INFORMATION TO USERS

This material was produced from a microfilm copy of the original document. While the most advanced technological means to photograph and reproduce this document have been used, the quality is heavily dependent upon the quality of the original submitted.

The following explanation of techniques is provided to help you understand markings or patterns which may appear on this reproduction.

1. The sign or "target" for pages apparently lacking from the document photographed is "Missing Page(s)". If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting thru an image and duplicating adjacent pages to insure you complete continuity.

2. When an image on the film is obliterated with a large round black mark, it is an indication that the photographer suspected that the copy may have moved during exposure and thus cause a blurred image. You will find a good image of the page in the adjacent frame.

3. When a map, drawing or chart, etc., was part of the material being photographed the photographer followed a definite method in "sectioning" the material. It is customary to begin photoing at the upper left hand corner of a large sheet and to continue photoing from left to right in equal sections with a small overlap. If necessary, sectioning is continued again — beginning below the first row and continuing on until complete.

4. The majority of users indicate that the textual content is of greatest value, however, a somewhat higher quality reproduction could be made from "photographs" if essential to the understanding of the dissertation. Silver prints of "photographs" may be ordered at additional charge by writing the Order Department, giving the catalog number, title, author and specific pages you wish reproduced.

5. PLEASE NOTE: Some pages may have indistinct print. Filmed as received.

University Microfilms International
300 North Zeeb Road
Ann Arbor, Michigan 48106 USA
St. John's Road, Tyler's Green
High Wycombe, Bucks, England HP10 8HR
WHISMAN, Robert Wilbert, 1936-
THE RELATIONSHIP OF SELECTED PERSONALITY
TRAITS AND PERSONAL CHARACTERISTICS OF DRIVERS
TO THE OCCUPATIONAL PERFORMANCE OF SCHOOL
BUS DRIVERS IN OHIO.

The Ohio State University,
Ph.D., 1978
Education, vocational

University Microfilms International, Ann Arbor, Michigan 48106

© 1978

ROBERT WILBERT WHISMAN

ALL RIGHTS RESERVED
THE RELATIONSHIP OF SELECTED PERSONALITY TRAITS
AND PERSONAL CHARACTERISTICS OF DRIVERS
TO THE OCCUPATIONAL PERFORMANCE
OF SCHOOL BUS DRIVERS IN OHIO

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the
Degree Doctor of Philosophy in the Graduate School
of The Ohio State University

By

Robert W. Whisman, B.S., M.S.

* * * * * *

The Ohio State University
1978

Reading Committee:  
Aaron J. Miller  
Robert M. Reese  
Frederick W. Staub  
J. Robert Warmbroad

Approved by  
Aaron J. Miller  
Adviser  
Academic Faculty of Vocational-Technical Education
This book is dedicated to my wife Lois and daughters Michelle and Susan for the sacrifices they have made during my graduate study.
ACKNOWLEDGMENTS

I would like to express my sincere appreciation to Dr. Aaron J. Miller, Chairman of my doctoral committee, who has given support and direction in the preparation and completion of this dissertation. Also, I wish to express my appreciation to my committee members, Dr. Robert M. Reese, Dr. Frederick W. Staub, and Dr. J. Robert Warmbrod for their patience and assistance; to the school districts, transportation supervisors, and school bus drivers that participated in the study; to Diane Jenkins for her loyalty throughout my graduate study and for typing this document; and finally, to Harry Davis, Wilbur Wilson, and Larry Cathell for their encouragement in the completion of this task.
VITA

August 19, 1936 . . . . . Born - Williamson, West Virginia

1942-1955 . . . . . . . Raised in Sunbury, Ohio

1956-1960 . . . . . . . Bachelor of Science in Education, The Ohio State University, Columbus, Ohio

1960-1967 . . . . . . . Taught Science and Physical Education in Grades 7-12, Wooster City Schools, Wooster, Ohio

1969-1971 . . . . . . . Master of Arts in Education, The Ohio State University, Columbus, Ohio

1967-Present . . . . . . School Bus Driver Education Consultant, The Ohio State University, Columbus, Ohio

RESEARCH


FIELDS OF STUDY

Major Field: Vocational-Technical Education, Professor Aaron J. Miller

Minor Field: Educational Administration, Professor Frederick W. Staub
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGMENTS</td>
<td>iii</td>
</tr>
<tr>
<td>VITA</td>
<td>iv</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>vii</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>ix</td>
</tr>
<tr>
<td>Chapter</td>
<td></td>
</tr>
<tr>
<td>I. INTRODUCTION TO THE PROBLEM</td>
<td>1</td>
</tr>
<tr>
<td>Background of the Problem</td>
<td>1</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>4</td>
</tr>
<tr>
<td>Specific Objectives of the Study</td>
<td>6</td>
</tr>
<tr>
<td>Significance of the Study</td>
<td>7</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>8</td>
</tr>
<tr>
<td>II. REVIEW OF RELATED RESEARCH AND LITERATURE</td>
<td>10</td>
</tr>
<tr>
<td>Introduction</td>
<td>10</td>
</tr>
<tr>
<td>Personality Characteristics of Teachers</td>
<td>10</td>
</tr>
<tr>
<td>Personality Characteristics of Drivers</td>
<td>12</td>
</tr>
<tr>
<td>Analysis of the Automobile Driving Task</td>
<td>15</td>
</tr>
<tr>
<td>Analysis of the School Bus Driving Task</td>
<td>16</td>
</tr>
<tr>
<td>School Bus Accidents</td>
<td>18</td>
</tr>
<tr>
<td>Selection of School Bus Drivers</td>
<td>19</td>
</tr>
<tr>
<td>Research Questions to be Answered</td>
<td>22</td>
</tr>
<tr>
<td>III. PROCEDURE</td>
<td>24</td>
</tr>
<tr>
<td>Population and Sample</td>
<td>24</td>
</tr>
<tr>
<td>Design and Instrumentation</td>
<td>26</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>29</td>
</tr>
</tbody>
</table>
Chapter | Page  
--- | ---  
IV. FINDINGS | 32  
Description of the Sample | 32  
Personal Characteristics | 33  
Profiles | 38  
Examination of the Research Questions | 39  
Sex of School Bus Driver | 39  
Marital Status of School Bus Drivers | 42  
The Relationship of Driving Experience | 43  
The Relationship of Formal Education | 46  
The Relationship of Age | 46  
Personality Traits | 47  
Accident Rate of Drivers | 51  
V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS | 55  
Summary | 55  
Purpose | 55  
Procedures | 56  
Findings | 57  
Conclusions | 60  
Recommendations | 61  
APPENDICES |  
A. Instruments | 64  
Personality Questionnaire and Answer Sheet  
School Bus Driver Questionnaire  
Transportation Supervisor Questionnaire  
Driver Overall Performance Scale  
B. Capsule Descriptions of the Sixteen Primary Personality Factors | 74  
C. Jury for Questionnaire Development | 79
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>D. Guidelines</td>
<td>80</td>
</tr>
<tr>
<td>Initial Letter to Instructors</td>
<td></td>
</tr>
<tr>
<td>Guidelines for School Bus Driver Instructors that are to Gather Data</td>
<td></td>
</tr>
<tr>
<td>Guidelines for School Bus Drivers and Transportation Supervisors</td>
<td></td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>83</td>
</tr>
</tbody>
</table>
LIST OF TABLES

Table |
| Page |
|-----------------|---|
| 1. Types of School Districts and Number of Pupils Transported | 25 |
| 2. Reliability Coefficients of the Sixteen Personality Factor Questionnaire (Cattell and Stice) | 30 |
| 3. Types and Sizes of School Districts and Number of Drivers Participating in the Study | 34 |
| 4. Marital Status of School Bus Drivers | 35 |
| 5. Education Level of School Bus Drivers | 38 |
| 6. The Relationships Between the Sex of School Bus Drivers and Supervisors' Ratings of Work Habits, Human Relations, and Driver Performance (Accident Rate) | 42 |
| 7. The Relationships Between the Marital Status of School Bus Drivers and Supervisors' Ratings of Work Habits, Human Relations, and Driver Performance (Accident Rate) | 44 |
| 8. Relationships Between Selected Characteristics and Supervisors' Ratings of Work Habits, Human Relations and Driver Performance (Accident Rate) | 48 |
| 9. Relationships Between Selected Personality Traits and Supervisors' Ratings of Work Habits, Human Relations and Driver Performance (Accident Rate) | 50 |
| 10. Mean Personality Test Scores for School Bus Drivers in No Accident and Accident Groups | 52 |
LIST OF FIGURES

Figure                                      Page
1. School Bus Driver Age Groups and Frequency. 36
2. Years General Driving Experience and Frequency. 37
3. Profiles for Female and Male School Bus Drivers 40
CHAPTER I

INTRODUCTION TO THE PROBLEM

Background of the Problem

A key position in the pupil transportation system is the school bus driver; therefore, the proper selection and training of the school bus driver is of the utmost importance.

Each weekday throughout the United States, over 340,000 school buses transport approximately 22 million children of various ages to and from public and private educational facilities. Overall, the safety record compiled by drivers of these buses appears most laudable. While reported accident rates differ with the methods used to compile them, it is clear that school buses are far safer than private passenger vehicles, and even safer than some forms of public and commercial transportation (National Safety Council [1], Hull and Knebel [2]).

The 1977 Annual Report (3) compiled by the Ohio State Board of Education reveals that during the 1976-77 school year 10,637 school buses transported 1,399,487 students to and from school. The buses traveled 787,293 miles per day. Total state and local costs of operating the pupil transportation system for the 1976-77 school year were $107,760,691.
An annual summary of school bus accident reports compiled by the Pupil Transportation Section, State Department of Education (4), indicates that as in previous years, Ohio will have from 1,400 to 1,600 school bus accidents during the 1976-77 school year. The accident summary also indicates that most of the accidents are of a minor nature, and that 65 to 75 percent of the school bus accidents in Ohio are caused by the school bus driver.

School bus operators are not viewed by the general public as skilled professionals in a full-time occupation (such as truck drivers). However, pupil transportation supervisors are aware of the mental and physical demands placed upon the driver of a school bus. The problem is basically one of finding a suitable population from which to select. As Kearney (5) said many years ago, "... the pay is small, the hours are awkward. Thus, the post of responsibility does not attract the experienced, capable men to do it". The task that faces school administrators is one of finding selection standards that may be applied to the limited population of candidates and still yield the required number of drivers.

A study of current selection practices has shown that school administrators are far from satisfied with the criteria they are currently using in driver selection. Yet, the study concludes that "while essentially all of those responding to the questionnaire on selection of bus drivers emphasize the need for higher standards, agreement as to what constitutes desirable criteria was often not unanimous" (National Education Association (6).
The selection problem is further compounded by the lack of good predictors of driving skill as reflected in safety of operation. Various predictive indices will be treated extensively in a later chapter. However, it seems clear that the correlation between the physical and mental characteristics of vehicle operators and their performance on the road, as evidenced by accidents and violations, are too low to be of practical value in selecting good drivers. Whether there may be characteristics that are uniquely suited to the selection of school bus drivers, whose jobs include more tasks than those involved in vehicle operation, is another question.

In view of the difficulties that are apparent in recruiting candidates for school bus driver positions and the unpromising nature of driver performance predictors, the problem of selecting school bus drivers has to be recognized as one of establishing standards that will assure that drivers meet minimum qualifications for safe and efficient performance.

Securing safe and effective school bus drivers is as much a problem of training as of selection. Many of the behaviors required in school bus operation are unique and can be learned only through prior experience driving school buses or through a program of appropriate instruction. Such behaviors include those involved in loading and unloading children, maintaining discipline, and certain aspects of operator maintenance.

While evidence is far from conclusive as to the value of driver education and training in producing safer vehicle operation, the few well controlled studies that have been conducted have shown a small
but positive effect (7).

Where those selected as drivers lack substantial experience in vehicle operation—this is quite often the case where teen-agers or women are involved—training must also be applied to the development of fundamental vehicle control skills. Some school districts have actually expressed a preference for drivers without prior experience, whose behavior they presume to be more malleable than that of people who have already established firm driving habits.

In summary, to the extent that recruitment and selection are unable to provide school bus drivers who already possess the requisite driving qualifications, the employing district must provide training which will assure these qualifications are met.

Statement of the Problem

The school bus driver has been, until very recent years, a severely neglected member of the pupil transportation team. This is emphasized by the fact that until September 1, 1971 there were no requirements for the training of school bus drivers in Ohio. Even though school bus drivers have not been recognized for the important role that they play in the pupil transportation system, they still carry the burden of transporting the most "precious cargo" that we have in the most safe and efficient manner.

The securing and retention of school bus drivers continues to be a major problem for most school districts in Ohio. Generally speaking, school bus driving is limited to a few hours each day and therefore is looked upon as a "part time" occupation. As a result, the
sources of school bus drivers are limited to factory workers, farmers, ministers, owners of small businesses, teachers, and housewives.

