SHO-ME VIEW:A STUDY OF THE EFFECTIVENESS OF THE MISSOURI VOCATIONAL INFORMATION FOR EDUCATION AND WORK SYSTEM TO DISSEMINATE VOCATIONAL INFORMATION

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PREFACE

Donna R. Chiles, President, American Personnel and Guidance Association has written (15):

> As our Nation continues its economic growth and technological advancement, new jobs are created and others become obsolete. Keeping abreast of these changes and informed regarding vocational opportunities is an ongoing responsibility for the counselor. To be effective in the career exploration and decision-making process, counselors and clients must have, as one important resource, relevant information about current and projected job descriptions and employment practices. (Preface Page)

A major aim of this study was the development of a system for the preparation and dissemination of current, relevant, and accessible vocational information; thereby, providing aid for counselors and teachers who work with students in vocational counseling in Missouri schools.

I would like to express my appreciation to Dr. Harry K. Brobst, doctoral committee chairman, who gave me the necessary guidance, and encouragement to press on at several critical junctures throughout the doctoral program. Appreciation is also expressed to committee members Dr. Robert Brown, Dr. Frank McFarland and Dr. Kenneth Sandvold for their assistance in executing this manuscript. Appreciation is expressed to Mr. A. K. Klapp, Chairman of the English Department at

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CHAPTER I

THE NATURE OF THE PROBLEM

Introduction

All too often the school counselor is a "jack of all trades and master of none." He is expected to be an expert at educational, personal, and vocational counseling with a minimum of specific course work and training in these areas. Because of his personal experience in the formal educational process, the school counselor may be more effective in educational and personal counseling. It is, however, in the area of vocational counseling that the school counselor often fails to do an adequate job. Among the more prolific of the many writers who have dealt with counselor deficiencies in vocational counseling are Reed (23), O'Hara (17), and Murray (14).

There are two major reasons for this deficiency in vocational counseling. The first reason, which has been indicated above, is the lack of adequate training in vocational counseling on the part of the counselor. Referring to this deficiency, DuBato (4) reports:

> . . . counselors on all levels rate their formal preparation in occupational information as having been less adequate than in other competencies . . . (p. 8)

Writing in a similar vein, Smith (30) states:

> Counselors are often unable to meet the needs of students because of lack of facilities, too many students, inability to stay current in all areas of vocational education, or other reasons. (p. 24)

Pearl (19), in a somewhat more general statement says:

> Any education that seriously considers man's survival must also direct its attention to the arenas of human existence--work, political behavior, cultural activity, leisure, and purely personal relations . . . . These currently are just not treated in any depth in school . . . . When considered, the treatment is diluted, inert, and devoid of analysis. (p. 630)

The second reason for counselor deficiency in vocational counseling is the lack of resource materials. This is probably the most serious of deficiencies, according to Smith (30). Kurtzman (10), addressing himself to this resource materials deficiency, states:

> . . . in many school systems the provision of appropriate career information materials is more a goal than a reality. Such materials as are available come from diverse sources, having varying formats, and usually lack specificity to local situations. Much of this career information is also out of date due to the inescapable time lag inherent in conventional productions and dissemination procedures. Traditionally, our best career information materials have dealt with professional careers, but even these lack the objectivity desirable when students must make choices based upon factual information. (p. 5)

The present study concerns itself, for the most part, with the latter of these two vocational counseling deficiencies. It reports the development and subsequent testing of a system for the preparation and dissemination of inexpensive, current, relevant and accessible vocational

information for Missouri school systems.

Purpose of the Study

The problems in vocational counseling are more acute than in other areas due to complex changes taking place in the world of work in the United States. There is now an increased awareness of the need to work more closely with students concerning career development. Among those writers who not only have recognized this need, but, have emphasized its importance are Venn (33), Reed (23), and Impelliteri (8).

The need for a detailed and systematic approach to vocational counseling is expressed by O'Hara (17):

> If . . . we were simply to throw the whole Dictionary of Occupational Titles at a student, he might get the impression of one "big 'bloomin' confusion." If, however, we make entry to this vast storehouse of information through those areas in which he manifests some degree of readiness, we can, by sequencing the steps of his approach, assist him in understanding and imposing some increased degree of rationality upon his study of his own vocational development. (p. 639)

As a high school counselor in Springfield, Missouri, the author was involved in a North Central Association re-evaluation study which found deficiencies in the area of vocational counseling; the other areas of counseling were found to be adequate. The counselors involved in this North Central Association study expressed a serious need for an improved approach to vocational counseling.

The purpose of this study was to develop and test an effective and efficient system for disseminating vocational information which would improve vocational counseling in Missouri schools. In discussing vocational counseling with the Missouri State Department of Vocational Education, it appeared that this deficiency in vocational counseling is state wide.

Scope of the Study

This study was limited to four groups of 9th grade high school students enrolled at Hillcrest High School, Springfield, Missouri, during the 1972-73 school year. The study being reported here used 9th grade students for several reasons. As 9th graders, students would not have had vocational training at the Area Vocational Technical School, thereby introducing an experience variable to some and not to others. The 9th grade students all take Citizenship, which includes a unit on vocations, thus lending itself well to a vocational study. Also, it was believed that 9th grade students would cooperate in such an experience better than the upper grades because of greater difficulty in student control with the upper grades. The fact that 9th grade students are not away from the school on work permits and vocational training part of the day also contributed to their selection. The final and probably most important reason for choosing 9th grade Citizenship classes for this study relates to the

random assignment of students to these classes. Chapter III will deal with the assignment of students to the study groups.

SHO-ME VIEW (the Missouri VIEW Project) was limited to 50 job descriptions which were determined by a student survey. This point will also be dealt with more fully in Chapter III.

Setting of the Study

As stated above, this study was conducted at Hillcrest High School, Springfield, Missouri. Hillcrest is one of five comprehensive high schools in Springfield, Missouri. Each of the five high schools in Springfield has a total enrollment in excess of 1,000 students to serve the population area of approximately 135,000 people. At the time of this study, Hillcrest had an enrollment of 1,425 students in classes 9 through 12. Less than 30 percent of its graduates attend two-year and four-year colleges and the rest enter the local job market or attend some kind of vocational training. The school, therefore, places a strong emphasis on trade, technical, and business courses as well as on its college preparatory course offering.

The Guidance Staff at Hillcrest consists of four full-time counselors--one for each of the four classes. Although this approximate ratio of 1 counselor to 350 students is better than some schools, the staff still faces

the problem of doing an adequate job of getting vocational information to the students. The general feeling among the counselors is that a lack of current and accessible vocational counseling materials is the major reason for this counseling problem.

Underlying Assumptions of the Study

A major assumption underlying this study was that career development which is a complex process that develops step-by-step over several years (18), (32) is facilitated by the dissemination of pertinent vocational information (17). Referring to this developmental process, O'Hara (17) states:

> The more occupational words a student knows, the more he will be able to differentiate and integrate within the occupational world. He must learn words, symbols, to explore vicariously the world of work, to talk out and act out with friends, with parents, teachers, and counselors. In general, the more he does this, the better able he will be to differentiate and integrate. It is precisely this principle that vocational psychologists have neglected. (p. 639)

Another assumption related to this study is that counselors could and would do a much better job of vocational counseling if they had current, localized, available materials and knowledge to use these materials. Commercial vocational materials are often neither current nor localized according to Kurtzman (10).

Operational Definitions

For the purpose of this study the following terms are utilized and defined. A detailed description of the subjects, instrument, and statistics used in this study is given in Chapter III.

Treatment Group. This refers to three of the four groups of students used in this study which received different kinds of vocational counseling treatment.

Treatment Group I. This refers to the 61 students who were in two Citizenship classes and received treatment through individual counseling in conjunction with the use of SHO-ME VIEW equipment and materials.

Treatment Group II. This refers to 59 students who were in two Citizenship classes and received treatment through vocational group guidance in conjunction with the use of SHO-ME VIEW equipment and materials.

Treatment Group III. This refers to 56 students who were in two Citizenship classes and received treatment through lectures using vocational information found in the SHO-ME VIEW materials and traditional sources.

Control Group. This refers to 51 students who were in two Citizenship classes making up the non-treatment group and designated as Group IV in this study.

VIEW. This is an acronym developed in the original VIEW Project at San Diego, California, and stands for Vocational Information for Education and Work.

SHO-ME VIEW. This refers to the "VIEW" Project developed in conjunction with this study and localized for Missouri. The development of the SHO-ME VIEW will be discussed in detail in Chapter III.

SHO-MEscripts. This refers to micro-cards containing job descriptions which were localized for Missouri. Four 8 1/2 x 11 page sets of job descriptions were photographed on a frame of 35 mm microfilm mounted on an aperture card.

Vocational Counseling. This refers to counseling related directly to the world of work in contrast to academic, and personal counseling.

Group Vocational Guidance. This refers to the kind of treatment received by Treatment Group II and defined by Mahler (12) as: " . . . a class or education experience, mainly involved with giving out information . . . the major responsibility . . . remains with the teacher." (pp. 601-608) The SHO-ME VIEW equipment and materials were taken into the classroom and used in conjunction with vocational group guidance.

Knowledge About the World of Work. This refers to the individual's understanding of work as reflected by the results of a vocational, objective test. This test is described in Chapter III.

Study Groups. This refers to the three treatment groups and the one non-treatment group in this study.

Traditional Method. This refers to vocational counseling now practiced at Hillcrest High School which

makes use of commercial materials already in the school and used, for the most part, in conjunction with individual student counseling.

Description of the Organization of the Study

Chapter I has dealt with the nature of the problem under the headings of Introduction, Purpose of the Study, Scope of the Study, Setting of the Study, Underlying Assumptions of the Study, and Operational Definitions. Chapter II considers a review of related research and literature. Chapter III involves the design and methodology of the study. Chapter IV gives the results of the investigation; and Chapter V presents the summary, conclusions and recommendations.

