

HOW DO CHOICES AND THE SDS FACILITATE
OR HINDER CAREER PLANNING

By

CHARLES HENRI PROVOST

B.A, The University of Manitoba, 1971
B.Ed., Saint Francis Xavier University, 1972
M.Ed., Acadia University, 1979

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Department of COUNSELLING - PSYCHOLOGY

The University of British Columbia
1956 Main Mall
Vancouver, Canada
V6T 1Y3

Date March 26th 1988

Abstract

CHOICES, the career planning computer program, was evaluated by interviewing 35 grade 11 and 12 students. Using the critical incident technique, reports were elicited of what facilitated or hindered their career planning. These collected incidents were categorized by similarity to provide counsellors and others with a map of exactly what the program does to help or hinder career planning. This map potentially enables counsellors to capitalize on benefits and to minimize possible detriments.

Secondly, this map was qualitatively compared to a similar evaluation of the Self-Directed Search. Overall, it was found that the two interventions have differing advantages and disadvantages. CHOICES stresses reality constraints, specificity and extrinsic work features. The SDS underlines self-awareness and an understanding of the matching process. It seems that CHOICES is more appropriate for planning and specific decisions regarding options while the SDS tends to focus on general exploration and decisions regarding fields.

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CHAPTER 1

Introduction

The general aim of this study was to improve the practice of career counselling, particularly with regard to two prominent interventions, CHOICES (Jarvis, 1976a) and the Self-Directed Search (Holland, 1974). Generally, research on these interventions has been concerned with products or outcomes. The general problem is that outcome studies have failed to clarify or distinguish these interventions for informed counselling practice. Investigated outcomes have been inconsistently confirmed, sometimes tangential to main purposes of the interventions, and very incomplete. Currently, a reasonably clear and comprehensive picture of what each intervention does to facilitate career planning is lacking. Accordingly, the specific aim of this study is to provide a categorization of the process events that take place during involvement with each intervention and that facilitate or hinder career planning. With a more comprehensive and detailed description of how each intervention contributes to career planning, counsellors would be in a better position to match interventions to client needs, prepare clients to benefit, build in

safeguards, add supportive activities, and sharpen future outcome studies.

CHOICES (computerized heuristic occupational information career exploration system), is an interactive computerized career exploration system designed to help students in planning a career. While there are presently a great number of CHOICES programs in schools, colleges and employment centres in British Columbia, in Canada, in the United States and in Europe, there has been no evaluation of the process events that tend to foster career planning. A number of evaluation studies (e.g., Casserly, 1977; Guerette, 1980; Schellenberg, 1981; Van Zoost, 1982) have been done on CHOICES, using a questionnaire-type of approach. However, this type of evaluation gives only an indication of whether users, parents or counsellors liked it or how they felt about it. These studies do not provide evidence on exactly how CHOICES benefits or hinders clients. Knowing how CHOICES or any other career assistance package works is important for various reasons. Counsellors would be in a better position to help people to maximize benefits and minimize detriments. Theorists would have a broader base of support and they would have better grounds for evaluating, selecting and comparing interventions.

As a low-cost rival to CHOICES, Holland's (1977a) Self-Directed Search (SDS) is a workbook designed for about the same purpose as CHOICES, to help in career planning. It might be helpful to counsellors to know if these two instruments have similar effects considering the time and expense of a CHOICES system as compared to the SDS. Over two hundred studies have been done using the SDS, but still many questions persist as to actually how it helps (or hinders) students in planning a career (Brown, 1972; Dolliver & Hansen, 1977; Holland, 1979a; O'Neil, Price & Tracey, 1979; Takai & Holland, 1979; Talbot & Birk, 1979).

The studies on CHOICES and the SDS both lack a specific focus on exactly how the interventions help or hinder. This lack, coupled with various problems associated with traditional studies (Fretz, 1981; Goldman, 1978; Olivier, 1979), has influenced the development of the rationale used in this study. A study that would investigate how CHOICES and the SDS work and what they do seems to be warranted.

This study has two specific objectives. First, through interviewing, this project attempted to determine what aspects of the CHOICES program help or hinder progress in career planning and also to specify what the outcomes are that help or hinder. By

interviewing students using the critical incident technique (Flanagan, 1954), this study proposed to elicit reports from students of what facilitated or hindered their career planning in their involvement with CHOICES. These collected incidents were categorized according to similarity to provide counsellors and others with a map of the various ways CHOICES might help or hinder career planning. With this type of map, a counsellor would be able to capitalize on benefits and to minimize potential detriments.

