounds during the 1977-78 school year?

____ Reported accidents
____ Reported fatalities
____ Unavailable

24. Would you be interested in learning what other nearby K-3 grade level elementary teachers and schools are doing in bicycle safety education programs?

____ Yes
____ No

25. Would you like to receive a copy of the Minnesota K-3 Traffic Safety Curriculum Guide which includes bicycle safety education instructional materials?

____ Yes
____ No

26. What type(s) of formal instruction have you received in bicycle safety education?

____ I have received no formal instruction in bicycle safety education
____ Formal course in bicycle safety education
____ Formal course in traffic safety education with bicycle safety component (e.g., K-6 traffic safety education)
____ In-service workshop or seminar on bicycle safety education

27. If you have any additional instructional areas or comments relative to bicycle safety education instruction which were not covered in the preceding survey items, please include this information in the space below.

PLEASE RETURN COMPLETED SURVEY TO:

Mr. Evan K. Rowe, Jr.
Assistant Professor
St. Cloud State University
St. Cloud, MN 56301