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An Evaluation of the Nebraska Career Information System

Donnalee Heather Van Zante

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AN EVALUATION OF THE NEBRASKA CAREER INFORMATION SYSTEM

by

Donnalee Heather Van Zante

A DISSERTATION
Presented to the Faculty of
The Graduate College in the University of Nebraska
In Partial Fulfillment of Requirements
For the Degree of Doctor of Education

Major: Interdepartmental Area of Administration,
Curriculum, and Instruction

Under the Supervision of Professor Roy D. Dillon

Lincoln, Nebraska

December, 1981
AN EVALUATION OF THE NEBRASKA CAREER INFORMATION SYSTEM
Donnalee Heather Van Zante, Ed.D.
University of Nebraska-Lincoln, 1981
Advisor: Roy D. Dillon

The specific objectives of this study were to compare the extent of knowledge possessed by students in Nebraska Career Information System (NCIS) schools and those in non-NCIS schools with regard to: (1) work factors as well as a knowledge of the interests and abilities which relate to these factors; (2) postsecondary school entrance and financial requirements, schools which provide training for specified occupations, together with knowledge of employment opportunities available in those occupations; (3) knowledge of working conditions, including work settings, wage scales, and the salary necessary for a beginning wage. Additional objectives were to compare the extent to which students in NCIS schools and those in non-NCIS schools could make educational choices and could make choices among alternative goals, and were familiar with the sources of occupational information available to them.

Students were asked to respond to a questionnaire consisting of 33 questions designed to measure career information knowledge possessed by students from NCIS schools and students from non-NCIS schools. The population from which the sample for this study was drawn consisted of 2450 high school seniors from forty high schools in Nebraska. The schools were selected by random sampling and included twenty high schools which subscribed to NCIS and twenty which did not. Eighteen hundred and twelve respondents totaled a 74 percent participation rate.
Analysis of the data revealed that significant differences were scored by students from NCIS schools in their responses to questions concerning ability to determine the level of education desired, ability to make decisions with regard to size of town as well as geographical location for job settings, knowledge of wage scales and the salary necessary for a beginning wage, awareness of schools in Nebraska which provided desired postsecondary training, choice of sources for career information, and use of materials for career information.

Analysis of the data revealed that significant differences were not scored by students in their responses to questions concerning work factors and the knowledge of interest and abilities which relate to these factors, with respect to working conditions, interests in postsecondary education training, in choosing postsecondary occupation plans, with regard to an interest in planning alternate goals, awareness of job availability in chosen occupation, awareness of educational requirements for postsecondary training, knowledge of tuition costs for postsecondary schools, and with regard to knowledge of systems of career information.

The recommendations based on this study include: (1) conducting an orientation on NCIS for freshmen high school students and their parents; (2) emphasizing public relations with the schools, particularly with administrators and the counselors; (3) suggesting that schools establish group guidance courses implementing NCIS; and (4) suggesting that schools use a time study with NCIS delivery of information to determine effectiveness of the system.
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I dedicate this study to my beloved husband, Howard. Without his devotion, sacrifice, and help this study could not have been completed.

D.V.Z.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>1</td>
</tr>
<tr>
<td>INTRODUCTION.</td>
<td></td>
</tr>
<tr>
<td>Vocational Education.</td>
<td>2</td>
</tr>
<tr>
<td>Career Education.</td>
<td>3</td>
</tr>
<tr>
<td>Career Guidance</td>
<td>4</td>
</tr>
<tr>
<td>Need and Importance of Occupational Information</td>
<td>5</td>
</tr>
<tr>
<td>Career Information Systems</td>
<td>8</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>13</td>
</tr>
<tr>
<td>Specific Objectives of the Study</td>
<td>13</td>
</tr>
<tr>
<td>Limitations of the Study</td>
<td>14</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>14</td>
</tr>
<tr>
<td>II</td>
<td>16</td>
</tr>
<tr>
<td>REVIEW OF LITERATURE.</td>
<td></td>
</tr>
<tr>
<td>Vocational Guidance--The Early Days</td>
<td>17</td>
</tr>
<tr>
<td>Introduction of Career Education.</td>
<td>21</td>
</tr>
<tr>
<td>The Need for Occupational Information</td>
<td>25</td>
</tr>
<tr>
<td>Occupational Theories</td>
<td>28</td>
</tr>
<tr>
<td>Occupational Information Systems</td>
<td>32</td>
</tr>
<tr>
<td>Information Strategies Used by Career Information Systems</td>
<td>41</td>
</tr>
<tr>
<td>User Reaction to Career Information Systems</td>
<td>44</td>
</tr>
<tr>
<td>The Nebraska Career Information System (NCIS)</td>
<td>45</td>
</tr>
<tr>
<td>Summary</td>
<td>47</td>
</tr>
<tr>
<td>Rationale</td>
<td>48</td>
</tr>
<tr>
<td>III</td>
<td>52</td>
</tr>
<tr>
<td>METHODS AND PROCEDURES.</td>
<td></td>
</tr>
<tr>
<td>The Problem</td>
<td>52</td>
</tr>
<tr>
<td>Null Hypotheses</td>
<td>52</td>
</tr>
<tr>
<td>Design of the Study</td>
<td>53</td>
</tr>
<tr>
<td>Selection of the Sample</td>
<td>54</td>
</tr>
<tr>
<td>Preparation of the Instrument</td>
<td>54</td>
</tr>
<tr>
<td>Procedure</td>
<td>55</td>
</tr>
<tr>
<td>Pilot Study</td>
<td>55</td>
</tr>
<tr>
<td>Analysis of the Data</td>
<td>56</td>
</tr>
<tr>
<td>IV</td>
<td>58</td>
</tr>
<tr>
<td>FINDINGS OF THE STUDY</td>
<td></td>
</tr>
<tr>
<td>Description of Sample</td>
<td>59</td>
</tr>
<tr>
<td>Findings from Hypotheses.</td>
<td>59</td>
</tr>
<tr>
<td>CHAPTER</td>
<td>PAGE</td>
</tr>
<tr>
<td>---------</td>
<td>------</td>
</tr>
<tr>
<td>V SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS</td>
<td>91</td>
</tr>
<tr>
<td>Summary</td>
<td>91</td>
</tr>
<tr>
<td>Conclusions</td>
<td>95</td>
</tr>
<tr>
<td>Recommendations</td>
<td>99</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>102</td>
</tr>
<tr>
<td>APPENDIX A - Correspondence</td>
<td>108</td>
</tr>
<tr>
<td>APPENDIX B - Questionnaire</td>
<td>110</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>TABLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Number and Percentage of Responses to Questionnaires by High School Seniors in NCIS and Non-NCIS Schools in the Sample.</td>
<td>60</td>
</tr>
<tr>
<td>2 Summary of Chi Square Analysis of Responses of Students from NCIS Schools and Non-NCIS Schools Indicating Factors in Career Choice.</td>
<td>61</td>
</tr>
<tr>
<td>3 Summary of One-Way Analysis of Variance of Responses from Students in NCIS User and Non-NCIS User Schools Indicating Factor in Career Choice.</td>
<td>62</td>
</tr>
<tr>
<td>4 A t-Test Analysis of Questions 2-17 Composed of a Pooled Comparison of Factors Chosen by Students from NCIS and Non-NCIS User Schools</td>
<td>64</td>
</tr>
<tr>
<td>5 Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS User Schools, Indicating Interest in Job Factors, Including Reasoning Procedures.</td>
<td>64</td>
</tr>
<tr>
<td>6 Summary of One-Way Analysis of Variance of Responses from Students in NCIS User and Non-NCIS User Schools Indicating Interest in Job Factors, Including Reasoning Procedures.</td>
<td>66</td>
</tr>
<tr>
<td>7 Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS Schools Indicating Their Interests in Postsecondary Education Training.</td>
<td>67</td>
</tr>
<tr>
<td>8 Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS Schools Indicating Postsecondary Occupational Plans.</td>
<td>68</td>
</tr>
<tr>
<td>9 Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS Schools Indicating Interests in Planning Alternative Goals.</td>
<td>69</td>
</tr>
<tr>
<td>10 Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS Schools Indicating Interest in Level of Postsecondary Education.</td>
<td>70</td>
</tr>
<tr>
<td>11 Summary of One-Way Analysis of Variance of Responses from Students in NCIS User and Non-NCIS User Schools Indicating Interest in Level of Postsecondary Education.</td>
<td>71</td>
</tr>
</tbody>
</table>
Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS Schools in Indicating Awareness of Job Availability in Chosen Occupation ............ 72
Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS Schools Indicating Awareness of Educational Requirements for Postsecondary Training .... 72
Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS Schools Indicating Awareness of Nebraska Postsecondary Schools Which Provide Training for Chosen Occupations ......................... 74
Summary of One-Way Analysis of Variance of Responses from Students in NCIS User and Non-NCIS User Schools Indicating Awareness of Nebraska Postsecondary Schools Which Provide Training for Chosen Occupations ............ 74
Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS Schools Indicating Knowledge of Tuition Costs for Postsecondary Education ............ 75
Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS User Schools Indicating Choice of Primary Sources of Career Information ............ 77
Summary of One-Way Analysis of Variance of Responses from Students in NCIS User and Non-NCIS User Schools Indicating Choice of Primary Sources of Career Information ............ 78
Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS User Schools Indicating Materials Used for Obtaining Career Information ............ 79
Summary of One-Way Analysis of Variance of Responses from Students in NCIS User and Non-NCIS User Schools Indicating Materials Used for Obtaining Career Information ............ 79
Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS User Schools Indicating Knowledge of Systems of Career Information ............ 81
Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS User Schools Indicating Choice of Environment for Job Setting ............ 81
<table>
<thead>
<tr>
<th>TABLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS Schools Indicating Choice of Size of Town for Job Setting</td>
</tr>
<tr>
<td>24</td>
<td>Summary of One-Way Analysis of Variance of Responses from Students in NCIS User and Non-NCIS User Schools Indicating Choice of Size of Town for Job Setting</td>
</tr>
<tr>
<td>25</td>
<td>Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS Schools Indicating Geographical Choice for Job Setting</td>
</tr>
<tr>
<td>26</td>
<td>Summary of One-Way Analysis of Variance of Responses from Students in NCIS User and Non-NCIS User Schools Indicating Geographical Choice for Job Setting</td>
</tr>
<tr>
<td>27</td>
<td>Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS User Schools Indicating Choice of Earnings for Beginning Job</td>
</tr>
<tr>
<td>28</td>
<td>Summary of One-Way Analysis of Variance of Responses from Students in NCIS User and Non-NCIS User Schools Indicating Choice of Earnings for Beginning Job</td>
</tr>
<tr>
<td>29</td>
<td>A t-Test Analysis of Question 33: A Comparison of Correct Responses by Students from NCIS Schools and Those from Non-NCIS Schools</td>
</tr>
<tr>
<td>30</td>
<td>Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS User Schools Indicating Correct Responses to Career Cluster Test</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

From the early beginnings of the United States, the work ethic has played an important role in the lives of Americans. It continues to do so in spite of the many changes which have taken place in recent years.

Work has always had the potential of meeting more than the economic needs of man. It also can meet broad social and psychological needs, among which are social interaction, a sense of personal dignity, identification, and human relationships. The current restiveness in American society suggests that the latter potentialities of work are not recognized by large numbers of people. In view of the apparent alienation of the young and the not-so-young, it seems reasonable to conclude that many individuals have not been assisted to view work as having personal relevance, as being critical to their way of life, or as being a consistent vehicle for self-fulfillment. (Childs, 1965, p. 370)

One of the areas of public education often criticized by the American public relates to what it believes is the failure of the school system to prepare young people for work. Hoyt (1979) stated that "this criticism is often accompanied by pointing to the growing numbers of youths and adults who are today experiencing difficulty in finding, getting, and holding jobs" (p. 1). Hoyt (1979) claimed that the educational system cannot be held solely accountable for the employment ills of the United States. The roots of these ills stem from a variety of social problems. He further stated:

American Education must speak out in a clear and forceful manner in defense of the contention that preparing
persons to work can be done most efficiently, effectively, and correctly if viewed as the kind of longitudinal, developmental process that it really is. (p. 1)

For many years society has expected public education to prepare young people to enter the world of work. In 1914, the report of the Commission on National Aid to Vocational Education referred to "training for a vocation" and in 1918, the National Education Association's Commission on the Reorganization of Secondary Education indicated that "the seven main objectives of American secondary education were health, command of fundamental processes, worthy home membership, vocation, citizenship, worthy use of leisure, and ethical character" (Herr & Cramer, 1972, p. 10).

**Vocational Education**

As a result of the demand for vocational training, vocational education began early in the United States. During the nineteenth century, the emphasis was on agricultural education. Later, the emphasis was placed on the practical and manual arts as well as on industrial education. With the increasing industrialization of the United States, early in the twentieth century problems began to arise with workers and job shifts. At this time, immigrants were arriving on both coasts, people were moving from farms to cities, and many were often not aware of their capabilities or opportunities available to them. The result was general job dissatisfaction. These problems led to what "is usually described in the professional literature as guidance and counseling which was in fact, vocational guidance" (Herr & Cramer, 1979, p. 3). The
assistance given at this time was directed to persons needing to make occupational choices. It was not oriented to the range of personal-social adjustments incorporated later into the province of guidance and counseling practitioners (Herr & Cramer, 1979).

Career Education

The term career education, and the older term, vocational education, are sometimes used as though they are synonymous; however, there are a number of differences in their meanings. Hoyt et al. (1972) define career education as follows:

The total effort of public education and the community aimed at helping all individuals to become familiar with the value of a work-oriented society, to integrate these values into their lives in such a way that work becomes possible, meaningful, and satisfying to each individual. (p. 1)

Career education is a broad term encompassing educational experiences of individuals starting in early childhood and extending throughout their working years and on into retirement.

More specifically, the concept views people as needing three types of skills to be successful in life, namely: (1) sociological skills in order to adjust to and participate in changes in the local community, state, nation, and world; (2) psychological skills to enable the individual to achieve self-awareness and develop desirable personal characteristics; and (3) occupational skills which afford the individual an opportunity to earn a living and which serve as a base for continuous growth and advancement in a career. (Goldhammer & Taylor, 1972, p. 247)

Vocational education, which may be included in career education programs, is designed to teach a job-entry skill to students. Unlike
career education, vocational education does not start at an early age. The major thrust of vocational education starts at the tenth or eleventh grade.

Legislation of benefit to career education included Section 2 of Public Law 95-207, the Career Education Incentive Act of the 95th Congress, which declares:

(1) a major purpose of education is to prepare every individual for a career suitable to that individual's preference.
(2) career education should be an integral part of the Nation's educational process which serves as preparation for work.
(3) career education holds promise of improving the quality of education and opening career opportunities for all students by relating education to their life aspirations, and
(4) educational agencies and institutions (including agencies and institutions of elementary and secondary education, higher education, adult education, employment training and retraining, and vocational education) should make every effort to fulfill that purpose. (Federal Register, 1978)

Career Guidance

Early in the 1970's, the term career guidance began to emerge in the professional literature. Herr and Cramer (1979) described the major organizing themes for career guidance as:

1. Efforts to Develop Decision-Making
2. Concern for the Self-Concept
3. Concern for Life Styles, Values, Leisure
4. Free Choice
5. Individual Differences
6. Flexibility and Coping with Change (p. 10)

In 1979, the National Center for Research in Vocational Education issued the following statement:
Since the enactment of the Education Amendments of 1963, the United States Office of Education and its Bureau of Occupational and Adult Education have held the improvement of guidance programs as one of their priorities. The Education Amendments of 1976 (P.L. 94-482) emphasize the importance of making career guidance programs, services, and activities both more accessible and more effective in meeting the career development and vocational education needs of persons of all ages nationwide.

In recent years, efforts have been made to plan, model, and improve comprehensive systems of guidance and counseling by local, state, and federal agencies as well as a variety of other institutions and organizations. Many programs, materials, resources, and methods of delivery for career guidance, and guidance personnel development have been created and implemented. (Legislation and Guidance Project Fact Sheet, 1979)

Need and Importance of Occupational Information

Information has always been viewed as one of the basic components of career education. Parsons (1905) described it as the "second step in vocational counseling" (p. 5). Super considered "possession of information concerning the preferred occupation" an essential part of an individual's vocational developmental tasks (Osipow, 1968, pp. 124-125).

Traditionally, the counselor has been the primary source of information in career education, and while there appears to be increasing emphasis placed on the delivery of career information services by the nation's counselors, many counselors do not feel much esteem in providing these services. Burck (1975) points out that "career counseling generally is low in prestige among professional counselors, and seems to be acceptable to many only as a stepchild of personal and social counseling" (p. 5).
The following factors may have had a contributing influence on the lack of interest in career guidance exhibited by many counselors:

... the notion that vocational counseling is routine and simple, resulting in a low-prestige factor; the lack of academic excitement about the topic and lack of vocational guidance practice in most counselor education training programs; and a singularity of approach in dealing with clients presenting vocational concerns. (Burck, 1975, p. 7)

Harris (1972) states that, "Counselors have not been trained as information specialists. Neither do they have primary interest in the dispensing of career education" (p. 18).