Second, this map was compared qualitatively to a similar evaluation of the SDS. A qualitative comparison is important not only for evaluation, but for informed selection of appropriate interventions for different wants and needs.

CHAPTER 2

CHOICES

Computer-Assisted Career Guidance

One of the major functions of counselling psychologists is to facilitate career decision and career planning (Krumboltz, Becker-Haven, & Burnett, 1979). With the vast amount of information required for a comprehensive career planning approach (Greehnaus, Hawkins, & Brenner, 1983), the introduction of the computer seems quite appropriate. A number of authors (e.g., Jarvis, 1976a, 1978; Myers & Cairo, 1983; Smith, 1978; Super, 1970, 1978; Tiedeman, 1983; Tolbert, 1980) have expressed the need for innovative and better methods to facilitate career planning and development.

Computer-assisted career guidance (CACG) is not a new notion. As early as 1950, people were seriously considering computers (Jarvis, 1978). The reasons for implementing computers in career counselling have been enumerated often in the literature (Ballantine, 1986; Butler & Dowsey, 1978; Closs, 1978; Coglon, 1987; Colozzi & Haehnlen, 1982; Donovan, 1980; Dowsey, 1978; Gray, 1986; Hanson, 1986; Harris-Bowlsbey, 1983a, 1983b,

1984; Heginbotham, 1978; Jarvis, 1978; Katz & Shatkin, 1983; Mar-Brennan, 1981; McKinlay, 1984; Minor, Meyers, & Super, 1969; Pound, 1981; Price, 1971; Pyle, 1984; Sampson, 1983. 1986a; Sankey, 1977; Sharf, 1984; Smith, 1978; Spencer, 1979; Stahl, 1984; Sugarman, 1986; Super, 1970, 1978; Taylor, 1978; Tolbert, 1980; Turgeon, 1979; Wagman, 1984; Wallis, 1978; Watts, 1978; Wooler & Wisudha, 1985). These would include the capacity to:

1. store and retrieve quickly vast amounts of information and therefore reduce the counsellor's clerical tasks.
2. do these tasks repeatedly and with complete accuracy.
3. stimulate a conversation with the client and therefore personalize the transaction while assisting the generation of alternatives.
4. be paced completely by the client.

By 1965, there were over 40 such systems. By 1975, the numbers, through inadequate data bases and software, had actually declined to fewer than 20 (Jarvis, 1978) (See Appendix A). With the advent of the micro-computer, another proliferation of programs and systems has occurred. Hansen (1986) cites a study by Bellotto (1985) that enumerates over 50 computer-assisted self-assessment career and educational guidance and

counselling programs. The main-frame systems however, have been categorized as first, second or third generation by Rayman and Bowlsbey (1977). The first generation batch information storage and retrieval system can be represented by Student Guidance Information Services (Jarvis, 1978). An example of second generation on-line information storage and retrieval system is the Computerized Vocational Information System (Jarvis, 1978; Smith, 1978). Third generation on-line interactive information systems that actually go beyond career information and deliver significant guidance content are exemplified by System of Interactive Guidance and Information, Computer-Based Career Development System (Butler & Dowsey, 1978; Rayman & Bowlsbey, 1977; Tiedman, 1983). Now, CACG systems are often categorized in two types of systems: information systems and complete career guidance systems (Haring-Hidore, 1984; Johnson, 1983). The focus of this study, CHOICES, falls between these two types and is currently being used extensively in Canada, in the United States and in Europe (Jarvis, 1986; Johnson, 1983).

Evaluation

Few evaluations have been done to determine the effectiveness of computer based guidance systems. Nine recent vocational intervention reviews (Betz, 1977; Fretz, 1981; Krumboltz et al., 1979; Muchinsky, 1983; Osipow, 1976; Super & Hall, 1978; Tinsley & Heesacker, 1984; Walsh, 1979; Zytowski, 1978) have progressively underlined the "spotty and uneven" (Zytowski, 1978, p.155) aspect of not only computer-based research but the whole aspect of career development literature.