CHAPTER II

A REVIEW OF RELATED RESEARCH AND LITERATURE

Introduction

Inasmuch as this study dealt with not only a specific system for the dissemination of vocational information--the VIEW system, but also vocational counseling, it seemed desirable and logical that the review of related research and literature should be divided into two parts--the first to concern itself with the history of the VIEW system for disseminating vocational information; the second to deal with other computer-age technology in vocational education and counseling.

History of the VIEW System

The original designers of the VIEW system believed that existing methods and materials used in vocational counseling were deficient and ineffective in giving high school students the vocational information necessary to choose realistic occupational goals. These deficiencies, as they saw them, involved two areas--counseling deficiencies and data deficiencies.

Almost without exception, vocational counseling is looked upon as being a most serious counseling deficiency. Among the many authors who have supported this contention, only those whose comments are most revealing are reported here. DuBato (3), as a result of his study, has reported:

> The finding that counselors on all levels rate their formal preparation in occupational information as having been less adequate than in other competencies has implications for counselor education . . . (p. 8)

Kurtzman (10) writes:

> The problem of inadequate information is compounded by counselors who have not been properly trained in the selection, evaluation, and use of . . . resources which results in only a microscopic number of schools having an organized system of career information dissemination. (p. 5)

Data deficiencies are perhaps even more acute than counseling deficiencies in vocational counseling. In fact, much of the reason for counseling deficiencies results from the critical data deficiencies. Referring to this data deficiency, Smith (30) states:

> Much of the data concerning vocations is too technical and requires the students to read a massive amount of materials to obtain specific information. Data may not be current and several sources of material are sometimes required. Often information about specific factors such as job possibilities in a given industry or geographic location are unavailable. (p. 24)

Regarding this serious vocational data deficiency, Kurtzman (10) says:

> The problem that exists is twofold in nature: the apparent deficiencies which exist in available career information resources; and

> inadequate methods of dissemination and utilization of such resources when they are available. (p. 7)

The SHO-ME VIEW system was developed from the outcomes of several other systems (16), (30), (21). The San Diego School District received a Federal grant for the purposes of developing a new and hopefully better system of getting vocational information to public school students (30).

This original VIEW project study included the six junior college institutions in San Diego County: Grossmont College, Mesa College, Miracosta College, Palmar College, San Diego City College, and Southwestern College. Other participating agencies included the California State Department of Employment, San Diego State College, and the Hospital Council of San Diego (30).

The Pilot phase of the original Project VIEW in San Diego extended from February 1, 1965 to June 30, 1966. This study was limited to 55 health occupations. The technique used for the evaluation in this study was the personal interview. Questions which were constructed for evaluation of the project concerned the use and merits of the equipment and materials.

The designers and investigators in the original Project VIEW concluded that it was both satisfactory and successful. Pierson, Hoover and Whitfield (21) state:

> Evaluation of the project was obtained by use of questionnaires. Students reactions to other occupational literature was also used for

> comparative purposes. Since student, counselor, and administrator evaluation of the pilot project was highly favorable, the decision was made to submit a proposal to continue developmental activities of the career information center. (p. 167)

The second study done and reported using the VIEW system appears to have been done by DuBato (4). DuBato called his system VOGUE--VOcational GUidance in Education.

During 1966-67 the Bureau of Occupational Education Research of the New York State Education Department conducted a study using the VOGUE system. The investigator, DuBato (4) referring to the study stated:

> Its objectives are to demonstrate and test the effectiveness in career guidance of specially prepared occupational information. (p. 118)

In the VOGUE study, twelve educational institutions were selected to demonstrate and evaluate the occupational information guides with three different methods of disseminating information. The institutions were:

(1) Three academic high schools equated as to enrollment and socio-economic background of students.

(2) Three vocational-technical schools.

(3) Three comprehensive high schools.

(4) Three two-year colleges.

The VOGUE materials were presented in three different ways:

(1) Microfilm reader.

(2) Microfilm reader-printer.

(3) Loose-leaf booklet.

While the San Diego Project used only 55 job descriptions in health occupations, the VOGUE study used 200 job descriptions in various job areas. The evaluation instrument in the VOGUE study was questionnaire forms. Seckendorf and Wedekind (28) state:

> The research findings as reported by counselors, teachers, and students showed that guides were well received and considered superior to the average run of occupational information found in most occupational information files. (Foreward Page)

The third reported study involving Project VIEW was a doctoral dissertation study done at Utah in 1968 by Smith (30). The Utah Project VIEW used microfilm equipment and methods similar to those in San Diego and New York. There were some significant differences, however, between the Smith study and those of San Diego and New York. The major differences were:

1. High school sophomores were the principal subjects in the Utah study; while San Diego used college students and New York used high school and college students;

2. In the Utah study vocational information was written in outline and was of less technical nature than that used in the San Diego project. In this respect, Smith's materials were more like those of DuBato;

3. Utah's Project VIEW, like that of New York, used many more job descriptions--San Diego used 55, New York used 200, Utah used 121;

4. Utah's Project was state-wide while San Diego's was county-wide and New York's was area-wide;

5. The instrument for evaluation in the Utah study was an objective test. The San Diego

> study used the personal interview; and New York utilized the questionnaire.

Smith (30) concluded:

> . . . most of the data generated during the study indicated that Project VIEW was definitely effective. In addition to this effectiveness, the equipment and materials were also efficient. (p. 56)

The SHO-ME VIEW study was developed from the "Recommendations for Further Research" in Smith's study.

The personal interview and questionnaire method of evaluation, used in the San Diego (21), and DuBato (4) studies respectively, are not exact enough in measurement for sufficient evaluation according to Smith (30). Although Smith addressed himself to this weakness in his study; the Smith study had the weakness of not being highly structured. Smith (30) recognized this weakness when he wrote:

> Very little pointed direction was given to the schools included in the Project. A recommendation for further testing would be that certain schools be selected and a very careful program be worked out involving one or more classes of students in selected schools. These test classes would be highly structured, using Project VIEW equipment and materials with and without support. (p. 56)

The SHO-ME VIEW study concerned itself with the above recommendation.

Another recommendation made by Smith (30) was:

> A study might be made using the materials and equipment of Project VIEW as an 'individualized' form of vocational counseling and measuring them against a 'group' method of disseminating vocational information. (p. 56)

The SHO-ME VIEW study also recognized this second recommendation of Smith.

Although several other states have developed and localized the VIEW system for vocational counseling, the studies reported above are the only ones conducted using the VIEW system. This review of related research and literature now turns to the second area of consideration.

Other Computer-Age Technology In Vocational Counseling

Perrone and Thrush (20) report several computer-age vocational information processing systems. One such system is called Project PLAN. The objectives of Project PLAN as given by Perrone and Thrush (20) are:

> To create a modular individualized computer assisted program for learning in accordance with needs . . . . Inform the child regarding the world of work, leisure and citizenship, to help him in his formulation of his educational, vocational and life goals, to ascertain and counsel with him regarding the nature of his developed abilities and the implications of those abilities for his chosen goals, to assit him in the development of plans to attain those goals and in the acquisition of skills in self-management so that he might be more independent in the pursuit of those plans and to assist him in the continual reappraisal of the goals he has set for himself in the light of the progress patterns he is manifesting. (p. 257)

Project PLAN is only one of a number of similar systems of vocational counseling. A second such system is called CVIS--Computerized Vocational Information Systems (5). The researchers for CVIS were Jo Ann Harris,

Willowbrook High School, Villa Park, Illinois and James Godshalk, College of Du Page, Naperville, Illinois.

The objectives of CVIS are similar to those of Project PLAN. Perrone and Thrush (20) report these objectives:

> To present to students an organized computer system for vocational decision making and to make information about occupations and students more available to counselors. To allow students to explore occupations in relation to their own abilities, achievements, and interests. (p. 257)

All the computer-assisted vocational counseling systems are similar in operation. The computer stores information about occupations, which, in the case of CVIS, number 400 occupations. The student's permanent record is also stored in the computer. The student can explore possibilities by an "on-line computer communication." In such a process, the student can rate himself on ability and achievement and receive feedback from the computer. The student may make a choice and then be supported or mildly discouraged by the computer.

A third computer-assisted counseling system is reported by Loughary, Friesen and Hurst (11). In this study a human counselor was matched against an automated counselor (computer) in educational planning interviews for 9th grade students. No attempt was made to see which did the better job; the idea was to note the similarity of course choice by students using the automated system and those relating to the human counselor. The computer-assisted model agreed with the human model on 66 percent

of the course choices. An example of the student's use of the computer is given by Loughary, Friesen and Hurst (11):

> The pupil is seated at a TWX (teletype) keyboard, and told to type his student number and then the carriage return key. He does this and the following dialogue takes place:
>
> You are about to participate in an interview with an automated counselor. The computer will help you plan what you want to do in high school and in later life. But first, just to let the computer know you are here, please type the letter A and a carriage return (CR) (red key on the right-hand side of the keyboard).
>
> **** A
>
> Good.
>
> The most important key is the CR key (red key on the right). You will use it to let the computer know that you have made an answer. Just for practice, type the letter B and a CR key (red key).
>
> **** B
>
> OK...
>
> Sometimes you will be asked to answer a yes or no question. When you are, just type YES or NO and a CR. Don't forget the CR. Let's try it. Here is a question ... please type YES or NO.
>
> **** Yes
>
> Fine...
>
> Many other people are using this computer right now. Once in a while the computer will have to take care of their urgent needs. When you have read this, type OK and a CR.
>
> **** OK
>
> Good.
>
> By now, you have noticed that before you type an answer, the typewriter types stars like this:

****

This is to let you know that it is time for you to type something. You should never type anything until after the stars are typed out by the computer. Do you understand? Please type YES or NO.

**** Yes

Another very important key is the / or "slash" key. It is the green key on the bottom right of the keyboard. Look for the / key (green key). When you find it, type / and a CR.