Another factor in the hiring of school bus drivers is the rate of pay. School districts cannot afford to hire experienced professional drivers, but must select drivers who do not have experience in driving a large vehicle such as a school bus.

School bus accidents that result in property damage, personal injury, and death are a major concern to everyone interested in safety. The safe operation of a school bus is a most difficult task in light of the size of the vehicle, number of pupil passengers, weather, traffic, and road conditions.

The National Highway Traffic Safety Administration (8) has recognized that there are some needs to be met in school pupil transportation and in February 1973 issued Standard 17 which is concerned with pupil transportation safety.

Part C, Section 1-a of Standard 17 relates to personnel transporting school pupils.

The regulation states:

C. **Operation** - Each state shall establish and maintain compliance with the following requirements for operating school vehicles:

1. **Personnel**

   a. Each state shall develop a plan for selecting, training, and supervising persons whose primary duties involve transporting school pupils, in order to assure that such persons will attain a high degree of competence in, and knowledge of, their duties.
The State of Ohio is in basic compliance with this regulation as it pertains to school bus driver training programs and the supervision of transportation personnel. However, a plan for the selection of school bus drivers has not been developed at this time. Therefore, there is a need to develop valid criteria for the selection of safe and efficient school bus drivers.

School bus driving is a most responsible and demanding occupation, and drivers of the highest quality must be selected to perform this task. Therefore, there is a need to investigate the relationships between selected personality traits and personal characteristics of drivers, and the occupational performance of school bus drivers in an attempt to determine the best qualified persons to fill school bus driver positions.

**Specific Objectives of the Study**

In Ohio the traditional criteria used to hire school bus drivers have been very limited. On the whole, drivers have been licensed and employed on the basis of their ability to pass successfully the written and road driving examination administered by the Ohio State Highway Patrol. Until recent years, bus drivers were not required to have any training before driving a bus with pupils on board, nor were they required to have any upgrading training after employment. Unfortunately, in many cases, filling a vacancy was the most important consideration and driver performance was of secondary importance.

Therefore, the specific objectives of this study were to examine selected personality variables as measured by the Sixteen Personality
Factor Questionnaire and personal characteristics of the school bus driver as they relate to the level of performance on work habits, human relations abilities, and driver performance (accident rate).

The personal characteristics of school bus drivers examined were: age, sex, marital status, years of general driving experience, and level of formal education.

The personality traits and personal characteristics were related to certain performance variables associated with the school bus driving task. The performance variables examined were: accident rate, equipment maintenance, work attendance, punctuality, and human relations. Ratings of drivers on the performance variables were made by transportation supervisors.

**Significance of the Study**

At this time, information is not available concerning the relationship between selected personality traits and performance of the school bus driving task. Furthermore, there is little information available concerning the personal characteristics of school bus drivers as they relate to school bus driving. Therefore, this study may yield information that provides insights into the most desirable personality traits and personal characteristics related to school bus driver performance. Also, the results of this research may be used by pupil transportation departments of school districts throughout Ohio and the United States to improve their procedures for selecting school bus drivers. Improved procedures for the selection of school bus drivers might result in a reduction in the number of school
bus accidents that occur each year. This reduction in the overall accident rate could in turn reduce the amount of property damage, injuries, and deaths that are the result of school bus accidents. Furthermore, a reduction in the school bus accident rate could represent considerable savings to school districts in the form of reduced insurance rates, costs of materials to repair damaged vehicles, and the additional burden of having a bus out of service. A monetary value cannot be placed on the savings in terms of reduced personal injuries and death that would be realized as a result of fewer accidents.

The driver turnover rate could be reduced due to improved selection procedures and thereby reduce the costs of recruiting and training new drivers.

The preceding desirable outcomes are speculatively linked to improved selection and training of school bus drivers; and the significance of this study is that it adds an increment to the knowledge base which may ultimately be used for improved school bus driver selection.

**Definition of Terms**

1. Accident -- That occurrence in a sequence of events which usually produces unintended injury, death, or property damage.

2. Accident rate -- The involvement of the driver in one or more school bus accidents.

3. Advanced School Bus Driver Education Course -- A thirty hour course of instruction for school bus drivers.
4. Basic School Bus Driver Education Course -- An eighteen hour course of instruction for school bus drivers.

5. Fatal accident -- An accident which results in one or more deaths.

6. Level of performance -- The degree to which the school bus driver performs the driving task in a safe and efficient manner.

7. Non-fatal injury accident -- An accident in which at least one person is injured and no injury terminates fatally.

8. Overall driver performance -- The combined transportation supervisors' ratings on work habits, human relations skills, and accident rate.

9. Pre-employment School Bus Driver Education Course -- A course of instruction designed to prepare prospective school bus drivers for the school bus driving task and successful completion of the Ohio State Highway Patrol driving and written examinations.

10. Property damage accident -- An accident which results in property damage, but in which no person is injured.

11. School bus driver -- A person employed by a school district or a private contractor to drive a school bus.
CHAPTER II

REVIEW OF RELATED RESEARCH AND LITERATURE

Introduction

A review of related research and literature reveals that there is a minimum amount of information available pertaining specifically to school bus drivers. However, there is an abundance of literature relating generally to driver safety, personality characteristics of safe drivers, and personality characteristics of those who work with children such as elementary and secondary school teachers. Successful school bus drivers must possess both adequate driving skills and the ability to deal with and work with children.

This literature review will focus on the personality characteristics of school teachers, personality characteristics of automobile drivers, analysis of the automobile driving task, analysis of the school bus driving task, and selection guidelines for the school bus driver.

Personality Characteristics of Teachers

Even though the school bus driver does not work with students in the same manner as the school teacher, the school bus driver does
interact with students on a daily basis. The school bus driver has a
dual task of driving the bus in a safe and efficient manner and at
the same time have control of the student passengers. Therefore, it
is essential that the school bus driver possess many of the personality
characteristics that are displayed by successful school teachers.

The relationship between teaching success and scores on the
Sixteen Personality Factor Questionnaire has been investigated by
Lamke (9), Erickson (10), and Montrose (11). Their findings indicate
that further study of these relationships is needed. No common crite-
rion for teaching effectiveness was identified. None reported findings
separately for men and women, and differences due to age and sex were
not included. The following are summaries of their findings.

When Lamke compared teachers rated successful or unsuccessful, he
found that successful teachers (n=10) were enthusiastic and adventure-
some. Unsuccessful teachers (n=8) were described as serious, shy, and
naive. Erickson analyzed scores on the Sixteen Personality Factor
Questionnaire of beginning teachers with nine different criteria for
teaching effectiveness. The findings indicated that teaching effec-
tiveness was significantly related to high super ego strength and
above average self-concept integration. In addition, effective
teachers were found to be significantly more practical than imagina-
tive and less apprehensive than teachers rated ineffective. The study
by Montrose of beginning high school teachers (n=35) indicated that
there was a significant positive correlation coefficient between a
success rating and warm-heartedness. Regression equations were not
developed between the criterion and test scores.
Teachers, regardless of the criterion of effectiveness, were studied by Haverland (12). He found junior high school teachers to be warm and outgoing, emotionally stable, venturesome, trusting, confident, radical, and group dependent in comparison with the general population. Although the group was small (n=59), the consensus was that the number was sufficient to give some stability to the profile and had a decided advantage over individual opinions or value laden judgments about the kinds of personality patterns required in various occupations and professions.

**Personality Characteristics of Drivers**

Studies pertaining to the personality traits of school bus drivers could not be located. However, there have been studies investigating personality traits of the automobile driver.

Mann (13), using the Mann attitude inventory survey, found that drivers that approach the norm in personality characteristics such as aggressiveness and concern for the rights of others help maintain a smooth, safe flow of traffic, and those on the extremes produce problems for themselves and others. For example, many rear end accidents occur when the "conservative" driver in the lead slows to stop for a yellow traffic light while the aggressive driver with one eye on the light tries to "beat" the red and charges on through the intersection.

Mann also found that driver performance is affected by emotional problems. He states:

I expect that it is proper to say that we all have emotional problems occasionally. It is important that we recognize our condition when we are in these states and either stay out from behind the wheel or take extra
precautions if we do have to drive. Examples of this condition would include the results of a spat with the wife before leaving for work, harsh words from the boss before leaving for home, anxiety over payment of some outstanding bills, or concern for a loved one who is very ill. Whatever the cause, we temporarily react in much the same manner as those who are continuously suffering from emotional problems.

Mann (14) further reveals that the driver education teacher has a unique opportunity to form a more personal relationship with students. He notes that:

Every student has basic needs which must be met if he is to operate as an effective, happy individual. Those with which we should be concerned include a feeling that someone understands them, a feeling that someone is concerned about their welfare, a feeling that someone likes them, and a feeling that someone thinks they have the ability to achieve some success in their life. The teacher who will take the time to show personal interest in students who seem to be unadjusted to the school situation can render them a real service.

Adams (15) reviewed the literature on the psychological aspects of accidents and indicates that there are individual differences in the accident liability, attributable in part to personality. The author relates that:

Safe drivers are more conforming, controlled persons who may tend to avoid exposure to hazards as well as to avoid the hazards themselves; and vehicle collisions are best conceived as nonspecific symptoms of either a hidden destructive intent or of an incapacity for adjustments to hazards.

Hertz (16) examined 35 men involved in car accidents using a structured, three-stage psychiatric interview. Possible correlations between past life experiences, behavior pattern, and hostile tendencies of the driver were investigated. The findings indicate that drivers with poorer control of hostility and with lower tension tolerance
seem to be most susceptible to motor vehicle accidents.

A study by Bracy (17) compared the personality characteristics of students who have had automobile accidents with those who have not had automobile accidents. The author employed the Sixteen Personality Factor Questionnaire (forms A and B) and the Impulsiveness Scale of the How Well Do You Know Yourself to measure personality characteristics. Factor A (reserved vs. outgoing), Factor F (sober vs. happy-go-lucky), and Factor O (self-assured vs. apprehensive) were personality dimensions in which the accident group scored significantly higher than the nonaccident group. The item analysis data indicated that 27 items significantly differentiated the accident and non-accident groups.

Smith (18) investigated the relationship between basic interests of personality (i.e., religious, political, social, aesthetic, economic, and theoretical) as determined by the Allport-Vernon-Lindzey study of values and the driving records of a randomly selected group of Michigan drivers. The prediction of driving records was not significantly improved by including the interests of personality, religious, political, social, aesthetic, economic, and theoretical values, with the factors of age, sex, and marital status. The partial correlation coefficient was not significant at the .01 level.

McKnight (19) relates that in several studies no relationship has been found between personality variables and performance, including those conducted by Gumpper and Smith (20), Preston and Harris (21), Levonian, et al. (22), Conger, et al. (23), McFarland and Moseley (24),
Quenault (25), and Davis and Coiley (26). Others have found small significant relationships including Conger, et al. (27), Brown and Berdie (28), McGuire (29), (30), Moffie, et al. (31), and Schuster and Guilford (32). The major factors that appear to account for the differences are size of sample and the nature of the variables studied. Where large numbers of drivers (100 or more) are involved and the variables are those that seem to have some logical relation to driving, significant relationships have been obtained.

McKnight indicates the picture that emerges of the safe driver, in contrast to the accident repeater or chronic violator, is of one who possesses the following personality characteristics:

1. Emotional stability; not easily given to excitement or anger.
2. Concerned with, understanding and tolerant of others; not self-centered.
3. Independent, responsible; not impressionable or dependent upon others for support.
4. Agreeable and compliant; not highly aggressive.
5. Happy, cheerful; not hostile.
6. Desires security and safety; not inclined to gamble or take chances.
7. Reality oriented, practical; not highly idealistic nor given to fantasy.
8. Is thick-skinned, able to accept blame; not highly sensitive; not inclined to blame others.

Analysis of the Automobile Driving Task

McKnight and Adams (34) report the development of an analysis of the automobile drivers task. The task descriptions have been organized in terms of the situations giving rise to the behaviors that must be performed continuously or periodically while driving, rather than in
response to a specific situation and those off-road behaviors that are performed before driving to maintain the car in sound operating condition and in compliance with the legal regulations.

A group of 100 traffic safety experts selected from among driver educators, enforcement officers, license officials, and fleet safety personnel were asked to evaluate the criticality of the 1,700 identified behaviors to the safety and efficiency of the highway transportation system. The driving behaviors, together with their associated criticality indices and various items of supporting information gained through a survey of the driving literature, were entered into a set of driving task descriptions.

Fortunately, most automobile drivers perform the 1,700 identified driving tasks in a satisfactory manner. However, many drivers do not perform the tasks in a satisfactory manner, and automobile accidents are the result.