One reason for this poorly managed evaluation is the pressure created by the interest to implement career education programs after 1971. Most of the energy, time, and money spent in creating programs, has severely curtailed the fundamental examination of exactly what helps or hinders student's career planning (Super & Hall, 1978). Few counselling practices, including career interventions, have been thoroughly researched and evaluated to find out why and how they benefit (or hinder) clients (Cairo, 1983; Goldman, 1978; Healy, 1982; Krumboltz, 1966; Tolbert, 1980).

Those studies that have attempted to evaluate career interventions have run into a number of problems. Goldman (1978) identified several methodological

weaknesses in various types of studies. He stressed that, apart from a few behavioural techniques, few interventions in counselling have changed significantly due to specific research and evaluation studies. Worthen and Sanders (1973) have outlined the strengths and weaknesses of the various methodologies and data collecting schemes associated with them.

Questionnaire-types of studies have generally been used in the evaluation of computer-assisted guidance programs and of CHOICES in particular (Cairns, 1978; Casserly, 1977, 1978; Cassie, Ragsdale, & Robinson, 1979; Gosse, 1980; Guerette, 1980; Himler, 1982; Laird, 1982; Schellenberg, 1981; Sloan, 1980; Spencer, 1979; VanZoost, 1982; Wilson, 1979; Wright, 1981). Some of the difficulties as outlined by Worthen and Sanders (1973) are: (a) There is no real assurance that the client understands the questions or that the right questions are being asked, and (b) It is possible to steer the respondent through carefully constructed questions. Herzberg, Mausuer, & Snyderman (1966) have also added that there is no real way to probe further, to clarify an answer, to really understand just how the intervention affected the person and why.

Another major problem is the lack of agreement about criteria and correspondent instruments to assess

effectiveness (Cairo, 1983; Daniels, Mines, & Gressard, 1981; Healy, 1982; Sampson, 1986b; Tyler, 1969; Watts & Ballantine, 1983; Williamson & Bordin, 1941). These range from various tests that lack stringent reliability and validity data, to operational definitions that are used indiscriminately. For example, one intervention is evaluated by whether or not clients become decisive or decided. Percentages and tables are drawn to demonstrate the cost-effectiveness of this new intervention. Being decisive or decided, however, is not always an appropriate goal for every individual. For some people, expanding their options might be a more effective intervention in career planning (Cochran, 1987).

Linked with the notion of criteria, a third problem is the use of "hard data" to substantiate the effectiveness of the intervention. Spencer (1979), for example, speculated that the use of CHOICES would reduce the dropout rates in vocational programs, that youth unemployment would decrease and that there would be a lower turnover rate, thus reducing retraining in first jobs. All of these criteria present problems. The variables associated with, for example, unemployment, are extensive. To take the credit for the decrease or to take the blame for the increase in unemployment would be unwarranted in view of numerous rival factors that seem

more plausible (e.g., economic rises and declines).

A fourth problem in evaluation is that the computer systems are so new and changing so quickly that building upon past research is very difficult (Griest, 1984; Healy, 1982; Johnson & Sampson, 1985; Sampson, 1986a; 1986b). A theoretical overlay is needed in order to co-ordinate the various types (Healy, 1982).

A fifth problem has been thoroughly discussed by Fretz (1981). Client attributes that could differentially affect the results of the intervention have been named aptitude treatment interactions (ATI). ATI studies help to counter-act the use of group averages, which allow for statistical tests but tend to be dubious as a representation. That is, an average may only represent a few people.

The variables that can affect an intervention are numerous and combine in numerous ways. Testing all of them appears to be a herculean task. Takai and Holland (1979), for example, found that many interest inventories have similar effects despite gross differences in methods of development, inventory format and procedures. One hypothesis suggests a ceiling effect for this type of intervention (Takai & Holland, 1979). Another hypothesis could be that each type of inventory taps a certain population. Since this type of evaluation

stresses averaging for a statistically significant difference, we have no real way of knowing which type of individual is affected by which type of intervention. For example, the intervention might help a few greatly but actually hinder the majority slightly, yet still yield a significant difference. It would be helpful to know exactly how the intervention affects people (Fretz, 1981) and more concretely. In conclusion, it seems clear that traditional methods of quantification and experimentation have provided adequate evaluations of career intervention. However, qualitative methods might provide the added dimension that seems to be needed. A growing number of researchers are stressing the need for qualitative and descriptive types of studies (Goldman, 1978; Hayes, 1981; Hill, 1982; Lecompte, Dumont, & Zingle, 1981; Woolsey, 1986).

