

A COMPARISON OF COMPUTERIZED AND TRADITIONAL
CAREER COUNSELLING TECHNIQUES ON THE CAREER
MATURITY OF MANITOBA HIGH SCHOOL STUDENTS

by

Eleanor Kelm

A Thesis
Submitted to the Faculty of Graduate Studies
of the
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ABSTRACT

This research was conducted for the purpose of evaluating CHOICES, a computerized career guidance program, by comparing its effects on measured career maturity of grade eleven students in one urban high school to those effects obtained through the MOVING ON program in the same high school. Also, the attitudes of the two groups of students and their parents toward the guidance received was compared.

Results indicated that there were no differences in the career maturity of students receiving the CHOICES or the MOVING ON treatment. Both students and their parents responded favorably toward both guidance treatments.

It was recommended that career guidance programs be made available to all high school students and that CHOICES and/or MOVING ON be a part of a more extensive career guidance program.

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CHAPTER I

INTRODUCTION

Career development and career education have received a great deal of emphasis in the past few years. This can be observed not only in the field of education but also in business and industry. Widespread interest has developed probably as a result of changes in labour market demand for increased specialization of workers. Also, automation, economic conditions, and rising expectations of workers have had an impact. Guidance counsellors and educators have been challenged to meet these changes through the development of new programs of career education.

The use of the computer in career education is a relatively new phenomenon. Its increasing popularity is based on its capability to be programmed not only to store large amounts of up-to-date information, but also to allow users to manipulate stored data. Also, computers can be programmed for highly interactive, self-involving conversations with students. In addition, computers can control audio and visual graphic materials. Therefore, work conditions and duties can be represented visually rather than just through the printed word. While this latter function is still very expensive, it holds much promise for future use. Thus, computer use in the field of career education opens new fields for scientific investigation.

The purpose of this study was to evaluate a computerized career guidance system by comparing it to a traditional career guidance program.

Background of The Study

The importance of career development cannot be understated. Work is absolutely important economically, psychologically, and socially: important for its positive or negative effect. In choosing an occupation one is not merely choosing a way of earning a living; one is also choosing a way of life. According to Super (1957), occupation is the principal source of social status in our society, an important means for satisfying personal interests, abilities, values, and a major determinant of lifestyle. This point is made dramatically by Turkel (1972) in his book containing case studies of working people in all walks of life:

"This book, being about work, is by its very nature about violence to the spirit as well as to the body. It is about ulcers as well as accidents, about shouting matches as well as fistfights, about nervous breakdowns as well as kicking the dog around. It is, above all, about daily humiliations ... It is about a search, too, for daily meaning as well as daily bread, for recognition as well as cash, for astonishment rather than torpor; in short, for a sort of way of life rather than a Monday through Friday sort of dying ... There are, of course, the happy few who find a savor in their daily job ... For the many, there is a hardly concealed discontent. The blue-collar blues is no more bitterly sung than the white-collar moan". (p. xi).

Evidence is mounting that, in these rapidly changing times, adolescent goals even in the last years of high school often are inadequately conceived and at variance with later work histories. (Breton, 1972). Also, there is evidence that the period following high school is more likely to be characterized by floundering, haphazard and poorly conceived changes of jobs. This is in contrast to the more desirable purposeful progress to clearly perceived goals (Jordaan, 1979). A study conducted in Canada by Breton (1972) found that vocational indecision is a frequent occurrence among high school students. When asked to indicate a preferred

occupation, 33.6% expressed no occupational preference. Numerically this constitutes a significant group. Breton cited several studies that verified these general percentages. He suggested that indecision is not a random phenomenon but, rather, it may be associated with attitudes toward self, socioeconomic status, and high school experience.

High school counsellors are very concerned about the lack of vocational career maturity among high school students and have attempted to develop programs that encourage the career development of high school students.

Traditionally, career development programs have been designed to include self-assessment of aptitudes, interests, work values, as well as world of work information. Usually, an attempt is made to develop decision making skills. Students are guided through the career decision making steps of self assessment, identification of alternatives, choosing, and implementation. Guidance counsellors have developed these programs for use in group guidance classes and for individual counselling.

Recently, a new counselling tool called MOVING ON has been developed by Employment and Immigration Canada (Mills, 1981). MOVING ON is a three part series that deals with a self-directed investigation of the world of work. The first part, MOVING ON TO A CAREER, examines what is required in planning a career. Part two, MOVING ON TO A JOB, is designed to assist the reader in acquiring the techniques of finding a job. The third part, MOVING ON BY STAYING ON, addresses itself to specific issues related to the work environment and offers practical solutions to problems that may occur when beginning a new job. This program has

become available to school counsellors for use in career development programs.

The first part of the series, MOVING ON TO A CAREER, is of particular interest in this study as it deals with the most crucial aspect of high school career development programs, that is, career exploration. This artistic, colourful booklet is a self-directed workbook that consists of exercises that lead students to consider their interests and aptitudes and to match these with occupational groups. Students then choose five possible occupations from these occupational groups using Careers Provinces booklets and the Canadian Classification and Dictionary of Occupations. Then, students are asked to find specific information on the working conditions and lifestyle consequences for these occupations and they are also asked to evaluate this information. Students are directed to speak to workers and visit workplaces. Finally, students are to develop short term plans.

For purposes of this study, MOVING ON is considered a traditional counselling technique as it does not use a computer.

Another recent counselling tool for career development programs in Canada is a computerized guidance system called the Computerized Heuristic Occupational Information and Career Exploration System (CHOICES). It was designed by Employment and Immigration Canada to assist in the counselling process in Canada Employment Centres. Clients at these centres are adults of all ages seeking employment. The system was also to be used in Youth Career Counselling Centres, also under the direction of Employment and Immigration Canada. CHOICES has only recently become available in high schools. During the 1981-82 school

year twenty terminals were introduced in Manitoba high schools. During the 1982-83 school year twenty five additional microcomputer versions of CHOICES were introduced. The system is also used extensively in British Columbia, Ontario, the Maritimes, and to a lesser extent in Alberta and Saskatchewan. The trend seems to indicate that during the next few years CHOICES will be used in most Canadian high schools.

CHOICES has been designed as a dual file system to allow users to access information both on occupations and on educational and training institutions. Presently, only the Occupational File is available. The Educational and Training File is expected to be available during the 1982-83 school year. The Occupational File contains detailed information on over 1100 occupations and 3000 secondary or "similar" occupations. Access to this information is provided via four different routes: EXPLORE, SPECIFIC, COMPARE, RELATED. The most frequently used route is EXPLORE. Once a user has narrowed his/her occupational choices and has arrived at some realistic options, the other routes are used to expand on required information. SPECIFIC gives detailed information on individual occupations. COMPARE allows the user to look at two or three occupations in parallel columns at one time. RELATED allows the user to determine occupations that are related to his/her own characteristics and a specific occupation.

People can search occupations within each route, via any of the following topics: Education Level, Worksite, Physical Demands, Temperaments, Earnings, Aptitudes, Interests, Future Outlook, Holland Codes, Career Fields, Physical Activities, Hours of Work/Travel, Environment, Training Required, Similar Occupations and Summary of Work.

Prior to using the CHOICES system, the user must complete a personal PROFILE using the CHOICES GUIDE. This prepares the user for interaction with the computer files. The degree of success with CHOICES is a direct result of the adequacy of the preparation. Authors of the Counsellor's manual suggests pre- and post-interaction counselling. The introduction to the CHOICES GUIDE and completion of the PROFILE may be done in a group setting.

A review of literature that reports research on computerized career guidance systems reveals that research on CHOICES use in Canada is limited, particularly in high schools. CHOICES has not been compared to a specific traditional high school career guidance program using standardized measures. In this study the mainframe version of CHOICES was used.

Statement of the Research Problem

The purpose of this study was to evaluate the computerized career guidance program, CHOICES, by comparing its effects on measured career maturity of grade eleven students in one urban high school to those effects obtained through the MOVING ON program in the same high school. Also, the attitudes of the two groups of students and their parents toward the career guidance program received were compared.

Significance of the Study

CHOICES is a very recent computerized guidance information system that is very rapidly being introduced into Canadian high schools. Yet there is little evidence to support that it is more effective as a guidance tool from others that are available. CHOICES has not been

compared to traditional counselling procedures in its effects on standardized measures of career maturity. While there is evidence to suggest that CHOICES is popular among students and counsellors, one may question if this interest will continue after the novelty of using computers wears off.

Another factor of major concern in the implementation of computerized guidance programs is cost. CHOICES is available in two versions: the mainframe and the microcomputer. The microcomputer program is less comprehensive than the mainframe, but the cost is much less. The 1982 cost for the average urban high school to use the mainframe version is \$5500-\$6500 per year and approximately \$9000 per year for a rural high school, depending on the amount of use. The cost of the microcomputer program is approximately \$1500-\$2000 per year. The CHOICES GUIDE cost is \$1.70 per student. During the school year it would be possible for approximately 600 students to use the system, depending on counsellor availability. Therefore the cost for use of the mainframe version would be approximately \$11.70 per student in an urban high school and the cost of the microcomputer version would be approximately \$4.50 per student.

Other career guidance materials that may be used also have a cost factor. MOVING ON, a career development workbook that is sometimes used in high schools, has been estimated at approximately \$5.00 per workbook.

The significance of this study is that it allows a comparison of effects on measured career maturity, of student and parent attitudes, and of cost of these comparable programs. The findings may help guidance program directors to choose among alternative programs designed to aid their students' career development.