**Analysis of the School Bus Driving Task**

The behaviors that are required by school bus drivers, as reported by McKnight (33), were determined by: (a) interviews with and observations of individual drivers as well as discussions with pupil transportation personnel in related jobs, (b) review of written materials, primarily the operator manuals prepared by individual states, and (c) the analysis of the automobile driver's task conducted as part of another project, also sponsored by the National Highway Traffic Safety Administration (4). It was determined that 172 specific behaviors are required by the school bus driver.
"Skills", as the term is used by McKnight, is a concept that is generated to explain behaviors that require something over and above knowledge for their performance. They include perceptual skills, such as judgment of passing distance, (perceptual)-motor skills, such as coordination of accelerator and clutch pedal, and reasoning skills, such as determining an optimum route. Behaviors requiring skill are distinguished by their need for practice; they cannot be performed adequately the first time as can behavior that is dependent purely on acquisition of new information (e.g., stopping at a new destination). By definition, skills can be assessed only through actual performance.

Skills required by the school bus driver are as follows:

1. Pre-driving tasks
   a. Pre-trip inspection
   b. Starting and pulling away

2. On-the-road maneuvers
   a. Negotiating intersections
      (1) General
      (2) Right turn
      (3) Left turn
   b. Negotiating hills
   c. Negotiating curves
   d. Negotiating railroad crossings
   e. Overtaking and passing
   f. Being passed
   g. Stopping for loading and unloading
h. Backing
   (1) Straight
   (2) Turning around
i. Parking
   (1) Angular
   (2) Parallel
j. Post-driving tasks
   (1) Post-trip inspection
   (2) Securing the bus

School Bus Accidents

Annual school bus accident reports (4) compiled by the Ohio State Department of Education indicate that school bus drivers are at fault in 65 to 75 percent of the school bus accidents. As with automobile accidents, school bus accidents are a result of improper driving practices. Although reported in another format, the improper driving practices are very similar to the automobile driver. Intended action of the school bus driver at the time of the accident is as follows:

1. Going straight ahead
2. Making left turn
3. Backing
4. Making right turn
5. Stopped
6. Slowing
Selection of School Bus Drivers

Although somewhat limited, there is information in the literature concerning the selection of school bus drivers.

Isenberg (35) discussed the responsibilities and duties of the school bus driver. He states:

The drivers' responsibilities were such that a specific program for training has been an important necessity, not only for new drivers, but for experienced drivers as well. Adult males hold the majority of school bus driving jobs throughout the country. In some states high school students are used as bus drivers. There is a definite increase in the number of female bus drivers. Women work well in the job as school bus drivers because they have displayed a readiness for training, have a superior relationship with students, and tend to be less abusive with school bus equipment.

The American School Boards Journal (36) describes a school transportation system in Fairfax County, Virginia, which had 387 school buses in operation. For the past 15 years these buses had been driven primarily by women. The women were proving to be excellent school bus drivers because they were perceived to be more thoughtful, more careful, more reliable, handled youngsters better, and learned more quickly than their male counterparts. The women drivers had a good accident record in that 80 percent of the drivers in Fairfax were women, and they were only responsible for 43 percent of the accidents.

An article in the American School Boards Journal (37) relates some information concerning the school bus driver. The article indicates that "...most school bus accidents are caused by human error". The finger of guilt is not pointed at the school bus driver, but calls attention to the fact that driver performance plays a crucial role in
school bus safety. The article further indicates:

School districts wouldn't dream of turning academic classes over to untrained mothers, carpenters, firemen, or laborers, but school bus driving duties are given to individuals who are moonlighting and are inadequately trained. Some of the most sensational and publicized school bus accidents of recent years (two bus-train collisions and a wreck on a mountain road, as examples) have been traced to mistakes made by nonprofessional drivers. Most school bus accidents are traceable to human error.

The author ends with some very pointed questions concerning the school bus driver; such as, "Are they professional drivers? Have they proper licenses and accreditation?, and what criteria are used for their selection?" The answers to these questions should be determined as soon as possible.

A study conducted by McKnight (33) relating to the selection and training of school bus drivers revealed that a comparison of characteristics of experienced drivers with their performance as rated by supervisors showed that the better drivers were over 30 years of age, were married, had a small family, no pre-school age children, had between eight and 12 years formal education, and at least three years of school bus driving experience.

McMichael (38) investigated the rate and types of school bus accidents according to the age of the school bus driver. Accident rates in North Carolina for the school year 1971-72 were analyzed using three sources of accident data: accident reports, driver and mileage data, and questionnaires administered to a sample of school bus drivers. Data were collected on 10,508 drivers and an annual mileage of 74,110,890.
Findings did not show a statistical relationship between age and school bus accidents. Student drivers (age 16 through 20 years) had a higher accident rate than adult drivers (age 21 and over) with 16 year olds having the highest rate and 20 year olds the second highest. Ages 17 through 19 compared reasonably favorably with the older drivers aged 25 through 54 years. Sixteen year old drivers also had the highest proportion of violations and the highest proportion of single vehicle collisions.

The literature reviewed indicates that automobile drivers with certain personality characteristics such as aggressiveness, poor control of hostility, and lower tension levels seem to be susceptible to motor vehicle accidents. The literature further indicates that female school bus drivers perform the school bus driving task at a higher level than the male school bus driver. There is also indication that a higher level of performance is obtained by school bus drivers that have the following characteristics: over the age of 30, are married, have a small family, no pre-school age children, and have between eight and 12 years of formal education and at least three years bus driving experience.

In summarizing this review of literature, it seems reasonable to hypothesize that both personality traits and personal characteristics of individuals somehow relate to safe driving practices. Furthermore, safe driving practices appropriate for the general driving population are appropriate for potential school bus drivers. Therefore, building upon this review of literature in an effort to extend the understanding
of these relationships, the following research questions were investigated.

**Research Questions to be Answered**

In keeping with the objectives of this study, data were collected in an attempt to answer the following research questions:

1. What is the relationship between the sex of a school bus driver and the supervisors' ratings of work habits, human relations, and driver performance (accident rate)?

2. What is the relationship between the marital status of a school bus driver and the supervisors' ratings of work habits, human relations, and driver performance (accident rate)?

3. What is the relationship between years of general driving experience of a school bus driver and the supervisors' ratings of work habits, human relations, and driver performance (accident rate)?

4. What is the relationship between the level of formal education of the school bus driver and the supervisors' ratings of work habits, human relations, and driver performance (accident rate)?

5. What is the relationship between the age of school bus drivers and the supervisors' ratings on work habits, human relations, and driver performance (accident rate)?
6. What is the relationship between selected personality traits of school bus drivers as measured by the Sixteen Personality Factor Questionnaire and overall driver performance (combined scores on work habits, human relations, and accident rate) as determined by the supervisors' ratings?

7. What is the relationship between selected personality traits of school bus drivers as measured by the Sixteen Personality Factor Questionnaire and driver involvement in one or more school bus accidents.
CHAPTER III

PROCEDURE

Population and Sample

Each year in the State of Ohio approximately 1,400 new school bus drivers are employed by the 604 school districts that provide pupil transportation. The three types of school districts and the number that provide transportation are as follows:

<table>
<thead>
<tr>
<th>Type of District</th>
<th>Number of Districts</th>
</tr>
</thead>
<tbody>
<tr>
<td>City</td>
<td>174</td>
</tr>
<tr>
<td>Local</td>
<td>382</td>
</tr>
<tr>
<td>Exempted Village</td>
<td>48</td>
</tr>
</tbody>
</table>

The school district participants in the study were selected from a listing of school districts that offer pupil transportation. The school districts were categorized by city, local, and exempted village. In an attempt to further determine the characteristics of school bus drivers, the school districts in each category were divided into small, medium, and large size districts according to the number of pupils transported. (See Table 1.)
TABLE 1

Types of School Districts and the Number of Pupils Transported

<table>
<thead>
<tr>
<th>Type of District</th>
<th>Number</th>
<th>Percentage of School Districts</th>
<th>Lowest Number of Pupils Transported</th>
<th>Highest Number of Pupils Transported</th>
<th>Number of Districts Used in Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>City</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large</td>
<td>21</td>
<td>3</td>
<td>5,004</td>
<td>29,594</td>
<td>3</td>
</tr>
<tr>
<td>Medium</td>
<td>56</td>
<td>9</td>
<td>2,501</td>
<td>4,995</td>
<td>7</td>
</tr>
<tr>
<td>Small</td>
<td>97</td>
<td>16</td>
<td>5</td>
<td>2,491</td>
<td>3</td>
</tr>
<tr>
<td><strong>Local</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large</td>
<td>58</td>
<td>10</td>
<td>3,016</td>
<td>16,807</td>
<td>8</td>
</tr>
<tr>
<td>Medium</td>
<td>132</td>
<td>22</td>
<td>1,507</td>
<td>2,960</td>
<td>7</td>
</tr>
<tr>
<td>Small</td>
<td>192</td>
<td>32</td>
<td>20</td>
<td>1,496</td>
<td>9</td>
</tr>
<tr>
<td><strong>Exempted Village</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large</td>
<td>10</td>
<td>2</td>
<td>2,069</td>
<td>8,823</td>
<td>3</td>
</tr>
<tr>
<td>Medium</td>
<td>17</td>
<td>3</td>
<td>1,063</td>
<td>1,810</td>
<td>1</td>
</tr>
<tr>
<td>Small</td>
<td>21</td>
<td>3</td>
<td>38</td>
<td>943</td>
<td>2</td>
</tr>
</tbody>
</table>
A stratified random sample was employed to select representative school districts for the study. Systematic sampling with a random start was used within each stratum.

This study was based on the responses of 177 newly employed school bus drivers to a personality questionnaire, a personal information questionnaire, and a performance questionnaire which was completed by the transportation supervisor of the district in which the driver is employed.

All school bus drivers employed during the months of June, July, and August of 1976 by each school district selected were asked to participate in the study.

**Design and Instrumentation**

In this study the survey research method was used. The data were gathered by the use of three questionnaires. (See Appendix A.)

In the course of development of the personal data and performance questionnaires, seven people with vast experience in the fields of pupil transportation administration, school administration, the trucking industry, and research design and instrumentation served as a jury and made suggestions for the design and the final draft of the questionnaires. The people serving on the jury are listed in Appendix C.

The instruments were field tested in each type of school district (city, local, exempted village). The school districts that field tested the instruments were determined after the random selection of districts that were to participate in the actual study.
Information was collected from two sources. First, from newly employed school bus drivers, and second, from the transportation supervisor of the district in which the driver is employed.

In an attempt to obtain personal involvement and full cooperation, certified school bus driver instructors were asked to assist with this study. The instructors made all the arrangements for the distribution and collection of all questionnaires and score sheets. To further encourage participation in the study:

1. All participants were assured that all data would be treated as confidential.

2. The time demanded of respondents was held to a minimum in that the personality questionnaire contained only 105 items, was untimed, and only required 25 to 35 minutes for completion. The vocabulary of the questionnaire was at the sixth grade reading level.

3. The personal data and performance questionnaires were one page in length.

4. All participants were assured that they would receive feedback on the results of the study.

The standardized instrument chosen to gather data pertaining to the personality traits of school bus drivers was the Sixteen Personality Factor Questionnaire (39).
The Sixteen Personality Factor Questionnaire, a test of the normal, adult personality, measures levels of assertiveness, emotional maturity, impulsiveness, self-sufficiency, tension, intelligence, enthusiasm, extroversion, imagination, independence, poise, shrewdness, guilt proneness, venturesomeness, conscientiousness, and conservativeness. Scores for anxiety, creativity, leadership potential, and other trait patterns are also obtained.

The Sixteen Personality Factor Questionnaire is frequently used for selection, placement, and promotion of personnel by predicting important job-related criteria such as length of time an employee is likely to remain with the company, sales effectiveness, work efficiency, tolerance for routine, and many other measures relevant to specific jobs or professions (39).

Cattell (40), in formulating his philosophy of personality as a study of the whole person, used factor analysis in an effort to bridge the gap between clinical psychological formulations of personality and the objective mathematical approach of psychometrics and statisticians. In this synthesis of clinical and psychometric approaches to the study of personality, Cattell (41) investigated and refined source traits which he defined as single functional entities, alike and comparable for different individuals. This is the basis upon which the Sixteen Personality Factor Questionnaire has been constructed. The 1957, 1962, and 1969 editions of the Sixteen Personality Factor Questionnaire are based upon 15 personality factors and a cognate factor of intelligence. Reliability coefficients for consistency, stability, and equivalence are reported by Cattell and Stice (12) in terms of
consistency and equivalence only as stability tends to vary with undefinable conditions. The reliability coefficients for each of the factors are shown in Table 2.

**Data Analysis**

The specific statistical tests applied to answer the research questions were:

1. The relationship between driving performance and the sex of the drivers was determined by finding the mean for each group and using a t-test for determining the difference between the means. To describe the degree of the relationship a point-biserial correlation coefficient was used.

2. The relationship between ratings of performance and marital status was determined by comparing means for each group (single, married, and divorced) using analysis of variance.

3. To describe the relationship between years of driving experience and supervisors' ratings of work habits, human relations, and driver performance (accident rate - one or more accidents) the Pearson product-moment correlation coefficient was used.