Evaluation of Computer-Based Guidance Systems

Computer-based guidance systems have generally been shown to be enthusiastically endorsed by students, parents and counsellors, as easy to use, and as the preferred way of obtaining career information instead of the traditional sources. Also, they have been shown to be capable of generating measurable increases in career

maturity and occupational knowledge (Closs, 1986; Harris, 1968, 1974; Maola & Kane, 1976; Melhus, Hershenson, & Vermillion, 1973; Pilato & Myers, 1973; Pinder & Fitzgerald, 1984; Price, 1971; Pyle & Stripling, 1976; Roberts & Witherspoon, 1978; Sampson & Stripling, 1979; Schenk, Murphy, & Shelton, 1980; Spencer, 1979), of being useful with the hearing impaired (McKee Gelesko & Chiavaroli Schroedl, 1984), with the learning disabled (Long, 1984), and as supporting decision-making (Ballantine, 1986).

However, many studies present evaluation problems. For example, Pyle and Stripling (1976) found significant growth in career maturity as measured by the Vocational Maturity Inventory (VMI) on 66 students, using the System of Interactive Guidance and Information computer program. To know that "career maturity" has been increased is minimally helpful partially because the VMI has been shown to lack in validity and reliability (Casserly, 1980; Chodzinski, 1983; Pecku, 1982; Robinson, 1982). But more importantly, this finding does not show exactly how the intervention helped or hindered the student in career planning. Other researchers also stress the need for counsellors to be aware of the advantages and disadvantages of CACG in a specific way (Eberly & Cech, 1986; Pyle, 1984; Sampson, 1986a).

Another study examined the effectiveness of CHOICES in promoting career decision making (Pinder & Fitzgerald, 1984). Two instruments were chosen to measure the career decision making commitment of university students: the Career Decision Scale (Osipow, 1976) and the Assessment of Career Decision Making (based on an unpublished manuscript by Harren (1976) as noted in Pinder & Fitzgerald, 1984). While it is encouraging to note this increase in career decision making commitment, it is not necessarily beneficial to career planning (Cochran, 1987).

Other problems with this evaluation stem from the lack of published support for one of the instruments and the variance of the pre-test scores between the experimental and control groups (Pinder & Fitzgerald, 1984).

Pyle (1984) stressed many questions that need to be researched in order to further our knowledge and awareness of CACG: What is the impact of computers? What are the approaches by which the counsellor can best manage the counselling process with the computer as part of the process? What exactly do they do? What are the individual strengths of the various systems? What systems need improvement? A number of researchers have stressed the need for new tools to evaluate CACG Systems

(Harris-Bowlsbey, 1984; Walz & Bleuer, 1985). These evaluative problems have not deterred at least four studies from attempting to determine the best system (Jarvis, 1976b; Maze & Cummings, 1982; Morgan Management System, 1978; Spencer, 1979).

In an extensive survey carried out on the major computerized guidance systems in North America, Morgan Management Systems (1978) concluded that CHOICES was among the best for delivering career information to clients. These results were based on an analysis of the capabilities of each system including potential for future modification.

Maze and Cummings (1982) also offer advice on how to choose a computer assisted guidance system and they rated CHOICES very highly. In a comparison of the three dominant third generation systems in Canada (BISP, SGIS, CHOICES), Jarvis, (1976b) outlined the advantages of CHOICES over the others:

1. It allows for access and printout in either official language.
2. It has access to a national education/training institution.
3. It has more flexibility and broader range of data files with a possibility of changing any answer at any time based on the computer response. This is

expected to enhance the career decision-making potential.

4. It is designed in a predominately exploratory mode which features direct access (interactive inquiry) to data files.

5. Details of "why" specific occupations or institutions that were not listed can be accessed.

6. Comparisons of pre-conceived occupational or institutional choices on the basis of any accessing criteria is also possible.

7. A linkage file will also be eventually instituted to enable answers to questions like, "What can I do with my (education)?" "How can I become a (occupation)?" Spencer (1979), after an extensive search, also found CHOICES superior in many of the same ways, but again does not specify exactly how it helps career planning.

Description of CHOICES

CHOICES originated in a 1976 proposal by Phil Jarvis under contract with the Canada Employment and Immigration Commission. Some of its capabilities are impressive: Information on 97% of the occupations in Canada, detailed information on 1114 primary occupations

and brief references to over 3200 related occupations.