Harris (1972) further contends:

I believe that there is a level of information beyond the dispensing of facts and that it is here that the counselor can best use his expertise. A part of the role of the counselor should be to assist a student to purposely gain information about himself and career options by planned role-testing. (p. 18)

Shelton asserted that counselors are poorly trained in career information.

Guidance counselors were found to be better prepared to deal with other ingredients in career decisions than the information component. A survey of four-year institutions in Washington and Oregon found that while nearly all offered at least one course relating to vocational information, these courses did not prepare counselors to judge the access procedures, the delivery media, or the format of the occupational information. (McKinlay & McKeever, 1980, p. 358)

Shadbolt reported that in-service training programs did nothing to remedy the lack of pre-service training. "It seems safe to conclude that counselors do not receive any formal in-service training in the use of labor market information" (McKinlay & McKeever, 1980, p. 358).
In summary, there has been growing discontent on the part of both the general public and legislators with the management of career education programs. This discontent may have been an influencing factor in the development of a program recently announced by the Department of Labor.

Improve Career Decisionmaking (ICDM)

The program is a massive one in the field of career information to be delivered to the nation's high school counselors. All high school counselors, Comprehensive Employment and Training Act (CETA) counselors, and public Job Service (JS) counselors in the United States will be given in-service training in career and labor market information (LMI).

The training is to be delivered by state university counselor educators who have been designated as part of a network to be established across the United States. Projected plans establish a timeline of three years for training all high school, CETA, and Job Service counselors.

New career-job market materials, aimed specifically at counselor needs will be developed and disseminated at the local level by state employment security agency Research and Analysis (R&A) units, the principal developers of local labor market information. At the same time, the state employment security agencies will provide technical assistance in the form of counselor workshops and briefings, while nationwide funding of the Occupational Employment Statistics (OES) survey program will maintain the basic source of current local occupational information, as recommended by the National Commission on Employment and Unemployment Statistics. (1980, pp. 1-2)
Career Information Systems

Over a period of the last ten years, systems for career information delivery have been developed in a number of states. The systems, usually consisting of an information analysis component, as well as computer and manual information delivery, and counselor training programs, are designed to offer accurate, current, and local career information.

Along with the explosion in knowledge that has taken place during the latter part of this century, there has occurred an explosion in the amount of education and occupational information available. The amount of information is simply too profuse for anyone to remember. "In California alone, 400 post-secondary institutions offering 13,000 degree programs are included in the California Career Information System" (McKinlay, 1979, p. 25). Career information systems enable individuals in search of answers in career or educational decisionmaking to sift through the vast amount of material in order to obtain the needed information.

Career information systems consist of three major components as follows:

1. Information. A career information staff bases its information on data obtained from governmental and private data programs and supplemented from original sources when necessary. In order to be informative to individuals, these must be "processed" into a usable form; they must be synthesized and reported from a career-planner's perspective, in terms and with comparisons most meaningful to that audience.

2. Delivery. The processed and packaged information must be delivered to sites where individuals have easy access to it. Various media are used as delivery vehicles, including computer, manual and book formats.
3. Assistance. Finally, schools, counseling centers, and other institutions that provide educational and career services often need technical assistance by information system staff in integrating this information into their local service programs. School and agency staff use information more effectively if they are trained to use processed information in their educational and career development activities. (McKinlay, 1979, pp. 25-26)

The Nebraska Career Information System (NCIS)

The Nebraska Career Information System provides career information to students in Nebraska. The service is provided by the Nebraska Research Coordinating Unit for Vocational Education, for the Nebraska State Board of Vocational Education, the Governor's Special Grants Office, and the State Occupational Information Coordinating Committee. It is designed for use by high school students, postsecondary students, adult education students in the community colleges, and recipients of the Comprehensive Educational Training Act (CETA).

Background of the Nebraska Career Information System

With the implementation of the 1976 Educational Amendments, P.L. 94-482, increased emphasis upon career counseling became a reality. Although concerns regarding the quality of career counseling had been surfacing for a number of years, prior to 1976, special funding under Subpart 3 of Title I re-emphasized the need for vocational guidance and counseling.

The Nebraska Career Information System (NCIS) was designed in 1976, and was intended to provide current, useful career and occupational information for counselors, teachers, students, and service agency clients. The system is expected to reflect change and expansion of the components of the system as evaluation, use, and demand influence the evolving process of information for career selection and counseling.
Prior to 1976, the RCU had begun to consider a variety of strategies for improving vocational guidance and counseling. They had reviewed several career information systems for possible implementation in Nebraska. During this period of review and assessment, three major viewpoints emerged as problems surrounding career counseling. These viewpoints were:

1. That the pupil counseling ratio in Nebraska prohibited career counseling to be assured to all students unless career counseling could be delivered in group settings and assisted with individualized information.

2. That counselors lacked training and experience in career counseling as a concept and in offering career counseling in other than a one-to-one basis.

3. That no attempts had been made to provide counselors with current and reliable information on employment demands, occupational characteristics, program offerings, and school information for Nebraska.

Upon visiting several systems and discussing components with various staff representatives, Nebraska developed some requirements for its own system. These requirements were:

1. That the system provide a structure for career information that would be used throughout the state.

2. That the system provide procedural guides for use of the information by users of the information system.

3. That the system be usable by counselors, teachers, students, and clients.

4. That the system be applicable in both rural and urban areas.

5. That the system be usable by youth and adults.

6. That the system provide current information.

Selection of the model developed and used in Oregon allowed the meeting of the above requirements while providing the benefits of both a manual (needle-sort access) and a computerized access system. (RCU, 1976, A-1)
The selection of the Oregon model with its multiple delivery system, needle-sort and computerized access, allowed for the development of a systematic procedure for providing career information to students. The procedure makes a record of student responses to the "QUEST" section of NCIS which is available to the school administrators.

Schools using the NCIS and keeping a record of student responses will have a profile of their student body that will indicate occupational preference, capabilities, and weaknesses as perceived by the student.

The responses can be used to assist schools in providing adequate information for preparation of the "Local Plan" for vocationally reimbursed programs. The student profile developed during school years will be valuable in analysis of student follow-up data acquired from students after graduation. Using a standard procedure for informing students of career options coupled with current information is critical to assuring equal opportunity for student development toward career options. (RCU, 1979, p. 1)

A period of rapid growth followed the introduction of NCIS. From the original pilot of the system with 100 public secondary schools during the 1977-78 school year, the system expanded to a total of 214 secondary schools (public and private junior-senior high schools) by September, 1980. The system is being used at present by counselors and educators from secondary and postsecondary institutions, CETA, vocational rehabilitation agencies, and job service agencies.

Six components of the NCIS. Through evaluation, use, and demand, NCIS has expanded its system to include the following components:

1. The Needle-Sort User Handbook includes 21 QUEST questions, directions on ways to sort the card deck, and a list of job titles to be found in the system.
2. The Card Deck contains 300 needle-sort computer cards representing 368 job titles for user exploration.

3. The Job Sheet Notebook provides specific information about each of the 368 job titles. Each job sheet describes the job functions, necessary preparation and training, work setting, hiring practices, current employment, wages, employment outlook, and additional information sources.

4. The Postsecondary School Information book supplies general information, tuition rates, housing information, financial aid sources, and program offerings for post-secondary schools in Nebraska.

5. The Programs of Study and Training Book contains information about 112 educational and training programs. This book describes various fields of study, schools in Nebraska offering these programs, and what careers relate to the programs.

6. The Reference Manual provides the counselor or site coordinator with background information about NCIS, suggestions for expanded use of NCIS, and a listing of additional resource materials. (NCIS, 1980, p. 1)

Need for the study. Although the NCIS program has been in use for several years, the knowledge possessed by high school students in the areas of occupational information has not been assessed. In this instance, the factors which caused the investigator to propose this study are as follows:

1. There is a need to determine if, in fact, the students who have been exposed to the NCIS program have profited from this experience in terms of their knowledge of the various areas of occupational information.

2. There is a need to determine the percentage of students who are being served by the NCIS program.
Statement of the Problem

The purpose of the study was to determine if students from schools where the NCIS program was used scored significantly higher in their responses to questions concerning occupational information than did students from the schools where the NCIS program was not used.

A further purpose of the study was to determine what percentage of the students in the sample used had had experience with the NCIS program.

Specific Objectives of the Study

The specific objectives of the study were:

1. To compare the extent of knowledge possessed by students in NCIS schools and those in non-NCIS schools with regard to work factors, as well as knowledge of the interests and abilities which relate to these factors.

2. To compare the extent to which students in NCIS schools and those in non-NCIS schools can make educational choices, including level of education desired; can make future occupational choices; and can make choices among alternative goals that are both reasonable and satisfying.

3. To compare the extent of knowledge possessed by students in NCIS schools and those in non-NCIS schools regarding postsecondary school entrance and financial requirements, and regarding schools which provide training for specified occupations, together with knowledge of employment opportunities available in those occupations.
4. To compare the extent to which students in NCIS schools and those in non-NCIS schools were familiar with the sources of occupational information available to them.

5. To compare the extent of student knowledge in NCIS schools with those in non-NCIS schools in regard to working conditions, including work setting, as well as their knowledge of wage scales, and the salary necessary for a beginning wage.

Limitations of the Study

1. The study was limited to a sample of senior students attending Nebraska public high schools during the 1980-81 school year.

2. The study was limited to a questionnaire, with information provided by students and other selected personnel within the school site.

3. The study was limited to the concepts related to NCIS and was not related to other educational areas or concepts.

Definition of Terms

Career. A profession for which one trains and which is undertaken as a permanent calling.

Career education. A term to describe the broadening of the typical educational curriculum by the infusion of career development, preparation, and placement at the appropriate levels of the educational system.
Career information. The collection, dissemination, and interpretation of information needed by an individual in career development.

Career guidance. A broad term used by many to describe most of the activities of career education other than the preparation component. It usually refers to the elements of career information, counseling, and placement.

Work. The efforts toward the attainment of definite goals of achievement, product, or service. It may be the labor that affords the individual the accustomed means of livelihood, or it may be the expenditure of effort toward a goal of intrinsic value.

Occupation. Gainfully employed activity which is made up of a group of similar jobs that may be found from situation to situation.

Vocation. Semi-skilled or skilled work in a recognized occupation.
CHAPTER II

REVIEW OF LITERATURE

The purpose of this chapter was to review selected literature related to: (1) a history of vocational guidance activities in the twentieth century in the United States, and (2) its evolvement into current career information systems. The chapter contains the following topics:

1. Vocational guidance in the early days of this century
2. The early legislation which had impact on vocational guidance, as well as the more current legislation with its consequences for career information systems
3. Important social changes which have taken place with implications for career information systems
4. The introduction of the concept of career education
5. The establishment of career information systems
6. Occupational theories as they apply to career information systems
7. The effects of computer technology as well as non-automated information delivery on career information systems
8. Reaction by users to career information systems
9. Evaluation of the Nebraska Career Information System (NCIS)
Vocational Guidance -- The Early Days

Vocational guidance, a forerunner of career guidance, began in the early years of the twentieth century. Frank Parsons, who has often been called the "father" of vocational guidance, received recognition for his book, Choosing a Vocation, which was published posthumously in 1909. The guidance techniques Parsons wrote about were the ones he had used with youth in Boston before the turn of the century.

Parson's (1909) techniques consisted of the following three steps:

First, a clear understanding of yourself, aptitudes, abilities, interests, resources, limitations, and other qualities. Second, a knowledge of the requirements and conditions of success, advantages and disadvantages, compensation, opportunities, and prospects in different lines of work. Third, true reasoning on the relations of these two groups of facts. (p. 5)

The model of guidance which developed using Parson's techniques became known as the "trait-and-factor" approach.

Since the impetus for Parson's early formulation of vocational guidance was the need to distribute the large number of immigrants arriving in the eastern ports of America throughout an expanding industrial structure, the original emphasis was on "matching persons and job." Operationally the assumptions were that the individuals could be distributed in terms of the traits they possessed (e.g., aptitudes, skills, interests), that each occupation could be described in terms of the combinations of these traits it required, and that fitting the individual's pattern of traits to the occupation which most clearly required that specific pattern of traits would result in a meaningful and longlasting choice. (Evans & Herr, 1978, p. 169)
Early Legislation

The progress of industrialization had implications for public education in the United States during the late nineteenth century. As the demand for skilled workers increased, demand arose for practical education, which affected both vocational education and vocational guidance and counseling. The result was a partnership between the two. Evans and Herr (1978) stated:

Vocational education in tax-supported schools began at the college level with the passage of the Morrill Act in 1862. This created landgrant colleges and gave emphasis to the professionalization of agricultural education. By 1876, Morrill, among others, was recommending the support of practical, manual, and industrial education, one function of which was to distribute migrants among the occupations and industries needing their labor. (p. 166)

It was half a century later that legislation was passed which had the far-reaching effects of the aforementioned Morrill Act. The new Act was the Smith-Hughes Act which was passed in 1917. The Smith-Hughes Act was the first legislation through which the federal government provided funds for vocational training in the high schools of the country. In addition, the government promised to provide funds "in perpetuity" to support specific job skill preparation (Burkett, 1973).

The previously-mentioned partnership between vocational guidance and vocational education lasted until after World War I. The two functions were parted as a result of the National Education Association's refusal to view them as component parts of a unity:

In 1918, the NEA accepted a craft rather than a technical training emphasis in vocational education, and a conception of guidance for education rather than a conception of vocational guidance for jobs. (Stephens, 1970, p. 90)
During the years that followed, school counselors (guidance counselors) provided vocational guidance to students as one of their services.

**Social changes.** Social forces caused changes in the ways in which school counselors began to view vocational guidance during the period 1920-1940. The influence of psychology became apparent in the growing awareness of individual differences. These same psychological influences "tended to challenge the information-giving role of vocational guidance (or to be more correct, guidance and counseling), advocating instead therapeutic or psychotherapy as the processes of choice" (Evans & Herr, 1978, p. 168).

The increasing influence of the federal government in the area of vocational guidance was felt during the depression years of the 1930's. An example of this influence is the following list of five guidance goals developed by the National Youth Administration (NYA) to increase the employment of youth:

1. To help the youth evaluate himself.
2. To help him make a vocational choice.
3. To help him plan his training program to achieve his choice.
4. To place him in the work.
5. To follow-up on the work assignment to insure good results for him. (Miller, 1961, p. 160)

Following World War II, massive social and educational changes were evident. Higher education experienced a great amount of growth caused by the returning veterans who used the "GI Bill" to attend college. For the first time in history, the American people found that college was available to the masses, and they held the belief that a college
degree was a sure passage to prosperity. The rising expectations on the part of the American public had an effect on guidance counselors who became concerned with guidance and educational choice, rather than guidance and work choice.

In the 1950's, guidance was characterized by the work of Carl Rogers, the developer of the "Rogerian" theory of counseling, and a proponent of the new emphasis on psychotherapy. As a result of the changes taking place, Super recommended a change in the 1937 official definition of vocational guidance which was, "the process of assisting the individual to choose an occupation, prepare for it, enter upon and progress in it" (Crites, 1969, p. 21). Super (1951) went on to offer a new definition which defines vocational guidance as:

... the process of helping a person to develop and accept an integrated and adequate picture of himself and of his role in the world of work, to test this concept against reality, and to convert it into a reality, with satisfaction to himself and benefit to society. (p. 92)

With the Russian launching of Sputnik in 1957, American education came under attack as being woefully lacking in the teaching of science and in educating the academically gifted to their full potential.

In 1958, the National Defense Act was promulgated to offset such criticisms. Among its provisions was the support for and training of counselors to identify (through testing) and nurture the gifted and talented vis-a-vis further education, particularly in the hard sciences. Perceived manpower needs for scientifically educated people caused school counselors to move further toward an educational rather than an occupational focus. The later was not really precluded, but it took second seat to the social priority of having school counselors help students select and prepare for college. As historical events unfolded, however, the 1960's continued the conditions for the possible convergence in
the view of guidance and counseling personnel and vocational educators relative to vocational guidance. (Evans & Herr, 1978, p. 168)

Federal programs and policies tended at this time to focus on the disadvantaged, the school "dropout," and unemployed, and the training of them for employment during the 1960's. Many of these programs were unsuccessful, and as a result, policies began to shift away from developing, "a competent person (as defined by occupational requirements) to a greater accentuation on developing a sense of personal competence (as defined by technical skills as well as individual capability to choose and plan)" (Evans & Herr, 1978, p. 168).