**** /

Sometimes you will have to type more than one line and the computer cannot tell in advance how many lines you will type. In such a case, you will let the computer know that you have finished by typing a / and a CR. What you type will look something like this:

**** 1

**** 2

**** /

Let's try it. Type 1 and a CR, 2 and a CR, and a / and a CR. (Wait for the stars).

**** 11

Now, now. Look up at the example and try again. . . . and so forth.

This orientation sequence takes about eight minutes. The counseling then begins as follows:

Please type your ID number and a CR.

**** 17

Is your name John Jones?

**** Yes

According to my records this is how you did last semester . . . (p. 10)

The student's achievement is then displayed along with a

great deal of other information as the student responds to the computer's instructions.

A fourth computer-assisted vocational counseling system is simply called Computer-Assisted Occupational Guidance Program. The reporter is Joseph T. Impellitteri at Pennsylvania State University, University Park, Pennsylvania. Impellitteri (6) gives the results of a field trial with his system:

> Generally, the students agreed that working at the computer terminal was an interesting, helpful and simple means of exploring occupations . . . . Summing up their reactions to each of the phases of the system, it can be said that their feelings were highly favorable . . . . The highly favorable reaction must be interpreted in the light of the magic and glamour attached naturally to computers by highly impressionable younsters of ages 13 and 14. (p. 80)

Another computer-assisted counseling system which has been reported in considerable detail is the TGISS--Total Guidance Information Support System. Roberts, Kieser and Foresberg (26) were the investigators in this project. Bartlesville Public Schools, Bartlesville, Oklahoma, and Oklahoma State University, Stillwater, Oklahoma, were the locations of TGISS. This project was funded under the United States Office of Education from the project formulation date of November, 1966, to the completion date of 1972 (20).

The objectives of TGISS were somewhat similar to the other computer-assisted systems. Perrone and Thrush (20) report the objectives:

> To plan, develop, implement, and appraise a prototype computer-support system specifically designed to facilitate the counselor function in the student decision-making process through the application of information retrieval, gaming, diagnostic, and conversational techniques . . . (p. 263)

TGISS was, however, different from other computer-assisted counseling support systems in that "total guidance"--educational, vocational and personal counseling was considered. Roberts, Kieser and Foresberg (26) state:

> The system of concern here can best be described as a total guidance system that will provide the needed support for the public school counselor to perform as a professional rather than as a slave to what is obviously a rather prodigious paper shuffling administrative monster. (p. 2)

Other similar computer-assisted vocational educational counseling systems could be cited such as ISVD--Information System for Vocational Decisions and the Rochester Career Guidance Project, Rochester City Schools, Rochester New York. The list would go on almost endlessly as Impellitteri (7) points out:

> Recently Donald Reynolds, Director of the Instructional Systems Institute of Texas Christian Institute conducted a survey to determine the extent of CAI [Computer Assisted Instruction] involvement of colleges, universities, school districts, profit-making institutions and non-profit institutions . . . . As of July, 1967, Reynolds' survey revealed that 26 CAI systems were operating. It was also found that 29 additional systems were on order and would probably be operating by June, 1968 . . . . I would say that conservatively there are today [10 November, 1967] no fewer than 35 CAI systems currently operating. (p. 5)

This review of related research and literature has dealt primarily with microfilm (VIEW) and computer-assisted systems of vocational counseling and vocational information dissemination. It appears appropriate to compare the operational costs of these two systems. Perrone and Thrush (20) list the operation cost of the CVIS system as:

> Approximately $9,000 per month for lease of IBM 360-30 system with 2 teletype units and 15 cathode ray tubes. This also includes the cost of the phone lines, data sets, and remote control units needed for Willowbrook's long distance hookup with the computer center at College of DuPage, approximately 15 miles away. (p. 257)

The VIEW system requires a processor camera which costs about $4,000. Reader-Printers can be purchased for about $450.00 each. These two pieces of equipment are the only two pieces of hardware necessary for using the VIEW system. A third piece of hardware--a Uniprinter Copier, may be used to reproduce the job card decks at a much faster speed and at a considerable reduction in cost. The Uniprinter Copier costs about $1200.00; however, it is not absolutely necessary.

The most economic way to set up and operate the VIEW system would probably be on a state wide basis. The Oklahoma VIEW System (16) would be an example of a state wide approach. The approximate cost to set up and operate a state wide VIEW system would be:

(1) Processor Camera ---------- $4,000

(2) Uniprinter Copier ---------- 1,200

(3) Reader Printer ---------- 450

(4) Expendable Materials

(This would vary according to the number of schools involved.)

(5) One full time employee would be needed to write and keep job descriptions current and direct operations.

(This would vary also.)

Bohm and Super (1), in referring to computer-assisted vocational counseling, state: "The role of the computer in guidance has not yet been settled (p. 31)." Samler (27) feels somewhat more confident about computer-assisted counseling when he states:

> This is an area not really any longer subject to argument. The issue is not whether the computer will be used in vocational counseling, but rather how very extensively it will be used and how soon. My own answer must be that the computer will be used very extensively in, say, five to ten years. (p. 3)

Kroll (9) writes:

> It is becoming apparent that improved methods of information processing are essential if the vocational counselor is to improve the quality of "career knowledge" he and his clients develop. (p. 4)

Roberts, Kieser, and Foresberg (26) add:

> One of the primary components of the counseling role in the public schools is the utilization of information. Specifically, the counselor must engage in compilation and dissemination of pertinent information concerning the individual student. The primary competencies expected of counselors are the ability to employ useful

> information in meaningful ways, to provide instruction to facilitate vocational awareness . . . . (p. 28)

In reference to using computer-age technology in vocational counseling, Roberts (24) defines counseling in the following manner:

> Counseling is the process of facilitating client self-understanding and self-management through an assessment of an individual's assets and liabilities in relation to the requirements of his life goals. (p. 5)

According to Roberts and Frederick (25):

> Present human counseling systems do not provide for adequate access of various data required for the formulation of intelligent decisions on the part of the student. This problem is complicated by (1) quantity and quality of data available through public school counselors, (2) limited student access time to counselors, (3) lack of adequate conceptualization concerning the kinds of decisions facing students, (4) lack of adequate conceptualization of counselor role relevant to the student decision-making process, and (5) lack of qualified counseling personnel to adequately help all students in the decision making process. (p. 1)

It would appear that computer-age technological devices used in conjunction with vocational counseling with respect to storing and retrieval of information could offer some relief to the problem.

Summary Statement

This review of related research and literature has dealt with two basic kinds of vocational counseling systems and vocational information dissemination systems. The microfilm approach with the VIEW system was discussed along

with several computer assisted systems.

Those who have developed and tested the VIEW (Vocational Information for Education and Work) system conclude that it is an effective and efficient means of disseminating vocational information. Smith (30), however, does not feel that the methods of evaluation used in the VIEW studies, other than his own, produce exact enough measurements. Smith also indicated that his study had weaknesses in design and that further research was needed.

Numerous computer assisted vocational and educational counseling systems have been developed recently. Researchers of these systems contend that the computer is a must for meeting future vocational needs of students.

CHAPTER III

DESIGN AND METHODOLOGY

Introduction

In Chapter II, a history of Project VIEW was presented up to but not including the development of the Missouri VIEW Project. This chapter contains a description of the development of SHO-ME VIEW, the Development and Use of the Instrument, Subject Group Selection and Treatment, and a Statement of Hypotheses and Statistical Treatment.

Development of the SHO-ME VIEW

Although several states had developed and were using some form of the VIEW system prior to this study, the VIEW system had never been developed or used in Missouri. One of the first considerations in the development of the SHO-ME VIEW, in conjunction with this study, was the number of job descriptions to include in the project.

As a part of the plans for developing a vocational clinic by the Guidance Staff at Hillcrest High School, a vocational survey interest form was employed for the entire student body; these vocational survey interest forms for the 9th graders were used as one criterion for selecting job descriptions for the SHO-ME VIEW system. Two other

criteria were used in the selection of job descriptions. These were: (1) Jobs for which training was offered at area vocational-technical schools, junior and community colleges throughout the State, and were listed in the Missouri State Department of Education Publication (13) were used; and (2) Only jobs for which non-baccalaureate level training was required were used. On the basis of the criteria described above, 50 job descriptions were developed for this study.

It was determined that a four-page, job description format would be used since the processor camera owned by the Springfield Missouri School System was set up to photograph such an arrangement. Also, four pages seemed to be sufficient space to cover the job descriptions adequately.

The printing department of the Willard J. Graff Vocational-Technical School, Springfield, Missouri, printed the four page format forms for the job descriptions. A format resembling that of the Oklahoma VIEW was used in this study. The Oklahoma VIEW Handbook (16) was a major source for the job description format. The several states using the VIEW system utilize varying numbers of pages in the job descriptions ranging from four to eight or nine. As stated above, the SHO-ME VIEW used four pages in the job descriptions. The information appearing on the four pages was as follows:

Page One:	Job Description; Requirements and Qualifications including three areas: (1) Personal Traits, (2) Aptitudes, (3) Physical Abilities
Page Two:	Job and Salary Information; Hours of Work, Fringe Benefits, Working Conditions, Salary (local area), Starting Salary and Average Salary; Sources of Training and Sources of Information
Page Three:	More About the Job; Related Occupations
Page Four:	Preparation and Training Needed; Prospects and Opportunities

Two major sources were used for job description information: (1) Occupational Outlook Handbook (15); (2) Dictionary of Occupational Titles, Volumes I and II (2). The Missouri Office of Employment Security staff in Springfield furnished information on local salaries and opportunities.

The next step in the process was to reduce these four 8 1/2 x 11 page job descriptions to camera cards. Microfilming was done with the use of a 3m Filmsort 1000d Processor Camera which was owned by the Springfield, R-12 School District and located at the Willard J. Graff Vocational-Technical School, Springfield, Missouri. The processor camera required approximately 40 seconds to photograph the four pages of printed and typewritten material and reproduce it on a mmm 5824 aperture card. The aperture cards were loaded into the camera; the camera then automatically photographed and developed the section of 35 mm film which was mounted on the card.