4. The Pearson product-moment correlation coefficient was used to show the relationship of level of formal
## TABLE 2

Reliability of Coefficients of the Sixteen Personality Factor Questionnaire (Cattell and Stice)

<table>
<thead>
<tr>
<th>Personality Factor</th>
<th>Trait Description Low</th>
<th>Trait Description High</th>
<th>Reliability Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>RESERVED, critical</td>
<td>OUTGOING, warmhearted</td>
<td>.90</td>
</tr>
<tr>
<td>B</td>
<td>LESS INTELLIGENT</td>
<td>MORE INTELLIGENT</td>
<td>.86</td>
</tr>
<tr>
<td>C</td>
<td>EMOTIONALLY LESS STABLE</td>
<td>EMOTIONALLY STABLE</td>
<td>.93</td>
</tr>
<tr>
<td>E</td>
<td>SUBMISSIVE, accommodating</td>
<td>AGGRESSIVE, assertive</td>
<td>.91</td>
</tr>
<tr>
<td>F</td>
<td>SERIOUS, quiet</td>
<td>HAPPY-GO-LUCKY, enthusiastic</td>
<td>.84</td>
</tr>
<tr>
<td>G</td>
<td>LESS RIGID, casual</td>
<td>STAID; persevering</td>
<td>.85</td>
</tr>
<tr>
<td>H</td>
<td>TIMID, shy</td>
<td>VENTURESOME, uninhibited</td>
<td>.83</td>
</tr>
<tr>
<td>I</td>
<td>TOUGH-MINDED, realistic</td>
<td>SENSITIVE</td>
<td>.76</td>
</tr>
<tr>
<td>L</td>
<td>TRUSTING, adaptable</td>
<td>SUSPICIOUS</td>
<td>.77</td>
</tr>
<tr>
<td>M</td>
<td>PRACTICAL, careful</td>
<td>IMAGINATIVE, impractical</td>
<td>.88</td>
</tr>
<tr>
<td>N</td>
<td>UNSOPHISTICATED, naive</td>
<td>SHREWD, sophisticated</td>
<td>.79</td>
</tr>
<tr>
<td>O</td>
<td>CONFIDENT, serene</td>
<td>APPREHENSIVE, worrying</td>
<td>.85</td>
</tr>
<tr>
<td>Q1</td>
<td>CONSERVATIVE, traditional</td>
<td>EXPERIMENTING, analytical</td>
<td>.71</td>
</tr>
<tr>
<td>Q2</td>
<td>GROUP-ADHERENT</td>
<td>SELF-SUFFICIENT</td>
<td>.79</td>
</tr>
<tr>
<td>Q3</td>
<td>SIGNS OWN URGES</td>
<td>CONTROLLED</td>
<td>.76</td>
</tr>
<tr>
<td>Q4</td>
<td>RELAXED</td>
<td>HIGH TENSION LEVEL</td>
<td>.88</td>
</tr>
</tbody>
</table>
education and supervisors' ratings of work habits, human relations, and driver performance (accident rate - one or more accidents).

5. The relationship between the age of school bus drivers and the supervisors' ratings on work habits, human relations, and driver performance (accident rate - one or more accidents) was determined by using the Pearson product-moment correlation coefficient.

6. The specific analysis procedure used to determine the relationships between each of the personality traits and the overall driver performance (combined scores on work habits, human relations, and accident rate) data was the Pearson product-moment correlation coefficient.

7. The relationship between personality characteristics and school bus accidents was determined by comparing the mean scores for each personality characteristic for the no accident and accident groups (one or more accidents) using analysis of variance.
CHAPTER IV

FINDINGS

The primary purpose of this research was to investigate the relationship between selected personality traits and personal characteristics of drivers and the occupational performance of school bus drivers. This chapter will report the data analysis in three sections: (1) descriptive analysis of the personal characteristics of the school bus drivers; (2) personality profiles for male and female drivers as indicated by the Sixteen Personality Factor Questionnaire; (3) the correlation analysis of the personal and personality characteristics (independent variables) and the driver performance scores (dependent variables).

All statistical operations were processed on The Ohio State University Computer System via the Statistical Package for the Social Sciences (43).

Description of the Sample

The original sample size was to be 170 school bus drivers. However, since all newly employed drivers in the school districts selected for the study were asked to participate, 177 drivers from 43 school districts responded.
For the 1976-77 school year there were 604 school districts in Ohio that provided pupil transportation. Two hundred school districts, 100 primary and 100 alternates, were randomly selected to participate in the study.

Forty-three school districts agreed to participate in the study which was seven percent of the total districts in the state. A total of 11 of the primary districts selected chose not to participate. Seven of these districts indicated no interest in the study, and four of the districts selected had no new drivers for the 1976-77 school year. Table 3 indicates the number of school districts participating in the study and the number of newly employed drivers in each district who responded.

The 177 bus drivers came from school districts that were categorized by city, local, and exempted village. The school districts in each category were divided into small, medium, and large size districts according to the number of pupils transported. The school district categories and sub-categories and the number of drivers from each are presented in Table 3.

Each year in the State of Ohio approximately 1,400 new bus drivers are employed. This sample represents 12.6 percent of that total.

**Personal Characteristics**

Five personal characteristics of the respondents were investigated. They were: age, sex, marital status, years of driving experience, and level of formal education. The drivers ranged from 18 to 63 years of age. The mean age was 38 years. The mode of the group
TABLE 3
Types and Sizes of School Districts and Number of Drivers Participating in the Study

<table>
<thead>
<tr>
<th>Type of District</th>
<th>Lowest Number of Pupils Transported</th>
<th>Highest Number of Pupils Transported</th>
<th>Number of Districts Used in Sample</th>
<th>Number of Drivers (n=43)</th>
<th>Number of Drivers (n=177)</th>
</tr>
</thead>
<tbody>
<tr>
<td>City</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large</td>
<td>5,004</td>
<td>29,594</td>
<td>3</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>2,501</td>
<td>4,995</td>
<td>7</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>5</td>
<td>2,491</td>
<td>3</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Local</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large</td>
<td>3,016</td>
<td>16,807</td>
<td>8</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>1,507</td>
<td>2,960</td>
<td>7</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>20</td>
<td>1,496</td>
<td>9</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Exempted Village</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large</td>
<td>2,069</td>
<td>8,823</td>
<td>3</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>1,063</td>
<td>1,810</td>
<td>1</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>38</td>
<td>943</td>
<td>2</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
was 35 years of age. (See Figure 1.)

The sample included 122 females (69 percent) and 55 males (31 percent).

Seventy-six percent of the school bus drivers were married, 16 percent were single, and seven percent were divorced as indicated in Table 4.

Table 4

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>29</td>
<td>16.4</td>
</tr>
<tr>
<td>Married</td>
<td>135</td>
<td>76.3</td>
</tr>
<tr>
<td>Divorced</td>
<td>13</td>
<td>7.3</td>
</tr>
<tr>
<td>Totals</td>
<td>177</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The years of general driving experience ranged from one to 45 years. The mode of the group was ten years of experience and the mean was 21 years. (See Figure 2.)

The education level of the sample ranged from sixth grade to four years of college. Ninety-eight or 55.4 percent of the drivers completed the twelfth grade. (See Table 5.)
Figure 1. School Bus Driver Age Groups and Frequency.
Figure 2. Years General Driving Experience and Frequency.
TABLE 5

Education Level of School Bus Drivers

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>6th grade</td>
<td>1</td>
<td>.6</td>
</tr>
<tr>
<td>8th grade</td>
<td>5</td>
<td>2.8</td>
</tr>
<tr>
<td>10th grade</td>
<td>16</td>
<td>9.0</td>
</tr>
<tr>
<td>12th grade</td>
<td>98</td>
<td>55.4</td>
</tr>
<tr>
<td>Some college</td>
<td>47</td>
<td>26.6</td>
</tr>
<tr>
<td>4 years college</td>
<td>10</td>
<td>5.6</td>
</tr>
<tr>
<td>Totals</td>
<td>177</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Profiles

The following section presents the personality profiles of the male and female bus drivers utilized in this sample.

The purpose of presenting the profile is to examine the personality characteristics of the female and male school bus drivers in the sample (n=177). Relationships between personality factors and other variables will be examined in another section of this chapter.

Two profiles are presented in which mean scores of each sex are compared on each of the 16 factors. Mean stens (standard ten scores) for the males and females are based upon conversion of raw scores into stens using a conversion table for the general male and female population (42). A mean sten range from 4.5 to 6.5 is considered average or normal on the Sixteen Personality Factor Questionnaire (12).
Examination of Figure 3 reveals that the mean sten scores for the male school bus drivers fell within the average or normal range of 4.5 to 6.5 for each of the 16 personality factors. That is to say, that male school bus drivers do not possess personality traits that would separate them from the general male population.

The female school bus drivers also fell within the normal range on 12 of the 16 factors. The four exceptions were the following factors: conscientiousness (G), independence (I), imagination (M), and conservativeness (Q1). The female bus drivers were more conscientious (persistent, moralistic, staid), tough-minded (self-reliant), practical (down to earth), and conservative (traditional ideas) than the general female population.

Examination of the Research Questions

The following is an analysis of the data related to the eight research questions developed for this study. Each question will be presented as follows: discussion pertaining to the question, statement of the question, statistical test applied, and findings.

Sex of School Bus Drivers

Until very recent years, males have been identified as filling the occupational role of school bus driver. This was understandable in that school buses are large vehicles and difficult to maneuver, and considerable strength was required to steer and shift gears. Males were also perceived to have a better knowledge and understanding of the mechanical functions of the bus.
Factors A B C E F G I I L H N O Q1 Q2 Q3 Q4

Mean Stems
7.0
6.9
6.8
6.7
6.6
6.5
6.4
6.3
6.2
6.1
6.0
5.9
5.8
5.7
5.6
5.5
5.4
5.3
5.2
5.1
5.0
4.9
4.8
4.7
4.6
4.5
4.4
4.3
4.2
4.1
4.0
3.9
3.8
3.7

FSRD --- 5.7 5.3 6.3 5.2 5.6 6.8 5.7 3.8 4.9 4.1 5.2 4.9 4.3 5.7 6.5 4.6
MSDD --- 5.5 5.3 6.4 4.9 5.4 6.4 5.8 5.4 5.1 4.7 5.6 4.8 5.0 5.6 5.8 5.2

FSRD Mean stem scores for female school bus drivers, n=122
MSDD Mean stem scores for male school bus drivers, n=55

Figure 3. Profiles for female and male school bus drivers.
In addition, it was believed that the male was more effective in the disciplining of students on the bus. It was also commonly believed that the "woman's place is in the home", not out in the "world of work".

However, today there are thousands of female school bus drivers in Ohio (4). The physical barriers that once kept women off of school buses are being eliminated. Most school buses being purchased today are equipped with power steering units and automatic transmissions.

Isenberg (35) relates that women work well in the job of school bus driving because they have displayed a readiness for training, have a superior relationship with students, and tend to be less abusive with school bus equipment. In addition, an article in the American School Boards Journal (36) indicates that women drivers are perceived to be more thoughtful, more careful, more reliable, handled youngsters better, and learned more quickly than their male counterparts.

The contrasting views expressed above leads to the first research question to be investigated in this study which is:

**Question 1:** What is the relationship between the sex of a school bus driver and the supervisors' ratings of work habits, human relations, and driver performance (accident rate)?

To find the relationship between the sex of school bus drivers and the supervisors' ratings of work habits, human relations, and driver performance (accident rate) mean scores were found for each group and the difference in the scores was determined by using a t-test. To describe the degree of the relationship a point-biserial correlation coefficient was used. An examination of the data revealed
no significant difference in the mean scores of the males and females when compared on work habits, human relations, and driver performance (accident rate). These data are shown in Table 6.

TABLE 6

The Relationships Between the Sex of School Bus Drivers and Supervisors' Ratings of Work Habits, Human Relations, and Driver Performance (Accident Rate)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male (n=55)</td>
<td>Female (n=122)</td>
<td>t</td>
<td></td>
</tr>
<tr>
<td>Work habits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$\bar{x}$</td>
<td>9.07</td>
<td>8.43</td>
<td>1.42</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>3.10</td>
<td>2.62</td>
<td></td>
</tr>
<tr>
<td>Human relations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$\bar{x}$</td>
<td>9.63</td>
<td>9.25</td>
<td>0.83</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>2.90</td>
<td>2.81</td>
<td></td>
</tr>
<tr>
<td>Driver performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$\bar{x}$</td>
<td>19.10</td>
<td>17.90</td>
<td>1.44</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>5.54</td>
<td>4.90</td>
<td></td>
</tr>
</tbody>
</table>

Marital Status of School Bus Drivers

A study by McKnight (33) indicates that people who are married are better school bus drivers than those drivers who are single or divorced. Married people, on the whole, are more settled in their habits, more reliable, and responsible than those that are not married.
An intense review of the literature revealed only one study pertaining to the marital status of school bus drivers. Therefore, in an attempt to add to the available data, the following research question was asked:

**Question 2:** What is the relationship between the marital status of a school bus driver and the supervisors' ratings of work habits, human relations, and driver performance (accident rate)?