Introduction of Career Education

The term career education caused confusion among guidance counselors, teachers, administrators, and other educators when it was first introduced in the early 1970's. Dr. Sidney Marland, Commissioner of the United States Office of Education, made the term popular, but he did not define the term. The definition was left to the state and local districts. The definition by Hoyt (1972), a well-known figure in guidance and counseling, became very popular:

Career education is defined as the total effort of public education and the community aimed at helping all individuals to become familiar with the value of a work-oriented society, to integrate these values into their personal value systems, and to implement these values into their lives in such a way that work becomes possible, meaningful, and satisfying to each individual. (p. 1)

In addition to the controversy concerning a definition, many questioned the ways in which career education differed from vocational education. One of the causes for confusion was due to the fact that
occupations play a role in the desired outcomes of both career educa-
tion and vocational education.

Career education is a broad term that encompasses educational
experiences of individuals starting in early childhood and extending
throughout working years and on into retirement. It includes programs
which stress an awareness of interests, abilities, values, lifestyles,
as well as an introduction to occupations and the necessary training
required. One of the primary goals of career education is to enable
each student to make intelligent choices based on information as he
plans his life.

Vocational education, which may be included in career-education
programs, is designed to prepare a student for actual job entry. Unlike
career education, vocational education does not start at an early age.
Usually the major thrust of vocational education starts at the tenth
or eleventh grade (Hoyt, 1972).

Recent Legislation

Federal legislation passed during the last twenty years has had
a profound effect on vocational education in the United States. Burkett
(1973) stated, "the important contribution of the Vocational Education
Act of 1963 is that it formally recognized the work experience concept
and provided the federal money and leadership to implement it" (p. 67).

The 1968 Amendments to the Vocational Education Act called for
the establishment of exemplary programs and projects to give the same
kind of attention to persons entering the so-called vocations as to
persons entering college. Examples of the types of exemplary programs established follow:

Operating in all the states and territories, they developed such career education concepts as occupational awareness, occupational orientation, occupational exploration, specialization and job clusters, and much more. Each exemplary project developed its own unique program to meet local needs. Additional funds were made available for research and development of program models. Contracts were let for career education curriculum development. (Burkett, 1973, p. 68)

The Amendments in 1972 went further conceptually, but the concept was not given financial support. "The Act called for integration of vocational education into the world of work as a continuing service for all segments of the community" (Burkett, 1973, p. 68).

With reference to the passage of more recent legislation, Drier (1977) stated:

With the passage of P.L. 94-482, "The Educational Amendments of 1976," the introduction and passage of "The Elementary and Secondary Career Education Act of 1977," H.R. 7, and the introduction of "The Career Education Implication Incentive Act of 1977" (since passed), the hopes and dreams of educators concerned with the career development of youth and adults are coming closer to reality. Collectively these pieces of legislation will provide the promise necessary to renew and revitalize the school's curriculum, counseling and guidance programs as well as the training programs and will prepare all of us to more fully accomplish a change in what we do. (p. 2)

Drier and associates (1977) summarized recommendations from the current legislation for career guidance programs of the future as follows:

1. Increase the number, availability, and quality of guidance.
   a. Specialist preparation and counselor renewal programs.
   b. Pre- and in-service opportunities for support personnel.
   c. Training for teachers and administrators.
2. Carefully analyze current methods and develop new ones for providing guidance information and experiences to parents, students, community members, teachers and guidance staff.

3. Conduct higher levels of guidance program planning, development, implementation, and evaluation with increased student participation.

4. Develop specific career guidance materials for special groups such as women, midlife career persons, minorities, handicapped, and disadvantaged, in the rural, inner city, and suburban settings.

5. Develop techniques and resources to increase the participation of parents in the guidance program.

6. Develop and implement exemplary techniques for increased community-school cooperation.

7. Increase research efforts aimed at a better understanding of the career development of all individuals.

8. Study various vocational exploratory techniques and provide increased exploratory opportunities.

9. Study effective curriculum-guidance infusion techniques and increase subject matter-based guidance.

10. Examine the validity of instruments that we are presently using in guidance.

11. Study ways of identifying and modifying attitudes of educators and community members toward career guidance.

12. Study the effects of staff stereotypic attitudes on students.

13. Implement increased job, education, and special needs-based placement activities.

14. Develop more effective ways of developing and operating career resource centers.

15. Develop more life role centered guidance and instructional materials for all age levels including the utilization of current technology.
16. Study new roles and functions of counselors, teachers, and other significant adults and needed competency based staff development programs to support them. (pp. 3-4)

The Need for Occupational Information

A review of the literature reveals that some authors believe there is a need to supply students with occupational information as an important part of making educational and career plans. Parsons (1905) asserted that there were three basic components to vocational guidance: "testing, information giving, and decision-making through true reasoning" (p. 5). Herr and Cramer (1972) contended that most students today have little exposure to occupations, and that,

... students ... often are aware only of the occupations of their immediate families, and typically have few alternatives through which to sort unless some type of direct intervention occurs. This intervention usually takes the form of exposure to occupational information. (p. 278)

Hoppock (1967) stated that "occupational information is indispensable. One cannot choose what one does not know, and many occupations are unknown to most of us" (p. 4).

Relevancy of the information with regard to labor market needs is an important factor. Fleming (1974) asserted that information concerning occupations needs to be slanted toward tomorrow's jobs. He further stated that since "the average person will have more than one occupation during his lifetime, he needs to be provided with linkages to other jobs. We need to train for careers" (p. 229). Tyler (1969) felt that in order for information to be useful it "must be accurate,
free from bias, recent in scope, and available" (pp. 81-83).

Hoppock (1967) indicated that a course in career information can save time, for there is much information that is of common interest and which provides an opportunity for students to compare opinions and judgments. In the study conducted by Halpern and Norris (1968) on the role of information in curriculum decisions of tenth-grade students, they found:

1. The students tended to select information which counselors had judged to be most relevant.

2. This information search sampled the available information areas with the exception of values, which tended to be neglected.

3. Their information-search pattern changed as they received information, i.e., information at first considered important was often reclassified as unimportant and vice versa, as new information was received.

4. The information areas of abilities was considered the most important, plans and interests less important, and values least important. (p. 240)

Other authors who believed that career education programs can be of help are Evans and Herr (1974) who asserted that such programs can be of help to the counselor:

Students who have had exposure to career education come to the counselor with much preliminary work done. They have thought about themselves and their plans, and they know what questions to ask. In a school which has a planned career education program, the counselor is assisted by a much wider range of guidance-oriented library resources to which students can be referred, and computer-assisted occupational information searches are more likely to be made available. (p. 194)

Certain information about occupations is needed by the counselor in order for the counselor to do an efficient job in advising students.
27

Tyler (1969) contended that the counselor needs to know the following:

- Knowledge of the structure of occupations, knowledge of occupational trends, knowledge of research taking place in psychology and sociology,
- The counselor needs to know the following:
  - Knowledge of the structure of occupations, knowledge of occupational trends, knowledge of research taking place in psychology and sociology,
  - Clark argued that classical theory cannot apply to the inequalities between occupations today because of "the ignorance on the part of the individual about the relative advantages and disadvantages of different occupations." Clark believed the individual cannot make a free choice of occupation because he lacks the necessary information.

Although classical theory of vocational choice assumes that in choosing an occupation a person has freedom of choice with no restrictions, Clark argued that classical theory cannot apply to the inequalities between occupations today because of "the ignorance on the part of the individual about the relative advantages and disadvantages of different occupations." Clark believed the individual cannot make a free choice of occupation because he lacks the necessary information.

Students have expressed a desire for occupational information. A case in point is the study conducted by Prediger et al. on eighth, ninth, and eleventh-grade students in public or Catholic schools in the United States in 1973. Students completed an assessment of career development taken from the American College Testing Program. Findings included the fact that students in the eleventh grade indicated that help with making career plans was a major need. This need for help was expressed by students as a major need. Students in the eleventh grade expressed a desire for occupational information.

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Results from a 40-item career planning knowledge scale show both a lack of knowledge and a substantial amount of misinformation. For example, 53 percent of the 11th graders believed that more than one-third of all job openings require a college degree; 41 percent of the 8th graders believed that few women work outside the home after marriage; and 60 percent of the 11th graders believed that most persons remain on the same job throughout their adult lives. (Weinrach, 1979, p. 170)

Occupational Theories

A number of well-known theorists list occupational information as an important factor in their theories; for example, Roe (1956) defined the term occupation as meaning "whatever an adult spends most of his time doing. That may be what he does to earn a living, or it may not" (p. 3).

Roe's (1956) theory of career choice was influenced by Maslow's hierarchy of basic needs which follows:

1. The physiological needs
2. The safety needs
3. The need for belongingness and love
4. The need for importance, respect, independence, self-esteem
5. The need for information
6. The need for understanding
7. The need for beauty
8. The need for self-actualization (p. 25)

Maslow's list of needs are usually referred to as being lower order or higher order needs, with a need to satisfy the lower order needs first.

According to Roe's (1956) studies, the need for information which falls within the higher order, "seems to be expressed and satisfied most fully in the learned occupations" (p. 34). Roe explained that individuals gain more satisfaction from their work if they know what they
are doing and why, and where their particular job fits into the
goals of the organization.

Holland's theory does not directly state a need for occupational
information; however, it is implied through the choices he believes
an individual must make.

Holland's theory states that most individuals can be
categorized as one of six types—realistic, investiga-
tive, social, conventional, enterprising, and artistic
... six kinds of occupational environments and
vocations that will permit them to exercise their skills
and abilities, to express their attitudes and values, to
take on agreeable problems and roles, and to avoid dis-
agreeable ones. A person's behavior can be explained by
the interaction of one's personality pattern and one's
environment. (Norris, et al., 1979, p. 119)

In a composite drawn from many of the existing theories with a
general framework based on psychological needs, Hoppock (1967) ex-
plained his theory in the ten following statements:

1. Occupations are chosen to meet needs.

2. The occupation that we choose is the one that we
believe will best meet the needs that most concern us.

3. Needs may be intellectually perceived, or they may be
only vaguely felt as attractions which draw us in a
certain direction. In either case, they may influence
choices.

4. Vocational development begins when we first become aware
that an occupation can help to meet our needs.

5. Vocational development progresses and occupational
choice improves as we become better able to anticipate
how well a prospective occupation can help to meet
our needs.

6. Information about ourselves affects occupational choice
by helping us to recognize what we want and by helping
us to anticipate whether or not we will be successful
in collecting what the contemplated occupation offers
to us.
7. Information about occupations affects occupational choice by helping us to anticipate how well satisfied we may hope to be in one occupation as compared with another.

8. Job satisfaction depends upon the extent to which the job that we hold meets the needs that we feel it should meet. The degree of satisfaction is determined by the ratio between what we have and what we want.

9. Satisfaction can result from a job which meets our needs today or from a job which promises to meet them in the future.

10. Occupational choice is always subject to change when we believe that a change will better meet our needs. (pp. 111-112)

Super’s theory calls for the individual to move through five life stages during the period of time he is engaged in vocational developmental tasks. Each of the five stages requires vocational behavior of a different sort: (1) crystallization, (2) specification, (3) implementation, (4) stabilization, and (5) consolidation. According to Super, three of the five life stages call for occupational information. Crystallization and specification both call for possession of information concerning the preferred occupation, and consolidation calls for possession of information as to how to consolidate and advance (Osipow, 1973).

Developmental tasks have been linked to vocational maturity by a number of theorists including Havighurst (1953), Erickson (1963), Super (1957), and Super, Stariskevsky, Matlin, Gibbons and Lohner (1968) (Herr & Cramer, 1972). Developmental tasks are usually described as the changing demands individuals face as they move through life; however, Havighurst (1953) defined them as:

A task which arises at or about a certain period in the life of the individual, successful achievement of which
leads to happiness and success with later tasks, while failure leads to unhappiness in the individual, disapproval by society, and difficulty with later tasks. (p. 2)

A review of the literature reveals that occupational information is a component of vocational maturity which, in turn, is an objective of vocational development (Herr & Cramer, 1972). Ginzberg and associates (1951) described vocational maturity as the way in which a young person deals with his occupational choices.

It has been suggested that the vocational maturity of an individual may be checked by using an analogy of a traveler on a road. If the traveler has not traversed a certain distance by a reasonable time, it may be considered a sign of lack of progress; if the individual has not accomplished certain developmental tasks, it may be considered a sign of immaturity (Jordaan, 1974).

A well-known study in the field of vocational maturity is the Career Pattern Study conducted by Super in which a group of ninth grade boys were tested.

The original purpose of the study was to test concepts of vocational maturity. The conclusions indicated that vocational maturity in ninth grade boys is related to their degree of intellectual and cultural stimulation, the degree to which they are intellectually able to respond to that stimulation, their aspirations to higher rather than lower socioeconomic levels, and their ability to achieve reasonably well in a variety of activities. (Norris, et al., 1979, p. 116)

A recent analysis of the study concluded that vocational maturity factors which both ninth and twelfth grade boys possessed were occupational information, planning and crystallization of interests. (Herr & Cramer, 1972, p. 113)

The use of occupational information. In order to use occupational information to the best advantage, it is necessary that the students are
motivated to use it, that merely being exposed to the information is not enough. O'Hara (1968) stated that "all ... learning is a function of motivation. Motivation, in turn, is based on a student's attempt to satisfy a vocational need" (p. 637). O'Hara suggested:

Guidance personnel have an obligation to impose a formal learning situation, with formal academic sanctions, in order to create the goal-directedness necessary for increased understanding of the world of work and the numerous possible responses to it. The formal learning situation would emphasize the language of vocations in order that the world of work can be explored vicariously. Without this experience, the student is likely to be a "vocationally deprived child." (p. 637).

In addition to motivation, the individualizing of information seems to be an important component for effective use. Hollis and Hollis (1969) contended "the more information processes can be personalized, the better the individual can understand and integrate information . . ." (p. vi).

In order to become aware of the effectiveness or lack of effectiveness of occupational information, it is necessary to survey the systems available.

**Occupational Information Systems**

A review of the literature revealed a wealth of career information systems. The systems can be found to extend from the simple to the complex--from the use of reading material to the use of advanced computer systems.

Roberts (1965) proposed that group guidance courses taught by a school counselor is one method for the delivery of occupational information. Students may gather information on various occupations;
successful adults from the local business community are often invited to talk to students; and visual-aid equipment is in common use.

Roberts (1965) also stated that textbooks which deal with specific groups of occupations provide information on occupations. Periodicals, for example, the *American Personnel and Guidance Association Journal* (APGA) and the *Journal of the American Vocational Association* (Voc Ed), "both provide information on requirements and trends in occupations . . ." (p. 351).

Interest inventories may result in an expanded awareness of career opportunities and are useful in considering occupations. Herr and Cramer (1979) recommended the Strong Vocational Interest Blank, the Kuder Occupational Survey, and the Ohio Vocational Interest Survey as good examples of interest inventories.

Holland (1966) developed the *Vocational Preference Inventory* (VPI) which consists of a personality and interest inventory composed entirely of occupational titles. The inventory is "based on the assumption that vocational choices are an expression of personality and of . . . knowledge of the occupation in question" (p. 278). Holland (1970) also developed the Self-Directed Search for Career Planning (SDS), which is described as "a cheap, practical vocational guidance system with a high degree of client effectiveness and scientific validity" (p. 125).

A popular source of occupational information is the *Occupational Outlook Handbook*, a comprehensive study prepared by the Bureau of Labor Statistics. The *Handbook*, which contains descriptions of approximately 800 types of jobs, includes information with regard to training, physical
activities, and working conditions (Norris et al., 1979). Norris (1979) noted that the Dictionary of Occupational Titles (DOT), which was developed by the United States Employment Service, "serves as the official federal government job classification system" (p. 74). The fourth edition of the DOT contains brief descriptions of approximately 20,000 jobs which are coded to relate to attributes of job traits using Department of Labor analyses and taxonomies (Mendenhall, 1981).

Career clusters are a form of occupational information which mirror the life in which individuals now live. In a life characterized by mobility and the changing nature of jobs, the single occupational concept does not permit one to adapt to the needs of the labor market.

The career cluster is based on the premise that certain occupations have common learning and skill requirements and that students who have mastered these skills have more employment options. (Calhoun & Finch, 1976, p. 273)

The fifteen clusters developed by the United States Office of Education are listed as follows:

1. Agri-Business and Natural Resources
2. Business and Office
3. Health
4. Public Service
5. Environment
6. Communication and Media
7. Hospitality and Recreation
8. Manufacturing
9. Marketing and Distribution
10. Marine Science
11. Personal Services
12. Construction
13. Transportation
14. Consumer and Homemaking Education
15. Fine Arts and Humanities (Rowlett & Balthaser, 1974, p. 77)
Additional forms of occupational information as suggested by the literature include career days, movies, slides, videotapes, the use of consultants, field trips, assembly programs, and work experiences (Norris et al., 1979).