Delimitations of the Study

A delimitation of this study is that the subjects were selected only from one high school's grade eleven students. Also, the personal impact of the counsellor who conducted both treatments and collected the data were not completely controlled.

Limitations of the Study

A limitation of the study is that results may only be generalized to grade eleven students in one urban high school exposed to one counsellor's administration of the two guidance programs. Also, this school draws students from six school divisions in the metropolitan region. Approximately one third of the school population is from outside the immediate area. The specific nature of students who travel far to attend this school might restrict the commonality this group has with groups found in traditional high schools. However, the school has a relatively large population of 1350 students, and it offers a wide range of academic, business, and industrial-vocational courses. Therefore, a wide variety of students attend the school.

The fact that only one counsellor only administered the treatments did, to a certain extent, control for possible counsellor effects. However, the limitation is that the individual style of the counsellor as she administered the program may influence possible effects these programs had on students. An attempt was made to standardize the two treatments by following the manuals very closely.

CHAPTER II

A REVIEW OF THE LITERATURE

This chapter will include a discussion of career development and career maturity, a description of the various types of computerized guidance systems, and a summary of the literature that addresses the issue of the impact of computer-based guidance systems on users.

Career Development and Career Maturity

Knowledge of career development and career maturity is an essential component of career education and career counselling programs, because without such knowledge there can be no such thing as genuine career education or career counselling (Super, 1974).

A widely accepted theory of career development formulated by Super (1957) states that there are five vocational developmental stages: growth (birth-age 14 or 15), exploratory (ages 15-24), establishment (ages 25-44), maintenance (ages 45-65), and decline (ages 65+). It is presented that individuals must become ready to deal with the vocational tasks of his/her life stage. These developmental tasks have been described as crystallization, specification, implementation, stabilization, and consolidation. Crystallization and specification tasks are significant in the exploratory stage while implementation, stabilization, and consolidation tasks relate to establishment and maintenance stages.

Super theorizes that the self concept is significant in the career development process. The vocational self-concept consists of the beliefs an individual acquires about his aspirations, expectations, place in

society, aptitudes, abilities, and interests. These beliefs develop through physical and mental growth, observation of work, identification with working adults, general environment, and general experiences. Although the vocational self-concept is only a part of the total self-concept, it is believed to express itself in career decisions and overall career pattern that develops over a person's life span.

More recently, Super (1980) described a life-span, life space approach to career development. It is depicted in a Life-Career Rainbow illustrated by nine major life-career roles: child, student, leisurite, citizen, worker, spouse, homemaker, parent, and pensioner. These are related to age and lifestyle. He suggested that it is the number and types of roles, and the stability of width and depth of these roles, that constitute and portray a lifestyle. The importance of work varies with the importance of other roles, with individual values, and with the opportunities which the labour market and society at large offer.

The concept of vocational maturity resulted from research started by Super and Overstreet (1960); it was later researched by Jordan and Heyde (1979), Super and Thompson (1979), and Crites (1973). Vocational maturity was defined as readiness to cope with career development tasks that are appropriate to one's life stage. The first model of vocational maturity was developed in the career pattern study, at Teacher's College, Columbia University (Super and Overstreet, 1960). It was tested, slightly modified and further refined by Super (1974). The model postulates five basic dimensions: planfulness, exploration, decision making, information, and reality orientation. Planfulness refers to an individual's plans for getting a better basis for choice and decision making; plans for

presenting or minimizing disruption of plans; and plans for financing. The four aspects of planning are specificity of planning, range of planning, awareness of contingency factors, and the weighing of alternatives. Exploration refers to the extensiveness and quality of information sources used by an individual when making vocational choices. Decision making refers to the application of decision making principles and skills to career decisions. Information is the dimension concerned with knowledge of significant aspects of occupations, and the range of occupational information. Reality orientation, the fifth dimension of the model, consists of relationships between internal to external data, such as self-reports to test scores, plans to probability of success, and behavior to expectations.

This career maturity model has use in conceptualizing career education programs. It provides a basis for assessment of the five dimensions of career development. It is useful for developing objectives and strategies for career counselling and education programs. It should be useful in forming the basis for evaluating effectiveness of career counselling programs. The Career Development Inventory (CDI) developed by Super and Associates (1981) on the basis of the above conceptualization will be used in this study to measure student career maturity.

Computerized Guidance Systems

Within the past ten years, approximately thirty computer-based guidance information systems have been developed. There are two major types: indirect and direct inquiry. Indirect inquiry systems, also

known as "batch" information storage and retrieval systems, are those in which a student seeks information from a data base by completing a questionnaire. Questionnaires from a large number of inquirers are held at a central processing agency until there is a sufficient number to be processed economically by the computer. After scanning each inquirer's options, the computer compares them against data stored in the master file. It produces appropriate information for the inquirer in the form of a printout. The limitations of these batch or indirect inquiry systems are that the user must wait for a response for several days or weeks, and the system provides only data storage, search, and retrieval. An example of this system is the Student Guidance Information Service (SGIS) used in Ontario high schools. Very few batch-processing systems still exist even though they represent the lowest-cost way of using a computer to provide career guidance information.

The second type of computer-assisted guidance system, the direct inquiry system, allows the inquirer to have direct communications with the master file by means of a computer terminal device. This type of system can be classified into three subtypes: systems without monitoring, systems with monitoring, and systems with systems and personal monitoring.

The direct inquiry without monitoring systems, also known as second generation systems, are "on-line" information storage and retrieval systems. This means that the inquirer can have direct, immediate interaction with the computer by means of a terminal device. This system however, provides only data storage, search, and retrieval. Examples of this type of system are the Guidance Information System (GIS), the

Computerized Vocational Information System (CVIS), and the Oregon Career Information System (CIS).

The direct inquiry with monitoring systems, also known as third generation systems, have two characteristics which distinguish them from systems without monitoring. The first is that personal data about the inquirer herself are stored. These data include interests, aptitudes, preferred working conditions, and educational level. The second is that the computer program is specifically designed to relate these personal data to the inquirer's exploration, to record the inquirer's path of exploration or decision making, to point out discrepancies, to review previous uses, and to provide mediation in a variety of ways. These are accomplished as the inquirer communicates directly with the computer by way of a simulated conversation. The user is stimulated to investigate, discover, and make decisions. Individualized feedback on input is received immediately. Examples of this type of system are the Education and Career Exploration System (ECES), System for Interactive Guidance Information (SIGI), DISCOVER, and Computerized Heuristic Occupational Information and Career Exploration System (CHOICES). All systems, except CHOICES, have been developed in the United States.

The optimum system of the future would seem to be that which allows both system and personal monitoring. In addition to the properties of the direct-inquiry-with-monitoring system, it would allow the inquirer to respond in natural language and to enter commands from the terminal device which cause the computer to execute functions not originally designed or programmed. Presently, this type of system has not been regarded as economically feasible.

The Impact of Computer-based Guidance Systems on Users

Student Attitudes Towards Computerized Career Guidance Programs

Many studies have been reported on student attitudes towards computerized career guidance programs. Data have been collected by means of structured interviews and student questionnaires. A review of these studies indicates a highly enthusiastic acceptance of computer-based guidance systems.

Studies conducted by McKinlay and Adams (1971), Chapman (1973), and Raymon et al (1978) compared users of the system with non-users of these computerized systems. A variety of questionnaires, tests, and interviews measured attitudes and gains in knowledge and/or career maturity. In all of these studies, however, reaction questionnaires were administered only to users. Non-users were described as those who received traditional guidance and counselling programs.

McKinlay and Adams (1971) used the CIS, a second generation system in their study. They found that 84% of users were very satisfied, 87% found information they were looking for, 71% had no problem using the system, and 77% recommended the system to a friend. More students were certain of career plans after system use than before.

Chapman (1973) used the SIGI, a third generation system in his study. He reported that users also reacted favourably. Grading the system on a point scale 0-4, they gave SIGI a mean grade of three to four on each of the following characteristics: interest level, clarity of direction, helpfulness in achieving increased awareness of values, understanding the relation of values to career decisions, identifying

occupations that fit values, getting information about occupations and programs of study, planning an appropriate program, and learning how to make career decisions. Most students said they would recommend the system to a friend.

Raymon et al (1978) reported similar findings with DISCOVER, also a third generation system. Students enjoyed using DISCOVER, found the quality of information good, and felt the experience of using the system was useful. Before using DISCOVER 14% of the students "had no idea about their future vocational plans", while none of the students chose this response after having used DISCOVER. Similarly, the percentage of students who had only a "vague idea of vocational plans" dropped from 38% before using DISCOVER to 17% after using it. Also, 41% of the experimental participants had responded that they "had made up their mind what occupation to enter" after using DISCOVER while only 21% had responded that way before using DISCOVER. Thirteen percent of parents reported talking to their sons or daughters about DISCOVER. The most frequently discussed topics were about occupations, about how school courses related to work, and about the choice of educational training. Finally, 84% of parents felt that DISCOVER was of value to their son or daughter.

After a field test of CHOICES in two high schools in Fredericton, New Brunswick, a survey of user attitudes was conducted (Guerette, 1980). A control group was not used. Several conclusions were drawn: CHOICES users reported their experiences as worthwhile and recommended its use by all senior high school students. They reported that CHOICES had an impact on their career exploration, career planning, and career decision making process. They also reported that the system was effective in

providing occupational and career information and that CHOICES stimulated a degree of change in career planning and career choice for grade 11 and 12 students. CHOICES was recommended by the school staff as an effective tool in a comprehensive career guidance program.