The basic assumption underlying the CHOICES system, is that there are three basic processes in vocational guidance:

1. Helping the individual to know and to understand his or her own abilities and interests.
2. Supplying the individual with information concerning educational and occupational opportunities and requirements.
3. Helping him or her to see the implications of situational and personal data for his or her career (Jarvis, 1976a).

CHOICES attempts to provide an answer to the problems of relating self to the world of work (Jarvis, 1982).

Another underlying assumption in CHOICES is the importance of the interactive effect of client-counsellor-computer (Jarvis, 1982a; Turgeon, 1979). The immediate reality testing in a low risk counselling environment provides both the client and the counsellor with information that is valuable in the career counselling process (Turgeon, 1979). CHOICES, it is assumed, helps the client by indicating the degree to which they are:

1. oriented to the world of work
2. able to seek and understand vocational information
3. able to make decisions in light of this information
4. able to recognize the direction of this vocational preference (Turgeon, 1979).

CHOICES also has a number of behavioral objectives for counsellors and they would include assisting clients:

1. in gaining a greater knowledge of self
 2. in arriving at a clearer understanding of the world of work
 3. in developing career planning
 4. in formulating, discussing and evaluating their attitudes, values and motivation towards work
- (Turgeon, 1979). Jarvis (1982a), in the Counsellor's manual, describes CHOICES as a three-phase approach to career planning. In the first phase, the counsellor describes the system and helps the students fill out a workbook entitled A Handbook of CHOICES (Jarvis, 1982b). A number of questions divided into 12 topics are then answered in the Travel Guide (Jarvis, undated):
- Interests, aptitudes, temperaments, education level, environmental conditions, future outlook, earnings,

hours of work, travel, physical demands, physical activities, inside/outside considerations, occupational fields, training required, summary of work performed and similar occupations (see Appendix B for a description of each topic).

The second phase involves a conversation with the computer. Here, the student, by pressing one or two keys, can have a personalized interaction with CHOICES. With the aid of their completed Travel Guide, they answer questions posed by the computer. Four various routes are open to them: EXPLORE, RELATED, COMPARE and SPECIFIC (see Appendix C for the topics available in each route). Students can use the EXPLORE route to search for occupations that are compatible with their needs, abilities and aspirations. The SPECIFIC and COMPARE routes allow users to obtain information about any primary occupation of their own choosing. SPECIFIC focuses on one occupation in detail while COMPARE allows users to analyse two or three occupations concurrently in a multiple format. RELATED expands the occupations previously chosen. From a base occupation, students can generate many others that share similar characteristics.

The entire interaction, which averages about an hour, is recorded on a printout for the user to keep. The third phase of this three part process now begins.

Usually the student needs help in interpreting the printout, in planning the next step or simply in discussing the validity of the boiled down list. This printout, as indicated in the assumptions, is meant to generate thinking, probing and planning about the person's career orientation (Jarvis, 1982a).

Evaluation of CHOICES

Studies based on CHOICES have also generally side-stepped the basic question of whether the intervention is effective. A questionnaire-type of study evaluating attitudes towards CHOICES rather than its actual effect in career planning, comprised the original field trial (Casserly, 1977). Thirty students of the Sir John A. MacDonald High School in Ottawa reported that they liked CHOICES because it was fun, easy to use, educational, and most importantly, non-threatening and accepting of any response made. Also the privacy and the immediacy of feedback were considered to be very positive. A majority also thought that CHOICES would affect their career plans to some degree. They all indicated that other people in their age group should be given the opportunity to work with CHOICES. About two thirds mentioned that they would now be able to talk to their parents more effectively about their career plans

after taking home their CHOICES printout. These original findings have been confirmed in various provinces and states by subsequent and similar questionnaire-type studies (Cairns, 1978; Cassie et al., 1979; Colozzi & Haehnlen, 1982; Gosse, 1980; Guerette, 1980; Himler, 1982; Laird, 1982; Pinder & Fitzgerald, 1984; Schellenberg, 1981; Sloan, 1980; Spencer, 1979; VanZoost, 1982; Wilson, 1979; Wright, 1981).