In recent years, legislation has been a force in encouraging the establishment of occupational information systems.

Each state is mandated by Congress to establish a State Occupational Information Coordinating Committee. The SOICCs under the National Occupational Information Coordinating Committee (NOICC) are intended to develop a state network for occupational and career information. The NOICC/SOICC network was established by Congress in the Education Amendments of 1976 (PL 94-482), and the Youth Employment Demonstration Project Act of 1977 (PL 95-93). These two laws mandate that SOICC's develop and implement (1) an occupational information system designed to meet the common occupational information and data needs of the vocational education programs and employment and training programs, and (2) a career information system to assist and encourage the use of occupational information by people involved in the career decision-making process. (Chisholm & Kessler, 1978, p. 1)

The System of Interactive Guidance and Information (SIGI) is a computer-based system which stresses freedom of choice in decision making. Designed to be used at community and junior colleges, the student interacts with the computer to examine his values, use relevant information, interpret predictive data, and formulate plans. Following this procedure the student is able to make tentative decisions, which include both educational and occupational options and feature the process of decision making as well as the content. The student is encouraged to "master the strategies for rational behavior in the face
of uncertainty ..." (Weinrach, 1979, p. 229).

The Vocational Information for Education and Work System (VIEW) was developed by the Department of Education, San Diego County, San Diego, California. Originally designed to offer information on 200 of the most common jobs requiring less than a baccalaureate degree, the project has been expanded to include baccalaureate occupations offered both in Spanish and in English. Microfilm aperture cards for use in a microfilm reader and printer are used as the method of delivery.

Other states as well as government agencies have adapted the VIEW system for use. Recently, the system was put into use in Yakima, Washington, featuring packages for use with the VIEW reader and printer. The packages covered such areas as self-appraisal and career and college exploration. The packages were designed to "stimulate student self-appraisal, to learn how to use the reader, to analyze several careers, and to explore post-high school training opportunities" (Norris et al., 1979, p. 386).

The Milwaukee Computerized Vocational Guidance System (VOCGUID) was developed in 1969 as a joint project between personnel of the Milwaukee City Schools' Guidance Department and faculty members of the Educational Psychology Department, University of Wisconsin at Milwaukee. The system is designed to provide orientation and planning in relation to the world of work. The system also seeks to develop vocational maturity among the students, and to help them narrow their personal career choices to a realistic number which can be studied intensively (Cassel & McHail, 1973).
The Educational Career Exploration System (ECES) is a computer-based system sponsored by International Business Machines (IBM), and developed under the direction of Minor (1970). A high-school oriented system whose purpose is to provide individualized aid to students, ECES was designed to correct two problems in information handling:

1. The fallibility of both counselor and student in memorizing, associating, and selectively recalling educational and vocational facts, and

2. The inability of the counselor and the student to devote sufficient time, patience, and energy to performing the enormous numbers of clerical steps involved in relating educational and occupational facts to pertinent information about the student. (p. 37)

The system consists of three phases each with an information data bank—an occupational information bank, an educational bank, and a bank which is used by students to identify post-high school institutions that meet their needs. The system involves individual interaction between the students and the computer, with the system relating the students' profiles to the information in the system's data bank (Super, 1970).

The Guidance Information System (GIS), a computer-based system, was developed during the 1960's. The system is equipped to offer nationwide information on two-year and four-year colleges and graduate schools regarding application deadlines, tuition, financial aid, and some information on occupational training available in the armed services (Hurd, 1980).

The Wisconsin Career Information System (WCIS) is designed to be used either manually or with a computer. WCIS was developed to provide a statewide program for the use of young people and adults, with a focus
on career awareness, education and decision making. WCIS also supplies employees of universities, CETA programs, Job Service offices, and technical institutes with career-related information. WCIS is designed:

1. to help persons learn about and understand the range of careers now available and likely to be available in the future.

2. to help labor force entrants become aware of occupations which are acceptable and personally satisfying.

3. to encourage persons in the process of making career decisions to explore vocational possibilities on their own.

4. to increase awareness of major sources of occupational information, and

5. to provide support for related programs including career education, career and employment counseling and manpower and educational planning. (Lambert, 1979, p. 1)

The WCIS system contains twenty-two files of information based on occupations both in Wisconsin and nationwide. Information files exist for all postsecondary schools in Wisconsin, all four-year colleges nationwide, all two-year colleges nationwide, and all graduate schools nationwide (Lambert, 1979, pp. 1-2).

The Computerization of Vocational Information System (CVIS), developed at Willowbrook High school, a suburb of Chicago, is a computer-based guidance and administrative system designed to make individualized educational and vocational information available to students and counselors. The framework of the system is based on Anne Roe's classification system in which occupations are divided into six levels by amount of training required and degree of responsibility assumed by the worker. "The occupations are further divided into
eight categories of interest: Service, Business Contact, Organization, Technology, Outdoor, Science, General Culture, Art and Entertainment" (Harris, 1970, p. 6). CVIS is designed to enable students to explore information about themselves and about educational training, as well as information about some 650 occupations. A wide variety of student information is entered into the computer, i.e., class rank and composite scores from batteries of tests, as well as scores from interest tests; therefore, the computer in effect becomes both a library and filing system for the students' use (Harris, 1970).

The Computerized Occupational Information System (COIS) was developed in the Department of Vocational Education at Pennsylvania State University. A computer-based, occupational information system, COIS was designed to overcome a limitation present in many other systems: the limitation of presenting the same occupational or career information to all students. The computer is designed to store information about occupations and to present this information to the student by typewriter printout, tape recording, or slide projector. The system utilizes selective presentation of information in that the material to be presented to the student is based on the student's General Aptitude Test Battery (GATB) profile and stored in the computer. The occupations presented are tied to particular vocational-technical curricula available to the students. COIS is a system with great flexibility which allows for changes that occur to be entered into computer storage. In addition, the immense storage capacity allows
a huge number "of job descriptions to be stored in addition to innumerable student profiles" (Impellitteri, 1967, p. 263).

The Oregon Career Information System (CIS) is a system which utilizes both a computer-based and a needle-sort manual system to access current labor market and educational information. The system, a statewide interagency consortium, consists of five information components:

1. QUEST: An introductory questionnaire that helps students and clients to explore occupations related to their self-assessed interests and abilities.

2. Descriptions: Brief 300-word summaries about each of the 225 occupational categories in the system. The descriptions emphasize local as well as state and national information about jobs and worker qualifications, and the summaries are subject to immediate revision as well as periodic update.

3. Education and Training: Identifies educational and training opportunities in Oregon for each of the occupations in the system.

4. Bibliography and Books: Refers students to the most pertinent general and specific publications for each occupation in the system.

5. Visits: The names of local people who are available to discuss their respective occupations with individuals who wish to supplement the information gained from the other components with personal contacts. (Thal-Larsen & Parris, 1975, p. 90)

A unique feature of the CIS is the factor of privacy. The only information acquired by the computer about the student is in response to his answers to QUEST, and these responses are not stored in the system (Thal-Larsen & Parris, 1975).
Information Strategies Used by Career Information Systems

Computerized Delivery Systems

The literature reveals that many advances are foreseen during the 1980's in computer technology, with particular emphasis in the field of education. Harris-Bowlsbey (1974) stated that, "the computer is the best delivery mechanism because of its ability to store and retrieve information, simulate conversation, monitor the user's progress through the program and update materials quickly" (p. 335).

Shostak (1981) compared the changes which are taking place as a "systems break, one as potentially awesome as any previously known by humankind" (p. 357). Shostak (1981) defines a systems break as "a radical shift in the way in which the fundamental institutions of society--the economy, polity, military, family, and all others--are recast internally and in relation to one another" (p. 357).

The implementation of computer technology into education has been slow. There are advocates both pro and con for the implementation. One reason given by those who oppose the implementation is the exhorbitant cost. Another reason given for the hesitation in the use of computers is the fear of "encroachment on the humanizing elements of the educational process" (Norris et al., 1979, p. 382). Norris stated that the general goals of computer technology in the career information services are to,

1. increase the amount of informational materials.
2. make the information available to more students.
3. make the exploration process more pleasing to the student. (p. 382)

Proponents for the implementation of computer technology claim that the computer can store and record quantities of information and that retrieval of the information is much more efficient than when a conventional approach is used. Advocates of computer technology feel that many of the functions of the counselor can be taken over by the computer, which releases the counselor to work with more students on a one-to-one personal basis.

Computers are a way of storing the growing information for use by individuals in need of making a decision. The vast number of alternatives one is faced with today and the ever-increasing complexity of change in society calls for current information. Books are often out-of-date by the time they are published. The storing and retrieval of information from computers can be of help when an individual needs help in obtaining current information for use in decision making.

Super (1973) stated that "four basic kinds of computer assistance to vocational guidance are each serving a different function."
The four are listed as follows:

1. Computers can be used for educational and manpower development and planning.
2. They may be used as an extension of counseling by providing clients access to a wealth of data.
3. They must be used for simulating, supplementing, or supplanting counselors by programming counselor functions with data access.
4. They can be used for staff training and development. (p. 290)
The needle-sort delivery system. A manual form of exploring careers, needle-sort, uses a deck of sortable cards.

Each needle-sort or key-sort card is coded for the attributes of, for example, a particular occupation, and users sort the cards with a knitting-needle like device to find occupations that show a high potential of meeting their preferences. Manual systems are not simply substitutes for the computer. They have the advantage of being highly graphic. (If you say you will not finish high school, the number of occupational cards that drop off is impressive, even to the cynical eleventh grader.) They are also highly portable, thus being convenient to use in the counselor's office, at home, or, in sets of four or five decks, in all kinds of classrooms and career-development group activities. (McKinlay, 1979, p. 27)

Methods of delivery of career information are not useful with all systems. Mendenhall (1981) stated that "One cannot rely upon computer networks to deliver career information if computers do not exist in all areas of the delivery area. Neither can a needle-sort system print out an individual response to information requests" (p. 2).

In a survey conducted by the North Dakota Occupational Information Coordinating Committee (1980) of needle-sort users in the states of Iowa, Nebraska, South Dakota, and Wyoming, a positive feedback was received. The feedback was in response to questions about their "opinions of needle-sort as it relates to ease of use, attractiveness to client, valuable use of time, ease of administering, and acceptance by clients" (p. 2). In summarizing the data, the authors reached the conclusion that like many other guidance, counseling, or career education tools, "the needle-sort structured search is a valuable learning device. Its success depends on the enthusiasm and knowledge of use of the person administering it to the client" (p. 2).
User Reaction to Career Information Systems

An evaluation of career information systems reveals the positive regard with which the systems are held, and reveals the interest and belief which exist in the systems. In surveys of parents, teachers, and students regarding the goals or intent of career education, the results tend to be positive (Herr, 1979). In response to a query concerning the attractiveness of career information systems, McKinlay (1980) replied that the key tests of system appeal include the following:

1. Client reported affective response to the system
2. Client repeat usage rate
3. Frequency of use within an institution
4. Numbers of institutions using the system (p. 355)

In a study of the interests and aptitudes of eleventh-grade boys conducted by Pilato and Myers (1975), the data were interpreted by computer printouts. The results indicated that,

... giving students information about their aptitudes and interests alone or giving students information about the occupational structure alone was an ineffective procedure; however, providing students with both types of information and using a computer-mediated approach produced effective results. (p. 63)

Following a study of existing computerized guidance systems, Harris-Bowlsbey (1974) stated, "the evidence is sufficient to conclude that these information systems are practically and not just theoretically workable" (p. 335). Harris-Bowlsbey also asserted that, "students and parents alike have accepted computerized guidance systems with a high degree of enthusiasm" (p. 335).
Audio-visual aids are attractive to students where computerized systems are not in use. Norman (1969) asserted that "audio aid often encourages students to seek additional career counseling" (p. 695). Johnson, Korn, and Dunn (1975) found that in presenting occupational information to "reluctant learners" those students gained more information from a slide-tape presentation than from written material or a tape cassette.

The Nebraska Career Information System (NCIS)

The NCIS was developed to be used with either a needle-sort or a computerized system. The Research News (1979) in explaining features of the delivery system stated:

Used as a systematic procedure for providing career information to students makes available a record of student responses to the QUEST portion of the NCIS to school administrators. Schools using the NCIS and keeping a record of student responses will have a profile of their student body that will indicate occupational preferences, and weaknesses as perceived by the student. (p. 1)

The objectives of the NCIS were designed to,

1. Review and update career information materials and procedures.
2. Prepare training guides and manuals for inservice of counselors and teachers.
3. Schedule and conduct training sessions for users of the NCIS.
4. Expand information files on Nebraska career options and training availability.
5. Maintain communications with other states using and developing career information systems.
6. Provide special workshops and services to counselor training personnel at Chadron State College, Kearney State College, University of Nebraska at Omaha and Lincoln.

7. Provide special workshops and services to counselors of CETA, Vocational Rehabilitation, and Job Service programs and other service agencies.

8. Review and evaluate NCIS activities and services to provide input for better services to local school counselors, teachers, and administrators carrying out career guidance functions with Nebraska students and clients. (Mendenhall, 1979, p. 2)

As a major source of career information in the state of Nebraska, NCIS serves a broad population. Not only does it serve both secondary and postsecondary students, it also provides career information to displaced homemakers, to single heads of households, to men and women who are seeking employment in non-traditional fields, to homemakers who are looking for full-time jobs, and to both youth and adults. Agencies such as CETA and Job Service, as well as hospitals and correctional institutions, all subscribe to NCIS. The built-in flexibility of NCIS is apparent with its filmstrips and slides which may be used in providing career information for the disadvantaged and/or handicapped individual.

A review of the literature has revealed that career information consists of three major components--information, delivery, and assistance (McKinlay, 1979). NCIS provides for the three components in the following manner:

Information. NCIS uses a well-trained staff to both research and update information in order that it remains current and relevant.

Delivery. Delivery strategy is provided by either needle-sort or computerized systems.
ever-increasing volume of occupational literature, have made it im-
possible for counselors to provide sufficient occupational information
for students. As a result, career information systems have been designed
and implemented in the nation's schools. The systems of career informa-
tion vary from the extremely simple to extremely complex computerized
systems. They may consist of either a manual or a computerized delivery
form which provides information to the user.

The evaluation of career information systems reviewed reflects
a positive reaction from users of the systems. The feeling is expressed
that those who have been exposed to the system have benefited from it.

Rationale for the Study

A review of the literature reveals many forms of career informa-
tion systems. Although the systems vary widely, all of them appear to
agree upon the necessity for providing current, local, relevant occupa-
tional information for the nation's students.

Demand from both the public sector and the legislative body for
better occupational preparation of youth for the world of work also
reflected the need to help counselors save time in providing career
information services. This demand provided the impetus for the design
and implementation of the career information services.

The Nebraska Career Information System (NCIS) is a comprehensive
organization which provides services for a variety of agencies as well
as individuals in both rural and urban Nebraska. A manual needle-sort
delivery system, and a computerized form are both part of the structure
Formulators of the system agree to the necessity for three major components—information, delivery, and assistance. NCIS complies with these requirements by using a well-trained staff to research and update information in order to keep the information relevant and current. Delivery service strategy is provided by the use of either the needle-sort or the computerized system, and assistance in using the NCIS is promoted by providing well-trained staff members who are skilled in the use of the system to help user clients.

The career information systems in use at present were pioneers in providing career information services during the 1970-1980 years. During that same period of time, the systems have been developed into highly sophisticated structures.

In summary, an evaluation of the Nebraska Career Information System reveals that the need for uniform career and occupational information that could be used in career counseling was recognized by the Research Coordinating Unit at the University of Nebraska. The need for a set of basic standards for implementation in Nebraska was also recognized. These standards were general in nature but established criteria for selecting a system for the state. It was determined that a system for use in Nebraska should have the following capabilities:

1. Provide a structure for career counseling information that could be used in schools throughout the state.
2. Provide procedural guides for the use of the information included in the system.
3. Be usable by both counselors and teachers.
4. Be applicable in both rural and urban areas.
5. Be useable by both youth and adults.
6. Provide current information to counselors and teachers.

An information base was chosen that could be used with both a needle-sort and a computerized system. This base, used as a systematic procedure for providing career information to students, makes available a record of student responses to the QUEST portion of the NCIS to school administrators. Schools using the NCIS and keeping a record of student responses will have a profile of their student body that will indicate occupational preferences, capabilities, and weaknesses as perceived by the students.

The responses can be used to assist schools in providing adequate information for preparation of the "Local Plan" for vocationally reimbursed programs. The student profile developed during school years will be valuable in analyses of student follow-up data acquired from students after graduation. Using a standard procedure for informing students of career options coupled with current information is critical to assuring equal opportunity for student development toward career options (RCU, 1979).