A similar survey is described in a report on the experiences of operating the CHOICES system in a pilot stage in British Columbia high schools (Schellenberg, 1981). Reactions were obtained from 142 students and their parents, which was about 5% of the estimated number of total users. A control group was not used. Eighty-three percent of the students reported that they were satisfied, only 1% reported they were dissatisfied, and 91% of the students reported that CHOICES was easy to use. Seventy-three percent were satisfied with the list of suggested occupations. Sixty-one percent reported that CHOICES helped them to select a career. Fifty-six percent felt that CHOICES helped them to talk to their parents about a career and 67% of parents were satisfied with CHOICES. Fifty-one percent of the parents felt that CHOICES was helpful in aiding their son or daughter select a career, and 85% of parents would recommend CHOICES for another student, while only 1% would not recommend CHOICES. Ninety-one percent of the very satisfied parents responded that CHOICES had helped to stimulate conversations with their son or daughter regarding careers. Nine out of ten principals felt CHOICES improved the guidance program and helped students make better career plans. All counsellors were strongly in support of the program.

However these studies do not compare attitudes of students participating in a career guidance program using a computer system with a specific career guidance program that does not use a computer system. A

study that does this was conducted by Reardon (1982) at Florida State University. The subjects were 75 students enrolled in an introductory Psychology course. CHOICES was compared with the Self Directed Search (SDS) (Holland, 1979). It was found that students preferred the CHOICES system to the SDS; they thought it was the most interesting, the most fun, and a useful learning experience. However, it was noted that the SDS was also seen in positive terms. Users thought the results were equally accurate for both programs. It was also noted that the CHOICES system has a relatively high cost, ranging from low of \$3.10 per client during one month of heavy CHOICES use to a cost of \$13.10 per client during a month of light CHOICES use. These costs compare with approximately \$0.65 per client for the SDS. It was suggested that further research on outcomes other than just preferences be completed, in order to address the question of which type of guidance produces the most desirable outcomes.

It may also be suggested that further research on student attitudes towards various other career guidance programs that do not use a computer as compared with attitudes of students to career guidance programs that use a computer should be conducted.

Comparative Studies of Counsellor Vs. Computer Performance of Function

Various studies have been conducted to determine if low-ability or disadvantaged students benefit more from counsellor-based, traditional career guidance programs or from computer-based career guidance programs.

Melhus (1973) compared computer assisted vocational counselling with traditional counselling using a random sample of 54 high ability sophomores and 54 low ability sophomores. Students were classified into groups according to scores achieved on aptitude and achievement tests. Half of each group received individual counselling, while the other half interacted with the Computerized Vocational Information System (CVIS). A control group received no treatment. The Occupation Plans Questionnaire designed by Hershenson (1967) for assessing a subject's current vocational plans by asking what occupation the subject is currently planning to enter and, through a series of multiple choice questions, how much a subject knows about that occupation and how well he feels it fits him in terms of his abilities, interests, values, and lifestyle was administered before and after treatment. Also, a questionnaire inquiring as to whether the respondent was more, the same, or less satisfied with his occupational choice now as compared with the one he gave for a pre-test was given. The investigator concluded that for the high ability sample in the study, there was no difference in progress between working with the counsellor and working with the computer. For the low ability sample in the study, both groups made desirable progress, but the group that received the individual counselling made significantly greater progress. The least satisfied group was the CVIS low ability group. The authors suggested that computers may be used with students of higher ability in order to allow more counsellor time for low ability students.

James and Smith (1972) questioned whether traditional counselling or computer based guidance, ECES, would be more effective with disadvantaged eleventh graders in helping them with career choices. They considered

frequency of change in career choices, certainty concerning choice, the feeling of involvement in decision making, and the number of different jobs chosen for which the students would qualify. Traditional and ECES counselees differed on frequency of change in career choice in favour of traditional counselees. No differences were found on preference for methods or on feeling of flexibility toward the number of jobs for which they felt qualified without additional training. ECES was rated more effective in explaining chances for advancement, salary to expect, and activities of individual occupations. Traditional counselling was rated more effective in explaining qualifications necessary for success, education and training requirements, and help with educational planning.

A study was conducted by Maola and Kane (1974) to determine if the amount of occupational information learned by disadvantaged students was greater if they used a computer information system compared to counsellor-based information system. The subjects were work experience students who were randomly assigned to one of three groups, each consisting of 24 students. One group was assigned to a computerized occupational information system (CVIS) for one hour/week for four weeks, another group was assigned to a counsellor based information system, while a control group did not receive any treatment. The groups were post-tested, using the Assessment of Career Development (1973), to determine which group knew the most information. The results demonstrated a hierarchal learning effect; the computer group learned more than the counselled group, and the counselled group more than the control group.

During field trial evaluations of CHOICES in Canada Employment Centres in British Columbia and Alberta, a major study was conducted to

compare the effectiveness of traditional counselling services with counselling services supplemented by CHOICES (Casserly, 1980). The subjects, clients who routinely contacted a counsellor at an employment Centre, were randomly assigned to experimental treatment (CHOICES) and control treatment (traditional counselling services). All subjects completed a pre-questionnaire, a post-questionnaire, and a follow-up questionnaire designed to evaluate users' attitudes to the program, their orientation to career planning and implementation, and their ability to select jobs that were suitable to their personal needs. The general reaction from users was very positive. Also, the use of CHOICES appeared to lead to increased internal orientation of career planning, to increased career implementation, and to increased ability to select jobs which were more personally suitable in terms of environmental working conditions. Also, in the follow-up one month after treatment, CHOICES subjects were significantly more likely to continue their education and to begin career implementation steps, such as contacting employers or preparing resumes, than were control subjects who received the regular career counselling. Further, experimental subjects who did begin new jobs rated their jobs as more satisfying than had control subjects who began new jobs.

This research would seem to suggest that career guidance programs that make a combined use of traditional counselling techniques with computer systems are more effective than programs that include only a computer system. The authors of the CHOICES Counsellor's Manual suggest that CHOICES be combined with individual and group counselling.

Studies of Change in Vocational Maturity

Several studies of change in student vocational maturity from use of computerized guidance systems have been completed. Although some studies record positive gains in some dimensions of career maturity, results are not conclusive. The control group in all of these studies either received no guidance treatment or were exposed to unspecified traditional guidance programs. Also, amount of time students were exposed to the guidance system, and amount of counsellor input into the programs varied.

Raymon et al (1978) evaluated the effects on career maturity of DISCOVER, a third generation system. A stratified random sample of students from grades 7-12 were divided into experimental and control groups. There were 48 students in each group. However during the course of the study the group sizes were reduced to 30 students. The experimental group used the system for one and one half class periods per week for approximately six weeks. The control group participants received traditional guidance treatment throughout the duration of the trial. Career maturity was measured using the Assessment of Career Development (ACD) (American College Testing Program, 1974) and the Career Development Inventory (CDI) (Super, 1971). The post-test only design was used to avoid the instrument influencing the treatment. No differences between experimental and control groups on any scales of the ACD or the CDI were found. The researchers attributed this to some compromises in the design that had to be made as the field trial progressed. These included the need to cut sample size, the reduction in the number of operational hours each day, and the fact that some experimental

participants used only part of the system.

An extensive two year field trial was conducted in Michigan on the ECES, a third generation system, between 1970 and 1972. A preliminary report after the first year of the field trial was presented by Lindeman (1972). The subjects for the study were sophomore students in 25 high schools in Genesee County, Michigan. The schools were paired on the basis of size, socio-economic status, location, ethnic composition, size of counselling staff, and drop-out rate. By the flip of a coin one school from each pair was designated as experimental and one as control. The experimental group consisted of 3201 ECES users that had an average of 2-2 hour sessions with the computer. The control group consisted of 2386 high school students who did not receive any special treatment but were exposed to the regular guidance services provided in the school. All students were pre-tested at the beginning of the school year and post-tested at the end of the school year using the Career Development Inventory Form I (Super, 1971). Student reaction forms, student work activity reports, student questionnaires, parent questionnaires, and counsellor questionnaires were also used. The reactions of students, parents, and counsellors were very positive. However, the anticipated gains in vocational maturity were not realized. Differences were found only among students from urban schools where there was a substantial number of black students. However, the differences were small, approximately one-fourth of a standard deviation. A possible explanation, given by the researchers, was that perhaps the effect of 2-2 hour sessions is not of sufficient magnitude to enhance significantly the vocational maturity of students. The authors also suggest that, although these

findings are of interest, the main value of the first year of the field trial was the development and refinement of the research procedures and instruments.

The final report of this two-year field trial and evaluation of the ECES was presented by Meyers et al (1972). The experimental design used in the first year was used again in the second year, but some modifications were made. The main difference was that during the first year, experimental students were transported to a centre where the terminals were located and during the second year, terminals were located in each experimental school and students were allowed to use the system as much as they wanted. The amount of time students used the computer ranged from less than one hour to seventeen hours, with a mean of two hours and fifty minutes. Also, the amount of use time at various experimental schools range from one hour thirty minutes to four hours fifty minutes.

An additional factor that was considered in the second year of the study was the inclusion of a decision making syllabus in some experimental schools. This decision making syllabus, developed by the researchers, was designed to help students identify career decision points, identify sources and types of information, apply a systematic decision making model, and develop a tentative career plan. It consisted of ten group sessions with a counsellor, three individual sessions with a counsellor, and four visits to the ECES. Fourteen counsellors were selected, and after a training session, they each selected fifteen students to participate.