To determine the relationship between the marital status of school bus drivers and the supervisors' ratings of work habits, human relations, and driver performance (accident rate), comparisons between the mean scores for each group (single, married, and divorced) were made using analysis of variance. The data in Table 7 indicates no significant difference between single, married, and divorced school bus drivers when compared on work habits, human relations, and driver performance (accident rate).

**The Relationship of Driving Experience**

McKnight (33) indicates that the most successful school bus drivers are those with at least three years of school bus driving experience. An examination of the literature revealed no studies pertaining to general driving experience and performance of the school bus driving task.

In that people who participated in this study were newly employed school bus drivers with no school bus driving experience, years of general driving experience was used as a criterion for comparison. Therefore, the following research question was investigated:

**Question 3:** What is the relationship between years of general driving experience of a school bus
TABLE 7

The Relationships Between the Marital Status of School Bus Drivers and Supervisors' Ratings of Work Habits, Human Relations, and Driver Performance (Accident Rate)

<table>
<thead>
<tr>
<th></th>
<th>Work Habits</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Single (n=29)</td>
<td>Married (n=135)</td>
<td>Divorced (n=13)</td>
</tr>
<tr>
<td>M</td>
<td>9.70</td>
<td>8.41</td>
<td>8.62</td>
</tr>
<tr>
<td>SD</td>
<td>2.37</td>
<td>2.89</td>
<td>1.93</td>
</tr>
</tbody>
</table>

Source df s.s. m.s. F
Between Groups 2 39.25 19.63 2.57 (> .05)
Within Groups 174 1325.87 7.62
Total 176 1365.12

<table>
<thead>
<tr>
<th></th>
<th>Human Relations</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Single (n=29)</td>
<td>Married (n=135)</td>
<td>Divorced (n=13)</td>
</tr>
<tr>
<td>M</td>
<td>10.10</td>
<td>9.16</td>
<td>10.10</td>
</tr>
<tr>
<td>SD</td>
<td>2.85</td>
<td>2.85</td>
<td>1.78</td>
</tr>
</tbody>
</table>

Source df s.s. m.s. F
Between Groups 2 26.97 13.48 1.69 (> .05)
Within Groups 174 1386.42 7.97
Total 176 1413.39
TABLE 7 (Contd.)

The Relationships Between the Marital Status of School Bus Drivers and Supervisors' Ratings of Work Habits, Human Relations, and Driver Performance (Accident Rate)

<table>
<thead>
<tr>
<th>Driver Performance</th>
<th>Single (n=29)</th>
<th>Married (n=135)</th>
<th>Divorced (n=13)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Single</td>
<td>20.24</td>
<td>4.76</td>
<td>17.79</td>
</tr>
</tbody>
</table>

Source df s.s. m.s. F
Between Groups 2 148.72 74.36 2.90 (> .05)
Within Groups 174 4465.53 25.67
Total 176 4614.25

driver and the supervisors' ratings of work habits, human relations, and driver performance (accident rate)?

To describe the relationship between years of general driving experience and supervisors' ratings of work habits, human relations, and driver performance (accident rate), the Pearson product-moment correlation coefficient was used. An examination of the data in Table 8 indicates that there is a statistically significant relationship between years of general driving experience and work habits and driver performance (accident rate). Although there is a relationship shown, that relationship is low in degree (r = .10 to .29).

There is no statistically significant relationship between years of general driving experience and supervisors' ratings of the drivers' human relations skills.
The Relationship of Formal Education

An investigation by McKnight (33) relating to school bus driver selection revealed that the best drivers had between eight and 12 years of formal education. An examination of the literature revealed no other studies pertaining to selection of school bus drivers. Therefore, the following research question was formulated:

**Question 4:** What is the relationship between the level of formal education of the school bus driver and the supervisors' ratings of work habits, human relations, and driver performance (accident rate)?

The Pearson product-moment correlation coefficient was used to show the relationship of level of formal education and supervisors' ratings of work habits, human relations, and driver performance (accident rate). As indicated in Table 8, there is no statistically significant relationship between level of formal education and the supervisors' ratings on work habits, human relations, and driver performance (accident rate).

The Relationship of Age

McMichael (38) investigated the rate and types of school bus accidents according to the age of the school bus driver. She reported that findings did not show a statistically significant relationship. However, she did find that student drivers (age 16 through 20 years) had a higher accident rate than adult drivers (age 21 and over). The study also indicated that the 16 year old drivers had the highest proportion of violations and the highest proportion of single vehicle collisions.
Support for the older (in terms of age) school bus driver came from an investigation by McKnight (33) when he indicated that people that were over 30 years of age were better school bus drivers.

The two studies cited above offer conflicting data on the relationship between age and performance of school bus drivers. Therefore, in order to further investigate the factor of bus driver age, the following research question was developed:

**Question 5**: What is the relationship between the age of school bus drivers and the supervisors' ratings of work habits, human relations, and driver performance (accident rate)?

The relationship between the age of school bus drivers and the supervisors' ratings of work habits, human relations and driver performance (accident rate) was determined by using the Pearson product-moment correlation coefficient. There is a statistically significant relationship between the age of school bus drivers and work habits and driving performance (accident rate). This is shown in Table 8. This relationship is low in degree ($r = .10$ to $.29$).

There is no significant relationship between age of school bus drivers and supervisors' ratings of the drivers' human relations skills.

**Personality Traits**

Although the literature revealed no studies pertaining to the personality traits of school bus drivers, a number of studies have been conducted which examine the personality characteristics of successful school teachers.
TABLE 8
Relationships Between Selected Characteristics 
and Supervisors' Ratings of Work Habits, Human Relations, 
and Driver Performance (Accident Rate)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Years Driving Experience (Pearson Product-Moment Coefficient)</th>
<th>Level of Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work habits</td>
<td>-.22*</td>
<td>.11</td>
</tr>
<tr>
<td>Human relations</td>
<td>-.13</td>
<td>-.05</td>
</tr>
<tr>
<td>Driver performance</td>
<td>-.20*</td>
<td>.03</td>
</tr>
</tbody>
</table>

Note: The lower the numerical value on the supervisors rating scale, the higher the performance ratings of drivers. This results in negative values of the coefficients.

*p < .05

Erickson (10) determined that teaching effectiveness was significantly related to high super ego strength and above average self-conception integration. In addition, effective teachers were found to be significantly more practical than imaginative and less apprehensive than teachers rated ineffective. Montrose (11) found a significant relationship between success rating and warm-heartedness. Haverland (12) indicates that junior high school teachers are warm and outgoing, emotionally stable, venturesome, trusting, confident, radical, and group dependent in comparison with the general population.

Considering that school bus drivers interact with students in a somewhat similar relationship, successful drivers may possess many of the same personality characteristics as successful teachers.
Therefore, the following research question was formulated:

**Question 6:** What is the relationship between selected personality variables and the supervisors' ratings of work habits, human relations, and driver performance (accident rate)?

The Pearson product-moment correlation coefficient was used to determine the relationships between each of the personality traits and the overall performance data of the bus drivers.

An examination of Table 9 reveals that there is no statistically significant relationship found between work habits and ten of the 16 personality characteristics examined. However, supervisors' ratings indicate that there was a statistically significant relationship between work habits and six personality characteristics. Those characteristics were: extroversion, intelligence, emotional maturity, conscientiousness, independence, and self-sufficiency. Although there is a significant relationship shown, it is low in degree ($r = 0.10$ to $0.29$).

There is no statistically significant relationship found between supervisors' ratings of driver performance (accident rate) and 12 of the 16 personality characteristics investigated. However, supervisors' ratings did indicate that on four personality characteristics, (extroversion, intelligence, conscientiousness, and self-sufficiency) a statistically significant relationship was found with driver performance (accident rate). Again, the relationship is low in degree.

There is no statistically significant relationship between personality characteristics and human relations.
TABLE 9
Relationships Between Selected Personality Traits and Supervisors' Ratings of Work Habits, Human Relations, and Driver Performance (Accident Rate)
(n=177)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Work Habits</th>
<th>Human Relations</th>
<th>Driver Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extroversion (A)</td>
<td>.137*</td>
<td>.105</td>
<td>.149*</td>
</tr>
<tr>
<td>Intelligence (B)</td>
<td>-.269*</td>
<td>-.123</td>
<td>-.217*</td>
</tr>
<tr>
<td>Emotional maturity (C)</td>
<td>.146*</td>
<td>.097</td>
<td>.125</td>
</tr>
<tr>
<td>Assertiveness (E)</td>
<td>-.073</td>
<td>-.089</td>
<td>-.104</td>
</tr>
<tr>
<td>Enthusiasm (F)</td>
<td>.026</td>
<td>.002</td>
<td>.007</td>
</tr>
<tr>
<td>Conscientiousness (G)</td>
<td>-.182*</td>
<td>-.123</td>
<td>-.185*</td>
</tr>
<tr>
<td>Venturesomeness (H)</td>
<td>.071</td>
<td>.050</td>
<td>.072</td>
</tr>
<tr>
<td>Independence (I)</td>
<td>.186*</td>
<td>.036</td>
<td>.134</td>
</tr>
<tr>
<td>Suspiciousness (L)</td>
<td>.022</td>
<td>.053</td>
<td>.035</td>
</tr>
<tr>
<td>Imagination (M)</td>
<td>.002</td>
<td>-.095</td>
<td>-.042</td>
</tr>
<tr>
<td>Shrewdness (N)</td>
<td>.003</td>
<td>.061</td>
<td>.030</td>
</tr>
<tr>
<td>Guilt proneness (O)</td>
<td>.000</td>
<td>-.107</td>
<td>-.073</td>
</tr>
<tr>
<td>Conservativeness (Q1)</td>
<td>.070</td>
<td>.027</td>
<td>.012</td>
</tr>
<tr>
<td>Self-sufficiency (Q2)</td>
<td>.172*</td>
<td>.105</td>
<td>.145*</td>
</tr>
<tr>
<td>Impulsiveness (Q3)</td>
<td>-.144</td>
<td>-.052</td>
<td>-.106</td>
</tr>
<tr>
<td>Tension (Q4)</td>
<td>.118</td>
<td>.102</td>
<td>.123</td>
</tr>
</tbody>
</table>

*p < .05
Accident Rate of Drivers

There have been numerous studies conducted pertaining to the personality characteristics of drivers that have experienced automobile accidents. Mann (13), using the Mann attitude inventory, found that drivers who approach the norm in aggressiveness help maintain a smooth, safe flow of traffic while the above the norm driver contributes to accidents by his aggressive behavior behind the wheel. Hertz (16) indicates that drivers with poor control of hostility and lower tension tolerance seem to be most susceptible to motor vehicle accidents.

A study by Bracy (17) in which the Sixteen Personality Factor Questionnaire was used found that factors extroversion (A), enthusiasm (F); and guilt proneness (O) were personality dimensions in which the accident group scored significantly higher than the nonaccident group.

However, McKnight (19), Gumpper and Smith (20), and Preston and Harris (21) in their investigations have found no relationship between personality variables and performance.

In view of the fact that there are conflicting data in the literature concerning personality characteristics and automobile accidents, and that a review of the literature revealed no studies pertaining to personality characteristics and school bus accidents, the following research question was investigated:

Question 7: What is the relationship between selected personality traits of school bus drivers and school bus accidents?

The relationship between personality characteristics and school bus accidents was determined by comparing the mean scores for each personality characteristic and the total number of accidents.
experienced by the drivers in the sample using an analysis of variance.

As indicated in Table 10, there was no statistically significant relationship found between 14 of the personality characteristics of drivers and involvement in school bus accidents. However, on two personality characteristics, statistically significant relationships were found. Drivers that were involved in one or more school bus accidents tended to be more assertive and independent.

TABLE 10

Mean Personality Test Scores for School Bus Drivers in No Accident and Accident Groups

(n=177)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th></th>
<th></th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Accidents (n=140)</td>
<td>Accidents (n=37)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extroversion (A)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>4.59</td>
<td>5.05</td>
<td>1.79 (p&gt;.05)</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>1.35</td>
<td>1.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intelligence (B)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>6.99</td>
<td>7.11</td>
<td>.309 (p&gt;.05)</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>2.04</td>
<td>1.93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional maturity (C)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>5.40</td>
<td>5.19</td>
<td>.537 (p&gt;.05)</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>1.73</td>
<td>2.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assertiveness (E)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>5.81</td>
<td>5.08</td>
<td>2.08 (p&lt;.05)</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>1.96</td>
<td>1.72</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE 10 (Contd.)