Need for the Study

Although the NCIS program has been in use for several years, the knowledge possessed by high school students in the areas of occupational information has not been assessed. In this instance, the factors which caused the investigator to propose this study were the need to determine
If students who have been exposed to the NCIS program have profited from this experience in terms of their knowledge of the various areas of occupational information, when compared to students in schools where the NCIS program has not been used. In addition, there was a need to determine the percentage of the students who were being served by the NCIS program.
CHAPTER III

METHODS AND PROCEDURES

In order to provide a background for the study, a review of literature was conducted to examine the writings of leading educators in the field of career education. Books, periodicals, and other current writings were studied with emphasis focused on career education and career information systems.

The Problem

A restatement of the problem is as follows: The purpose of the study was to learn if students from schools where the NCIS program was used scored significantly higher in their responses to questions concerning occupational information than did students from the schools where the NCIS program was not used. A secondary purpose was to determine what percentage of the students in the sample used had experience with the NCIS program.

Null Hypotheses

Hypothesis 1. There is no significant difference between students in NCIS schools and students in non-NCIS schools based on their knowledge of work factors and of the necessary interests and abilities relating to these factors.

Hypothesis 2. There is no significant difference between students in NCIS schools and students in non-NCIS schools based on
their ability to make educational choices, including level of education desired, to make future occupational choices, or to make choices among occupational goals.

**Hypothesis 3.** There is no significant difference between students in NCIS schools and students in non-NCIS schools based on their ability to identify postsecondary school entrance and financial requirements, schools which provide training for specified occupations, and employment opportunities in those occupations.

**Hypothesis 4.** There is no significant difference between students in NCIS schools and students in non-NCIS schools based on their ability to demonstrate an awareness of the sources of occupational information available to them.

**Hypothesis 5.** There is no significant difference between students in NCIS schools and students in non-NCIS schools based on their ability to identify working conditions, including work settings, as well as in their knowledge of wage scales and salary necessary for a beginning wage.

**Design of the Study**

The study was a survey (questionnaire) used to determine career information knowledge possessed by high school seniors in Nebraska who have and have not had access to the Nebraska Career Information System (NCIS).
Selection of the Sample

The Research Coordinating Unit (RCU) supplied the researcher with a list of 187 public high schools within Nebraska which subscribed to NCIS during the school year 1980-81. Using the Nebraska Educational Directory, the researcher listed the remaining 148 public high schools in the state which did not subscribe to NCIS during the same period of time. A random sampling technique was used to select twenty public high schools from each list.

Preparation of the Instrument

The method used to collect the data for the study was a five-page questionnaire administered to high school seniors in forty public high schools in Nebraska during the spring of 1981.

The questionnaire consisted of 33 questions, 21 taken from QUEST material, with the remainder of the questions developed by the researcher. The questionnaire was a product, or outcome-oriented instrument. Questions of a demographic nature were limited to the name of the high school, present age of the student, and sex. The students were not asked to give their names.

The first 17 questions consisted of choices of jobs based on a description of job factors. Questions 18-20 related to job settings. Questions 21-25 related to making decisions with regard to educational and occupational choices and to a desired starting salary. Questions 26-29 consisted of questions concerning knowledge of job availability
in a chosen field, proper educational preparation for chosen educational or occupational entrance, knowledge of schools offering desired training, and the cost of that training. Questions 30-32 pertained to knowledge of sources of occupational information. Question 33 was designed to test the student's knowledge of classification of occupations according to the U.S. Office of Education's cluster of 20,000 occupations.

Procedure

An initial telephone call was made to the building principal of each of the forty schools. Permission was requested to administer the questionnaire, and a date and time were established. Once permission was granted, a follow-up letter was sent to each high school principal verifying the arrangements (see Appendix A).

The questionnaire was administered by the researcher or a local high school counselor or teacher. Local staff who administered the questionnaire were trained by the researcher for administering the questionnaire.

Pilot Study

The preliminary instrument was developed following discussion with the researcher's advisor, the director of the RCU program, and other supervisory committee members. The instrument was tested at two high schools, one school which subscribed to NCIS and one school which did not. Twenty seniors from each school completed the questionnaire. As
a result of the pilot testing, changes were made in the format of the instrument as well as in the wording of the questionnaire.

Analysis of the Data

The presentation of data for this study was organized to provide research for the objectives presented in Chapter I. The statistical treatment consisted of a comparison of the students from NCIS schools with students from non-NCIS schools. The study attempted to learn if students from the NCIS schools scored significantly higher in their responses to questions concerning career information than did students from the non-NCIS schools.

Data were obtained from 1176 students in schools using NCIS systems for a return rate of 70 percent, and 636 students in schools not using the NCIS system, for a return rate of 84 percent. The questionnaires were individually coded by the researcher and typed into the computer.

The data were grouped so that a comparison of the means for the treatment group (NCIS) could be made with the means of the control group (non-NCIS) in order to determine if there was a significant difference between the two groups in their responses to the questionnaire.

The responses of students in the participating schools were grouped together for comparison consistent with the assumption that since the NCIS is a packaged program designed to be used by students from the entire state regardless of the location for the purposes of this study,
only a comparison of students from NCIS-user schools was made to students from non-NCIS-user schools.

With the use of the Statistical Package for the Social Sciences, the responses to the questionnaire were analyzed and are presented in frequency and percentage tables. A chi square test which was used to measure statistical significance tells the probability that the observed relationship of the sample study could have happened by chance and is not truly representative of the entire population, i.e., that an obtained test result that is significant at the .05 level could occur by chance only five times in 100 trials.
CHAPTER IV

FINDINGS OF THE STUDY

This research study was designed and conducted to obtain data relating to five research objectives. The findings of this study are presented in this chapter, and the conclusions and recommendations are presented in Chapter V. The summary of the findings for each research objective is provided through the use of tables and a narrative explaining each finding.

The techniques used to collect the data to accomplish these purposes included the administration of a questionnaire developed and field tested by the researcher. The questionnaire was administered to a selected group of seniors in Nebraska high schools, both NCIS user schools and non-NCIS user schools.

The collected data were analyzed and are presented in two parts. Part one includes descriptive statistics for the sample included in the study. The number of twelfth-grade students are shown for both NCIS user schools and for non-NCIS user schools; the number and percentage of responses are shown for NCIS user schools and non-NCIS user schools as well. Part two presents the results of the statistical findings for selected questionnaire items relating to the hypotheses being measured by this study.
Description of Sample

Table 1 lists the number of twelfth-grade students from NCIS user and non-NCIS user schools. Table 1 also lists the number and percentage of questionnaire responses from the individual schools involved in the study.

Findings from Hypotheses

Hypothesis 1

There is no significant difference between students in NCIS user schools and students in non-NCIS user schools based on their knowledge of work factors and of the necessary interests and abilities relating to these factors.

This hypothesis was measured by analyzing the responses from students in both NCIS user and non-NCIS user schools. Questionnaire items numbers 1-17 were used to obtain a measure of the attainment of hypothesis number one (Appendix B).

Question 1. In choosing a career, the most important factor to me is (please check one):

Money
A creative job
Independence
Serving people
Having time to spend with my family

A chi square was computed on question 1 to determine if a significant difference existed at the .05 level between students from NCIS user schools and students from non-NCIS user schools with respect to their choice of factors in selecting an occupation. Table 2 reveals that both groups responded with a creative job as their first choice. There were
<table>
<thead>
<tr>
<th>NCIS School No.</th>
<th>Number of Seniors</th>
<th>Number of Responses</th>
<th>Percentage of Responses</th>
<th>Non-NCIS School No.</th>
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<th>Number of Responses</th>
<th>Percentage of Responses</th>
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<td>100.00</td>
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<td>12</td>
<td>92.00</td>
<td>16</td>
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<td>13</td>
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<td>137</td>
<td>126</td>
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<td>77</td>
<td>73</td>
<td>95.00</td>
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<td>78</td>
<td>64</td>
<td>82.00</td>
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<tr>
<td>20</td>
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<td>16</td>
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<td>70.00</td>
<td>Total</td>
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<td>636</td>
<td>84.00</td>
</tr>
<tr>
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<td>Non-NCIS Schools</td>
<td></td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------</td>
<td>----------</td>
<td>------------------</td>
<td>----------</td>
<td>-------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
<td></td>
</tr>
<tr>
<td>Money</td>
<td>357</td>
<td>30.4</td>
<td>189</td>
<td>29.7</td>
<td>546</td>
<td>30.1</td>
<td></td>
</tr>
<tr>
<td>Creative job</td>
<td>406</td>
<td>34.5</td>
<td>216</td>
<td>34.0</td>
<td>622</td>
<td>34.3</td>
<td></td>
</tr>
<tr>
<td>Independence</td>
<td>185</td>
<td>15.7</td>
<td>96</td>
<td>15.1</td>
<td>281</td>
<td>15.5</td>
<td></td>
</tr>
<tr>
<td>Serving people</td>
<td>171</td>
<td>14.5</td>
<td>66</td>
<td>10.4</td>
<td>237</td>
<td>13.1</td>
<td></td>
</tr>
<tr>
<td>Time with family</td>
<td>57</td>
<td>4.8</td>
<td>69</td>
<td>10.8</td>
<td>126</td>
<td>7.0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1176</td>
<td>100.0</td>
<td>636</td>
<td>100.0</td>
<td>1812</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Raw chi square = 27.05719 with 4 degrees of freedom; significance = 0.0000

406 (34.5 percent) students from NCIS user schools and 216 (34.0 percent) students from non-NCIS user schools who chose creative job as their first choice. Money was the second choice for both groups; 30.4 percent of the students from NCIS user schools and 29.7 percent of the students from NCIS non-user schools chose this response. The data reveal significant differences at the .05 level (refer to Table 2).

The data from question number one was subjected to an analysis of variance (ANOVA) test to determine if the significance of the chi square was actually due to a difference between the two groups, NCIS user versus non-NCIS user students, rather than from within the various answer categories of the question. The results from the ANOVA did not show
significance at the .05 level. The significance of the ANOVA indicated that the means of the two samples were not disparate. Therefore, the null hypothesis that there is no difference between the populations of NCIS users and non-NCIS users is accepted (refer to Table 3).

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCIS/Non-NCIS</td>
<td>1</td>
<td>3.8658</td>
<td>3.8658</td>
<td>0.1086</td>
<td></td>
</tr>
</tbody>
</table>

Questions 2-17, which also measured work factors, were pooled together using t-tests with means for the total items (refer to Table 4). An examination of the pooled responses showed that the non-NCIS user group scored higher on the individual means than did the NCIS user group respondents. The total differences were not significant at the .05 level.
The individual questions (2-17) were subjected to chi square tests. Students in NCIS user schools were not significantly different from students in non-NCIS user schools with respect to work factors and knowledge of interest and abilities which relate to these factors. These include: choosing the most important factor, repeating the same task many times a day, performing exacting work, using factual information, dealing with many people, influencing other people, accepting responsibility for making decisions, moving from one task to another, expressing feelings and ideas in artistic ways, handling objects, using fingers, copying words and/or numbers accurately, reading and understanding instructions, expressing oneself well both in speech and in writing, solving arithmetic problems quickly, comprehending procedures and understanding the reasons behind them, observing differences of objects and lengths, and lifting objects. Question number 15 had a level of significance (.05) on the individual test (refer to Table 5).

Question 15. On some jobs you would need the ability to understand procedures and reasoning behind them. You might have to be good at figuring out complicated things. Would you want to do this type of work?
TABLE 4

A t-Test Analysis of Questions 2-17 Composed of a Pooled Comparison of Factors Chosen by Students from NCIS and Non-NCIS User Schools

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>t Value</th>
<th>2-Tail Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCIS Schools (N = 1176)</td>
<td>27.2662</td>
<td>-1.90</td>
<td>0.057</td>
</tr>
<tr>
<td>Non-NCIS schools (N = 536)</td>
<td>27.7437</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TABLE 5

Summary of Chi Square Analysis of Responses from Students-in NCIS and Non-NCIS User Schools, Indicating Interest in Job Factors, Including Reasoning Procedures

<table>
<thead>
<tr>
<th>Response</th>
<th>NCIS Schools</th>
<th>Non-NCIS Schools</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Yes</td>
<td>608</td>
<td>51.7</td>
<td>290</td>
</tr>
<tr>
<td>No</td>
<td>293</td>
<td>24.9</td>
<td>204</td>
</tr>
<tr>
<td>Undecided</td>
<td>275</td>
<td>23.4</td>
<td>142</td>
</tr>
<tr>
<td>Total</td>
<td>1176</td>
<td>100.0</td>
<td>636</td>
</tr>
</tbody>
</table>

Raw chi square = 11.01896 with 2 degrees of freedom; significance = 0.0040
TABLE 6

Summary of One-Way Analysis of Variance (ANOVA) of Responses from Students in NCIS User and Non-NCIS User Schools Indicating Interest in Job Factors, Including Reasoning Procedures

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCIS/Non-NCIS</td>
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<td>1.0531</td>
<td>1.0531</td>
<td></td>
<td>0.2051</td>
</tr>
</tbody>
</table>

Questionnaire items 22, 23, 24, and 25 were used to obtain a measure of the attainment of hypothesis number 2 (Appendix B).

**Question 22.** Following graduation from high school, I plan to do the following? (Please check one)

- [ ] Continue my education by enrolling in a post-high school program full-time (college, business school, technical school, or community college)
- [ ] Get a full-time job
- [ ] Go to military service
- [ ] Other (please specify)
- [ ] Undecided

A chi square was computed on question number 22 to determine if a significant difference at the .05 level existed between students from NCIS user schools and students from non-NCIS user schools concerning their plans to pursue their education following high school graduation. Although the data show that more students from NCIS user schools planned to further their education (65.3 percent) than did students from non-NCIS user schools (61.6 percent), students from non-NCIS user schools who planned to obtain a full-time job upon high school graduation (21.2 percent) also differed
from the students in NCIS user schools who planned to obtain a full-time job (18.8 percent). The difference was not significant at the .05 level (Table 7).

**TABLE 7**

Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS Schools Indicating Their Interests in Postsecondary Education Training

<table>
<thead>
<tr>
<th>Response</th>
<th>NCIS Schools</th>
<th>Non-NCIS Schools</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Number</td>
<td>Number</td>
</tr>
<tr>
<td></td>
<td>Percent</td>
<td>Percent</td>
<td>Percent</td>
</tr>
<tr>
<td>Continue education</td>
<td>768</td>
<td>392</td>
<td>1160</td>
</tr>
<tr>
<td></td>
<td>65.3</td>
<td>61.6</td>
<td>64.0</td>
</tr>
<tr>
<td>Full-time job</td>
<td>221</td>
<td>135</td>
<td>356</td>
</tr>
<tr>
<td></td>
<td>18.8</td>
<td>21.2</td>
<td>19.6</td>
</tr>
<tr>
<td>Military service</td>
<td>61</td>
<td>26</td>
<td>87</td>
</tr>
<tr>
<td></td>
<td>5.2</td>
<td>4.1</td>
<td>4.8</td>
</tr>
<tr>
<td>Other</td>
<td>50</td>
<td>34</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>4.3</td>
<td>5.3</td>
<td>4.6</td>
</tr>
<tr>
<td>Undecided</td>
<td>76</td>
<td>49</td>
<td>125</td>
</tr>
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<td></td>
<td>6.5</td>
<td>7.7</td>
<td>6.9</td>
</tr>
<tr>
<td>Total</td>
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<td>1812</td>
</tr>
<tr>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Raw 

Raw chi square = 5.14061 with 4 degrees of freedom; significance = 0.2732

**Question 23.** Have you chosen an occupation to study for or enter following high school graduation? (Please check one)

- [ ] Yes
- [ ] No (Table 8)

**Question 24.** If you have not chosen one particular occupation to enter, are you interested in several alternatives? (Please check one)

- [ ] Yes
- [ ] No (Table 9)
Chi squares were computed on question numbers 23 and 24 to determine if significant differences existed between NCIS user students and non-NCIS user students concerning whether they had chosen an occupation to study for or enter following high school graduation, and whether students from NCIS user and non-NCIS user schools were interested in several occupational alternatives. The data reveal no significant differences for either question at the .05 level.