The results of this study indicated that students who used ECES

showed small but significant gains in two aspects of career maturity that have to do with attitudes; planning orientation, and choice and use of resources for exploration. However, no significant gains were found on the more cognitive scales, decision making and on knowledge of occupational information. It was also found that the more time a student used ECES, the more gains the student showed in planning orientation and choice and use of resources. Students who participated in the carefully planned program for developing decision making skills showed significant gains in all three scales of career maturity, including decision making skills and knowledge of occupations.

It may be argued that students who used the ECES more and students who were selected to participate in the decision making program were more likely to gain from using ECES because of stronger initial motivation. However, the authors suggested that the results provide a strong argument for providing optimum time on ECES and optional decision making programs for those who want it, as they seem to get the most benefit from the program.

Similar results were found in a study conducted by Harris (1972) on the effectiveness of the CVIS, a second generation system. A sample of 130 sophomores were randomly assigned to experimental and control groups. Members of the experimental group used the CVIS four times. Members of the control group received no treatment during the period of the study. The CDI was administered as a measure of vocational maturity before and after treatment. In addition, a vocational plans questionnaire was administered. Due to the use of the CVIS system there was a significant increase in the vocational maturity composite means of the experimental

group. There was no significant change in mean scores of the control group. More specifically, increases were found in Scales A and B of the CDI; awareness of the need to plan and knowledge and use of resources. No significant change was found in Scale C, information and decision making, due to treatment. It was also concluded in this study that using the CVIS did not significantly increase the number of occupations viewed as personal options, nor did it increase the degree of congruence between stated educational/vocational aspiration levels and objective data about grades and measured ability. However, it did significantly increase the accuracy and range of information which students possess about their chosen occupation.

Another study of interest was conducted by Pyle and Stripling (1976) to determine what relationship SIGI, a third generation system, would have on career maturity scores (Crites, 1973) of students when it was used as a career unit within a community college career development class. The experimental class had the SIGI as a unit in the career development class and the control class did not have any exposure to SIGI. The CMI attitude scale only was used. Experimental students post-test scores were significantly different from control group scores in the expected direction.

Two studies have been completed in Canada that deal with this issue of career maturity as it relates to computer guidance systems. Cassie (1975) assessed the effects of SGIS, a first generation system, on the career maturity of Ontario students in grades nine, ten, and eleven. From a random selection of six Ontario schools, within each school sixty

grade nine, ten, and eleven subjects were randomly selected and assigned on the basis of sex and grade to experimental and control groups. The experimental group received SGIS services and control subjects received traditional guidance. Subjects in four schools were pre- and post-tested with the CMI (Crites, 1973). In addition subjects in two schools were post-tested only with the CMI. Results indicated that use of SGIS significantly increased students' career maturity attitudes as measured by the CMI. Career maturity attitudes include such dimensions as involvement in the choice process, orientation towards work, and independence in decision making. However, it was found that use of SGIS did not significantly increase CMI measured knowledge of self, goal selection, occupational information, and occupational planning.

Starr (1980) studied the effects of CHOICES on career maturity of grade 12 students in one high school in Ottawa, Ontario. Students were randomly assigned to experimental (CHOICES) and control (no treatment) groups. The CMI attitude scale (Crites, 1973) was used as a pre- and post-test. A significant improvement in the career maturity attitude of students receiving the CHOICES treatment was reported. No differences between males and females were found. Differences in career maturity measures between university bound (academic) and non-university bound (general) students were found. The academic students scored significantly higher on the CMI than had general students. However, both groups, academic and general students, gained as a result of CHOICES guidance, with neither group gaining more than the other. The criticism of this study is that there was no control for the potential interaction between pre-testing with the CMI and the use of CHOICES.

It is interesting to note that none of these studies compared the effectiveness of career guidance programs that use computer systems with specific career guidance programs that do not use computers.

Summary of Literature Review

Although computerized guidance systems have become very popular in Canadian high schools, evidence of their effectiveness in the career development of students is not conclusive. It appears that computerized guidance systems have been enthusiastically accepted by students, their parents, counsellors, and administrators. However, student attitudes towards career guidance programs that include computer systems have not been compared to student attitudes towards a variety of other career guidance programs.

There is evidence to indicate that computer systems alone do not affect measured career maturity of high school students. Counsellor input is necessary to assist students in preparing for computer interaction and for interpretations following interaction. Students seem to gain the most when a computer system is a part of a much larger career development program. Also, in order to demonstrate gains in career maturity, it seems that students require several computer interactions. It appears that more research is necessary to evaluate career guidance programs that include computer systems.

Chapter III

METHOD OF STUDY

This chapter contains descriptions of the student and parent populations, the guidance programs given the two treatment groups, the instruments used in gathering the data, the collection of data, and the organization and treatment of data.

The Student and Parent Populations

This comparative study of the effects of two different guidance programs on student career maturity and attitudes and on parent attitudes was carried on in Kildonan East Regional Secondary School, Winnipeg. The school, employing 80 full-time teachers for 1350 students, is regarded as a large school. It offers academic, business, and industrial vocational courses to students drawn from six school divisions in the metropolitan region. While this regional aspect of the student population would seem to allow wide generalization of findings to 11th graders, the specific nature of students who travel far to attend this school might restrict the commonality this group has with groups found in more traditional high schools. Thus, readers are urged to take the nature of this student population into account when generalizing the findings.

Students

The research plan used was that labelled by Kerlinger (1973) as an experimental-control group, randomized, post-test only design. A sample of 80 students was drawn at random from all eleventh grade students. The students were randomly assigned to two groups of 40 students each.

graders. One group was assigned at random to the CHOICES treatment and designated as the experimental group. The other group that received the MOVING ON treatment was labelled the control group. Forty students completed the CHOICES program. Due to time restraints, 37 students completed the MOVING ON program.

Parents

The parents asked to participate in this study consisted of one of the parents of each of the 77 students. Thirty-six parents of students in the CHOICES group and twenty-nine parents of students in the MOVING ON group returned questionnaires.

The Guidance Programs Given the Two Treatment Groups

The group that received the CHOICES treatment had the following time allotment: two one-hour preparation group sessions; a half hour individual counselling interview, pre-terminal; a one-hour terminal interaction with the counsellor not present but available to answer questions, a one-hour post-terminal individual interview. The group sessions included an orientation to the program and assistance to the students in the completion of the personnel PROFILE.

The group receiving the traditional career guidance program, MOVING ON, had an equal amount of individual and group time as the experimental group. The following time allotment was used: two one-hour group sessions on career development, a one-half hour individual interview, a one-hour session in the guidance office referring to the information services, a one-hour individual interview. The group sessions consisted of assisting students as they progressed through the MOVING ON TO A CAREER workbook. This booklet covers the same topics as CHOICES, but

does not include a computer interaction.

To control for possible counsellor effects, only one counsellor administered both treatments. Also, an attempt was made to standardize the two treatments by following the manuals very closely.

The Instruments Used to Gata Data

Career Maturity

Career maturity was measured using the Career Development Inventory (CDI)(Super, 1980). The CDI was developed to assess career development and vocational or career maturity. It's publication followed research beginning in 1951 (Super et al., 1957). Vocational maturity studies such as the Career Pattern Study (Super and Overstreet, 1960; Jordaan and Heyde, 1979) paved the way for the development of tests and inventories.

During two decades of research on the assessment of career development, the CDI underwent many revisions. In the 1960's, it began as a three scale instrument (CDI Form 1) and had a six scale version (CDI Form 111) by the 1970's. The current form, published in 1981, is comprised of five basic scales and three combined scales. It is a condensed version of Form 111.

The CDI is designed to have three main applications: counselling individuals, planning guidance programs, and evaluating programs. The reason that it can be used to evaluate programs is that it measures meaningful components of vocational development that are expected outcomes of career education programs. These include career awareness, decision

making, knowledge of the world of work, and career exploration.

The following is a description of the eight scales of the CDI:

Career Planning (CP) comprises 20 items in which the student reports the career planning in which he or she is engaged and the degree of engagement. This scale assesses attitudes and reported planfulness.

Career Exploration (CE) is also a 20 item self-report scale. The student is asked to rate sources of career information used. This is also an attitudinal scale that measures the quality of exploratory attitudes.

Decision Making (DM) is made up of 20 brief sketches of people making career decisions. This scale measures the ability to apply principles of decision making. It is more cognitive than attitudinal.

World of Work Information (WW) comprises 20 questions which assesses career awareness and occupational knowledge. It is a cognitive scale that measures factors that contribute to successful career planning.

Knowledge of the Preferred Occupational Group (PO) is made up of 40 multiple-choice questions. Students first choose a preferred occupational group and then answer the questions with this group in mind. This scale measures the result of the in-depth exploration that should precede the choice of occupations. This is also a cognitive scale.

Career Development - Attitudes (CDA) combines CP and CE to provide a more reliable measure of attitude.

Career Development - Knowledge and Skills (CDK) combines DM and WW. This provides a concise cognitive scale with increased reliability.

Career Orientation Total (COT) combines CP, CD, DM, and WW. This composite score can be considered to approach a measure of vocational

career maturity as it measures four of the five basic dimensions in Super's (1974) model of the vocational maturity of adolescents.

As reported in the User's Manual (Thompson et al., 1981), the CDI shows evidence of acceptable levels of reliability and validity. The reliability is described in terms of internal consistency, standard error of measurement, and stability.

Measures of internal consistency on the combined scales for eleventh graders ranges from .86 - .87. This is clearly adequate for individual counselling and in analysis of group differences. A similar conclusion can be drawn for individual scales with the exception of DM and P0. Reliability measures for CP, CE, and WW for eleventh graders are .88, .80, and .85, respectively. However, the reliability measures for DM and P0 are reported as .69 and .65. It is suggested that caution should be exercised in making judgements about individual students based on DM and P0 scores, however the values are thought to be satisfactory for analyzing group differences in research.