A deck of 50 microfilm, aperture card, job descriptions were then ready for use in a reader-printer. The choice of the proper reader-printer for this experiment was critical since the design of the study required taking the reader-printer into classrooms a number of times over the nine-week treatment period. The 3M Executive I microfilm Reader-Printer was chosen for the study for several reasons: (1) lightweight construction (approximately 40 pounds), (2) dry-silver print process which requires no liquid substance for development, (3) quick and simple reloading of print paper. Another consideration in the choice of the Executive I was the cost--approximately $450.

The Executive I Reader-Printer was leased from the American Business Systems Company, Springfield, Missouri, and was delivered to Hillcrest High School, Springfield, Missouri, on September 26, 1972. At this point, the microfilm, aperture cards were placed in the reader-printer, a button pressed, and an 8 1/2 x 11 print appeared in 30 seconds. The price of the prints were about 11 cents each, which with the rest of the cost of this project, was borne by the investigator.

The total cost of the project was:

(1) Reader-Printer lease	$ 83.43
(2) Typewriting Costs	75.30
(3) Paper	27.57
(4) Reader-Printer photo-paper	135.34
(5) Camera Cards	12.00
Total	$333.65

Instrument Development and Use

Following the completion of the SHO-ME VIEW system, an objective test for evaluation in the study was developed to reflect knowledge of the world of work. The determination to use an objective test instead of the interview or general questionnaire was made because of greater exactness in measurement of the objective test. The objective test was composed of three parts:

Part I - Questions were asked related to the parent's educational and occupational level. The occupational information of parents was not used in the study since insufficient data were obtained when the test was administered; however, the parent educational information was used. Students were also asked to respond to a question which related to work experience in Part I of the test.

Part II - In part two, general questions about the world of work were asked. Included in Part II were definitions about such things as "Workmen's Compensation," "Social Security," "Labor Unions," and "Civil Service." This part of the test was believed to measure knowledge in general about the world of work.

Part III - In part three, three specific multiple-choice questions were written for each of the 50 non-baccalaureate occupations developed for the SHO-ME VIEW project. It was believed that the data from these 150 questions would be most meaningful since they related

directly to the majority of the 50 jobs in the SHO-ME VIEW system. A trial administration of the test using students similar to those in the study indicated that 150 multiple choice questions along with parts I and II of the test were sufficient materials to keep most students busy for 60 minutes.

The objective test was designed as a post test only since the subjects would be drawn from randomly assigned groups and as such could be initially assumed to be homogeneously grouped. A test of homogeneity of variance failed to sustain this assumption. This point will be covered in detail in the last section of this chapter.

Subject Selection

The next logical step in this study was to select the subjects for the study. As was stated in Chapter I, a major reason for selecting study subjects from 9th grade Citizenship classes was the random student assignment to these classes. The secretaries in the general office randomly assign students to the Citizenship classes according to class size only. A memorandum from the school principal of Hillcrest High School indicating this random class assignment appears in the appendix of this study.

The 1972-73 school year at Hillcrest High School required 13 Citizenship classes. From these 13 classes, comprised of approximately 30 students each, 8 classes

were randomly assigned to the study. Two classes, approximately 60 students, were assigned to each of the four treatment groups in order to study such things as sex difference, work experience difference, and parent education difference.

Group I - This group was designated as the group to receive treatment using the SHO-ME VIEW equipment in conjunction with individual counseling.

Group II - This group was designated as the group to receive treatment using the SHO-ME VIEW equipment in conjunction with group guidance.

Group III - This group was designated as the group to receive treatment in lecture form using loose-leaf, SHO-ME VIEW material, information as well as traditional materials as lecture subject matter. This group did not use the SHO-ME VIEW equipment.

Group IV - This group was the non-treatment or control group which followed the traditional vocational counseling procedure already in use in the school.

Group Treatments

Beginning on October 23, 1972, and continuing for the next 9 weeks, treatment was administered to Groups I, II, and III in the following manner:

Group I - Students came to one of three counselors for individual use of the VIEW equipment and individual, vocational counseling. The classroom teacher allowed

students to come for vocational counseling in connection with a class assignment. Each student in Group I had at least one individual counseling session using the VIEW equipment. Many students in Group I came several times to use the VIEW equipment and receive vocational counseling. These students were not compelled to come for counseling; however, the classroom teachers did make assignments to all four groups. These assignments included the writing of at least two job descriptions of the student's choice. Students were given grade credit by the teachers for these assignments. It was believed that these class assignments would motivate the students to make use of the job information references. The same assignment was given to all four groups in the study.

Group II - Group II students received treatment by having the VIEW equipment brought to their classrooms once each week for nine weeks. This group (each of the two classes) was divided into three smaller groups. On a rotating basis, the teacher worked with one group; one group used the reader-printer; the third group used the VIEW, loose-leaf materials.

Group III - Group III students received one lecture each week during the nine week treatment period. Lecture material information was used from loose-leaf, VIEW materials and traditional sources.

Group IV - This non-treatment or control group was given the same assignment as the other three groups and

the same information on resource materials; they were not allowed to use the VIEW equipment and materials, however. None of the students in the four groups knew anything about this study.

At the conclusion of the nine week treatment period the objective test was administered to all students during one class period of 60 minutes. Each class was tested when that class normally met. The testing schedule was as follows:

Group I - 2nd and 3rd hours of the school day.

Group II - 4th and 6th hours of the school day.

Group III - 2nd and 4th hours of the school day.

Group IV - 3rd and 5th hours of the school day.

One class period appeared to be sufficient time for students to complete the test.

Statement of Hypotheses

The statistical hypotheses tested are stated in the form of null hypotheses.

Hypothesis I. There will be no significant difference in knowledge about the world of work as indicated by scores on an objective evaluation test for students in the four groups investigated:

Group I - students using the SHO-ME VIEW equipment in conjunction with individual vocational counseling;

Group II - students using the SHO-ME VIEW equipment in conjunction with a group guidance method of disseminating vocational information;

Group III - students in a lecture method of disseminating vocational information without the use of the SHO-ME VIEW equipment;

Group IV - students in a non-treatment group using the traditional method of vocational counseling now in use at Hillcrest High School.

Hypothesis II. There will be no significant difference in knowledge about the world of work as indicated by scores on an objective evaluation test for boys and girls in each of the four groups.

Hypothesis III. There will be no significant difference in knowledge about the world of work as indicated by scores on an objective evaluation test for students with and without work experience in each of the four groups.

Hypothesis IV. There will be no significant difference in knowledge about the world of work as indicated by scores on an objective evaluation test for students in each of the four groups whose parents:

A. attended college,

B. finished high school but did not attend college,

C. did not finish high school.

In addition to these four main hypotheses, several questions were noted for observation during the development and evaluation of the SHO-ME VIEW project. No statistical treatment was attempted in relation to these questions:

1. Would students using the SHO-ME VIEW equipment make use of the printouts?

2. Would students show enthusiasm and sustained interest in the use of the SHO-ME VIEW equipment?

3. Would the equipment and materials in the SHO-ME VIEW project be easy to use and maintain?

4. Would the materials in the SHO-ME VIEW project be easy to keep current?

5. Would counselors and teachers show interest in the SHO-ME VIEW system for vocational information dissemination?

6. Would SHO-ME VIEW equipment be easy to use in the classroom?

7. Would the price tag for the SHO-ME VIEW project be exorbitant?

Statistical Treatment

The design of the study called for parametric statistics--specifically, single-classification analysis of variance for Hypotheses I and IV (listed on pages 34, 35 of this chapter) as illustrated by Wert, Neidt, and Ahmann (34, pp. 172-187) and Popham (22, pp. 164-188).

Referring to the assumptions of analysis of variance Popham (22) writes:

> One assumption of analysis of variance is that the measures within each category or subgroup must represent random samples. Though it is often difficult in behavioral sciences to satisfy rigorously this condition, it is usually possible to approximate random sampling, or at least to rule out the possibility that an obviously biased subgroup is being used to represent a population . . . . Another major assumption of analysis of

> variance is that the variances within the subgroups are homogeneous, i.e., not significantly different among themselves. Though this is typically the case when experimental data are gathered from subjects which have been randomly assigned to subgroups, the assumption of such group homogeneity of variance can be tested by several techniques. One of the most widely used is Bartlett's test. A simple, but less rigorous test of homogeneity of variance has also been described by Edwards . . . . As indicated previously, the researcher weighing the appropriateness of analysis of variance will wish to consider the assumptions before finally choosing this technique. But, if the departure of his data from the two conditions specified herein are not drastic, it is likely that the researcher may employ analysis of variance without great fear of spurious interpretations. (p. 179)

Once again Popham (22) states:

> As one often has difficulty in drawing purely random samples in educational situations, a more reasonable guide would be to make sure that the sample has not been drawn in such a fashion that it is a biased representation of the population under study. (p. 139)

These rather lengthy quotes are given to indicate basis upon which the investigator chose the various statistical treatments used with the data in this study. Although the subjects in the study groups were not individually selected from the entire population by a table of random numbers; the eight classes making up the four study groups were randomly selected from the thirteen classes of 9th grade Citizenship classes. The 1972-73 school year Citizenship classes were developed through random student assignment from the entire 9th grade population as indicated by a memorandum from the Hillcrest High School Principal. As stated above, this memorandum has been

included in the appendix of this dissertation. It was the opinion of the investigator, based on Popham's statement above, that the demand for random assignment had been met.

To further attempt to satisfy the assumptions of parametric statistics, a homogeneity of variance check using Edwards' method as suggested by Popham (22, p. 179), was done. This F value with 58 and 51 degrees of freedom becomes significant indicating a possibility that the variances are not homogeneous. The results of Edwards' homogeneity of variance test is shown in Table I.