### TABLE 8

Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS Schools Indicating Postsecondary Occupational Plans

| Response | NCIS Schools | | Non-NCIS Schools | | Total | |
|-----------|--------------|-----------------|-----------------|-----------------|-----------------|
|           | Number | Percent | Number | Percent | Number | Percent |
| Yes       | 762     | 64.8    | 409    | 64.3    | 1171   | 64.6    |
| No        | 414     | 35.2    | 227    | 35.7    | 641    | 35.4    |
| Total     | 1176    | 100.0   | 636    | 100.0   | 1812   | 100.0   |

Raw Chi Square = 0.04295 with 1 degree of freedom; significance = 0.8358
Table 9

Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS Schools Indicating Interests in Planning Alternative Goals

<table>
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<th>Responses</th>
<th>NCIS Schools</th>
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<th>Non-NCIS Schools</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Yes</td>
<td>375</td>
<td>31.8</td>
<td>211</td>
<td>33.2</td>
<td>586</td>
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<td>No</td>
<td>801</td>
<td>68.2</td>
<td>425</td>
<td>66.8</td>
<td>1226</td>
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<td>Total</td>
<td>1176</td>
<td>100.0</td>
<td>636</td>
<td>100.0</td>
<td>1812</td>
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</table>

Raw chi square = 0.37227 with 1 degree of freedom; significance = 0.5418

Question 25. What level of education or training do you plan to have when you enter your chosen career field? Consider your present education plus additional education you would take. (Please check the longest education or training program you would be willing to complete.)

- No special training, education, or experience beyond high school
- No more than high school graduation (or GED) and a short training period
- Up to one year of full-time schooling
- Up to two years or associate degree
- Up to four year college program
- Undecided

A chi square computation was used to determine the levels of training planned by students from NCIS user and non-NCIS user schools following their graduation from high school. Table 10 reveals the differences which existed were significant at the .05 level.
TABLE 10

Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS Schools Indicating Interest in Level of Postsecondary Education

<table>
<thead>
<tr>
<th>Response</th>
<th>NCIS Schools</th>
<th></th>
<th>Non-NCIS Schools</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>No training beyond high school</td>
<td>89</td>
<td>7.6</td>
<td>55</td>
<td>8.6</td>
<td>144</td>
<td>7.9</td>
</tr>
<tr>
<td>High school plus short training period</td>
<td>85</td>
<td>7.2</td>
<td>55</td>
<td>8.6</td>
<td>140</td>
<td>7.7</td>
</tr>
<tr>
<td>One year of training</td>
<td>112</td>
<td>9.5</td>
<td>70</td>
<td>11.0</td>
<td>182</td>
<td>10.0</td>
</tr>
<tr>
<td>Two years of training</td>
<td>190</td>
<td>16.2</td>
<td>129</td>
<td>20.3</td>
<td>319</td>
<td>17.6</td>
</tr>
<tr>
<td>Four years of training</td>
<td>534</td>
<td>45.4</td>
<td>248</td>
<td>39.0</td>
<td>782</td>
<td>43.2</td>
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<tr>
<td>Undecided</td>
<td>166</td>
<td>14.1</td>
<td>79</td>
<td>12.4</td>
<td>245</td>
<td>13.5</td>
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<tr>
<td>Total</td>
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<td>100.0</td>
<td>636</td>
<td>100.0</td>
<td>1812</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Raw chi square = 11.39001 with 5 degrees of freedom; significance = 0.0442

Table 11 reveals that the results of an ANOVA test to determine if the significance of the chi square test was actually due to a difference between the two groups, NCIS user versus non-NCIS user schools, rather than within the various answer categories of the question. The results from the ANOVA show a significant difference at the .05 level. The significance of the ANOVA indicated that the means of the two samples were disparate. Therefore, the null hypothesis that there is no difference
between the populations of NCIS users and non-NCIS users is rejected.

TABLE 11

Summary of One-Way Analysis of Variance (ANOVA) of Responses from Students in NCIS User and Non-NCIS User Schools Indicating Interest in Level of Postsecondary Education

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F</th>
<th>Probability</th>
</tr>
</thead>
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<td>12.4498</td>
<td>12.4498</td>
<td>0.0138</td>
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</tbody>
</table>

Hypothesis 3

There is no significant difference between students in NCIS user schools and students in non-NCIS user schools based on their ability to identify postsecondary school entrance and financial requirements, schools which provide training for specified occupations, and employment opportunities in these occupations.

Questionnaire items 26, 27, 28, and 29 were used to obtain a measure of the attainment of hypothesis number 3 (Appendix B).

Question 26. Are you aware of the number of jobs available in your chosen occupation? (Please check one)

   Yes   
   No (Table 12)

Question 27. Have you taken the subjects in high school to provide the necessary background for your chosen occupation? (For example, if you plan to be an engineer or a computer programmer, have you taken algebra?) (Please check one)
TABLE 12

Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS Schools Indicating Awareness of Job Availability in Chosen Occupation

<table>
<thead>
<tr>
<th>Response</th>
<th>NCIS Schools</th>
<th>Non-NCIS Schools</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Number</td>
<td>Number</td>
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<tr>
<td></td>
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<td>Percent</td>
<td>Percent</td>
</tr>
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<td>Yes</td>
<td>744</td>
<td>421</td>
<td>1165</td>
</tr>
<tr>
<td></td>
<td>63.2</td>
<td>66.2</td>
<td>64.3</td>
</tr>
<tr>
<td>No</td>
<td>432</td>
<td>215</td>
<td>647</td>
</tr>
<tr>
<td></td>
<td>36.8</td>
<td>33.8</td>
<td>35.7</td>
</tr>
<tr>
<td>Total</td>
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<td>1812</td>
</tr>
<tr>
<td></td>
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<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Raw chi square = 1.57549 with 1 degree of freedom; significance = 0.2094

TABLE 13

Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS Schools Indicating Awareness of Educational Requirements for Postsecondary Training

<table>
<thead>
<tr>
<th>Response</th>
<th>NCIS Schools</th>
<th>Non-NCIS Schools</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Number</td>
<td>Number</td>
</tr>
<tr>
<td></td>
<td>Percent</td>
<td>Percent</td>
<td>Percent</td>
</tr>
<tr>
<td>Yes</td>
<td>858</td>
<td>456</td>
<td>1314</td>
</tr>
<tr>
<td></td>
<td>73.0</td>
<td>71.7</td>
<td>72.5</td>
</tr>
<tr>
<td>No</td>
<td>107</td>
<td>59</td>
<td>166</td>
</tr>
<tr>
<td></td>
<td>9.1</td>
<td>9.3</td>
<td>9.2</td>
</tr>
<tr>
<td>Don't know</td>
<td>211</td>
<td>121</td>
<td>332</td>
</tr>
<tr>
<td></td>
<td>17.9</td>
<td>19.0</td>
<td>18.3</td>
</tr>
<tr>
<td>Total</td>
<td>1176</td>
<td>636</td>
<td>1812</td>
</tr>
<tr>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Raw chi square = 0.36903 with 2 degrees of freedom; significance = 0.8315
A chi square computation was used to determine the statistics in questions number 26 and 27. Tables 12 and 13 show that no significant differences existed between the NCIS user students and the non-NCIS user students concerning whether they were aware of the numbers of jobs available in their chosen occupations, and whether students from both NCIS user and non-NCIS user schools had taken the subjects in high school to provide the necessary background for their chosen occupations. There was no significance at the .05 level.

**Question 28.** Do you know the name of a school in Nebraska that provides the training you need for your chosen occupation? (Please check one)

- [ ] Yes
- [X] No (Table 14)

Table 14 reveals that the students from non-NCIS user schools scored significantly higher than did the students from NCIS user schools in their knowledge of schools in Nebraska that provide specific training for their chosen occupations. A chi square computation revealed that affirmative responses made by students from non-NCIS user schools totaled 69.7 percent, whereas responses of students from NCIS user schools totaled 63.9 percent. Overall differences were significant at the .05 level.

An ANOVA test was used to determine if the significance of the chi square test was actually due to a difference between the two groups, students from NCIS user schools versus students attending non-NCIS user schools, rather than within the various answer categories of the question.
The results from the ANOVA showed significance at the .05 level (Table 15). The ANOVA performed on question 28 indicated that there were significant differences between the means of NCIS users and non-NCIS users. Therefore, the null hypothesis is rejected.

**TABLE 14**

Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS Schools Indicating Awareness of Nebraska Postsecondary Schools Which Provide Training for Chosen Occupations

<table>
<thead>
<tr>
<th>Response</th>
<th>NCIS Schools</th>
<th>Non-NCIS Schools</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Yes</td>
<td>752</td>
<td>63.9</td>
<td>443</td>
</tr>
<tr>
<td>No</td>
<td>424</td>
<td>36.1</td>
<td>193</td>
</tr>
<tr>
<td>Total</td>
<td>1176</td>
<td>100.0</td>
<td>636</td>
</tr>
</tbody>
</table>

Raw chi square = 5.98984 with 1 degree of freedom; significance = 0.0144

**TABLE 15**

Summary of One-Way Analysis of Variance (ANOVA) of Responses from Students in NCIS User and Non-NCIS User Schools Indicating Awareness of Nebraska Postsecondary Schools Which Provide Training for Chosen Occupations

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCIS/Non-NCIS</td>
<td>1</td>
<td>1.3399</td>
<td>1.3399</td>
<td>0.0146</td>
<td></td>
</tr>
</tbody>
</table>
Question 29. In considering training for an occupation, it is necessary to consider the cost. Do you know the tuition for two semesters at either a Nebraska university, state college, or a community college? (Please check one)

Yes
No (Table 16)

TABLE 16

Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS Schools Indicating Knowledge of Tuition Costs for Postsecondary Education

<table>
<thead>
<tr>
<th>Response</th>
<th>NCIS Schools</th>
<th>Non-NCIS Schools</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Yes</td>
<td>343</td>
<td>29.2</td>
<td>174</td>
</tr>
<tr>
<td>No</td>
<td>833</td>
<td>70.8</td>
<td>462</td>
</tr>
<tr>
<td>Total</td>
<td>1176</td>
<td>100.0</td>
<td>636</td>
</tr>
</tbody>
</table>

Raw chi square = 0.66182 with 1 degree of freedom; significance = 0.4159

A chi square computation revealed that the majority of students, both those from NCIS user schools as well as students from non-NCIS user schools, did not know the cost of a year's tuition to a postsecondary school. The difference in the responses was slight. Students from non-NCIS user schools answered with a higher percentage of negative responses (72.6) than students from NCIS user schools (70.8 percent). The differences were not significant at the .05 level.
Hypothesis 4

There is no significant difference between students in NCIS user schools and students in non-NCIS user schools based on their ability to demonstrate an awareness of the sources of career information available to them.

Hypothesis number four was tested by analyzing the responses to questionnaire items 30, 31, and 32 (Appendix B).

Question 30. My primary sources for career information are (please check the source you use the most):

- Guidance counselor
- Parents or other relatives
- Teachers
- Friends
- Books and magazines
- The Nebraska Career Information System (NCIS)

A chi square computation was used to determine the primary sources of career information for students from NCIS user schools and students from non-NCIS user schools. Table 17 reveals that the primary choice for students from both groups was the guidance counselor. The students from NCIS user schools gave first place to the counselor, with 38.0 percent of their responses, and students from non-NCIS user schools responded with 46.4 percent of their total answers. Parents were given second place by both students from NCIS user schools (26.4 percent) and students from non-NCIS user schools (25.2 percent). The overall chi square difference in the question was significant at the .05 level.

The ANOVA test was used to determine if the significance of the chi square computation was actually due to a difference between the two groups, NCIS user schools and non-NCIS user schools, rather than within
TABLE 17

Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS User Schools Indicating Choice of Primary Sources of Career Information

<table>
<thead>
<tr>
<th>Responses</th>
<th>NCIS Schools</th>
<th></th>
<th>Non-NCIS Schools</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Guidance counselor</td>
<td>447</td>
<td>38.0</td>
<td>295</td>
<td>46.4</td>
<td>742</td>
<td>40.9</td>
</tr>
<tr>
<td>Parents</td>
<td>310</td>
<td>26.4</td>
<td>160</td>
<td>25.2</td>
<td>470</td>
<td>25.9</td>
</tr>
<tr>
<td>Teachers</td>
<td>71</td>
<td>6.0</td>
<td>46</td>
<td>7.2</td>
<td>117</td>
<td>6.5</td>
</tr>
<tr>
<td>Friends</td>
<td>154</td>
<td>13.1</td>
<td>70</td>
<td>11.0</td>
<td>224</td>
<td>12.4</td>
</tr>
<tr>
<td>Books</td>
<td>155</td>
<td>13.2</td>
<td>58</td>
<td>9.1</td>
<td>213</td>
<td>11.8</td>
</tr>
<tr>
<td>NCIS</td>
<td>39</td>
<td>3.3</td>
<td>7</td>
<td>1.1</td>
<td>46</td>
<td>2.5</td>
</tr>
<tr>
<td>Total</td>
<td>1176</td>
<td>100.0</td>
<td>636</td>
<td>100.0</td>
<td>1812</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Chi square = 23.44092 with 3 degrees of freedom; significance = 0.0003

The various answer categories of the question. The significance of the ANOVA indicated that the means of the two samples were disparate. Therefore, the null hypothesis that there is no difference between the populations of NCIS users and non-NCIS users is rejected (Table 18).

Question 31. The following are common sources of career information. Please check the ones you have used (check as many as apply).

___ The Occupational Outlook Handbook
___ The Dictionary of Occupational Titles
___ The Chronicle Guidance System
___ None of the above
A chi square was used to determine the frequencies and percentages in Table 19. The data show there were significant differences between students from NCIS user schools and the students from non-NCIS user schools with respect to responses given to question 31. Students from NCIS user schools as well as students from non-NCIS user schools responded to the last answer, none of the above, more often than to any of the other answers. Sixty-five percent of the students from NCIS user schools checked this answer, and 58.3 percent of the students from non-NCIS user schools checked the same option. Even though both groups responded most often to this answer, the overall chi square difference concerning the question was significant at the .05 level.

The data from question 31 were subjected to an ANOVA test to determine if the significance of the chi square was actually due to a difference between the two groups, NCIS user versus non-NCIS user schools, rather than within the various answer categories of the question. The results of the ANOVA showed a difference significant at the .05 level (Table 20).
TABLE 19

Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS User Schools Indicating Materials Used for Obtaining Career Information

<table>
<thead>
<tr>
<th>Response</th>
<th>NCIS Schools</th>
<th></th>
<th>Non-NCIS Schools</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Used one of above</td>
<td>412</td>
<td>35.0</td>
<td>265</td>
<td>41.7</td>
<td>677</td>
<td>37.4</td>
</tr>
<tr>
<td>Checked none of above</td>
<td>764</td>
<td>65.0</td>
<td>371</td>
<td>58.3</td>
<td>1135</td>
<td>62.6</td>
</tr>
<tr>
<td>Total</td>
<td>1176</td>
<td>100.0</td>
<td>636</td>
<td>100.0</td>
<td>1812</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Raw chi square = 7.75913 with 1 degree of freedom; significance = 0.0053

TABLE 20

Summary of One-Way Analysis of Variance (ANOVA) of Responses from Students in NCIS User and Non-NCIS User Schools Indicating Materials Used for Obtaining Career Information

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCIS/Non-NCIS</td>
<td>1</td>
<td>1.8199</td>
<td>1.8199</td>
<td>0.0053</td>
</tr>
</tbody>
</table>

The significance of the ANOVA indicated that the means of the two samples were disparate. Therefore, the null hypothesis that there is no difference between the populations of NCIS users and non-NCIS users is rejected.
Question 32  The following are systems of occupational information. Please check the ones you have used. (Check as many as apply.)

- The Nebraska Career Information System (NCIS)
- The Guidance Information System (CIS)
- The Vital Information for Education and Work (VIEW)
- None of the above

A chi square computation revealed no significant difference in existence between the students from NCIS user schools and students from non-NCIS user schools in their responses to the question regarding their use of certain systems of occupational information (refer to Table 21). In addition, the data also revealed that students from NCIS user schools did not indicate their use of NCIS in spite of its availability.

Hypothesis 5

There is no significant difference between students in NCIS user schools and students in non-NCIS user schools based on their ability to identify working conditions for occupations, including work settings, their recognition of wage scales, and the salary necessary for a beginning wage.

Question items 18, 19, 20, and 21 were used to obtain a measure of the attainment of hypothesis number 5 (Appendix B).

**Question 18.** In what type of job setting would you like to work? (Please check one)
- Mostly indoors or under shelter
- Mostly outdoors
- Undecided (refer to Table 22)

The data obtained from the chi square used in this instance showed that more students from non-NCIS user schools would prefer to work outdoors (45.3 percent) as opposed to the students from NCIS user
TABLE 21
Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS User Schools Indicating Knowledge of Systems of Career Information

| Response                  | NCIS Schools | | | Non-NCIS Schools | | | Total | | |
|----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Number | Percent | Number | Percent | Number | Percent |
| Used one or more of the above | 242 | 20.6 | 123 | 19.3 | 365 | 20.1 |
| Used none of the above | 934 | 79.4 | 513 | 80.7 | 1447 | 79.9 |
| Total | 1176 | 100.0 | 636 | 100.0 | 1812 | 100.0 |

Raw chi square = 0.39367 with 1 degree of freedom; significance = 0.5304

TABLE 22
Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS User Schools Indicating Choice of Environment for Job Setting

| Response | NCIS Schools | | | Non-NCIS Schools | | | Total | | |
|----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Number | Percent | Number | Percent | Number | Percent |
| Indoors | 407 | 34.6 | 197 | 31.0 | 604 | 33.3 |
| Outdoors | 477 | 40.6 | 288 | 45.3 | 765 | 42.2 |
| Undecided | 292 | 24.8 | 151 | 23.7 | 443 | 24.4 |
| Total | 1176 | 100.0 | 636 | 100.0 | 1812 | 100.0 |

Raw chi square = 4.01490 with 2 degrees of freedom; significance = 0.1343
schools (40.6 percent). The students from NCIS user schools who planned to work indoors (34.6 percent) also differed from the students from non-NCIS user schools (31.0 percent). In the undecided category, students from NCIS user schools totaled 24.8 percent, while the students from non-NCIS user schools comprised 23.7 percent. The differences were not significant at the .05 level.