The standard error of measurement is also an expression of reliability. On the combined scales the values for the standard error of measurement (SEM) for eleventh graders range from 7.0 - 7.5, on the individual scales the range is from 6.8 to 9.3, on the DM and P0 scales the values are 11.1 and 11.9 respectively.

A final aspect of reliability is stability. Data from previous forms of the CDI suggests that CDI scores are stable over periods of up to six months.

The validity of a measurement device refers to how well it measures what it is intended to measure. The User's Manual of the CDI (Thompson,

et. al., 1981) consider content and construct validity.

Content validity is the representativeness or sampling adequacy of the content of the measuring instrument and is based on the judgments of qualified experts on the subject. The CDI is based on a theoretical model developed and tested in the Career Pattern Study (Super and Overstreet, 1960; Jordaan and Heyde, 1979). If examination of the CDI items confirms that they are the types specified by the model, then content validity of the CDI will have been established. On face value and in the judgement of the authors and other experts co-operating with the test authors, the items are relevant to various dimensions of the model.

Construct validity refers to the extent to which an instrument measures a well defined educational or psychological construct. Construct validity seeks to explain individual differences in the test scores of the measuring instrument. Evidence of the CDI's construct validity is based on subgroup differences (sex, grade, and program) and on the factor structure of the instrument.

The CDI items were deliberately written in unisex terms. The basic theory of career development would predict minimum sex differences. Therefore, evidence of construct validity is shown by infrequent and moderate sex differences in scores.

The construct underlying the CDI is vocational maturity, a developmental characteristic. Therefore, mean scores would be expected to increase from grade 9 to grade 12. Mean scores do show such an increase, although the amount of the increase varies from scale to scale. Although not all of the differences between grades are meaningful in terms of con-

struct validity criteria, the pattern of differences and their consistency from scale to scale are strong evidence of construct validity.

Curricular differences were also considered in examining construct validity. It would be expected that honors program students would have larger means, particularly on the cognitive scale, and students in college preparatory and business programs would have higher scores than those in general or vocational programs, again particularly on the cognitive scale. This is shown to be the case. On the attitude scale the vocational/technical students scored higher, perhaps because they would be entering the work force sooner. Thus, further evidence of construct validity of the CDI is provided.

A factor analysis of the five individual scales indicates that a two factor structure clearly exists. CD and CE were designed to be attitudinal and should have high loadings on this factor. DM, WW, and PO are cognitive scales and should have high loadings on this factor. This happens consistently. The loadings are large, ranging from .62-.89. Thus, further evidence of the construct validity is provided.

The predecessor of the present form of the CDI, Form 111, has been compared to aptitudes, achievement, socio-economic status, and levels of aspiration. It is reasonable to expect that these factors would relate in some degree to vocational maturity. However, they would be neither conceptually sound nor practically useful if they were very closely related. Vocational maturity measures should furnish information sufficiently different from that generated by conventional instruments to justify the hope that they will result in improved predictions (Jordaan and Heyde, 1979).

Verbal ability as measured by the DAT was used in the analysis of the data of Career Pattern Study (CPS). It was found that DAT verbal reasoning correlated significantly with only three of the nineteen vocational maturity factors in the ninth grade: occupational information; preparation, occupational information; advancement and transfer, and agreement between ability and vocational preference. In the twelfth grade, measured intelligence correlates significantly with only two vocational maturity factors: occupational information; preparation and agreement between ability and vocational preference. Although significant, the correlations are low (Jordaan, 1979). For the CDI only one factor correlates significantly with the SRA verbal test; information and decision making. It is a modest relationship of .48 (Jordaan 1979).

School achievement has similar correlations to the CPS and the CDI as intellectual ability.

There is only a very slight correlation between socio-economic status and levels of aspiration and the CDI (Jordaan, 1979).

The CDI can be compared to other well known tests of vocational maturity, the most common being the Crites Maturity Inventory (CMI) (1973), The Assessment of Career Development (ACD) developed by The American College Testing Program (1973), and The Readiness for Vocational Planning by Gribbons and Lohnes (1971).

Of all the measures available, the CDI has the most recent edition and, as mentioned earlier, has undergone several revisions. It is the test that requires the shortest time to administer - 65 minutes. The CMI requires 150 minutes and the ACD requires 150 minutes. Also it appears to be the most reliable and valid.

Student and Parent Attitude Survey

All students and their parents were surveyed about their attitudes toward the career guidance that students received. The questionnaires were designed as a series of statements, to which the student or parent responded: strongly agree, agree, neutral, disagree, or strongly disagree. Sample statements in the student questionnaire are: The career guidance program I participated in helped me make an occupational choice. The career guidance program I participated in helped me learn more about myself. The career guidance program I participated in helped me learn more about jobs. Sample statements in the parent questionnaires are: The career guidance program has helped my son/daughter develop a career goal. The information my son/daughter got was useful (see Appendix A).

Forty students in the CHOICES group and thirty-four students in the MOVING ON group returned questionnaires. Thirty-six parents of students in the CHOICES group and twenty-nine parents of students in the MOVING ON group returned questionnaires.

The Collection of Data

Data were collected over a four week period according to the following sequence. In October, 1982, approval of the school principal to carry on the study was obtained, after which approval of school board was obtained. Then, students were randomly assigned to the two groups and to the type of treatment. Approval of students who were selected was obtained. The two students in each group that did not agree to participate were replaced by other students randomly selected. Approval of students' parents was then obtained.

In November, 1982, the two guidance treatments were begun and followed this sequence: In the first week of November, one half of the CHOICES group treatment was administered. In the second week of November, one half of the MOVING ON group treatment was administered. At the end of the week, both groups were administered the CDI and the student questionnaires. Parent questionnaires were distributed. During the third and fourth week of November the second half of each group received the same treatment.

Organization and Treatment of Data

The CDI scale scores of the two guidance groups were obtained, means computed, and the statistical significance of the difference between means of the two groups assessed using multiple t tests.

The student and parent questionnaire responses were summarized and the attitudes of the two groups were compared using descriptive methods. Also, the student and parent responses were rated on a scale of one to five. Strongly agree was rated five, agree was rated four, neutral was rated three, disagree was rated two, and strongly disagree was rated one. Means of these ratings, for each question, were computed. The significance of the difference between the means of the two groups was computed using multiple t tests.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

The purpose of this study was to evaluate the computerized career guidance program, CHOICES, by comparing its effects on measured career maturity of grade eleven students in one urban high school to those effects obtained through the MOVING ON program in the same high school. Also, the attitudes of the two groups of students and their parents toward the career guidance program received were compared.

Results

Career Maturity

Career maturity of the two groups of students was measured by means of the CDI. The inventory yielded eight scale scores. Means on each of the scales were determined for each of the two groups. Group means were compared by use of two-tailed multiple t tests. The Bonferroni procedure was used to control the probability of a type 1 error at .08 for the set of eight comparisons (Miller, 1966). Therefore, each of the eight comparisons adopted a two-tailed .01 critical value to assess statistical significance.

Table 1 contains the means and standard deviations on each of the eight CDI scales for the two career guidance treatments.

Table 2 contains the calculated t values, degrees of freedom, and critical t values for each of the eight comparisons among treatment means.

As seen from table 2, none of the calculated t values exceeded the corresponding critical t value. Thus, there were no statistically

TABLE 1

MEANS AND STANDARD DEVIATIONS() ON EACH SCALE
OF THE CDI FOR THE TWO CAREER GUIDANCE TREATMENTS

CDI SCALES	TREATMENT	
	CHOICES	MOVING ON
Career Planning	98.08 (15.37)	104.16 (19.95)
Career Exploration	104.78 (18.78)	109.38 (23.30)
Decision-Making	101.68 (18.41)	108.22 (15.57)
World of Work Information	104.53 (14.08)	109.16 (11.18)
Knowledge of Preferred Occupation	106.13 (12.87)	108.39 (14.47)
Career Development - Attitudes	101.73 (17.18)	107.84 (22.73)
Career Development - Knowledge and Skills	103.55 (16.07)	109.73 (12.36)
Career Orientation - Total	102.83 (16.01)	110.65 (16.27)

TABLE 2

CALCULATED t VALUES, DEGREES OF FREEDOM (df)
AND CRITICAL t VALUES FOR CDI SCALE COMPARISONS

CDI SCALE	CALCULATED t	df	Critical t
Career Planning	- 1.49	- 68	<u>+</u> 2.65
Career Exploration	- 0.95	- 69	<u>+</u> 2.65
Decision-Making	- 1.69	- 74	<u>+</u> 2.65
World of Work Information	- 1.61	- 73	<u>+</u> 2.65
Occupation Preferred	- 0.72	- 71	<u>+</u> 2.65
Career Development - Attitudes	- 1.32	- 69	<u>+</u> 2.65
Career Development - Knowledge and Skills	- 1.90	- 73	<u>+</u> 2.65
Career Orientation - Total	- 2.13	- 74	<u>+</u> 2.65

significant differences between the mean CDI scales for students participating in the CHOICES or the MOVING ON program.

Student and Parent Attitudes

Appendix B contains a tabulation of responses to student and parent questionnaires. In order to compare responses between the two groups, responses were rated on a scale of one to five. Strongly agree was rated five, agree was rated four, neutral was rated three, disagree was rated two and strongly disagree was rated one. Means of these ratings were computed for each question with the exception of questions one and two on the student questionnaire and question one on the parent questionnaire. Group means were compared by means of two-tailed multiple t tests. The Bonferroni procedure was used to control the probability of a type 1 error at .16 for the set of sixteen comparisons obtained from the student questionnaire and .06 for the set of six comparisons obtained from the parent questionnaires (Miller, 1966). Therefore, each of the comparisons adopted a two-tailed .01 critical value to assess statistical significance.