TABLE I

VARIANCES FOR EACH GROUP, RATIO BETWEEN LARGEST AND SMALLEST VARIANCE, DEGREES OF FREEDOM AND F VALUE FOR EDWARDS' TEST OF HOMOGENEITY OF VARIANCE

Groups	I	II	III	IV
Number	61	59	56	52
Variances	254.58	309.18	244	136.40
Ratio		309.18/		136.40
DF		58		51
F Value	----------	----------	----------	2.27*

*Significant at .05 level.

To have been considered homogeneous variances, the F value for Edwards' test could not have been larger than 1.90 with 58 and 51 degrees of freedom. Since the null hypothesis was not tenable on Edwards' test, the suggestion of Popham (22, p. 180) to use the Bartlett test of homogeneity of variance was followed. Popham explains the rationale of Bartlett's test following Edwards' when a significant F is found:

> If the F is significant, one should apply Bartlett's test to the data, for in some instances the extreme variances will appear heterogeneous but the total set of variances, as tested by Bartlett's technique, will prove to be homogeneous. (p. 181)

Bartlett's test indicates that the probability of getting a larger chi square than the obtained value of 8.88 from homogeneous groups is less than five times in a hundred. Of course, the possibility of homogeneity with these variances is present even though the probability is low.

Because of the power factor (greater possibility of rejecting the null hypotheses) related to parametric statistical analysis, and the possibility, however slight, that homogeneity of variance does exist, it was determined to report the results of the parametric statistical analyses and follow these analyses with the appropriate non-parametric procedures. The result of the Bartlett test is shown in Table II.

TABLE II

DEGREES OF FREEDOM AND CHI SQUARE FOR BARTLETT'S TEST FOR HOMOGENEITY OF VARIANCE

Chi Square	8.88*
DF	3

*Significant at .05 level

As a follow-up to the analysis of variance, Duncan's multiple-range test, as explained by Steel and Torrie (31), was used:

> For this procedure, it is not necessary to compute an F value and proceed only if this is significant; the investigator may use the procedure regardless of F. (p. 107)

For Hypotheses II and III (listed on page 35 of this chapter), where only two group means are being considered, t tests were employed as suggested by Popham (22, p. 130). To summarize briefly, parametric, single-classification analysis of variance followed by Duncan's multiple-range test was used to test Hypotheses I and IV; the t test was used to test Hypotheses II and III.

For the appropriate and corresponding non-parametric statistical treatment, Popham's suggestions were followed. In reference to non-parametric techniques, Popham (22) states:

> Non-parametric techniques require far fewer assumptions of population data. For that matter, these techniques have often been referred to as "distribution free" procedures . . . . Statisticians generally agree that when the researcher is working with data which seriously violate the parametric assumptions required by appropriate parametric tests, non-parametric procedures are suitable alternatives. (p. 270)

As a non-parametric alternative to the parametric analysis of variance, the Kruskal-Wallis one-way analysis of variance as outlined by Popham (22, pp. 311-313) was used. As a non-parametric alternative to the Duncan and t parametric tests, the Mann-Whitney U test was used. Regarding the Mann-Whitney U test, Popham (22) states:

> . . . Mann-Whitney U test represents a powerful alternative to the parametric t test for uncorrelated samples. (p. 305)

The results of these statistical treatments will be given in detail in Chapter IV.

CHAPTER IV

RESULTS OF THE INVESTIGATION

Introduction

The findings of this study seemed logically to fall into two categories: (1) those which relate to the four hypotheses, and (2) those which relate to the seven questions. This Chapter, therefore, is divided into two parts to correspond to the two categories explained above.

Findings Which Relate to the Hypotheses

Four independent groups of students were used in this study. Group I students received individual, vocational counseling in conjunction with the use of the SHO-ME VIEW equipment. Group II students received vocational, group guidance in conjunction with the use of the SHO-ME VIEW equipment. Group III students received vocational information through lectures without the use of the SHO-ME VIEW equipment, and Group IV students were in the non-treatment or control group.

Hypothesis I. There will be no significant difference in knowledge about the world of work as indicated by

scores on an objective evaluation test for students in four groups investigated:

Group I - students using the SHO-ME VIEW equipment in conjunction with individual vocational counseling.

Group II - students using the SHO-ME VIEW equipment in conjunction with a group guidance method of disseminating vocational information;

Group III - students in a lecture method of disseminating vocational information without the use of the SHO-ME VIEW equipment;

Group IV - students in a non-treatment group using the traditional method of vocational counseling now in use at Hillcrest High School.

Hypothesis I was first tested statistically through the use of the parametric analysis of variance as outlined by Wert, Neidt, Ahmann (34), and Popham (22). For the purpose of this study, an associated probability of .05 or less was required for rejection of the null hypothesis.

An F Value with 3 and 224 degrees of freedom to be significant at the .05 level would have to be 2.65 or larger; therefore, Groups I, II, III and IV when tested in total interaction show no significant difference with an obtained F Value of 2.41. The following table shows the findings of Hypothesis I in total interaction.

TABLE III

PARAMETRIC ANALYSIS OF VARIANCE MEANS AND F FOR HYPOTHESIS I; GROUPS I, II, III, AND IV

GROUP I N=61 Mean	GROUP II N=59 Mean	GROUP III N=56 Mean	GROUP IV N=52 Mean	F
66.30	65.42	58.18	63.81	2.41

Since the F ratio in this analysis of variance has missed significance only slightly, the probability of significant mean difference between two of the four means is present. The suggestion of Steel and Torrie (31) to use Duncan's test even though a significant F is not found (which was explained in Chapter III of this study) was followed.

Duncan's multiple-range test results indicate a significant difference. The mean of Group III is significantly lower than the means of Groups I, II, and IV. Groups I, II, and IV are not significantly different from each other. Table IV presents the results of Duncan's test for Hypothesis I.

TABLE IV

SIGNIFICANCE OF DIFFERENCE BETWEEN MEANS FOR HYPOTHESIS I FOR DUNCAN'S TEST

N	MEANS	GROUPS	RANK*
56	59.18	3	1
52	63.81	4	2 |
59	65.42	2	3 |
61	66.30	1	4 |

*The vertical line adjacent to the ranks indicates the results of Duncan's test. Ranks adjacent to the same line are not significantly different while any ranks not adjacent to the same line are significantly different at the .05 level.

The parametric treatments of the data in this study were followed by the appropriate non-parametric statistical treatments as explained in Chapter III. The following findings in reference to Hypothesis I emerged through the use of the Kruskal-Wallis one-way analysis of variance, as outlined by Popham (22). With three degrees of freedom, an H value of 7.82 is needed to reject the null hypothesis at the .05 level. Since the obtained H value of 6.24 does not reach the required value, the null hypothesis of Hypothesis I, as tested by the Kruskal-Wallis test, is tenable. The results of the Kruskal-Wallis test

are presented in Table V.

TABLE V

AVERAGE RANK AND H VALUE OF GROUPS I, II, III, AND IV FOR THE KRUSKAL-WALLIS TEST

Population Identification	N	Average Rank	H
Group I	61	124.19	6.24
Group II	59	119.49	
Group III	56	96.14	
Group IV	51	114.21	

This H value misses significance only moderately; therefore, further treatment seemed in order. The non-parametric Mann-Whitney U test, as described by Popham (22) and Siegel (29), was used to assess possible differences between two independent or non-matched groups in the same way the Duncan parametric test was used following the parametric analysis of variance. When each treatment group mean is compared with every other treatment group mean through the use of the Mann-Whitney U test, the following findings emerge: the group means of Groups I and III are significantly different; the group means of

Groups II and III are significantly different; the group means of Groups III and IV are significantly different. The other possible matchings are not significantly different. These data are shown in Table VI.

TABLE VI

MANN-WHITNEY z VALUES COMPARING EACH TREATMENT MEAN WITH EVERY OTHER TREATMENT MEAN FOR HYPOTHESIS I

	Group II	Group III	Group IV
Group I	-0.41	-2.28*	-0.99
Group II	*****	-1.74*	-0.55
Group III	0.25	*****	1.69*

*Significant at the .05 level.

Instead of taking the hypotheses of this study in numerical order, the results of Hypothesis IV testing will be given next since Hypotheses I and IV were tested in the same manner.

Hypothesis IV. There will be no significant difference in knowledge about the world of work as indicated by scores on an objective evaluation test for students in each of the four groups whose parents:

(1) attended college,

(2) finished high school but did not attend college,

(3) did not finish high school.

Hypothesis IV involved three subgroups within each treatment group to match the three parts of the hypothesis. Tables VII through XIII depict the results of the parametric analysis of variance and Duncan's test for Groups I, II, III, and IV. The three subgroups within each treatment group were: Group I - parents attended college; Group II - parents finished high school; Group III - parents did not finish high school.

An F with 2 and 58 degrees of freedom to be significant at the .05 level would have to be 3.15 or larger; therefore, the null hypothesis for Hypothesis IV, Group I is tenable since an F value of only .45 was obtained. Table VII presents these data.

TABLE VII

PARAMETRIC ANALYSIS OF VARIANCE MEANS AND F FOR HYPOTHESIS IV, GROUP I

Group I N=19 Mean	Group II N=30 Mean	Group III N=12 Mean	F
69.16	64.73	65.67	0.45

Duncan's test following the analysis of variance tests for possible differences between any two of the means. Table VIII shows the results of Duncan's test indicating no significant differences between any two of the means.

TABLE VIII

A COMPARISON OF EACH SUBGROUP MEAN WITH THE OTHER ON DUNCAN'S TEST FOR HYPOTHESIS IV, GROUP I

N	Mean	Subgroups	Rank*
30	64.73	2	1
12	65.67	3	2
19	69.16	1	3

*The vertical line adjacent to the ranks indicates the results of Duncan's test. Ranks adjacent to the same line are not significantly different at the .05 level.

An F value with 2 and 56 degrees of freedom to be significant at the .05 level would have to be 3.17 or larger; therefore, the null hypothesis for Hypothesis IV, Group II is tenable since an F value of only 1.55 was reached. Table IX shows these results.