Question 19. Some people want to work only in a large city; others want to work only in a small city, while others want to work in a small town. In which size community are you willing to work? (Please check one)

- Only in a large city (like Omaha, Lincoln), over 100,000 population
- Only in a small city (like Fremont, Hastings), over 25,000 population
- Only in a small town-rural area, under 800 population
- Undecided

A chi square was used to determine the statistics in question number 19. Table 23 reveals that students from NCIS user schools and students from non-NCIS user schools both chose the small city as their first choice for a living environment. Students from NCIS user schools revealed a 39.8 percent choice, and students from non-NCIS user schools showed a 34.4 percent choice. Second choice for students from NCIS user schools was the large city (25.2 percent), with second choice for the students from non-NCIS user schools was the undecided category (26.1 percent). Students from NCIS user schools were undecided (24.3 percent) and students from non-NCIS user schools chose the small town-rural environment (21.2
TABLE 23
Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS Schools Indicating Choice of of Size of Town for Job Setting

<table>
<thead>
<tr>
<th>Responses</th>
<th>NCIS Schools</th>
<th>Non-NCIS Schools</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Large city</td>
<td>296</td>
<td>25.2</td>
<td>116</td>
</tr>
<tr>
<td>Small city</td>
<td>468</td>
<td>39.8</td>
<td>219</td>
</tr>
<tr>
<td>Small town-rural</td>
<td>126</td>
<td>10.7</td>
<td>135</td>
</tr>
<tr>
<td>Undecided</td>
<td>286</td>
<td>24.3</td>
<td>166</td>
</tr>
<tr>
<td>Total</td>
<td>1176</td>
<td>100.0</td>
<td>636</td>
</tr>
</tbody>
</table>

Raw chi square = 44.04280 with 3 degrees of freedom; significance = 0.0000 percent) as their third choice. The differences revealed were significant at the .05 level.

The data from question 19 was subjected to an ANOVA test to see if the significance of the chi square was actually due to a difference between the two groups, students from NCIS user schools and students from non-NCIS user schools, rather than within the various answer categories of the question. The results of the ANOVA revealed significant differences at the .05 level (refer to Table 24). The ANOVA performed on question 19 indicated that there were significant differences between the means of NCIS users and non-NCIS users. Therefore, the null hypothesis is rejected.
TABLE 24

Summary of One-Way Analysis of Variance (ANOVA) of Responses from Students in NCIS User and Non-NCIS User Schools Indicating Choice of Size of Town for Job Setting

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCIS/Non-NCIS</td>
<td>1</td>
<td>18.2202</td>
<td>18.2202</td>
<td>0.0001</td>
<td></td>
</tr>
</tbody>
</table>

Question 20. Where are you willing to work? (Please check one)

- Only in Nebraska
- Only in the Midwest
- Anywhere in the United States

A chi square was computed on question 20 to determine if significant difference at the .05 level existed between students from NCIS user schools and students from non-NCIS user schools with regard to the geographical location in which they wished to work. Table 25 reveals students from NCIS user schools chose anywhere in the United States for their first choice (74.1 percent). Students from non-NCIS user schools also chose anywhere in the United States as their first choice (61.6 percent). Second choice (15.4 percent) for the students from NCIS user schools was anywhere in the Midwest. The students from non-NCIS user schools chose only in Nebraska for their second choice (20.9 percent). Only in Nebraska was the third choice for students from NCIS user schools (10.5 percent), while students from non-NCIS user schools chose the Midwest for their third choice (17.5 percent). The overall differences were significant at the .05 level.
TABLE 25
Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS Schools Indicating Geographical Choice for Job Setting

<table>
<thead>
<tr>
<th>Response</th>
<th>NCIS Schools</th>
<th></th>
<th>Non-NCIS Schools</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Nebraska</td>
<td>123</td>
<td>10.5</td>
<td>133</td>
<td>20.9</td>
<td>256</td>
<td>14.1</td>
</tr>
<tr>
<td>Midwest</td>
<td>181</td>
<td>15.4</td>
<td>111</td>
<td>17.5</td>
<td>292</td>
<td>16.1</td>
</tr>
<tr>
<td>United States</td>
<td>872</td>
<td>74.1</td>
<td>392</td>
<td>61.6</td>
<td>1264</td>
<td>69.8</td>
</tr>
<tr>
<td>Total</td>
<td>1176</td>
<td>100.0</td>
<td>636</td>
<td>100.0</td>
<td>1812</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Raw chi square = 42.27747 with 2 degrees of freedom; significance = 0.0000

The data from question 20 were subjected to an ANOVA test to determine if the significance of the chi square was actually due to a difference between the two groups, students from NCIS user and students from non-NCIS user schools, rather than within the various answer categories of the question. The results of the ANOVA revealed significant differences at the .05 level (refer to Table 26). The ANOVA performed on question 20 indicated that there were significant differences between the means of NCIS users and non-NCIS users. Therefore, the null hypothesis is rejected.

**Question 21.** How much must an occupation pay for regular, full-time work, before you would consider it? These wages refer to the average starting rate before deductions; you would earn more with experience. (Please check one)
TABLE 26

Summary of One-Way Analysis of Variance of Responses from Students in NCIS User and Non-NCIS User Schools Indicating Geographical Choice for Job Setting

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCIS/Non-NCIS</td>
<td>1</td>
<td>21.7760</td>
<td>21.7760</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Not sure, or not important at this time.
- At least the minimum wage to start ($3.35 per hour)
- At least $700-$999 per month ($4.03-$5.75 per hour)
- At least $1,000-$1,249 per month ($5.76-$7.20 per hour)
- At least $1,250-$1,499 per month ($7.21-$8.64 per hour)
- At least $1,500 per month ($8.65 or more per hour)

A chi square was computed on question 21 to determine if a significant difference existed between students from NCIS user schools and students from non-NCIS user schools with regard to their choice of earnings for a starting salary. Table 27 reveals that students from NCIS user schools and students from non-NCIS user schools both chose the $700-$999 starting salary (31.7 and 33.5 percent, respectively) as their first choice. Students from NCIS user schools chose $1,000-$1,249 for their second choice (24.2 percent), while students from non-NCIS user schools chose the minimum wage of $3.35 per hour (19.8 percent). Third choice for the students from NCIS user schools was the "not important" choice (15.8 percent), and third choice for students from non-NCIS user schools was $1,000-$1,249 (19.3 percent). The differences which existed were significant at the .05 level. An ANOVA test was used to determine
TABLE 27

Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS User Schools Indicating Choice of Earnings for Beginning Job

<table>
<thead>
<tr>
<th>Responses</th>
<th>NCIS Schools</th>
<th>Non-NCIS Schools</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Not important</td>
<td>186</td>
<td>15.8</td>
<td>82</td>
</tr>
<tr>
<td>Minimum</td>
<td>126</td>
<td>10.7</td>
<td>126</td>
</tr>
<tr>
<td>$700-$999</td>
<td>373</td>
<td>31.7</td>
<td>213</td>
</tr>
<tr>
<td>$1,000-$1,249</td>
<td>285</td>
<td>24.2</td>
<td>123</td>
</tr>
<tr>
<td>$1,250-$1,500</td>
<td>95</td>
<td>8.1</td>
<td>34</td>
</tr>
<tr>
<td>Over $1,500</td>
<td>111</td>
<td>9.4</td>
<td>58</td>
</tr>
<tr>
<td>Total</td>
<td>1176</td>
<td>100.0</td>
<td>636</td>
</tr>
</tbody>
</table>

Raw chi square = 33.11415 with 5 degrees of freedom; significance = 0.0000

if the significance of the chi square test was actually due to a difference between the two groups, the responses from students in NCIS user schools or those from students attending non-NCIS user schools, rather than within the various answer categories of the question. The results from the ANOVA showed significance at the .05 level (refer to Table 28). The ANOVA performed on question 21 indicated there were significant differences between the means of NCIS users and non-NCIS users. Therefore, the null hypothesis is rejected.

Question 33. The United States Office of Education has placed over 20,000 occupations into groups called clusters. The clusters are
TABLE 28

Summary of One-Way Analysis of Variance of Responses from Students in NCIS User and Non-NCIS User Schools Indicating Choice of Earnings for Beginning Job

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCIS/Non-NCIS</td>
<td>1</td>
<td>8.7584</td>
<td>8.7584</td>
<td>0.0380</td>
</tr>
</tbody>
</table>

listed below. A list of occupations is also given. Directions: Match the numbers from the list of occupations with the corresponding cluster with which it fits.

Clusters

- Agri-Business & Natural Resources
- Business & Office
- Communication & Media
- Construction
- Consumer & Homemaking
- Education
- Environment
- Fine Arts & Humanities
- Health
- Hospitality & Recreation
- Manufacturing
- Marine Science
- Marketing & Distribution
- Personal Services
- Public Services
- Transportation

Occupations

1. Dry-Wall Applicator
2. Oceanographer
3. Air-Traffic Control Specialist
4. Fish and Game Warden
5. Cosmetologist
6. Assembler, small products
7. Urban Planner
8. Director, TV
9. Secretary
10. Chiropractor
11. Musician, vocal
12. Hotel Manager
13. Teacher, cooking
14. Salesperson
15. Environmental-Control System Installer

Question 33 was a test of knowledge of career clusters. The scores were based on the numbers matched correctly. The question was first subjected to a t-test. An examination of the responses revealed that students from non-NCIS user schools scored higher on the individual
means than did the students from NCIS user schools. The total differences were not significant at the .05 level (refer to Table 29).

TABLE 29
A t-Test Analysis of Question 33: A Comparison of Correct Responses by Students from NCIS Schools and Those from Non-NCIS Schools

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>t Value</th>
<th>2-Tail Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCIS schools</td>
<td>9.0765</td>
<td>-1.50</td>
<td>0.133</td>
</tr>
<tr>
<td>(N = 1176)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-NCIS schools</td>
<td>9.4182</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(N = 636)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A chi square was computed on question 33 to determine if a significant difference existed between the responses of students from NCIS user schools and students from non-NCIS user schools. Students from both groups earned their highest correct scores with the same number of correct scores, but with different percentages. Both groups scored their highest with 13 correct responses: students from NCIS user schools, 15.4 percent, and students from non-NCIS user schools, 17.8 percent. Both groups scored 11 correct responses for their second highest score: students from NCIS user schools, 13.7 percent, and students from non-NCIS schools, 14.5 percent. Both groups scored zero correct for their third highest score: students from NCIS user schools, 12.8 percent, and students from non-NCIS user schools, 10.4 percent (Table 30).
TABLE 30

Summary of Chi Square Analysis of Responses from Students in NCIS and Non-NCIS User Schools Indicating Correct Responses to Career Cluster Test

<table>
<thead>
<tr>
<th>Number of Correct Responses</th>
<th>NCIS Schools</th>
<th>Non-NCIS Schools</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>0</td>
<td>150</td>
<td>12.8</td>
<td>66</td>
</tr>
<tr>
<td>1</td>
<td>20</td>
<td>1.7</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>16</td>
<td>1.4</td>
<td>16</td>
</tr>
<tr>
<td>3</td>
<td>18</td>
<td>1.5</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>21</td>
<td>1.8</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>27</td>
<td>2.3</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>29</td>
<td>2.5</td>
<td>22</td>
</tr>
<tr>
<td>7</td>
<td>46</td>
<td>3.9</td>
<td>23</td>
</tr>
<tr>
<td>8</td>
<td>64</td>
<td>5.4</td>
<td>38</td>
</tr>
<tr>
<td>9</td>
<td>84</td>
<td>7.1</td>
<td>48</td>
</tr>
<tr>
<td>10</td>
<td>112</td>
<td>9.5</td>
<td>56</td>
</tr>
<tr>
<td>11</td>
<td>161</td>
<td>13.7</td>
<td>92</td>
</tr>
<tr>
<td>12</td>
<td>119</td>
<td>10.1</td>
<td>52</td>
</tr>
<tr>
<td>13</td>
<td>181</td>
<td>15.4</td>
<td>113</td>
</tr>
<tr>
<td>14</td>
<td>9</td>
<td>0.8</td>
<td>6</td>
</tr>
<tr>
<td>15</td>
<td>118</td>
<td>10.0</td>
<td>72</td>
</tr>
</tbody>
</table>

Total 1176 100.0 636 100.0 1812 100.0

Raw chi square = 15.73438 with 15 degrees of freedom; significance = 0.3999
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The material in this chapter is presented in three sections. A summary of the study is presented in section one. The second section presents conclusions based upon the findings of the study. Recommendations for further research are presented in the final section.

Summary

During the past ten years, there has been a tremendous growth in the number of career information systems within the United States. Although the systems vary from simple to complex, and may use manual or computerized forms of delivery, people seem to agree that the primary purpose is the delivery of current, local, relevant occupational information to the nation's students.

The Nebraska Career Information System (NCIS) is a broad, flexible system which provides services to many individuals and agencies in addition to the students of Nebraska. NCIS is equipped with both the manual needle-sort and the computerized delivery mechanism which provides much flexibility to its system. This study investigated the status of NCIS and its expectations for continued services and activities.

The Problem

The purpose of this study was to determine if students from schools where the NCIS program was used scored significantly higher in their
responses to questions concerning occupational information than did students from the schools in which the NCIS program was not used. A further purpose of the study was to determine what percentage of the students in the sample used had had experience with the NCIS program.

**Specific Objectives of the Study**

1. To compare the extent of knowledge possessed by students in NCIS schools and those in non-NCIS schools with regard to work factors, as well as the knowledge of the interests and abilities which relate to these factors.

2. To compare the extent to which students in NCIS schools and those in non-NCIS schools can make educational choices, including level of education desired; can make future occupational choices; and can make choices among alternative goals that are both reasonable and satisfying.

3. To compare the extent of knowledge possessed by students in NCIS schools and those in non-NCIS schools regarding postsecondary school entrance and financial requirements, and regarding schools which provide training for specified occupations, together with knowledge of employment opportunities available in those occupations.

4. To compare the extent to which students in NCIS schools and those in non-NCIS schools were familiar with the sources of occupational information available to them.

5. To compare the extent of student knowledge in NCIS schools with those in non-NCIS schools in regard to working conditions, including work settings, as well as in their knowledge of wage scales, and the salary necessary for a beginning wage.
The Review of Literature

A review of the literature produced numerous references to topics of concern in this chapter. In order to understand the present-day systems of career information, it was necessary to refer to the history of vocational guidance during the early days of the twentieth century. The legislation and the massive social and economic changes which have occurred since that time have, along with the increasing emphasis on education, forced schools to accept responsibility for preparing youth for life, and for providing information and/or skills which will enable them to enter the world of work.

The literature also referred to the introduction of the concept of career education, which along with the current legislation and the ever-increasing volume of occupational literature, has made it impossible for counselors to provide sufficient occupational information for students. As a result, career information systems have been designed and implemented in the nation's schools.

The systems of career information vary from the extremely simple to the extremely complex computerized systems. They may consist of either a manual or a computerized delivery form which provides information to the user.

The evaluation of career information systems reviewed reflects a positive reaction from users of the systems. The general belief is supported that students gain occupational information from exposures to systems of information regardless of the ones in use.
The Procedures

The population from which the sample for this study was drawn consisted of seniors from public high schools selected at random from the state of Nebraska. Twenty NCIS user schools and twenty non-NCIS user schools were chosen. The total population sampled included 2450 students with 1812 students responding to the questionnaire (74 percent response). The questionnaire used to collect data for the study was a five-page (front and back) instrument. The questionnaire consisted of 33 questions of a process or outcome-oriented nature. Questions of a demographic nature were limited to the name of the high school, present age of the respondent, and sex of the respondent. The students were not asked to give their names.

The questionnaires were individually coded by the researcher, then typed into the computer for statistical analysis. The Computer Center at the University of Nebraska, Lincoln, provided the data analyses through the presentation of data utilizing chi-square, a one-way analysis of variance, and t-tests. The .05 level of significance was chosen as the criterion for statistical significance in all analyses of the data of this study.