Students. Table 3 contains the means and standard deviations for each career guidance treatment on selected questions of the student questionnaire.

Table 4 contains caculated t values, degrees of freedom, and critical t values for each of the comparisons among the two treatment means for the 16 questions listed in Table 3.

As seen from table 4, none of the calculated t values exceeded the corresponding critical t values. Thus, there were no statistically



TABLE 3

MEANS AND STANDARD DEVIATIONS () FOR THE TWO CAREER GUIDANCE
TREATMENTS ON QUESTIONS 3a-15* OF THE STUDENT QUESTIONNAIRE

QUESTIONS	TREATMENT	
	CHOICES	MOVING ON
3a	3.68(.94)	3.77(.78)
3b	4.0 (.69)	4.0 (.54)
4a	3.98(.80)	4.09(.87)
4b	3.86(.89)	4.11(.99)
5a	3.98(.80)	3.88(.88)
5b	3.81(.91)	3.63(1.01)
6	3.82(.78)	3.41(.61)
7	4.31(.52)	4.06(.60)
8	3.63(.74)	3.62(.60)
9	3.78(.77)	3.65(.85)
10	4.43(.55)	4.03(.76)
11	3.60(.81)	3.18(.63)
12	3.33(.69)	3.15(.66)
13	3.96(.82)	3.71(1.09)
14	4.25(.71)	4.18(.72)
15	4.54(.64)	4.27(.71)

* See Appendix B (Student Questionnaire)

TABLE 4

CALCULATED t VALUES, DEGREES OF FREEDOM (df)
AND CRITICAL t VALUES FOR EACH QUESTION COMPARISON

QUESTION	CALCULATED t	df	Critical t
3a	- 0.45	≈ 71	± 2.65
3b	0.0	≈ 31	± 2.75
4a	- 0.58	≈ 68	± 2.65
4b	- 0.82	≈ 36	± 2.72
5a	0.47	≈ 68	± 2.65
5b	0.62	≈ 36	± 2.72
6	2.56	≈ 71	± 2.65
7	1.88	≈ 66	± 2.65
8	0.05	≈ 71	± 2.65
9	0.68	≈ 67	± 2.65
10	2.53	≈ 59	± 2.66
11	2.53	≈ 71	± 2.65
12	1.13	≈ 71	± 2.65
13	1.08	≈ 60	± 2.66
14	0.44	≈ 70	± 2.65
15	1.72	≈ 67	± 2.65

significant differences between the means of the questions in the student questionnaire for students participating in the CHOICES or the MOVING ON programs. However, question number six, "The career guidance program I participated in helped me learn more about myself", comes very close to being statistically significant in favor of the CHOICES program. Also, question number ten, "I would recommend this program to a friend who wanted vocational guidance," and question number eleven, "The career guidance program has caused me to want to see a counsellor more," come close to being statistically significant in favour of the CHOICES program.

The following is a description of student responses to the questionnaire. Fifty-five percent of the students in the CHOICES group and 56% of the students in the MOVING ON group stated that they had chosen an occupation before participating in the program. Of all these students, only one in the CHOICES group agreed that the program caused her to change her choice. Of the students that had previously chosen an occupation, 73% of the CHOICES group and 84% of the MOVING ON group agreed or strongly agreed that they now feel more strongly about their occupational choice after taking the program. Also, among those students who had chosen an occupation before participating in the program, 68% of the CHOICES group and 63% of the MOVING ON group agreed that they saw more occupational choices after taking the program.

Forty-five percent of the students in the CHOICES group and 44% of students in the MOVING ON group had not chosen an occupation before participating in the program. Of these students, 78% of the CHOICES group and 87% of the MOVING ON group agreed or strongly agreed that the program helped them to make an occupational choice.

Sixty-five percent of the students in the CHOICES group and 47% of the students in the MOVING ON group agreed or strongly agreed that the career guidance program helped them learn more about themselves. Ninety-five percent of the students in the CHOICES group and 91% of the students in the MOVING ON group agreed or strongly agreed that the career guidance program helped them learn more about jobs.

Fifty-eight percent of students in the CHOICES group and 62% of students in the MOVING ON Group agreed or strongly agreed they had learned enough about themselves to choose an occupation. Sixty-eight percent of students in the CHOICES group and 65% of students in the MOVING ON group agreed or strongly agreed that they had learned enough about jobs to choose an occupation.

Fifty percent of students in the CHOICES group and 29% of students in the MOVING ON group agreed or strongly agreed that the program caused them to want to talk to their counsellors more. Thirty-five percent of students in the CHOICES group and 29% of students in the MOVING ON group agreed or strongly agreed that the program caused them to want to talk to teachers about occupations. Seventy-five percent of students in the CHOICES group and 71% of students in the MOVING ON group agreed or strongly agreed that the program caused them to want to talk to their parents about occupations. Also, 85% of students in the CHOICES group and 82% of students in the MOVING ON group agreed that the program caused them to want to talk to people in occupations in which they are interested.

Ninty-eight percent of students in the CHOICES group and 74% of the students in the MOVING ON group would recommend the program to a friend.

Fifty-eight percent of students in the CHOICES group and 38% of the students in the MOVING ON group found the program very interesting. Forty percent of the students in the CHOICES group and 53% of the students in the MOVING ON group found the program interesting.

Students in the CHOICES group expressed comments such as "a very helpful learning experience", "the program caused me to consider occupations I never thought of before, "interesting", "I would like to use the computer again". There were no negative comments. Students in the MOVING ON group expressed comments such as "a good experience", "helpful", "all students should have an opportunity to take the program", "I would like to do more on career development". Some negative comments such as "program too long", "I always had a career goal and I don't think this has helped me" were expressed.

Parents. Table 5 contains the means and standard deviations for each career guidance treatment on selected questions of the parent questionnaire.

Table 6 contains calculated t values, degrees of freedom, and critical t values for each of the six comparisons among treatment means.

As seen from Table 6, none of the calculated t values exceeded the corresponding critical t values. Thus, there were no statistically significant differences between the means of the questions in the parent questionnaire for parents of students in either the CHOICES or MOVING ON program.

The following is a description of the parent responses to the questionnaire. Ninety-two percent of parents of students in the CHOICES group

TABLE 5

MEANS AND STANDARD DEVIATIONS () FOR THE TWO GUIDANCE TREATMENTS ON QUESTIONS 2-7* OF THE PARENT QUESTIONNAIRE

QUESTIONS	TREATMENT	
	CHOICES	MOVING ON
2	3.50(.74)	3.46(.88)
3	3.92(.60)	3.96(.69)
4	3.58(.73)	3.57(.88)
5	3.78(.68)	3.79(.79)
6	4.39(.60)	4.11(.79)
7	3.97(1.11)	3.43(.88)

* See Appendix A (parent questionnaire)

TABLE 6

CALCULATED t VALUES, DEGREES OF FREEDOM (df) AND CRITICAL t VALUES FOR EACH QUESTION COMPARISON

QUESTION	CALCULATED t	df	Critical t
2	.17	52	+ 2.67
3	- 0.29	54	+ 2.67
4	0.06	52	+ 2.67
5	- 0.04	54	+ 2.67
6	1.57	49	+ 2.68
7	2.19	62	+ 2.66

and 93% of parents of students in the MOVING ON group were aware that their children were taking a career guidance program.

Fifty-three percent of parents of students in the CHOICES group and 46% of parents of students in the MOVING ON group agreed or strongly agreed that the career guidance program had helped their children develop a career goal. Eighty-nine percent of parents of students in the CHOICES group and 82% of parents of students in the MOVING ON group agreed or strongly agreed that the information their children got was useful. Sixty-one percent of parents of students in the CHOICES group and 46% of parents of students in the MOVING ON group agreed or strongly agreed that their children spent more time thinking and talking about their career goals. Sixty-nine percent of parents of students in the CHOICES group and 71% of parents of students in the MOVING ON group agreed or strongly agreed that they had become more interested in the career development of their children.

Ninty-four percent of parents of students in the CHOICES group and 79% of parents of students in the MOVING ON group agreed or stongly agreed that the school should provide a career guidance program for all students. Sixty-nine percent of parents of students in the CHOICES group and 52% of parents of students in the MOVING ON group agreed or strongly agreed that career guidance programs should begin at an earlier age.

Additional comments of parents of students in the CHOICES group include "The program has been helpful as it has caused my daughter to think about her future", "this is a good program and should continue", "I was pleased with the outcome of this program", and "computers should not replace personal involvement or all other career education programs".

There were no negative comments expressed.

Additional comments of parents of students in the MOVING ON group included "a worthwhile exercise", "This type of program is necessary", "I have noted my son is more assured of his goals and his future". There was one negative comment given "this program seems to have caused my daughter to lower her aspirations, I feel she was better off before".

Summary of Research Results

Results indicated that there were no differences in career maturity of students receiving the CHOICES and the more traditional MOVING ON treatment on any of the eight CDI scales.