Mean Personality Test Scores for School Bus Drivers
in No Accident and Accident Groups
(n=177)

<table>
<thead>
<tr>
<th>Variable</th>
<th>No Accidents (n=140)</th>
<th>Accidents (n=37)</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enthusiasm (F)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\bar{x}$</td>
<td>5.66</td>
<td>5.24</td>
<td>1.10</td>
</tr>
<tr>
<td>SD</td>
<td>2.07</td>
<td>1.83</td>
<td></td>
</tr>
<tr>
<td>Conscientiousness (G)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\bar{x}$</td>
<td>6.68</td>
<td>6.03</td>
<td>.195</td>
</tr>
<tr>
<td>SD</td>
<td>1.73</td>
<td>2.06</td>
<td></td>
</tr>
<tr>
<td>Venturesomeness (H)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\bar{x}$</td>
<td>5.59</td>
<td>5.76</td>
<td>.542</td>
</tr>
<tr>
<td>SD</td>
<td>1.75</td>
<td>1.54</td>
<td></td>
</tr>
<tr>
<td>Independence (I)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\bar{x}$</td>
<td>4.19</td>
<td>4.81</td>
<td>1.98</td>
</tr>
<tr>
<td>SD</td>
<td>1.64</td>
<td>1.91</td>
<td></td>
</tr>
<tr>
<td>Suspiciousness (L)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\bar{x}$</td>
<td>5.38</td>
<td>5.19</td>
<td>.540</td>
</tr>
<tr>
<td>SD</td>
<td>1.91</td>
<td>1.85</td>
<td></td>
</tr>
<tr>
<td>Imagination (M)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\bar{x}$</td>
<td>4.90</td>
<td>5.43</td>
<td>1.47</td>
</tr>
<tr>
<td>SD</td>
<td>1.94</td>
<td>2.05</td>
<td></td>
</tr>
</tbody>
</table>
TABLE 10 (Contd.)

Mean Personality Test Scores for School Bus Drivers in No Accident and Accident Groups.

(n=177)

<table>
<thead>
<tr>
<th>Variable</th>
<th>No Accidents (n=140)</th>
<th>Accidents (n=37)</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shrewdness (N)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\overline{x})</td>
<td>5.19</td>
<td>4.95</td>
<td>.754 (p&gt;.05)</td>
</tr>
<tr>
<td>SD</td>
<td>1.79</td>
<td>1.45</td>
<td></td>
</tr>
<tr>
<td>Guilt proneness (O)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\overline{x})</td>
<td>4.71</td>
<td>4.05</td>
<td>1.78 (p&gt;.05)</td>
</tr>
<tr>
<td>SD</td>
<td>2.05</td>
<td>1.75</td>
<td></td>
</tr>
<tr>
<td>Conservativeness (Q1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\overline{x})</td>
<td>4.96</td>
<td>4.60</td>
<td>1.03 (p&gt;.05)</td>
</tr>
<tr>
<td>SD</td>
<td>1.99</td>
<td>1.72</td>
<td></td>
</tr>
<tr>
<td>Self-sufficiency (Q2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\overline{x})</td>
<td>4.95</td>
<td>4.76</td>
<td>.593 (p&gt;.05)</td>
</tr>
<tr>
<td>SD</td>
<td>1.82</td>
<td>1.54</td>
<td></td>
</tr>
<tr>
<td>Impulsiveness (Q3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\overline{x})</td>
<td>6.33</td>
<td>6.43</td>
<td>.286 (p&gt;.05)</td>
</tr>
<tr>
<td>SD</td>
<td>1.93</td>
<td>2.10</td>
<td></td>
</tr>
<tr>
<td>Tension (Q4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\overline{x})</td>
<td>5.56</td>
<td>5.48</td>
<td>.226 (p&gt;.05)</td>
</tr>
<tr>
<td>SD</td>
<td>1.75</td>
<td>1.33</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Purpose

The purpose of this study was to determine the relationships between selected personality traits and personal characteristics of newly employed school bus drivers to their work habits, human relations abilities, and driver performance (accident rate).

Specifically, the study was designed to investigate the following questions:

1. What is the relationship between the sex of a school bus driver and the supervisors' ratings of work habits, human relations, and driver performance (accident rate)?

2. What is the relationship between the marital status of a school bus driver and the supervisors' ratings of work habits, human relations, and driver performance (accident rate)?

3. What is the relationship between years of general driving experience of a school bus driver and the supervisors'
ratings of work habits, human relations, and driver performance (accident rate)?

4. What is the relationship between the level of formal education of the school bus driver and the supervisors' ratings of work habits, human relations, and driver performance (accident rate)?

5. What is the relationship between the age of school bus drivers and the supervisors' ratings of work habits, human relations, and driver performance (accident rate)?

6. What is the relationship between selected personality traits of school bus drivers as measured by the Sixteen Personality Factor Questionnaire and overall driver performance (combined scores on work habits, human relations, and accident rate) as determined by supervisors' ratings?

7. What is the relationship between selected personality traits of school bus drivers as measured by the Sixteen Personality Factor Questionnaire and involvement in one or more school bus accidents?

Procedures

One hundred seventy-seven Ohio school bus drivers and 43 transportation supervisors participated in this study. The school districts were randomly selected from a listing of all school districts in Ohio that provide pupil transportation. The districts were categorized by
city, local, and exempted village. The school districts in each category were divided into small, medium, and large size districts according to the number of pupils transported. A stratified random sample was employed to select representative school districts. Systematic sampling with a random start was used within each stratum.

The school bus drivers that were employed during June, July, and August of 1976 responded to a questionnaire pertaining to their age, sex, marital status, years of driving experience, and highest level of education attained. The drivers also completed the Sixteen Personality Factor Questionnaire.

At the end of the 1976-77 school year the transportation supervisors evaluated the performance of the school bus drivers relative to work habits, human relations abilities, and driver performance (number of accidents).

Findings

1. There is no statistically significant relationship between sex of bus drivers and the level of performance of the school bus driving task. That is, male and female drivers were rated by supervisors to have the same level of performance on work habits, human relations abilities, and driver performance (accident rate).

2. There is no statistically significant relationship between marital status and the level of performance of the school bus driving task. Single, married, and divorced drivers were rated by their supervisors as performing at the same
level on work habits, human relations abilities, and driver performance (accident rate).

3. Supervisor ratings of driver work habits and performance (accident rate) indicate a statistically significant relationship between years of general driving experience and high level of performance of the school bus driving task. That is to say, the more years of general driving experience the better the performance of the school bus driving task.

However, the supervisors' ratings did not indicate a significant relationship between years of general driving experience and human relations abilities.

4. There is no statistically significant relationship between the drivers' formal education level and their work habits, human relations abilities, and driver performance (accident rate).

5. There is a statistically significant relationship between the school bus drivers' age, work habits, and accident rate. That is, the older the person, the better their work habits and accident rate.

However, there is no significant relationship found between age and human relations abilities of the school bus driver.
6. Personality profiles developed by using the Sixteen Personality Factor Questionnaire indicate that male school bus drivers fall within the average or normal range when compared with the general male population.

Female school bus drivers were inside the normal range with the exception of four factors. The female drivers are more conscientious, tough-minded, practical, and conservative than the general female population.

There was no statistically significant relationship found between work habits and ten of the 16 personality characteristics examined.

However, there was a statistically significant relationship found between work habits and six personality characteristics. The drivers with the highest supervisor ratings tended to be more reserved, intelligent, stable, exacting, practical, and group dependent.

There was no statistically significant relationship found between supervisors' ratings of driver performance (accident rate) and 12 of the 16 personality characteristics.

However, supervisors gave significantly higher ratings to drivers who scored high in the areas of extroversion, intelligence, conscientiousness, and self-sufficiency.
7. There was no statistically significant relationship found between 14 of the personality characteristics of drivers and involvement in school bus accidents.

However, drivers that were involved in one or more school bus accidents were significantly more assertive and independent.

Conclusions

The results of this study indicate that there is no statistically significant relationship between a school bus driver's sex, marital status, and level of formal education and their work habits, human relations abilities, and driver performance (accident rate). Conversely, there is a significant relationship between the age and number of years of general driving experience and their work habits and driver performance (accident rate).

The implication is that the older a person is and the more driving experience that he or she has, the higher the level of performance as a school bus driver. Therefore, it seems reasonable to give preference to experienced drivers with low previous accident rates when employing new school bus drivers.

The personality profiles developed in this investigation reveal that school bus drivers are, on the whole, "average or normal" with regard to personality profiles. That is, they do not possess personality traits that would separate them from the general population.

In addition, the data indicate that on the majority of the personality characteristics examined, there were no significant relationships
between personality characteristics and work habits and driver performance (accident rate). However, the data do indicate that those drivers that scored high in work habits and driver performance (low accident rate) also scored high on the following common personality characteristics: extroversion, intelligence, conscientiousness, and self-sufficiency.

Therefore, if a personality test is given as part of the employment process, it seems reasonable that the applicants who score high on these dimensions receive preferential consideration.

In this investigation, it was determined that school bus drivers who were involved in school bus accidents exhibited the personality characteristics of assertiveness and independence. Again, if a personality test is given to prospective employees, it seems reasonable that transportation supervisors should be reluctant to hire prospective school bus drivers who rate high on these characteristics.

**Recommendations**

On the basis of the findings of this study and relevant literature, it is recommended that:

1. School districts consider with some reluctance the employing of prospective school bus drivers that have little general driving experience.

2. If a personality test is given as part of the employment process, school districts should give special consideration to those applicants that score high on the personality characteristics of extroversion, intelligence, and self-sufficiency.
3. If a personality test is given as part of the employment procedures, school districts should consider with some reluctance the hiring of school bus driver applicants that score high on the characteristics of assertiveness and independence.

4. This study be replicated using a larger sample and statistically compare the findings with current criteria for hiring and long term (three to five years) driving performance.

5. The state departments of education begin gathering longitudinal data such as personal and personality characteristics of school bus drivers, driver selection criteria used by school districts, termination policies of school districts, and school bus accident rates for detailed analysis over a long period of time.

The data might be useful in developing school transportation policy, particularly as it pertains to selection and termination of school bus drivers and accident rate reduction.

6. The procedures used in this study be used to investigate the relationships between personality traits and personal characteristics, and the performance of the occupational task for other types of school bus drivers such as special education (transporting the handicapped) and public transit bus drivers.
This investigation would be desirable in that the special education drivers may possess certain personality traits and personal characteristics that would enable them to transport children with various types of mental and/or physical handicaps. The public transit drivers may possess certain personality traits and personal characteristics that enable them to transport passengers of all ages with a variety of reasons for being on the bus.
APPENDIX A

INSTRUMENTS

Personality Questionnaire and Answer Sheet

WHAT TO DO: Inside this booklet are some questions to see what attitudes and interests you have. There are no “right” and “wrong” answers because everyone has the right to his own views. To be able to get the best advice from your results, you will want to answer them exactly and truly.

If a separate “Answer Sheet” has not been given to you, turn this booklet over and tear off the Answer Sheet on the back page.

Write your name and all other information asked for on the top line of the Answer Sheet.

First you should answer the four sample questions below so that you can see whether you need to ask anything before starting. Although you are to read the questions in this booklet, you must record your answers on the answer sheet (alongside the same number as in the booklet).

There are three possible answers to each question. Read the following examples and mark your answers at the top of your answer sheet where it says “Examples.” Fill in the left-hand box if your answer choice is the “a” answer, and in the right-hand box if you choose the “c” answer.

EXAMPLES:
1. I like to watch team games.
   a. yes, b. occasionally, c. no.
   3. Money cannot bring happiness.
   a. yes (true), b. in between, c. no (false).
2. I prefer people who:
   a. are reserved, b. (are) in between, c. make friends quickly.
   4. Woman is to child as cat is to:
      a. kitten, b. dog, c. boy.

In the last example there is a right answer—kitten. But there are very few such reasoning items.

Ask now if anything is not clear. The examiner will tell you in a moment to turn the page and start.

When you answer, keep these four points in mind:
1. You are asked not to spend time pondering. Give the first, natural answer as it comes to you. Of course, the questions are too short to give you all the particulars you would sometimes like to have. For instance, the above question asks you about “team games” and you might be fonder of football than basketball. But you are to reply “for the average game,” or to strike an average in situations of the kind stated. Give the best answer you can at a rate not slower than five or six a minute. You should finish in a little more than half an hour.
2. Try not to fall back on the middle, “uncertain” answers except when the answer at either end is really impossible for you—perhaps once every four or five questions.
3. Be sure not to skip anything, but answer every question, somehow. Some may not apply to you very well, but give your best guess. Some may seem personal, but remember that the answer sheets are kept confidential and cannot be scored without a special code key. Answers to particular questions are not inspected.
4. Answer as honestly as possible what is true of you. Do not merely mark what seems “the right thing to say” to impress the examiner.

DO NOT TURN PAGE UNTIL TOLD TO DO SO

Copyright © 1969 by The Institute for Personality and Ability Testing. It may be reproduced or translated in whole or in part for non-profit educational purposes. All rights reserved. Printed in U.S.A. 1969-CA-448
1. I think my memory is better than it ever was.
   a. yes, b. in between, c. no.