TABLE IX

PARAMETRIC ANALYSIS OF VARIANCE MEANS AND F FOR HYPOTHESIS IV, GROUP II

Subgroup I N=14 Mean	Subgroup II N=29 Mean	Subgroup III N=16 Mean	F
72.14	64.72	61.13	1.55

Duncan's test following the analysis of variance tests for possible differences between any two of the means. Table X shows the results of Duncan's test indicating no significant differences between any two of the means.

TABLE X

A COMPARISON OF EACH SUBGROUP MEAN WITH THE OTHER ON DUNCAN'S TEST FOR HYPOTHESIS IV, GROUP II

N	Mean	Subgroup	Rank*
16	61.13	3	1 |
29	64.72	2	2 |
14	72.14	1	3 |

*The vertical line adjacent to the ranks indicates the results of Duncan's test. Ranks adjacent to the same line are not significantly different at the .05 level.

A significant F value of 4.24 was obtained when Hypothesis IV, Group III was tested; therefore, the null hypothesis is rejected. Table XI indicates this significance.

TABLE XI

PARAMETRIC ANALYSIS OF VARIANCE MEANS AND F FOR HYPOTHESIS IV, GROUP III

Subgroup I N=15 Mean	Subgroup II N=24 Mean	Subgroup III N=17 Mean	F
67.47	58.92	52.24	4.24*

*Significant at the .05 level.

The explanation of Duncan's test results which follow explains where the difference is. Duncan's test for Hypothesis IV, Group III, shows that subgroups I and III have mean scores which are significantly different at the .05 level. Subgroup II mean score is not significantly different at the .05 level from either of the other two group means. This means that students whose parents did not finish high school scored significantly lower on an objective test than students whose parents attended college. Table XII gives these results.

TABLE XII

A COMPARISON OF EACH SUBGROUP MEAN WITH THE OTHER ON DUNCAN'S TEST FOR HYPOTHESIS IV, GROUP III

N	Mean	Subgroup	Rank*
17	52.24	3	1
24	58.92	2	2
15	67.47	1	3

*The vertical line adjacent to the ranks indicates the results of Duncan's test. Ranks adjacent to the same line are not significantly different while any ranks not adjacent to the same line are significantly different at the .05 level.

An F with 2 and 49 degrees of freedom to be significant at the .05 level would have to be 3.18 or larger; therefore the null hypothesis for Hypothesis IV, Group IV is tenable since an F value of only .48 was obtained. Table XIII presents these results.

TABLE XIII

PARAMETRIC ANALYSIS OF VARIANCE MEANS AND F FOR HYPTHESIS IV, GROUP IV

Subgroup I N=14 Mean	Subgroup II N=21 Mean	Subgroup III N=17 Mean	F
66.29	62.33	63.59	0.48

Table XIV, which presents the results of Duncan's test, further indicates an absence of significance for Hypothesis IV, Group IV.

TABLE XIV

A COMPARISON OF EACH MEAN WITH THE OTHER ON DUNCAN'S TEST FOR HYPOTHESIS IV, GROUP IV

N	Means	Subgroups	Rank*
21	62.33	2	1 |
17	63.59	3	2 |
24	66.29	1	3 |

*The vertical line adjacent to the ranks indicates the results of Duncan's test. Ranks adjacent to the same line are not significantly different at the .05 level.

In summary, the parametric treatment of Hypothesis IV data indicates that the null hypothesis as it relates to Groups I, II, and IV is tenable. Hypothesis IV, as it relates to Group III is rejected. The mean difference of Group III lies between subgroups I and III, (between mean scores of students whose parents attended college and those whose parents did not complete high school). Non-parametric treatment results of data related to Hypothesis IV, Groups I, II, III and IV are shown in Tables XV through XXII.

With two degrees of freedom, an H value of 5.99 is needed to reject the null hypothesis at the .05 level. The obtained value of 1.26 comes far short of the required value; therefore, the null hypothesis is tenable for Hypothesis IV, Group I. Table XV gives these results.

TABLE XV

KRUSKAL-WALLIS AVERAGE RANK AND H VALUE
FOR HYPOTHESIS IV, GROUP I

Population	N	Average Rank	H
Subgroup I	19	34.76	1.26
Subgroup II	30	29.07	
Subgroup III	12	29.88	

The Mann-Whitney test results shown in Table XVI indicate no significant difference when each subgroup mean is compared with every other subgroup mean.

TABLE XVI

MANN-WHITNEY z VALUES COMPARING EACH SUBGROUP
MEAN WITH EVERY OTHER SUBGROUP MEAN
FOR HYPOTHESIS IV, GROUP I

	Group II	Group III
Group I	-0.82	-1.28
Group II	*****	0.50

With two degrees of freedom an H value of 5.99 is needed to reject the null hypothesis at the .05 level. Therefore, the null hypothesis of Hypothesis IV, Group II is tenable since an H value of only 2.75 was obtained. Table XVII shows these results.

TABLE XVII

KRUSKAL-WALLIS AVERAGE RANK AND H VALUE FOR HYPOTHESIS IV, GROUP II

Population	N	Average Rank	H
Subgroup I	14	36.57	2.75
Subgroup II	29	28.43	
Subgroup III	16	27.09	

The Mann-Whitney test results shown in Table XVIII indicate no significant difference between any two of the mean scores.

TABLE XVIII

MANN-WHITNEY z VALUES COMPARING EACH SUBGROUP MEAN WITH EVERY OTHER SUBGROUP MEAN FOR HYPOTHESIS IV, GROUP II

	Subgroup II	Subgroup III
Subgroup I	-1.49	-1.44
Subgroup II	*****	-0.29

The null hypothesis of Hypothesis IV, Group III is rejected since the obtained H value of 9.51 is significant at the .01 level as well as the .05 level when interpreted from the Chi Square table with two degrees of freedom. The table which follows indicates this significance.

TABLE XIX

KRUSKAL-WALLIS AVERAGE RANK AND H VALUE FOR HYPOTHESIS IV, GROUP III

Population	N	Average Rank	H
Subgroup I	15	36.47	9.51*
Subgroup II	24	30.19	
Subgroup III	17	19.09	

*Significant at the .05 level.

The Mann-Whitney test shows where the difference lies. Subgroup I (parents attended college) is significantly different from Subgroup III (parents did not finish high school). There is no significant difference between Subgroup I and Subgroup II and Subgroup II and III. Table XX shows these results.

TABLE XX

MANN-WHITNEY z VALUES COMPARING EACH SUBGROUP MEAN WITH EVERY OTHER SUBGROUP MEAN FOR HYPOTHESIS IV, GROUP III

	Subgroup II	Subgroup III
Subgroup I	-1.05	-3.14*
Subgroup II	*****	-2.04

*Significant at the .05 level.

The null hypothesis of Hypothesis IV, Group IV is tenable since the obtained H value of .89 fails to reach significance at the .05 level. These results are shown in Table XXI.

TABLE XXI

KRUSKAL-WALLIS AVERAGE RANK AND H VALUE
FOR HYPOTHESIS IV, GROUP IV

Population	N	Average Rank	H
Subgroup I	14	29.46	0.89
Subgroup II	21	24.55	
Subgroup III	17	26.47	

The Mann-Whitney test results comparing each Subgroup with every other Subgroup mean is shown in Table XXII. There is no significant difference.

TABLE XXII

MANN-WHITNEY z VALUES COMPARING EACH SUBGROUP
MEAN WITH EVERY OTHER SUBGROUP MEAN
FOR HYPOTHESIS IV, GROUP IV

	Subgroup II	Subgroup III
Subgroup I	-0.91	-0.58
Subgroup II	*****	0.41

In summary, the non-parametric treatment of Hypothesis IV data indicate that the null hypothesis, as it relates to Groups I, II and IV, is tenable. Hypothesis IV in relationship to Group III is rejected. The mean difference of Group III lies between the means of Subgroup I (parents attended college) and Subgroup III (parents did not finish high school). There was no significant difference between Subgroups I and II and II and III.

Hypotheses II and III were tested for significant difference by the use of parametric t tests and non-parametric Mann-Whitney U tests. The results of the t tests will be given first followed by the U test results. The Mann-Whitney U tests are given as z scores instead of U scores since a conversion was necessary because of the sample size. This technique is explained by Popham (22, p. 307). The z score is then interpreted for significance from the normal curve distribution table.

Hypothesis II. There will be no significant difference in knowledge about the world of work as indicated by scores on an objective evaluation test for boys and girls in each of the four groups. The results of the t tests for Hypothesis II indicate no significant difference. These results are given in Tables XXIII through XXVI. A summary statement follows Table XXVI.

TABLE XXIII

MEANS AND t FOR HYPOTHESIS II, GROUP I

Sex	N	Means	t
Boys	31	66.39	.05
Girls	30	66.20	

TABLE XXIV

MEANS AND t FOR HYPOTHESIS II, GROUP II

Sex	N	Means	t
Boys	25	63.80	.64
Girls	34	66.76	

TABLE XXV

MEANS AND t for HYPOTHESIS II, GROUP III

Sex	N	Means	t
Boys	23	57.48	.68
Girls	33	60.36	

TABLE XXVI

MEANS AND t FOR HYPOTHESIS II, GROUP IV

Sex	N	Means	t
Boys	21	65.24	.77
Girls	31	62.71	

It is obvious that there is no significant difference between the mean scores of the boys and girls in any of the four groups. All the t values are less than 1.0. Therefore, the null hypothesis of Hypothesis II, as tested by the t test is tenable.

Tables XXVII through XXX show the results of the non-parametric, Mann-Whitney tests related to Hypothesis

II, Groups I, II, III, and IV. Again, no significant differences were found. A summary statement follows Table XXX.