Both students and their parents responded with favorable attitudes toward both career guidance programs. The majority of students felt that the career guidance program they received helped them to make an occupational choice and that they felt more strongly about their occupational choice after the program. They also felt that the program helped them learn more about jobs and has caused them to want to talk to people in occupations in which they are interested. More students in the CHOICES group (65%) than in the MOVING ON group (47%) agreed or strongly agreed that the career guidance program helped them learn more about themselves. Also more students in the CHOICES group (97.5%) than in the MOVING ON group (73.5%) would recommend the program to a friend. More students in the CHOICES group (50%) than the MOVING ON group (29%) agreed that the program caused them to want to talk to their counsellors more. The results of these questions approached statistical significance. The students in the CHOICES group also found the program more interesting

than had students in the MOVING ON group.

A majority of parents in both groups agreed or strongly agreed that the program helped their children develop a career goal and that the information their children got was useful. A majority of parents also agreed that their children were spending more time thinking and talking about their career goals and that they had become more interested in the career development of their children. More parents of students in the CHOICES group (94.%) than parents of students in the MOVING ON group (79%) agreed that the school should provide a career guidance program for all students.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This final chapter of the study contains a summary of the study design, conclusions that were drawn, recommendations for the implementation of future career guidance programs, and recommendations for further research.

Summary

The purpose of this study was to evaluate the computerized career guidance program, CHOICES, by comparing its effects on measured career maturity of grade eleven students in one urban high school to those effects obtained through the MOVING ON program in the same high school. Also, the attitudes of the two groups of students and their parents toward the guidance received were compared. Grade eleven students were randomly assigned to two groups of 40 students. The groups were randomly assigned to either the CHOICES or the MOVING ON treatment. The treatment was administered by one counsellor in the high school. Data were collected by use of the CDI as a measure of career maturity and by the use of questionnaires as a measure of student and parent attitudes. Multiple t tests were used to analyze data.

Results indicated that there were no differences between students receiving the CHOICES or the MOVING ON treatment in measured career maturity. Also, there were no differences in the attitudes of students or their parents toward the guidance treatment received. However, analysis of the following questions in the student questionnaire approached statistical significance in favor of the CHOICES program: The career

guidance program helped me learn more about myself. I would recommend this program to a friend who wanted vocational counselling. The career guidance program I participated in caused me to want to see a counsellor more.

It was observed by the researcher that it was easier to motivate students to participate in a career guidance program that included the use of a computer. The use of the computer seemed to appeal to students more than a workbook that requires reference to other books for career information.

Both students and parents responded with favorable attitudes toward both career guidance programs. The majority of students felt that guidance they received helped them to make an occupational choice and that they felt more strongly about their occupational choice. They also felt that their program helped them to learn more about themselves, about jobs, and had caused them to want to talk to people in occupations in which they are interested.

A majority of parents in both groups agreed that the program helped their children to develop a career goal and that the information their children got was useful. They also agreed that their children were spending more time thinking and talking about career goals.

Conclusions

Before making conclusions about the use of either the CHOICES or the MOVING ON program, it is important to consider possible reasons why the results of the study indicated that there were no differences in measured career maturity of students receiving in the CHOICES or the MOVING ON Program.

One possible reason that there were no significant differences in

career maturity between groups may be that neither treatment had a significant impact on measured career maturity. It is possible that career maturity grows over a longer period of time and with a combination of educational and personal experiences. Super (1974) has cautioned that short term experiences combined with short term evaluation make difficult the task of any instrument to detect change.

A study conducted by Meyers (1972) on the effects of computerized guidance systems on the career maturity of students found that gains in career maturity increased significantly with the amount of exposure to the system and that when the career guidance program included the use of a decision making syllabus as well as several interactions with the computer even greater gains in career maturity were realized. Another study, conducted by Harris (1972), found that computerized guidance programs significantly increased the measured career maturity of students after they had approximately four sessions with the computer. Therefore it may be implied that in order to detect changes in measured student career maturity the program must be more extensive than that used in this study.

However, Starr (1980) evaluated the effects of CHOICES on the measured career maturity of grade 12 students. The control group received no particular career guidance program, but were exposed to regular counselling services while the experimental group received the CHOICES treatment. It was found that CHOICES significantly increased the career maturity of students as measured by the CMI (attitude scale only). This would indicate that CHOICES had a measurable impact on career maturity. Therefore, it may also be implied that in this study CHOICES

and MOVING ON had an equal impact on measured career maturity.

The results of this study seem to warrant the following conclusions:

1. The CHOICES and the MOVING ON program had an equal impact on career maturity of grade eleven students in one urban high school.
2. The CHOICES and the MOVING ON program had similar effects on the attitudes of students and their parents towards the guidance treatment received.
3. The attitudes of students and their parents were positive towards both career guidance programs.
4. Career guidance programs help students learn more about themselves and about occupations and to make occupational choices.
5. Career guidance programs cause students to want to do more career exploration.
6. Students are concerned about their own career development and are willing to participate in career guidance programs.
7. Students and their parents agree that career guidance programs are useful and should be made available to all students.

Recommendations

Based on the conclusions drawn from results of this study, it is recommended that all high school students should have access to career guidance programs. It appears that both CHOICES and MOVING ON are valid tools in career guidance programs. Therefore, it is not possible to recommend one program over the other. However, since CHOICES seemed to the experimenter to be the more popular program among students, and since

it seemed to have as beneficial an effect as MOVING ON, it is recommended that school personnel strongly consider use of CHOICES in career guidance. But, since the MOVING ON Program appeared to also have a beneficial effect on career maturity of students, and since students agree that it is a useful, interesting program it can not be recommended that use of MOVING ON be discontinued.

It is recommended that the CHOICES and/or MOVING ON programs be incorporated in comprehensive career guidance programs. To do this, perhaps they might be included in curricula of specific subject areas. For example, might they not become units in English curricula?

Based on the experimenter's observations, it is recommended that the group size for a career guidance program be limited to 15 students. It would seem to be very difficult to handle larger classes with good results. Also, it would require purchase of more materials for simultaneous use.

It is also recommended that students participating in the CHOICES program should be encouraged to have more than one, perhaps at least four interactions with the computer terminal. Then, as many students require assistance, perhaps a well qualified terminal assistant would suffice, allowing counsellors to use their time in actual counselling.

Since recent microcomputer versions of CHOICES are much less expensive than the original mainframe versions, as used in this study, it is urged that studies comparing results of both versions be carried out.

As it appears that career maturity increases over time due to a variety of experiences, it would be interesting to study the effects of long-term career guidance programs that include the use of computers and

programs that do not utilize computers.

Computerized guidance programs are a new and exciting experience for students. One may wonder if the initial interest would continue with more exposure to computers in general. It would be interesting to study the attitudes of students to career guidance programs that include the use of CHOICES as exposure to CHOICES increases and as students become more used to computers in all aspects of their lives.

The researcher has observed that costs of various means of providing effective guidance vary across types of programs. Mainframe computerized methods have cost much more than other methods in terms of materials purchased and in terms of Counsellor-time-with-student-user requirements. But MOVING ON procedures are also costly. For instance, a students move through the booklets, they must have ready access to expensive additional references materials.

In closing, it is recommended that the implications of the cost-efficiency of new, less expensive computerized programs be made the focus of careful study. They should be compared to all possible alternative models of effective guidance programs.

It is expected that the cost of computerized hardware and software will continue to fluctuate. Care must be taken, however, that guidance people not become so cost conscious that the quality of guidance given children is less than what can presently be provided, if the best possible procedures were used.

APPENDIX A
STUDENT AND PARENT QUESTIONNAIRES

STUDENT QUESTIONNAIRE

For each statement, place a check in the box above the response you agree with the most.

1. Before participating in the career guidance program, I had chosen an occupation.

Yes	No

2. The career guidance program has caused me to change my choice of occupation.

Yes	No

3. The career guidance program has helped me make an occupational choice.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

4. I feel more strongly now about my occupational choice than I did before taking the career guidance program.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

5. I see more occupational choices now than I did before taking the career guidance program.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

6. The career guidance program I participated in helped me learn more about myself.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

7. The career guidance program I participated in helped me learn more about jobs.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

8. The career guidance program has helped me learn enough about myself to choose an occupation.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

9. The career guidance program has helped me learn enough about jobs to choose an occupation.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

10. I would recommend this career guidance program to a friend who wanted vocational guidance.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

11. The career guidance program has caused me to want to see a counsellor more.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

12. The career guidance program has caused me to want to talk to my teachers about occupations.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

13. The career guidance program has caused me to want to talk to my parents about occupations.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

14. The career guidance program has caused me to want to talk to people who are in occupations in which I am interested.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

15. The career guidance program I participated in was:

Very Interesting	Interesting	Neutral	Uninteresting	Very Uninteresting

Additional comments:

PARENT QUESTIONNAIRE

For each statement, place a check in the box above the response you agree with the most.

1. I was aware my son/daughter was taking the career guidance program.

Yes	No

2. The career guidance program has helped my son/daughter develop a career goal.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

3. The information my son/daughter got was useful.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

4. My son/daughter is spending more time thinking and talking about career goals.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

5. I have become more interested in the career development of my son/daughter.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

6. The school should provide a career guidance program for all students.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

7. Career guidance programs should start at an earlier age.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

Additional Comments _____

APPENDIX B
A TABULATION OF RESPONSES
TO STUDENT AND PARENT QUESTIONNAIRES

ABSOLUTE FREQUENCY AND PERCENTAGE RESPONSES () OF STUDENTS RECEIVING THE CHOICES TREATMENT*(N=40)

1. Before participating in the career guidance program, I had chosen an occupation.

22(55%)	18(45%)
Y	N

2. The career guidance program has caused me to change my choice of occupation (of those that answered "yes" to questions #1)

1(.047%)	0
Y	N

- 3.a) The career guidance program has helped me make an occupational choice.