2. I could happily live alone; far from anyone, like a hermit.
   a. yes, b. occasionally, c. no.

3. If I say the sky is "down" and winter is "hot," I would call a criminal:
   a. a gangster, b. a saint, c. a cloud.

4. When going to bed, I:
   a. drop off to sleep quickly, b. in between, c. have difficulty falling asleep.

5. When driving a car in a line of traffic, I feel satisfied:
   a. to remain behind most of the other cars, b. in between, c. only after I've reached the front of the line.

6. At a party I let others keep the jokes and stories going.
   a. yes, b. sometimes, c. no.

7. It's important to me not to live in messy surroundings.
   a. true, b. uncertain, c. false.

8. Most people I meet at a party are undoubtedly glad to see me.
   a. yes, b. sometimes, c. no.

9. I would rather exercise by:
   a. fencing and dancing, b. in between, c. wrestling and baseball.

10. I smile to myself at the big difference between what people do and what they say they do.
    a. yes, b. occasionally, c. no.

11. In reading about an accident I like to find out exactly how it happened.
    a. always, b. sometimes, c. seldom.

12. When friends play a joke on me, I usually enjoy it as much as the others, without feeling at all upset.
    a. true, b. in between, c. false.

13. When someone speaks angrily to me, I can forget the matter quickly.
    a. true, b. uncertain, c. false.

14. I like to "dream up" new ways of doing things rather than to be a practical follower of well-tried ways.
    a. true, b. uncertain, c. false.

15. When I plan something, I like to do so quite alone without any outside help.
    a. yes, b. occasionally, c. no.

16. I consider myself less "high strung" than most people.
    a. true, b. in between, c. false.

17. I get impatient easily with people who don't decide quickly.
    a. true, b. in between, c. false.

18. I have sometimes, even if briefly, had hateful feelings towards my parents.
    a. yes, b. in between, c. no.

19. I would rather tell my innermost thoughts to:
    a. my good friends, b. uncertain, c. a diary.

20. I think the opposite of the opposite of "lax" is:
    a. casual, b. accurate, c. rough.

21. I always have lots of energy at times when I need it.
    a. yes, b. in between, c. no.
22. I am more annoyed by a person who:
   a. tells off-color jokes and embarrasses people.
   b. uncertain.
   c. is late for an appointment and inconveniences me.
23. I greatly enjoy inviting guests and amusing them.
   a. true.  b. uncertain.  c. false.
24. I feel that:
   a. some jobs just don’t have to be done so carefully as others.
   b. In between.
   c. any job should be done thoroughly if you do it at all.
25. I have always had to fight against being too shy.
   a. yes.  b. In between.  c. no.
26. It would be more interesting to be:
   a. a bishop.  b. uncertain.  c. a colonel.
27. If a neighbor cheats me in small things, I would rather humor him than show him up.
   a. yes.  b. occasionally.  c. no.
28. I like a friend who:
   a. is efficient and practical in his interests.
   b. In between.
   c. seriously thinks out his attitudes toward life.
29. It bothers me if I hear others expressing ideas that are contrary to those that I firmly believe.
   a. true.  b. In between.  c. false.
30. I am over-conscientious, worrying over my past acts or mistakes.
   a. yes.  b. In between.  c. no.
31. If I were good at both, I would rather:
   a. play chess.
   b. In between.
   c. go bowling.
32. I like to join with people who show lively group enthusiasm.
   a. yes.  b. In between.  c. no.
33. I put my faith more in:
   a. insurance.
   b. In between.
   c. good fortune.
34. I can forget my worries and responsibilities whenever I need to.
   a. yes.  b. sometimes.  c. no.
35. It’s hard for me to admit it when I’m wrong.
   a. yes.  b. sometimes.  c. no.
36. In a factory it would be more interesting to be in charge of:
   a. machinery or keeping records.
   b. In between.
   c. talking to and hiring new people.
37. Which word does not belong with the other two?
   a. cat.  b. near.  c. man.
38. Minor distractions seem:
   a. to irritate me.
   b. In between.
   c. not to bother me at all.
39. I am quite happy to be waited on, at appropriate times, by personal servants.
   a. often.  b. sometimes.  c. never.
40. I would rather live in a town:
   a. artistically laid out, but relatively poor.
   b. uncertain.
   c. that is rough, prosperous, and booming.
41. People should insist more than they now do that moral laws be followed.
   a. yes.  b. sometimes.  c. no.
42. I have been told that, as a child, I was rather:
   a. quiet and kept to myself.
   b. In between.
   c. lively and always active.
43. I enjoy routine, constructive work, using a
   good piece of machinery or apparatus.
   a. yes,  b. in between,  c. no.

44. I think most witnesses tell the truth even if it
   becomes embarrassing.
   a. yes,  b. in between,  c. no.

45. When I meet a new person I would rather:
   a. discuss his politics and social views,
   b. in between,
   c. have him tell me some good, new jokes.

46. I try to make my laughter at jokes quieter
   than most people's.
   a. yes,  b. in between,  c. no.

47. I never feel so wretched that I want to cry.
   a. true,  b. uncertain,  c. false.

48. In music I enjoy:
   a. military band marches,
   b. uncertain,
   c. violin solos.

49. I would rather spend two weeks in the summer:
   a. bird-watching and walking in the country
      with a friend or two,
   b. uncertain,
   c. being a leader of a group in a camp.

50. The effort taken in planning ahead:
   a. is never wasted,
   b. in between,
   c. is not worth it.

51. Inconsiderate acts or remarks by my neighbors
do not make me touchy and unhappy.
   a. true,  b. uncertain,  c. false.

52. When I know I'm doing the right thing, I find
   my task easy.
   a. always,  b. sometimes,  c. seldom.

53. I would rather be:
   a. in a business office, organizing and seeing
      people,
   b. in between,
   c. an architect, drawing plans in a quiet room.

54. "House" is to "room" as "tree" is to:
   a. forest,  b. plant,  c. leaf.

55. Things go wrong for me:
   a. rarely,  b. occasionally,  c. frequently.

56. In most things in life, I believe in:
   a. taking a gamble,
   b. in between,
   c. playing it safe.

57. Some people may think I talk too much.
   a. likely,  b. uncertain,  c. unlikely.

58. I admire more:
   a. a clever, but undependable man,
   b. in between,
   c. a man who is average, but strong to resist
      temptations.

59. I make decisions:
   a. faster than many people,
   b. uncertain,
   c. slower than most people.

60. I am more impressed by:
   a. acts of skill and grace,
   b. in between,
   c. acts of strength and power.

61. I am considered a cooperative person.
   a. yes,  b. in between,  c. no.

62. I enjoy talking more with polished, sophis-
    ticated people than with outspoken, down-to-
    earth individuals.
   a. yes,  b. in between,  c. no.

63. I prefer to:
   a. keep my problems to myself,
   b. in between,
   c. talk about them to my friends.
64. If a person doesn't answer when I make a suggestion, I feel I've said something silly.
   a. true. b. in between. c. false.

65. I learn more in my school days by:
   a. going to class.
   b. in between.
   c. reading books.

66. I avoid getting involved in social responsibilities and organizations.
   a. true. b. sometimes. c. false.

67. When a problem gets hard and there is a lot to do, I try:
   a. a different problem.
   b. in between.
   c. a different attack on the same problem.

68. I get strong emotional moods—anxiety, anger, laughter, etc.—that seem to arise without much actual cause.
   a. yes. b. occasionally. c. no.

69. My mind doesn't work so clearly at some times as it does at others.
   a. true. b. in between. c. false.

70. I am happy to oblige people by making appointments at times they prefer, even if it is a bit inconvenient to me.
   a. yes. b. sometimes. c. no.

71. I think the proper number to continue the series 1. 2. 3. 6. 24 is:
   a. 10. b. 5. c. 7.

72. I have occasionally had a brief touch of faintness, dizziness, or light-headedness for no apparent reason.
   a. yes. b. uncertain. c. no.

73. I would rather do without something than put a wrapper or waistcoat to a lot of extra trouble.
   a. yes. b. occasionally. c. no.

74. I live for the "here and now" more than most people do.
   a. true. b. uncertain. c. false.

75. At a party, I like:
   a. to get into worthwhile conversation.
   b. in between.
   c. to see people relax and completely let go.

76. I speak my mind no matter how many people are around.
   a. yes. b. sometimes. c. no.

77. If I could go back in time, I'd rather meet:
   a. Columbus.
   b. uncertain.
   c. Shakespeare.

78. I have to stop myself from getting too involved in trying to straighten out other people's problems.
   a. yes. b. sometimes. c. no.

79. In a store or market, I would prefer to:
   a. design and do window displays.
   b. uncertain.
   c. be a cashier.

80. If people think poorly of me, I can still go on calmly in my own mind.
   a. yes. b. in between. c. no.

81. If an old friend seems cold and reserved to me, I usually:
   a. just think "He's in a bad mood."
   b. uncertain.
   c. worry about what I may have done wrong.

82. More trouble arises from people:
   a. changing and meddling with ways that are already satisfactory.
   b. uncertain.
   c. turning down new, promising methods.

83. I greatly enjoy talking to people about local problems.
   a. yes. b. sometimes. c. no.

84. Im, strict people don't seem to get along well with me.
   a. true. b. sometimes. c. false.
85. I guess I'm less irritable than most people.
   a. true, b. uncertain, c. false.

86. I may be less considerate of other people than they are of me.
   a. true, b. sometimes, c. false.

87. I would just as soon let someone else have all the worry of being in charge of an organization of which I am a member.
   a. true, b. uncertain, c. false.

88. If the hands on a watch come together exactly every 60 minutes (assuming the accurate watch), the watch is running:
   a. slow, b. on time, c. fast.

89. I am bored:
   a. often, b. occasionally, c. seldom.

90. People say that I like to have things done my own way.
   a. true, b. occasionally, c. false.

91. I find it wise to avoid too much excitement because it tends to wear me out.
   a. yes, b. occasionally, c. no.

92. At home, with a bit of spare time, I:
   a. see if chatting and relaxing,
   b. in between, c. arrange to fill it with special jobs.

93. I am shy, and careful, about making friendships with new people.
   a. yes, b. occasionally, c. no.

94. I think that what people say in poetry could be put just as exactly in plain prose.
   a. yes, b. sometimes, c. no.

95. I suspect that people who act friendly to me can be disloyal behind my back.
   a. yes, generally, b. occasionally, c. no, rarely.

96. I think that even the most dramatic experiences during the year leave my personality much the same as it was.
   a. yes, b. sometimes, c. no.

97. It would seem more interesting to be a:
   a. naturalist and work with plants, b. uncertain, c. public accountant or insurance man.

98. I get unreasonable fears or distastes for some things, for example, particular animals, places, and so on.
   a. yes, b. sometimes, c. no.

99. I like to think out ways in which our world could be changed to improve it.
   a. yes, b. in between, c. no.

100. I prefer games where:
    a. you're on a team or have a partner, b. uncertain, c. each person is on his own.

101. At night I have rather fantastic or ridiculous dreams.
    a. yes, b. occasionally, c. no.

102. If left in a lonely house I tend, after a time, to feel a bit anxious or fearful.
    a. yes, b. sometimes, c. no.

103. If Mary's mother is Fred's father's sister, what relation is Fred to Mary's father?
    a. cousin, b. nephew, c. uncle.

(End of test.)
SCHOOL BUS DRIVER QUESTIONNAIRE

Driver's Name ____________________________ School District ____________________________

1. Age: □ 8 □ 9
2. Sex: □ M-Male (1) □ F-Female (2)
3. Marital Status: □ S-Single (1) □ M-Married (2) □ D-Divorced (3)
4. Years of Driving Experience: □ 12 □ 13
5. Highest Level of Education Attained: □ Less than 6th grade □ 12th grade
   □ 6th grade □ Some college
   □ 8th grade □ 4 years of college
   □ 10th grade
TRANSPORTATION SUPERVISOR QUESTIONNAIRE

Supervisor's Name ___________________________ School District ___________________________

Please respond to the following questions pertaining to the performance of the school bus driving task by a driver in your school district.

A. Driving Skill
The number of school bus accidents during the 1976-77 school year in which the school bus driver's action contributed to the accident(s)?