TABLE XXVII

MANN-WHITNEY z AND PROBABILITY FOR HYPOTHESIS II, GROUP I

Sex	N	z	P
Boys	31	-.14	.45
Girls	30		

TABLE XXVIII

MANN-WHITNEY z AND PROBABILITY FOR HYPOTHESIS II, GROUP II

Sex	N	z	P
Boys	25	-.47	.32
Girls	34		

TABLE XXIX

MANN-WHITNEY z AND PROBABILITY FOR HYPOTHESIS II, GROUP III

Sex	N	z	P
Boys	23	-.35	.36
Girls	33		

TABLE XXX

MANN-WHITNEY z AND PROBABILITY FOR HYPOTHESIS II, GROUP IV

Sex	N	z	P
Boys	21	-.58	.28
Girls	31		

The z scores for Hypothesis II, Groups I, II, III and IV are not significant. The non-parametric treatments therefore, fail to reject the null hypothesis of Hypothesis II.

Hypothesis III. There will be no significant difference in knowledge about the world of work as indicated by scores on an objective evaluation test for students

with and without work experience in each of the four groups.

Tables XXXI through XXXIV show the results of t tests for Hypothesis III, Groups I, II, III and IV. No significant differences were found. A summary statement follows Table XXXIV.

TABLE XXXI

MEANS AND t FOR HYPOTHESIS III, GROUP I

Work Experience	N	Means	t
Work	29	67.72	.66
No Work	32	65.00	

TABLE XXXII

MEANS AND t FOR HYPOTHESIS III, GROUP II

Work Experience	N	Means	t
Work	29	64.45	.45
No Work	30	66.53	

TABLE XXXIII

MEANS AND t FOR HYPOTHESIS III, GROUP III

Work Experience	N	Means	t
Work	26	58.46	.32
No Work	30	59.80	

TABLE XXXIV

MEANS AND t FOR HYPOTHESIS III, GROUP IV

Work Experience	N	Means	t
Work	23	65.04	.69
No Work	29	62.79	

Parametric t tests for Hypothesis III, Groups I, II, III and IV produce no significant mean scores. Therefore, the null hypothesis is tenable. Tables XXXV through XXXVIII show the results of the Mann-Whitney test for Hypothesis III, Groups, II, III, and IV. A summary statement follows Table XXXVIII.

TABLE XXXV

MANN-WHITNEY z AND PROBABILITY FOR HYPOTHESIS III, GROUP I

Work Experience	N	z	P
Work	29	-.78	.22
No Work	32		

TABLE XXXVI

MANN-WHITNEY z AND PROBABILITY FOR HYPOTHESIS III, GROUP II

Work Experience	N	z	P
Work	29	-.33	.37
No Work	30		

TABLE XXXVII

MANN-WHITNEY z AND PROBABILITY FOR HYPOTHESIS III, GROUP III

Work Experience	N	z	P
Work	26	-.15	.44
No Work	30		

TABLE XXXVIII

MANN-WHITNEY z AND PROBABILITY FOR HYPOTHESIS III, GROUP IV

Work Experience	N	z	P
Work	23	-.53	.30
No Work	29		

None of the Mann-Whitney z scores indicate significance for any of the four groups of hypothesis III. The statistical treatment results for the hypotheses of this study will be summarized in Chapter V.

Findings Which Relate to the Questions

The investigator now turns to the second category of Chapter IV--the seven questions. As indicated in Chapter III, no statistical treatment was attempted in relation to the questions; questions were simply noted for observation during the evaluation.

Question 1: Would students using the SHO-ME VIEW equipment make use of the printouts? The answer to Question 1 is strongly affirmative. One hundred percent of the students in treatment Groups I and II (those to whom the printouts were available) made a minimum of one job description printout. Some students in these Groups made many more than one printout each. Not only did these students make the printouts, many students used them in the development of their job briefs for class credit. After the treatment stage of the experiment was finished, students continued to come to the counselor's office for the SHO-ME VIEW equipment.

As a result of relating typewriting to the world of work, one classroom teacher made job investigation assignments to all her classes. These students used the SHO-ME VIEW materials extensively and showed considerable pleasure about finding localized information in the SHO-ME VIEW

materials.

The fact that students using the SHO-ME VIEW equipment and materials scored higher when tested than those who did not use them may indicate an affirmative answer to Question 1.

Question 2: Would students show enthusiasm and sustained interest in the use of the SHO-ME VIEW equipment? Activities related to Question 2 were best observed through the group guidance procedure. Treatment Group II, (Group guidance) was broken down into three subgroups which rotated each treatment period. The three subgroups consisted of: (1) use of the reader-printer, (2) use of the loose-leaf SHO-ME VIEW materials and, (3) discussion in a small group with the counselor and classroom teacher. From the beginning until the completion of the treatment time, students were anxious to get in the subgroup using the reader-printer. Although the loose-leaf materials contained the same information found in the printouts, students were much more enthusiastic about the use of the reader-printer than they were about the use of the loose-leaf materials. Question 2, therefore, would also be answered in the affirmative.

Question 3: Would the equipment and materials in the SHO-ME VIEW project be easy to use and

maintain? Question 3 can be answered in the affirmative mainly because of the choice of hardware used in the investigation. The design of the investigation required taking the reader-printer into classrooms for the group guidance treatment. The 3M Executive I Reader-Printer proved to be:

(1) light weight (approximately 40 pounds) and easy to move into the classrooms by the use of a two-wheel dolly;

(2) easy to reload with printout paper (about three minutes were required for the reload process);

(3) simple to operate (complete instructions were printed on the machine);

(4) durable and consistent in operation. No service or repair was needed during the nine weeks of use. Clear and readable printouts were consistently produced.

Although many of the SHO-MEscripts were used time and time again, no damage was sustained; and the printouts were as good at the finish of the experiment as they were at the beginning.

The loose-leaf, SHO-ME VIEW materials were alphabetized and placed in a large ringed folder. They, too, withstood extensive use.

Question 4: Would the materials in the SHO-ME VIEW project be easy to keep current? There were only

two parts of the job descriptions which needed frequent updating; these parts were the local salary and opportunity. This information was furnished by the Missouri Division of Employment Security and is available to the counselor any time. This information is updated to the local office daily. The answer to Question 4 is also in the affirmative.

Question 5: Would counselors and teachers show interest in the SHO-ME VIEW system for vocational information dissemination? Question 5 receives an unqualified affirmative answer. Both during and after the investigation, counselors and teachers who worked with the project and were aware of the equipment indicated an interest in the use of the equipment and materials. The investigator demonstrated the SHO-ME VIEW system at a city-wide guidance meeting where general interest was good. The Director of Curriculum Development has asked to read this study when it is complete for the purpose of consideration for use in the Springfield, Missouri, School System.

Question 6: Would the SHO-ME VIEW equipment be easy to use in the classroom? Question 6 must receive a qualified yes. The equipment is easy to use in the classroom if the class is broken down into sub-groups where a maximum of four to six students use

the reader-printer together, or, where a larger reader is used in conjunction with the smaller reader-printer. With the use of the larger screen on the reader, the entire class could read the job descriptions with use of the reader-printer for individual use. Some difficulty was experienced in this study by the use of only the reader-printer, even though three subgroups were used.

Question 7: Would the price tag for the SHO-ME VIEW project be exorbitant? One of the definitions for exorbitant, according to Webster, is "going beyond proper bounds." In light of present day costs, the answer to Question 7, according to those who worked with these materials and equipment, is no--the price tag for the SHO-ME VIEW system to disseminate vocational information is not exorbitant. The answer to this question is illustrated on page 22 of this study where a comparison of cost is given between a VIEW system and a Computer-Assisted System. When the VIEW system is used on a statewide basis as Oklahoma, Colorado, Texas and several other states operate them, the cost is reasonable.

The treatment of the Questions, in this study may appear in some instances, to be more like inferences, implications, and conclusions than unbiased observations of generated data; however, the Questions were not intended to be statistically defensible--they were simply

noted for observation. Chapter V will be devoted to the drawing of inferences, implications, and conclusions in relationship to both the Hypotheses and Questions.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

Whereas the purpose of Chapter IV was to report the data generated in the study, Chapter V is devoted to the drawing of inferences and implications. Chapter V, therefore, covers the Summary, Conclusions, and Recommendations of this study.

Summary

The major problem in this study was to measure knowledge about the world of work as indicated by scores on an objective evaluation test for four independent groups of students and thereby to analyze the effectiveness of the SHO-ME VIEW system to disseminate vocational information. In addition to the major hypothesis, seven questions were formulated for observational purposes during the study to help evaluate the SHO-ME VIEW. Three secondary hypotheses were also tested dealing with possible differences between the sex of students; work experience of students; and educational level of parents.

This summary will be divided into two sections to match the two sections of the findings. Summary statements related to the four hypotheses will be given first followed by summary statements for the seven questions. Each hypothesis and question will be taken in numerical order to facilitate reading.

Summary Statements Related to the Hypotheses

Hypothesis I. There will be no significant difference in knowledge about the world of work as indicated by scores on an objective evaluation test for students in the four groups investigated:

Group I. students using the SHO-ME VIEW equipment in conjunction with individual vocational counseling;

Group II. students using the SHO-ME VIEW equipment in conjunction with a group guidance method of disseminating vocational information;

Group III. students in a lecture method of disseminating vocational information without the use of the SHO-ME VIEW equipment;

Group IV. students in a non-treatment group using the traditional method of vocational counseling now in use at Hillcrest High School.

1. Even though the analysis of variance for Hypothesis I fails to reject the null hypothesis, further treatment by Duncan's multiple-range test, as suggested by Steele and Torrie (31), shows that there are significant differences between some of the group mean scores. Therefore, the null hypothesis for Hypothesis I is rejected.
2. The mean score of Group III is significantly lower than the mean scores of Groups I, II, and IV.
3. The mean scores of Groups I, II and IV are not significantly different from each other.
4. The non-parametric test results are essentially the same as the parametric test results.

Hypothesis II. There will be no significant difference in knowledge about the world of work as indicated by scores on an objective evaluation test for boys and girls in each of the four groups.