8(20%)	15(37.5%)	14(35%)	2(5%)	1(2.5%)
SA	A	N	D	SD

- b) The career guidance program has helped me make an occupational choice (of those that answered "no" to question #1).

4(22.2%)	10(55.5%)	4(22.2%)	0(0)	0(0)
SA	A	N	D	SD

- 4.a) I feel more strongly now about my occupational choice than I did before taking the career guidance program.

10(25%)	21(52.5%)	8(20%)	1(2.5%)	0(0)
SA	A	N	D	SD

- b) I feel more strongly now about my occupational choice than I did before taking the career guidance program (of those that answered "yes" to question #1).

5(22.7%)	11(50%)	5(22.7%)	1(4.5%)	0(0)
SA	A	N	D	SD

- 5.a) I see more occupational choices now than I did before taking the career guidance program.

10(25%)	21(52.5%)	7(17.5%)	2(5%)	0(0)
SA	A	N	D	SD

- b) I see more occupational choices now than I did before taking the career guidance program (of those that answered "yes" to question #1).

5(22.7%)	10(45.5%)	5(22.7%)	2(9.1%)	0(0)
SA	A	N	D	SD

6. The career guidance program I participated in helped me learn more about myself.

8(20%)	18(45%)	13(32.5%)	1(2.5%)	0(0)
SA	A	N	D	SD

7. The career guidance program I participated in helped me learn more about jobs.

13(32.5%)	25(62.5%)	2(5%)	0(0)	0(0)
SA	A	N	D	SD

8. The career guidance program has helped me learn enough about myself to choose an occupation.

4(10%)	19(47.5%)	15(37.5%)	2(5%)	0(0)
SA	A	N	D	SD

9. The career guidance program has helped me learn enough about jobs to choose an occupation.

6(15%)	21(52.5%)	11(27.5%)	2(5%)	0(0)
SA	A	N	D	SD

10. I would recommend this career guidance program to a friend who wanted vocational guidance.

19(47.5%)	20(50%)	1(2.5%)	0(0)	0(0)
SA	A	N	D	SD

11. The career guidance program has caused me to want to see a counsellor more.

6(15%)	14(35%)	18(45%)	2(5%)	0(0)
SA	A	N	D	SD

12. The career guidance program has caused me to want to talk to my teachers about occupations.

2(5%)	12(30%)	23(57.5%)	3(7.5%)	0(0)
SA	A	N	D	SD

13. The career guidance program has caused me to want to talk to my parents about occupations.

10(25%)	20(50%)	8(20%)	2(5%)	0(0)
SA	A	N	D	SD

14. The career guidance program has caused me to want to talk to people who are in occupations in which I am interested.

16(40%)	18(45%)	6(15%)	0(0)	0(0)
SA	A	N	D	SD

15. The career guidance program I participated in was:

23(57.5%)	16(40%)	0(0)	1(2.5%)	0(0)
Very Interesting	Interesting	Neutral	Uninteresting	Very Uninteresting

*Note Y = Yes N = No
SA = Strongly Agree
A = Agree
N = Neutral
D = Disagree
SD = Strongly Disagree

ABSOLUTE FREQUENCY AND PERCENTAGE RESPONSES () OF STUDENTS RECEIVING THE
THE MOVING ON TREATMENT*(N=34)

1. Before participating in the career guidance program, I had chosen an occupation.

19(55.8%)	15(44.2%)
Y	N

2. The career guidance program has caused me to change my choice of occupation (of those that answered "yes" to questions #1)

0(0)	0(0)
Y	N

- 3.a) The career guidance program has helped me make an occupational choice.

5(14.7%)	18(52.9%)	9(26.4%)	2(5.9%)	0(0)
SA	A	N	D	SD

- b) The career guidance program has helped me make an occupational choice (of those that answered "me" to question #1).

2(13.3%)	11(73.3%)	2(13.3%)	0(0)	0(0)
SA	A	N	D	SD

- 4.a) I feel more strongly now about my occupational choice than I did before taking the career guidance program.

10(29.4%)	17(50%)	5(14.7%)	2(5.9%)	0(0)
SA	A	N	D	SD

- b) I feel more strongly now about my occupational choice than I did before taking the career guidance program (of those that answered "yes" to question #1).

10(52.6%)	6(31.6%)	2(10.5%)	1(5.2%)	0(0)
SA	A	N	D	SD

- 5.a) I see more occupational choices now than I did before taking the career guidance program.

6(17.6%)	20(58.8%)	6(17.6%)	1(2.9%)	1(2.9%)
SA	A	N	D	SD

- b) I see more occupational choices now than I did before taking the career guidance program (of those that answered "yes" to question #1).

3(15.8%)	9(47.3%)	5(26.3%)	1(5.3%)	1(5.3%)
SA	A	N	D	SD

6. The career guidance program I participated in helped me learn more about myself.

0(0%)	16(47%)	17(50%)	1(3%)	0(0)
SA	A	N	D	SD

7. The career guidance program I participated in helped me learn more about jobs.

6(17.6%)	25(73.5%)	2(5.9%)	1(2.9%)	0(0)
SA	A	N	D	SD

8. The career guidance program has helped me learn enough about myself to choose an occupation.

1(2.9%)	20(58.8%)	12(35.3%)	1(2.9%)	0(0)
SA	A	N	D	SD

9. The career guidance program has helped me learn enough about jobs to choose an occupation.

4(11.8%)	18(52.9%)	8(23.5%)	4(11.8%)	0(0)
SA	A	N	D	SD

10. I would recommend this career guidance program to a friend who wanted vocational guidance.

10(29.4%)	15(44.1%)	9(26.5%)	0(0)	0(0)
SA	A	N	D	SD

11. The career guidance program has caused me to want to see a counsellor more.

0(0)	10(29.4%)	20(58.8%)	4(11.8%)	0(0)
SA	A	N	D	SD

12. The career guidance program has caused me to want to talk to my teachers about occupations.

0(0)	10(29.4%)	18(52.9%)	6(17.6%)	0(0)
SA	A	N	D	SD

13. The career guidance program has caused me to want to talk to my parents about occupations.

7(20.6%)	17(50%)	6(17.6%)	3(8.8%)	1(2.9%)
SA	A	N	D	SD

14. The career guidance program has caused me to want to talk to people who are in occupations in which I am interested.

12(35.3%)	16(47.1%)	6(17.6%)	0(0)	0(0)
SA	A	N	D	SD

15. The career guidance program I participated in was:

13(38.2%)	18(52.9%)	2(5.9%)	1(2.9%)	0(0)
Very Interesting	Interesting	Neutral	Uninteresting	Very Uninteresting

*Note Y = Yes N = No
SA = Strongly Agree
A = Agree
N = Neutral
D = Disagree
SD - Strongly Disagree

ABSOLUTE FREQUENCY AND PERCENTAGE RESPONSES() OF PARENTS OF STUDENTS RECEIVING THE CHOICES TREATMENT*(N=36)

1. I was aware my son/daughter was taking the career guidance program.

33(91.7%)	3(8.3%)
Y	N

2. The career guidance program has helped my son/daughter develop a career goal.

2(5.6%)	17(47.2%)	14(38.9%)	3(8.3%)	0(0)
SA	A	N	D	SD

3. The information my son/daughter got was useful.

3(8.3%)	29(80.6%)	2(5.6%)	2(5.6%)	0(0)
SA	A	N	D	SD

4. My son/daughter is spending more time thinking and talking about career goals.

2(5.6%)	20(55.6%)	11(30.6%)	3(8.3%)	0(0)
SA	A	N	D	SD

5. I have become more interested in the career development of my son/daughter.

4(11.1%)	21(58.3%)	10(27.8%)	1(2.8%)	0(0)
SA	A	N	D	SD

6. The school should provide a career guidance program for all students.

16(44.4%)	18(50%)	2(5.6%)	0(0)	0(0)
SA	A	N	D	SD

7. Career guidance programs should start at an earlier age.

15(41.7%)	10(27.8%)	5(13.9%)	6(16.7%)	0(0)
SA	A	N	D	SD

*Note Y = Yes N = No
SA = Strongly Agree
A = Agree
N = Neutral
D = Disagree
SD = Strongly Disagree

ABSOLUTE FREQUENCY AND PERCENTAGE RESPONSES() OF PARENTS OF STUDENTS RECEIVING THE MOVING ON TREATMENT* (N=29)

1. I was aware my son/daughter was taking the career guidance program.

27(93.1%)	2(6.9%)
Y	N

2. The career guidance program has helped my son/daughter develop a career goal.

3(10.7%)	10(35.7%)	13(46.4%)	1(3.6%)	1(3.6%)
SA	A	N	D	SD

3. The information my son/daughter got was useful.

5(17.8%)	18(64.3%)	4(14.3%)	1(3.6%)	0(0)
SA	A	N	D	SD

4. My son/daughter is spending more time thinking and talking about career goals.

5(17.8%)	8(28.6%)	13(46.4%)	2(7.2%)	0(0)
SA	A	N	D	SD

5. I have become more interested in the career development of my son/daughter.

4(14.3%)	16(57.1%)	6(21.4%)	11(39.3%)	0(0)
SA	A	N	D	SD

6. The school should provide a career guidance program for all students.

10(35.7%)	12(42.9%)	6(21.4%)	0(0)	0(0)
SA	A	N	D	SD

7. Career guidance programs should start at an earlier age.

2(6.9%)	13(44.8%)	11(37.9%)	2(6.9%)	1(3.4%)
SA	A	N	D	SD

*Note Y = Yes N = No
SA = Strongly Agree
A = Agree
N = Neutral
D = Disagree
SD - Strongly Disagree

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