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>One</th>
<th>Two</th>
<th>Three</th>
<th>Four</th>
<th>Five</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

B. Work Habits
How do you rate the driver in respect to:

<table>
<thead>
<tr>
<th></th>
<th>Bus cleanliness</th>
<th>Reporting of mechanical failures of the bus</th>
<th>Daily work attendance</th>
<th>Punctuality to work</th>
<th>Punctuality on bus route</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C. Human Relations
How do you rate the driver in respect to human relations with:

<table>
<thead>
<tr>
<th></th>
<th>Students</th>
<th>School staff (teachers)</th>
<th>School staff (bus drivers, custodians, Cooks)</th>
<th>School administrators</th>
<th>Parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Driver Overall Performance Scale

Driving Skill -- For each school bus accident 50 points

Work Habits

1. For each excellent rating 1 point
2. For each good rating 2 points
3. For each fair rating 3 points
4. For each poor rating 4 points

Human Relations

1. For each excellent rating 1 point
2. For each good rating 2 points
3. For each fair rating 3 points
4. For each poor rating 4 points
APPENDIX B

CAPSULE DESCRIPTIONS OF THE SIXTEEN PRIMARY PERSONALITY FACTORS

Low Score Direction

**FACTOR A**

- **Reserved**

  The person who scores low (stem of one to three) on Factor A tends to be stiff, cool, skeptical, and aloof. He likes things rather than people, working alone, and avoiding compromises of viewpoints. He is likely to be precise and "rigid" in his way of doing things and in personal standards, and in many occupations these are desirable traits. He may tend, at times, to be critical, obstructive, or hard.

**FACTOR B**

- **Less Intelligent**

  The person scoring low on Factor B tends to be slow to learn and grasp, dull, given to concrete and literal interpretation. His dullness may be simply a reflection of low intelligence, or it may represent poor functioning due to psychopathology.

**FACTOR C**

- **Affected by Feelings**

  The person who scores low on Factor C tends to be low in frustration tolerance for unsatisfactory conditions, changeable and plastic, avoiding necessary reality demands, neurotically fatigued, fretful, easily emotional and annoyed, active in dissatisfaction, having neurotic symptoms (phobias, sleep disturbances, psychosomatic complaints, etc.). Low Factor C score is common to almost all forms of neurotic and some psychotic disorders.

High Score Direction

**FACTOR A**

- **Outgoing**

  The person who scores high (stem of eight to ten) on Factor A tends to be good-natured, easy-going, emotionally expressive (hence naturally Affectothymia), ready to cooperate, attentive to people, soft-hearted, kindly, adaptable. He likes occupations dealing with people and socially impressive situations. He readily forms active groups. He is generous in personal relations, less afraid of criticism, better able to remember names of people.

**FACTOR B**

- **More Intelligent**

  The person who scores high on Factor B tends to be quick to grasp ideas, a fast learner, intelligent. There is some correlation with level of culture, and some with alertness. High scores contraindicate deterioration of mental functions in pathological conditions.

**FACTOR C**

- **Emotionally Stable**

  The person who scores high on Factor C tends to be emotionally mature, stable, realistic about life, unruffled, possessing ego strength, better able to maintain solid group morale. Sometimes he may be a person making a resigned adjustment* to unsolved emotional problems.

  *Shrewd clinical observers have pointed out that a good C level sometimes enables a person to achieve effective adjustment despite an underlying psychotic potential.
FACTOR E

Humble

The person who scores low on Factor E tends to give way to others, to be docile, and to conform. He is often dependent, confusing, anxious for obsessional correctness. This passivity is part of many neurotic syndromes.

versus

Assertive

The person who scores high on Factor E is assertive, self-assured, and independent minded. He tends to be austere, a law to himself, hostile or contemptuous, authoritarian (managing others), and disregards authority.

FACTOR F

Sober

The person who scores low on Factor F tends to be restrained, reticent, introspective. He is sometimes dour, pessimistic, unduly deliberate, and considered snug and primly correct by observers. He tends to be a sober, dependable person.

versus

Happy-go-lucky

The person who scores high on this trait tends to be cheerful, active, talkative, frank, expressive, effervescent, carefree. He is frequently chosen as an elected leader. He may be impulsive and mercurial.

FACTOR G

Expedient

The person who scores low on Factor G tends to be unsteady in purpose. He is often casual and lacking in effort for group undertakings and cultural demands. His freedom from group influence may lead to anti-social acts, but at times makes him more effective while his refusal to be bound by rules causes him to have less somatic upset from stress.

versus

Conscientious

The person who scores high on Factor G tends to be exacting in character, dominated by sense of duty, persevering, responsible, planful, "fulfills the unforgiving minute". He is usually conscientious and moralistic, and he prefers hard-working people to witty companions. The inner "categorical imperative" of this essential superego (in the psychoanalytic sense) should be distinguished from the superficially similar "social ideal self" of QIe.

FACTOR II

Shy

The person who scores low on this trait tends to be shy, withdrawing, cautious, retiring, a "wallflower". He usually has inferiority feelings. He tends to be slow and impeded in speech and in expressing himself, dislikes occupations with personal contacts, prefers one or two close friends to large groups, and is not given to keeping in contact with all that is going on around him.

versus

Venturesome

The person who scores high on Factor II is sociable, bold, ready to try new things, spontaneous, and abundant in emotional response. His "thick-skinnedness" enables him to face wear and tear in dealing with people and grueling emotional situations, without fatigue. However, he can be careless of detail, ignore danger signals, and consume much time talking. He tends to be "pushy" and actively interested in the opposite sex.
FACTOR I

**Tough-minded**

The person who scores low on Factor I tends to be practical, realistic, masculine, independent, responsible, but skeptical of subjective, cultural elaborations. He is sometimes unmoved, hard, cynical, smug. He tends to keep a group operating on a practical and realistic "no-nonsense" basis.

**Tender-minded**

The person who scores high on Factor I tends to be tender-minded, day-dreaming, artistic, fastidious, feminine. He is sometimes demanding of attention and help, impatient, dependent, impractical. He dislikes crude people and rough occupations. He tends to slow up group performance, and to upset group morale by unrealistic fussiness.

FACTOR L

**Trusting**

The person who scores low on Factor L tends to be free of jealous tendencies, adaptable, cheerful, uncompetitive, concerned about other people, a good team worker.

**Suspicious**

The person who scores high on Factor L tends to be mistrusting and doubtful. He is often involved in his own ego, is self-opinionated, and interested in internal, mental life. He is usually deliberate in his actions, unconcerned about other people, a poor team member.

This factor is not necessarily paranoia. In fact, the data on paranoid schizophrenics are not clear as to typical Factor L value to be expected.

FACTOR N

**Practical**

The person who scores low on Factor N tends to do the right things, attentive to practical matters, subject to the dictation of what is obviously possible. He is concerned over detail, able to keep his head in emergencies, but sometimes unimaginative.

**Imaginative**

The person who scores high on Factor N tends to be unconventional, unconcerned over everyday matters, Bohemian, self-motivated, imaginatively creative, concerned with "essentials", and oblivious of particular people and physical realities. His inner-directed interests sometimes lead to unrealistic situations accompanied by expressive outbursts. His individuality tends to cause him to be rejected in group activities.

FACTOR N

**Conservative**

The person who scores low on Factor N tends to be unsophisticated, sentimental, simple. He is sometimes crude and awkward, easily pleased and content with what comes, and is natural and spontaneous.

**Shrewd**

The person who scores high on Factor N tends to be polished, experienced, worldly, shrewd. He is often hardheaded and analytical. He has an intellectual, unsentimental approach to situations, an approach akin to cynicism.
**FACTOR 0**

**Placid**

The person who scores low on Factor 0 tends to be placid, with unshakable nerve. He has a mature, unanxious confidence in himself and his capacity to deal with things. He is resilient and secure, but to the point of being insensitive of when a group is not going along with him, so that he may evoke antipathies and distrust.

**Apprehensive**

The person who scores high on Factor 0 tends to be depressed, moody, a worrier, full of foreboding, and brooding. He has a childlike tendency to anxiety in difficulties. He does not feel accepted in groups or free to participate. High Factor 0 score is very common in clinical groups of all types. (See Handbook.)

**FACTOR Q1**

**Conservative**

The person who scores low on Factor Q1 is confident in what he has been taught to believe, and accepts the "tried and true", despite inconsistencies, when something else might be better. He is cautious and compromising in regard to new ideas. Thus, he tends to oppose and postpone change, is inclined to go along with tradition, is more conservative in religion and politics, and tends not to be interested in analytical "intellectual" thought.

**Experimenting**

The person who scores high on Factor Q1 tends to be interested in intellectual matters and has doubts on fundamental issues. He is skeptical and-inquiring regarding ideas, either old or new. He tends to be more well informed, less inclined to moralize, more inclined to experiment in life generally, and more tolerant of inconvenience and change.

**FACTOR Q2**

**Group-dependent**

The person who scores low on Factor Q2 prefers to work and make decisions with other people, likes and depends on social approval and admiration. He tends to go along with the group and may be lacking in individual resolution. He is not necessarily gregarious by choice; rather he needs group support.

**Self-sufficient**

The person who scores high on Factor Q2 is temperamentally independent, accustomed to going his own way, making decisions and taking action on his own. He discounts public opinion, but is not necessarily dominant in his relations with others (see Factor R). He does not dislike people, but simply does not need their agreement or support.

**FACTOR Q3**

**Undisciplined Self-conflict**

The person who scores low on Factor Q3 will not be bothered with will control and regard for social demands. He is not overly considerate, careful, or painstaking. He may feel maladjusted, and many maladjustments (especially affective, but not the paranoid) show Q3.

**Controlled**

The person who scores high on Factor Q3 tends to have strong control of his emotions and general behavior, is inclined to be socially aware and careful, and evidences what is commonly termed "self-respect" and regard for social reputation. He sometimes tends, however, to be obstinate. Effective leaders, and some paranoids, are high on Q3.
The person who scores low on Factor Q1 tends to be sedate, relaxed, composed, and satisfied (not frustrated). In some situations, his oversatisfaction can lead to lateness and low performance, in the sense that low motivation produces little trial and error. Conversely, high tension level may disrupt school and work performance.

The person who scores high on Factor Q1 tends to be tense, excitable, restless, fretful, impatient. He is often fatigued, but unable to remain inactive. In groups he takes a poor view of the degree of unity, orderliness, and leadership. His frustration represents an excess of stimulated, but undischarged, drive.
APPENDIX C

JURY FOR QUESTIONNAIRE DEVELOPMENT

1. Albert Cook, Transportation Supervisor, Berea City Schools, Berea, Ohio.

2. Gary M. Keller, Superintendent, Lakota Local Schools, Risingsun, Ohio.

3. Robert A. Larson, Past President, National Association for Pupil Transportation, Robbindale Area Schools, Minneapolis, Minnesota.

4. Dr. A. J. Miller, Chairman of the Academic Faculty of Vocational-Technical Education, The Ohio State University, Columbus, Ohio.

5. Lloyd Pipes, Transportation Supervisor, Mt. Vernon City Schools, Mt. Vernon, Ohio.

6. William D. Shore, President, Xidex Corporation (Society of Professional Drivers), Paoli, Pennsylvania.

7. Dr. J. Robert Warmbrord, Professor, Agricultural Education, The Ohio State University, Columbus, Ohio.
Dear Instructor:

I am conducting a study in an attempt to find improved methods of selecting school bus drivers. I would appreciate your assistance in conducting the study.

The first task that needs to be done is to contact the school districts listed below to determine:

1. If they have school bus drivers that were employed during the months of June, July, and August of 1976.

2. If the drivers and the transportation supervisors would be willing to participate in the study. The drivers will be asked to take a 30 minute personality test and fill out a questionnaire. The transportation supervisor will be asked to fill out a two part questionnaire.

SCHOOL DISTRICTS SELECTED TO PARTICIPATE IN THE STUDY

<table>
<thead>
<tr>
<th>Will Participate</th>
<th>Number of Drivers</th>
<th>Will Not Participate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please return form to: Robert W. Kinsman
Ohio Department of Education Building
65 South Front Street
Columbus, OH 43215
1. Explain study to instructors
   a. Significance of the study
   b. Research questions
   c. Review sample forms
      (1) Driver questionnaire
      (2) Test instruction page
      (3) Test answer sheet
      (4) Supervisor questionnaire
      (5) Human subjects consent form

2. Need to determine if the sample school districts have drivers that were hired in June, July, or August. Also need to determine if drivers would be willing to participate in the study.

3. If sample districts do not have new drivers or the drivers do not wish to participate, go to alternate sample districts.

4. Please indicate to me the number of test booklets and sets of questionnaires you will need. These will be mailed to you as soon as they are available. There are 25 test booklets that are to be used throughout the state.

5. When the data is collected, mail all test booklets and completed questionnaires to me.

6. The supervisor questionnaire (evaluation of driver performance) will be mailed out in early May.
Guidelines for School Bus Drivers and Transportation Supervisors

For Driver

1. Ask driver to sign and date consent form.
2. Ask driver to fill out school bus driver questionnaire.
3. Complete top of test answer sheet.
4. Take personality test (no time limit).

For Supervisor

1. Sign witness line on consent form.
2. Review instructions for test.
3. Administer test (no time limit).
4. Complete transportation supervisor questionnaire.
5. Make sure all items on questionnaires and answer sheets have been completed.
6. Return all materials to contact person.

Supervisor questionnaire (evaluation of driver performance) will be mailed directly to you in early May.
BIBLIOGRAPHY