In a more rigorous-looking evaluation (pre-test, post-test, experimental, control group design), Casserly (1978) administered before and after questionnaires to clients of Canada Employment Centres. After treatment, the 263 experimental subjects were more inclined to have begun career planning and implementation steps than were the 150 control subjects who were more likely to have made no career planning despite having received traditional career counselling. This was deduced from a question with seven options offered to the respondent. They were asked if they were now (a) undecided, (b) quitting school, (c) continuing their education, (d) looking into careers by other means, (e) making career implementation steps, (f) keeping present job, and (g) other. On a closer inspection of the raw data, only three choices favored the experimental group with the other four items even. The three chosen do not seem to

point strongly at evidence of career planning. The first one chosen (continuing their education) does not necessarily indicate good career planning. The second one (making specific career implementation steps) is not clearly spelled out. This could mean whatever the respondent wanted. We have no real way of knowing. The problems associated with the third one (more likely to be "decided") have been discussed earlier. Being decisive or decided is not always appropriate or desirable as an immediate outcome of career counselling (Cochran, 1987).

Casserly (1978) also asserts in this evaluation that CHOICES users had an increased ability to select jobs which are more personally suitable and satisfying. This would, according to Casserly, indicate increased career maturity. Again, on a closer examination of the raw data, it was revealed that this finding was tentative at best. These people were asked if they had found a job in the last month after using CHOICES and if it had better working conditions than their former job, the same conditions or worse conditions. Thirty-six percent (versus 11% of control group) rated their new jobs better. However, about the same rated their new job even (18% versus 16%) and 16% (versus only 2%) rated their new job worse. This last statistic is surprising.

One could make a case for preserving the status quo by not using CHOICES or at least not having a worse job! But the most puzzling feature of this evaluation is that we do not know what contributed to these percentages or why.

The only completed evaluation in the literature comparing CHOICES with another intervention (other than a computerized one) is by Reardon, Bonnell, & Huddleston (1982). Seventy-five university students were compared on the SDS and the explore route of CHOICES. Thirty-seven completed the SDS first, then, within 8 days, they went through CHOICES. Thirty-eight others used CHOICES first, then the SDS. Two nine-item tests of appreciation or satisfaction were used to evaluate effectiveness. While both were rated positively, CHOICES was more so on four items. Again, these conclusions do not indicate exactly what students appreciated about CHOICES or the SDS, nor do they direct how they were helped (or hindered) in their career planning.

CHAPTER 3

The Self-Directed Search (SDS)

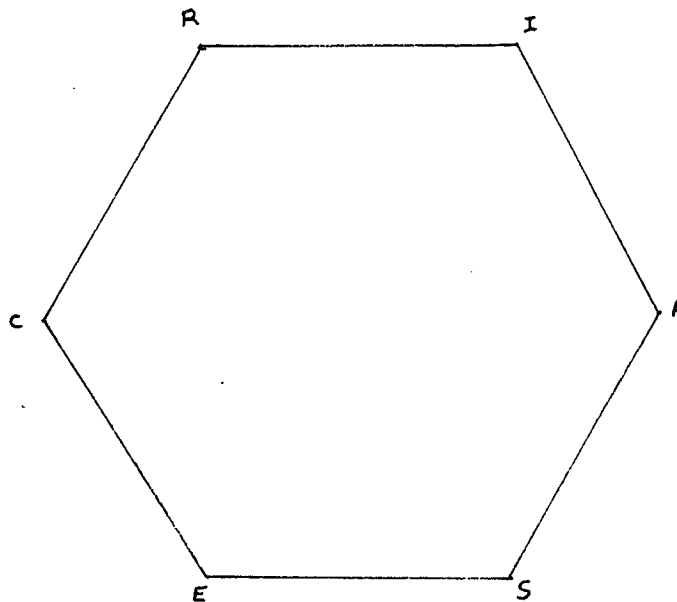
Extent of Research

As compared to CHOICES, the SDS by J. L. Holland (1977a) and the accompanying theory has been subjected to an enormous amount of research. For example, the annual vocational literature reviews (Betz, 1977; Fretz, 1981; Krumboltz et al., 1979; Muchinsky, 1983; Osipow, 1976; Super & Hall, 1978; Tinsley & Heesacher, 1984; Walsh, 1979; Zytowski, 1978) have all underlined Holland's contribution and the ensuing research his theory has generated. Over three hundred studies have been published on the theoretical framework, on the Vocational Preference Inventory (Holland, 1978a) and on the focus of this study, the SDS (Holland, 1977a). The SDS itself is used by over one quarter of a million people a year and has been used in over two hundred studies (Holland, 1979). However, a number of questions still remain unanswered. This review will attempt, after a brief overview of assumptions, description, evidence, types of studies and criticisms, to underline and accentuate the type of study that could better answer those questions.