1. Hypothesis II is tenable since there is indeed no significant difference between any two of the means.
2. The t test results for Hypothesis II were: .05, .64, .68 and .77. All of these are far short of significance.

Hypothesis III. There will be no significant difference in knowledge about the world of work as indicated by

scores on an objective evaluation test for students with and without work experience in each of the four groups.

1. Hypothesis III is tenable. There is no significant difference between any two of the means in the four groups.
2. All the t values were less than 1.0 and far short of significance.

Hypothesis IV. There will be no significant difference in knowledge about the world of work as indicated by scores on an objective evaluation test for students in each of the four groups whose parents:

A. attended college,

B. finished high school but did not attend college,

C. did not finish high school.

1. The null hypothesis as it relates to Groups I, II and IV is tenable.
2. The null hypothesis as it relates to Group III is rejected.
3. The mean difference of Group III is between subgroups I (parents attended college) and III (parents did not finish high school).

Summary Statements Related to the Questions

Question 1. Would students using the SHO-ME VIEW equipment make use of the printouts?

1. The answer to this question is strongly

affirmative.

2. One hundred percent of the students who had access to the SHO-ME VIEW equipment did use it.
3. The students made use of the printouts in learning activities.
4. The fact that students using the SHO-ME VIEW equipment scored higher on the objective test than those who did not may also indicate an affirmative answer to Question 1.

Question 2. Would students show enthusiasm and sustained interest in the use of the SHO-ME VIEW equipment?

1. Question 2 also receives an unqualified affirmative answer.
2. Question 2 was best answered as it related to the group guidance activities. Students in this group were anxious to use the SHO-ME VIEW equipment.
3. The interest in the use of the SHO-ME VIEW equipment sustained itself throughout the experiment.

Question 3. Would the equipment and materials in the SHO-ME VIEW project be easy to use and maintain?

1. Question 3 is also answered in the affirmative.
2. No difficulty was experienced in the maintenance and use of the equipment and materials.

Question 4. Would the materials in the SHO-ME VIEW project be easy to keep current?

1. This question is also answered in the affirmative.
2. A telephone call to the local Missouri Division of

Employment Security is all that is necessary for current information as to salary and opportunity in jobs throughout the area.

Question 5. Would counselors and teachers show interest in the SHO-ME VIEW system for vocational information dissemination?

1. Question 5 also receives an unqualified affirmative answer.
2. Counselors and teachers in the other schools in the Springfield School District as well as Hillcrest High School showed considerable interest in the SHO-ME VIEW system.
3. The Director of Curriculum Development, Director of Student Personnel, and Director of Guidance and Counseling for the Springfield School System have shown interest in the SHO-ME VIEW system.

Question 6. Would the SHO-ME VIEW equipment be easy to use in the classroom?

1. Question 6 receives a qualified yes.
2. A large screen reader used in conjunction with a reader-printer would probably work better in the classroom than the reader-printer alone.
3. If the reader-printer is used alone, a small group of from two to six students could best use it.

Question 7. Would the price tag for the SHO-ME VIEW project be exorbitant?

1. The answer to this question is no.
2. The most economic way to set up and operate the VIEW system is probably on a state wide basis. The most expensive piece of hardware--the processor camera--could serve the needs of an entire state thus reducing the cost to individual school districts.
3. When a school district already owns a processor camera, as is the case with the Springfield, Missouri, School District, the cost of the VIEW system is reduced.

Conclusions

The SHO-ME VIEW system has desirable possibilities as a means for disseminating vocational information to students in Missouri school systems. This general conclusion along with the more specific ones to follow are based on data generated and observations made during the evaluation of the SHO-ME VIEW project.

1. The data indicate that sutdents using the SHO-ME VIEW materials and equipment scored significantly higher on an objective evaluation test than students in the lecture group. The students using the SHO-ME VIEW equipment and materials made higher scores on an objective evaluation test than all students who did not use these materials and equipment; however, the

difference was not significant at the .05 level in relationship to the control group.

2. Although students using the SHO-ME VIEW equipment and materials in conjunction with a group guidance method of disseminating vocational information did slightly less well on the objective evaluation test than those using the SHO-ME VIEW equipment and materials in conjunction with individual counseling, the group method may be more desirable because of the time factor.
3. The lecture method of disseminating vocationl information was the least effective of all four methods. The lecture method of disseminating vocational information to 9th grade students is probably not desirable.
4. The data collected indicate that there was no significant difference between boy's and girl's mean test scores in each of the four groups. One reason for this may be that the interests of both boys and girls were used as one criterion for choosing job descriptions for the study. Another reason may be the changing pattern in sex roles as they relate to the world of work.
5. Only one group showed significance related to parent educational level. This was the lecture

group and therefore does not influence a concluding statement regarding the SHO-ME VIEW system in respect to parent educational level. It was believed that a lower educational level could result in a greater amount of non-baccalaureate jobs for parents resulting in greater awareness of the world of work by these students. The data did not sustain this belief, however.

6. Because counselors and teachers acquainted with the SHO-ME VIEW project showed positive attitudes toward the equipment and materials, the conclusion is that counselors and teachers see some real potential in the system.
7. The data indicate no significant difference between students with and without work experience. The reason for this may lie in the small amount of work experience at the 9th grade level. Work experience could be of greater significance at the upper grade levels.
8. Observations indicate that students enthusiastically used the equipment in the SHO-ME VIEW project. Most students at Hillcrest High School do not use traditional materials with similar interest and enthusiasm. One of the reasons for this interest could be the novelty of the equipment, however, the interest did

sustain itself during the nine week treatment period.

9. Comparisons between a VIEW system and computer-assisted system show that the VIEW system is much more economical and realistic in a "tight money" economy.
10. Observations indicate that the VIEW equipment and materials are easy to use and maintain. This would be a plus for the VIEW system.
11. Materials in the VIEW system are simple to update and keep current. This would be a definite improvement over much of the commercial materials.

Recommendations

The recommendations are related directly to the continuance of the SHO-ME VIEW system. It is the desire of the researcher to simply report recommendations and not to rank them in any certain order.

1. The SHO-ME VIEW system should be continued.
2. The SHO-ME VIEW system should be set up on a state wide basis. Participating school districts would need only to purchase the reader-printer.
3. School districts which are already in possession of a processor camera should set up the SHO-ME VIEW system even if it is not adopted on the

state level.

4. Larger school districts such as those in Springfield, Kansas City, and St. Louis could and should adopt the SHO-ME VIEW system individually if it is not adopted on the state level.
5. The SHO-ME VIEW system should be expanded to include the "professions" as well as many more non-baccalaureate jobs.
6. The loose-leaf forms in a binder should be available along with the SHO-MEscripts for ease in up-dating.
7. Where visual aid materials are available for a given occupation, this information should be noted on the SHO-MEscripts. This would be valuable information for the counselor as well as the student.
8. Even if the complete SHO-ME VIEW system could not be adopted, the loose-leaf materials alone should be made available since they could provide vocational information not readily available elsewhere.
9. A replication of this study might be done using the loose-leaf materials against the Occupational Outlook Handbook, other Federal Government publications, and commercial vocational materials.

10. A replication of this study might be done on a school wide basis in the larger systems of Springfield, St. Louis, and Kansas City.
11. Another study could be done using a similar design and including intensive individual interviews to assess, not only group mean outcomes, but, also individual reactions to the SHO-ME VIEW equipment and materials.

As already indicated, some of the statistical data which emerged during this study indicate that the SHO-ME VIEW was effective in disseminating vocational information. All the observations made in conjunction with the questions indicate that the SHO-ME VIEW has desirable possibilities as a means for vocational information dissemination. These facts and observations should justify a serious consideration of a more complete development and use of the SHO-ME VIEW system.

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APPENDIX

SCHOOL DISTRICT OF SPRINGFIELD R-12

UKLENSKI, SUPERINTENDENT

SPRINGFIELD, MISSOURI

To: Counseling Staff, Hillcrest High School

From: William B. Gist, Principal

Subj: Random Class Assignment

Date: August 15, 1972

You will notice that the 1972-73 Schedule of Assignments does not include the group block numbers which previously appeared. This was not an oversight. The absence of the group blocks should facilitate random class assignment.

Biology I and Algebra I, the two "higher level" academic electives for freshmen, are offered all six hours---this will simplify efforts toward random assignment for all incoming freshmen.

We will, of course, make an effort to keep the classes balanced as to class size as new students are assigned to classes. The classes, however, will not be grouped according to any criteria such as ability or achievement.

VITA

Raymond Paul Drake

Candidate for the Degree of

Doctor of Education

Thesis: SHO-ME VIEW: A STUDY OF THE EFFECTIVENESS OF THE MISSOURI VOCATIONAL INFORMATION FOR EDUCATION AND WORK SYSTEM TO DISSEMINATE VOCATIONAL INFORMATION.

Major Field: Student Personnel and Guidance

Biographical:

Personal Data: Born at Nuyaka, Oklahoma, July 13, 1924, the son of A. G. and Addie M. Drake.

Education: Graduated from Okmulgee High School, Okmulgee, Oklahoma, in 1943; received the Bachelor of Arts degree from Evangel College, Springfield, Missouri, in June, 1961; received the Master of Education degree from Drury College, Springfield, Missouri, in August, 1964; completed requirements for the Doctor of Education degree in July, 1973.

Professional Experience: Served as secondary public school teacher of social studies at Central High School, Springfield, Missouri, 1961-64; served as guidance counselor at Central High School, Springfield, Missouri, 1964-71; served as vocational counselor for veterans at Southwest Missouri State College, Springfield, Missouri, summers of 1968-69; served as guidance counselor, Hillcrest High School, Springfield, Missouri, 1973.

Professional Organizations: National Education Association, Missouri Education Association, Springfield Education Association, American Personnel and Guidance Association, Missouri Guidance Association, Missouri Ozarks Guidance Association, American School Counselors Association.