The Findings

Analysis of the data was provided in Chapter IV on whether students from NCIS user schools scored significantly higher in their responses to questions concerning occupational information than did students from non-NCIS user schools. Data revealed that students from NCIS user schools scored significantly higher than did students from
non-NCIS user schools in ability to make educational choices, including level of education desired; and in ability to make decisions with regard to the size of town for job settings. Students from NCIS user schools also scored higher in their ability to select geographical locations for job settings; and in knowledge of wage scales and of the salary necessary for a beginning wage.

Conclusions

Answers were sought to five specific objectives in this study. Based upon the findings of this study, it is concluded that:

1. Students in NCIS user schools were not significantly different than students from non-NCIS user schools with respect to work factors and knowledge of interest and abilities which relates to these factors. These include:
   a. choosing the most important factor
   b. repeating the same task many times a day
   c. performing exacting work
   d. using factual information
   e. dealing with many people
   f. influencing other people
   g. accepting responsibility for making decisions
   h. moving from one task to another
   i. expressing feelings and ideas in artistic ways
   j. handling objects
   k. using fingers
   l. copying words and/or numbers accurately
   m. reading and understanding instruction
   n. expressing oneself well both in speech and in writing
   o. solving arithmetic problems quickly
   p. comprehending procedures and understanding the reasons behind them
   q. observing differences of objects and lengths
   r. lifting objects

2. Students in NCIS user schools were not significantly different than students from non-NCIS user schools with respect to choice of
working conditions where the choice was between working indoors or under shelter, or outdoors.

3. Students in NCIS user schools were not significantly different than students from non-NCIS user schools with regard to their interests in postsecondary education training.

4. Students in NCIS user schools were not significantly different than students from non-NCIS user schools with regard to choosing postsecondary occupational plans.

5. Students in NCIS user schools were not significantly different than students from non-NCIS user schools with regard to an interest in planning alternative goals.

6. Students in NCIS user schools were not significantly different than students from non-NCIS user schools with regard to awareness of job availability in chosen occupations.

7. Students in NCIS user schools were not significantly different than students from non-NCIS user schools with regard to awareness of educational requirements for postsecondary training.

8. Students in NCIS user schools were not significantly different than students from non-NCIS user schools with regard to knowledge of tuition costs for postsecondary education.

9. Students in NCIS user schools were not significantly different than students from non-NCIS user schools with regard to knowledge of systems of career information.

10. The analysis of variance (ANOVA) showed that students from NCIS user schools were significantly different from students from non-NCIS
user schools in regard to their levels of interest in postsecondary education. Although both groups chose four years of training, indicating college as their first choice, a difference existed in the percentage of choice. Students from NCIS schools showed a tendency to choose programs offering longer periods of training (two years, four years), whereas students from non-NCIS schools tended to choose programs with lesser periods of training (no training beyond high school, high school and a short training period, one year of training, two years of training), to a greater degree.

11. The analysis of variance (ANOVA) showed that students from NCIS user schools were significantly different from students from non-NCIS user schools in regard to their awareness of Nebraska schools which provide the training needed for a chosen occupation. More students from the non-NCIS user schools responded that they did know the name of a school in Nebraska that provided the training they needed than did the students from the NCIS user schools.

12. The analysis of variance (ANOVA) showed that students from NCIS user schools were significantly different from students from non-NCIS schools with regard to their primary sources of career information. Students from both groups indicated the same first three choices (counselor, parents, friends). The differences were simply a matter of degree. The percentage of students from non-NCIS user schools choosing the counselor was higher than the percentage from the NCIS user group. The students from the NCIS user schools gave a higher percentage of responses to parents than did the non-NCIS user group.
13. The analysis of variance (ANOVA) showed that students from NCIS user schools were significantly different from students from non-NCIS user schools in indicating materials used for obtaining career information. A chi square analysis revealed that although the percentages were similar, more students from the NCIS user schools chose the Occupational Outlook Handbook as a source of career information they had used than did the students from non-NCIS user schools. In the choice of the Dictionary of Occupational Titles, the percentages were the same for both groups. The students from non-NCIS user schools chose the Chronicle Guidance System as a source they had used with a higher percentage than did the students from NCIS user schools.

14. The analysis of variance (ANOVA) showed that students from NCIS user schools were significantly different from students from non-NCIS user schools in their indications of choice of size of town for a job setting. Students from both groups chose a small city as their first choice. Second choice for students from NCIS user schools was a large city; whereas, second choice for students from non-NCIS user schools was "undecided." The trend was apparent for students from NCIS user schools to choose the larger towns, and the reverse trend was true for the students from non-NCIS user schools.

15. The analysis of variance (ANOVA) showed that students from NCIS user schools were significantly different from students from non-NCIS user schools with regard to geographical choice for a job setting. Students from both groups chose the United States (anywhere) for a first choice. The percentage of choice was higher from the students from NCIS
user schools. Students from NCIS user schools gave the Midwest as their second choice, and Nebraska as their third choice. The students from non-NCIS user schools gave Nebraska as their second choice, with the Midwest as their third choice. The students from NCIS user schools chose a wider geographical area than did the students from non-NCIS user schools.

16. The analysis of variance (ANOVA) showed that students from NCIS user schools were significantly different from students from non-NCIS user schools with regard to expectations of earnings for a beginning job. Both groups responded with a choice of the $700-$999 range as their first choice; however, students from NCIS user schools responded with $1,000-$1,249 as their second choice; whereas, the students from non-NCIS user schools dropped to the minimum wage for their second choice. The tendency was shown for students from NCIS user schools to expect higher wages.

17. Students in NCIS user schools were not significantly different than students from non-NCIS user schools with regard to number of correct responses made to the matching career cluster test.

Recommendations

1. Because the results of this study indicated the NCIS program was effective in providing selected occupational information to students, it is recommended that the Research Coordinating Unit (RCU) should conduct an orientation of both incoming freshmen students and their parents each year to the Nebraska Career Information System (NCIS) for the purpose of utilization of the NCIS.
2. Emphasis should be placed on attaining and maintaining good relations between RCU personnel and school personnel to coordinate the NCIS program with the schools. Contacts with both administrative personnel and counselors should be a primary area of effort. Principals should be kept aware of new and continuing services provided by NCIS as well as of the benefits to be attained by the use of NCIS. Counselors should be contacted regularly by letter and/or telephone to offer service and to learn if NCIS is being used as intended.

3. Suggestions should be offered to administrative personnel and to counselors regarding the effectiveness of delivery of occupational information in group guidance courses in which NCIS is utilized. The use of a time study could be suggested with such a method of delivery of information (NCIS) in order to realize the time saved by the counselor in working with groups as opposed to career counseling on a one-to-one basis.

Recommendations for Further Study and Research

Based upon the results and conclusions of this study, further research needs to be completed in the following areas:

1. Follow-ups of students from NCIS user schools and students from non-NCIS user schools should be conducted to measure the differences in careers, job satisfaction, and to learn if NCIS has played a part in their lives.

2. Follow-ups of occupational information systems should be implemented to measure system success in accomplishing objectives.
3. Further research should be conducted in the same area as the present study with students grouped according to socioeconomic and academic ability levels.

4. Further research should be conducted with a replication of the present study using a grade level other than the one used in this study.

5. Further research should be conducted to determine if other methods of providing information can be identified which are effective in raising the student's level of knowledge of occupational information.

6. Further research should be conducted to determine if the results found in the present study would be replicated if the study was undertaken to determine the extent under which counselors incorporated career information concepts in their methods of counseling.
REFERENCES
REFERENCES


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Hurd, S. SIGI and GIS are "most popular" at Kansas school. Journal of the American Vocational Association, 1980, 55, 46.


McKinlay, B. Systematic delivery of career information. New Directions for Education and Work, 1979, 5.


Nebraska Career Information System. Lincoln: University of Nebraska.


APPENDIX A

Correspondence
March, 1981

A few days ago I called to request your permission to administer a questionnaire to your high school seniors. You kindly agreed to allow me to give the questionnaire, and I now would like to verify the arrangements we made by telephone.

Your school will be one of forty high schools in the state participating in the questionnaire sponsored by the Research Coordinating Unit, University of Nebraska, Lincoln. The questionnaire was designed to measure the knowledge of occupational information possessed by Nebraska high school seniors.

As we arranged previously, I plan to administer the questionnaire to your seniors on ____, ______, 1981, at ____ AM/PM. I will arrive thirty minutes prior to the agreed-upon time.

Thank you for your cooperation.

Sincerely yours,

Donnalee Van Zante
APPENDIX B

Questionnaire
Questionnaire

This study is being conducted by Donnalee Van Zante, in cooperation with the Research Coordinating Unit, University of Nebraska, Lincoln, Nebraska. The purpose of this study is to learn about your opinions concerning occupations, and what your occupational plans are for the future.

Instructions
1. Please answer each question in order as accurately as possible.
2. There is no need to sign your name to the questionnaire.
3. You may omit any question you do not wish to answer.
4. Data will be reported on a group basis only; you will not be identified in any way.

SCHOOL: (Please list your high school) ____________________________

AGE: (Please list your age as of today) ________

SEX: (Please check one) ___ Male ___ Female

1. In choosing a career, the most important factor to me is: (Please check one)
   ___ Money
   ___ A creative job
   ___ Independence
   ___ Serving people
   ___ Having time to spend with my family

2. On some jobs you do the same things many times a day and you work at a steady pace. Would you want to do this type of work? (Please check one)
   ___ Yes
   ___ No
   ___ Undecided

3. On some jobs there is little room for error so you must be very exact in your work. Would you want to do this type of work? (Please check one)
   ___ yes
   ___ No
   ___ Undecided
4. On some jobs you have to use factual information in deciding what to do. Would you want to do this type of work? (Please check one)

- Yes
- No
- Undecided

5. On some jobs you must deal with many different people to get your work done. Would you want to do this type of work? (Please check one)

- Yes
- No
- Undecided

6. On some jobs you try to influence other people's actions or ideas. Would you want to do this type of work? (Please check one)

- Yes
- No
- Undecided

7. On some jobs you are responsible for making final decisions about projects, plans, and other people's duties. Would you want to do this type of work? (Please check one)

- Yes
- No
- Undecided

8. On some jobs you must move often from one task to another and use several different skills. Would you want to do this type of work? (Please check one)

- Yes
- No
- Undecided

9. On some jobs you must express feelings and ideas in artistic ways. Would you want to do this type of work? (Please check one)

- Yes
- No
- Undecided

10. On some jobs you would need to be good at handling things quickly as you see them. You might have to be quick and accurate at sorting or operating things. Would you want to do this type of work? (Please check one)
11. On some jobs you would need to be able to do very precise work with your fingers. You might have to handle small things quickly and carefully. Would you want to do this type of work? (Please check one)

Yes
No
Undecided

12. On some jobs you would need to copy words or numbers correctly. You might have to be good at things like proofreading written material. Would you want to do this type of work? (Please check one)

Yes
No
Undecided

13. On some jobs you would need to read and understand instructions. You might have to express yourself clearly when writing or talking with people. Would you want to do this type of work? (Please check one)

Yes
No
Undecided

14. On some jobs you would need to be able to do addition, subtraction, multiplication, and division. You might have to solve arithmetic problems quickly and correctly. Would you want to do this type of work? (Please check one)

Yes
No
Undecided

15. On some jobs you would need the ability to understand procedures and the reasoning behind them. You might have to be good at figuring out complicated things. Would you want to do this type of work? (Please check one)

Yes
No
Undecided

16. On some jobs you would need to be able to tell slight differences in shapes of objects and lengths of lines. You might have to be able to see in detail in objects, pictures, or drawings. Would you want to do this type of work? (Please check one)
17. Jobs require different amounts of physical activity. Would you be able and willing to be very active, often handle 50-pound objects, and sometimes lift more? (Please check one)

___ Yes
___ No
___ Undecided

18. In what type of job setting would you like to work? (Please check one)

___ Mostly indoors or under shelter
___ Mostly outdoors
___ Undecided

19. Some people want to work only in a large city; others want to work only in a small city; while others want to work in a small town. In which size community are you willing to work? (Please check one)

___ Only in a large city (like Omaha, Lincoln), over 100,000 population
___ Only in a small city (like Fremont, Hastings), over 25,000 population
___ Only in a small town-rural area, under 800 population
___ Undecided

20. Where are you willing to work? (Please check one)

___ Only in Nebraska
___ Only in the Midwest
___ Anywhere in the United States

21. How much must an occupation pay for regular, full-time work before you would consider it? These wages refer to the average starting rate before deductions; you would earn more with experience. (Please check one)

___ Not sure, or not important at this time.
___ At least the minimum wage to start ($3.35 per hour)
___ At least $700-999 per month ($4.03-$5.75 per hour)
___ At least $1,000-1,249 per month ($5.76-$7.20 per hour)
___ At least $1,250-1,499 per month ($7.21-$8.64 per hour)
___ At least $1,500 per month ($8.65 or more per hour)
22. Following graduation from high school, I plan to do the following: (Please check one)
   - Continue my education by enrolling in a post-high school program
     full-time (college, business school, technical school, or community college)
   - Get a full-time job
   - Go to military service
   - Other (please specify)
   - Undecided

23. Have you chosen an occupation to study for or enter following high school graduation? (Please check one)
   - Yes If you checked yes, what is the occupation? ____________________________
   - No

24. If you have not chosen one particular occupation to enter, are you interested in several alternatives? (Please check one)
   - Yes If you checked yes, please list them: ____________________________
   - No

25. What level of education or training do you plan to have when you enter your chosen career field? Consider your present education plus additional education you would take. (Please check the longest education or training program you would be willing to complete)
   - No special training, education, or experience beyond high school before starting the job
   - No more than high school graduation (or GED) and a short training period
   - Up to one year of full-time schooling
   - Up to two years or associate degree
   - Up to four years of college program
   - Undecided

26. Are you aware of the numbers of jobs available in your chosen occupation? (Please check one)
   - Yes
   - No

27. Have you taken the subjects in high school to provide the necessary background for your chosen occupation? (For example, if you plan to be an engineer or a computer programmer, have you taken algebra?) (Please check one)
28. Do you know the name of a school in Nebraska that provides the training you need for your chosen occupation? (Please check one)

___ Yes If you checked yes, please list the school or schools:
___ No

29. When considering training for an occupation, it is necessary to consider the cost. Do you know the tuition for two semesters at either a Nebraska university, state college, or a community college? (Please check one)

___ Yes If you checked yes, please list the school and the cost:
___ No

30. My primary sources for career information are: (Please check the source you use the most)

___ Guidance counselor
___ Parents or other relatives
___ Teachers
___ Friends
___ Books and magazines
___ The Nebraska Career Information System (NCIS)

31. The following are common sources of career information. Please check the ones you have used. (Check as many as apply)

___ The Occupational Outlook Handbook
___ The Dictionary of Occupational Titles
___ The Chronicle Guidance System
___ None of the above

32. The following are systems of occupational information. Please check the ones you have used. (Check as many as apply)

___ The Nebraska Career Information System (NCIS)
___ The Guidance Information System (GIS)
___ The Vital Information for Education and Work (VIEW)
___ None of the above
33. The United States Office of Education has placed over 20,000 occupations into groups called clusters. The clusters are listed below. A list of occupations is also listed. Directions: Match the numbers from the list of occupations with the corresponding cluster with which it fits.

<table>
<thead>
<tr>
<th>Clusters</th>
<th>Occupations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agri-Business &amp; Natural Resources</td>
<td>1. Dry-wall applicator</td>
</tr>
<tr>
<td>Business &amp; Office</td>
<td>2. Oceanographer</td>
</tr>
<tr>
<td>Communication and Media</td>
<td>3. Air-traffic control specialist</td>
</tr>
<tr>
<td>Construction</td>
<td>4. Fish and game warden</td>
</tr>
<tr>
<td>Consumer &amp; Homemaking Education</td>
<td>5. Cosmetologist</td>
</tr>
<tr>
<td>Environment</td>
<td>6. Assembler, small products</td>
</tr>
<tr>
<td>Fine Arts &amp; Humanities</td>
<td>7. Urban planner</td>
</tr>
<tr>
<td>Health</td>
<td>8. Director, TV</td>
</tr>
<tr>
<td>Hospitality &amp; Recreation</td>
<td>9. Secretary</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>10. Chiropractor</td>
</tr>
<tr>
<td>Marine Science</td>
<td>11. Musician, vocal</td>
</tr>
<tr>
<td>Marketing &amp; Distribution</td>
<td>12. Hotel manager</td>
</tr>
<tr>
<td>Personal Services</td>
<td>13. Teacher, cooking</td>
</tr>
<tr>
<td>Public Services</td>
<td>14. Salesperson</td>
</tr>
<tr>
<td>Transportation</td>
<td>15. Environmental control-system installer</td>
</tr>
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