Assumptions and Description

Holland's theory and therefore the SDS, is based on three assumptions. The first is that there are six ideal types of people: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional. The second, is that there are six corresponding ideal types of environments. These are defined partially by the work that is done, but mostly by the kinds of people that work there. The third assumption is that people who are matched to an appropriate environment will be more satisfied, productive, and stable (Holland, 1973).

These types are organized into a hexagonal shape:



On the basis of a three letter code, the assumption is that adjacent types (for example RIA) are consistent and therefore are more congruent, more apt to be stable, productive and satisfied. They are also able to find an environment that fits. Incongruent types (for example EIR) will have difficulty with all of these (Holland, 1973).

The SDS is a self-administered, self-scoring and self-interpreted career counselling instrument. It consists of two booklets. The first is an assessment booklet and the second is the Occupation Finder (Holland, 1978b). The user starts off by listing occupational daydreams and by locating the three letter code for each in the Occupations Finder. Then the respondent answers the next three subsections: Activities (six scales of eleven items each) using "like" or "dislike" responses; Competencies (six scales of eleven items each) and Occupations (six scales of fourteen items each) using "yes" or "no" responses for both. The fifth and final sub-section is the Self Estimates (two sets of six ratings, each rating corresponding to a type). This totals 228 items and usually takes between 40 and 60 minutes. The respondent then calculates a three-letter summary code representing the resemblance to the six personal orientations

(Holland, 1979a).

The user can now proceed to list occupations that have identical codes and also similar codes from the Occupations Finder. This booklet lists 456 occupational titles with the accompanying seven digit Canadian Classification and Dictionary of Occupations (CCDO) (1974). They are also presented in groups according to the six personality/environment types. The last section of the SDS includes suggestions on how to obtain more information to make vocational decisions and lists a number of safeguards to prevent detrimental outcomes (Holland, 1979).

Another booklet usually accompanying the SDS is Understanding Yourself and Your Career (Holland, 1977b). Various traits associated with the six personality types are listed. Holland offers an explanation on how the six types tend to congregate towards various occupations. He enumerates traits associated with the six environments. He then offers five concrete suggestions for increasing quality of career decisions.

Evidence and Support

The evidence found within the literature indicates that the SDS and its accompanying theory are generally

supported. The manual (Holland, 1979) states that the 1977 edition appears to have the same reliability and validity as the 1970 edition.

Odd-even reliability was tested on 105 men and 104 women. The SDS reflected a high degree of internal consistency as the reliability coefficients ranged from .83 to .95. Retest reliability was demonstrated through a small sample of adults (N=30) and the correlations ranged from moderate to high (Holland, 1979a).

Gottfredson and Holland (1975) tested 624 freshmen college students (192 males and 432 females) for predictive validity over a 3 year interval. For males, 43% stayed in the same category. For females, 66% stayed in the same category.

Another study (Cutts 1977) demonstrated that the SDS has a moderate degree of internal consistency. Cutts noted that samples of 2000 to 6000 college freshmen showed correlations ranging from .67 to .94. She states that the item content and format reflect clear content validity.

Types of studies

Generally, the multitude of published articles points to a good grounding of both theory and empirical

data for the SDS (Seligman, 1974). These articles can be organized in five types of studies:

1. The first type, and the most popular among researchers, is focused on the occupational classification system, studying the structure and/or verifying the individual occupational codes (Aubin, 1983; Bolton, 1985; Brusck & Krieschok, 1981; Campbell & Holland, 1972; Edwards & Whitney, 1972; Fishburne & Walsh, 1976; Gottfredson & Daiger, 1977; Hansen, 1977; Healey & Mourton, 1984a, 1984b; Holland, 1976b; Iachan, 1984; Matthews & Walsh, 1978; Mount & Muchinsky, 1978a, 1978b; Nafziger, Holland, Helms, & McPartland, 1974; O'Brien & Walsh, 1976; O'Neil, 1977; O'Neil, Magoon, & Tracey, 1978; Osipow, 1983; Payne & Sabaroch, 1985; Pounds, Davison, & Davis, 1979; Prediger, 1981; Rose, 1984; Rounds, Davison, & Davis, 1979; Smart, 1978; Villwock, Schnitzen, & Carbonari, 1976; Walsh et al., 1983; Ward & Walsh, 1981; Warren, Winer, & Dailey, 1981; Wiggington, 1983; Winer, Wilson, & Pierce, 1983; Wiggington, 1983; Zytowski, 1986).

The generally positive findings lead us to believe that the classification and theoretical underpinnings produce a fairly sound system. Hanson (1987), even found cross-cultural verification of the hexagonal structure. Future work in this area is needed to unclutter a few

ambiguities of the classification, especially with the categories of Realistic and Conventional (Holland, 1979).

2. Another area that has been studied extensively is the sex bias in the SDS. (Boyd, 1976; Diamond, 1975; Gottfredson, 1976, 1978, 1982; Gottfredson & Holland, 1975; Harmon & Zytowski, 1980; Healy & Mourton, 1984a; Holland, 1976a, 1976b; Holland & Gottfredson, 1976; Hollinger, 1984; Lawler, 1979; Prediger, 1976a, 1976b, 1981a, 1982; Prediger & Hanson, 1976a, 1976b; Schaefer, 1976; Tittle & Zytowski, 1978).

The many articles that this controversy has generated have not really overcome even the simple agreement on a definition of "sex bias". The problem seems so multi-faceted that no real conclusions can be reached (Crites, 1978). Holland, in his 1979 manual, maintains that this area has had so many studies that have generally failed to conclusively demonstrate sex bias that this would seem to suggest an unfruitful line of inquiry.

3. The third type of study includes attempts to validate the SDS using various criteria like personality, values, self-ratings, maturity scales, self-concept and the like (Aranya, Barak, & Amernic, 1981; Bingham & Walsh, 1978; Byrne, 1980; Cairo, 1979;

Doty & Betz 1979; Fitzsimmons & Melnychuk, 1979; Hener & Meir, 1981; Holland & Nafziger, 1976; Holland, Gottfredson, & Nafziger, 1975; Laing, Swaney, & Prediger, 1984; Peraino & Willerman, 1983; Rachman, Amernic, & Aranya, 1981; Raphael & Gorman, 1986).

Again, the findings are generally positive and support the SDS. However, as previously discussed, an examination of the assumptions of the criteria would be paramount before any conclusive evidence could be reached. For example, because someone does better on the Tennessee Self-Concept Scale after completing the SDS, does this mean that the SDS has facilitated career planning? Holland (1979) suggests that a better path for these studies would be to investigate how different types select environments.

4. A fourth type of study examines the effects or the influence of the SDS (Avallone, 1974; Byrne, 1977; Healy & Mourton, 1983; Krivatsy & Magoon, 1976; Lawler, 1979; McGowan, 1977; Nelson, 1976; Nicholson, 1975; Nolan, 1974; O'Neil, Price, & Tracey, 1979; Power, Holland, Daiger, & Takai, 1979; Reardon & Kahnweiler, 1980; Reardon, Bonnell, & Huddleston, 1982; Redmond, 1973; Rhodes, 1973; Schaefer, 1976; Takai & Holland, 1979; Talbot & Birk, 1979, Zener & Schnuelle, 1976).

The majority of these studies follow the same type of design as Zener and Schnuelle (1976): 959 high school students were divided into an SDS group, a VPI group and a control group. The day after the experiment, and three weeks later, students evaluated the instruments. It was found that the SDS increases the number of vocational options a person is considering, the satisfaction with a vocational aspiration and self-understanding. Generally, subsequent studies, as listed above, confirmed these findings.

These benefits do not seem to depend on the user's age (Gottfredson & Daiger, 1977; Schaefer, 1976) social class, education and school aptitude (Zener & Schnuelle, 1976), gender (Boyd, 1976; Gottfredson, 1976; Gottfredson & Holland, 1975; Holland, 1976a; 1976b; Lawler, 1979; Schaefer, 1976), physical disabilities (Barker, 1978), level of occupation (Doty & Betz, 1979; Fishburne & Walsh, 1976; Salomone & Slaney, 1978), race (Kimball, Sedlacek, & Brooks, 1973; O'Brien & Walsh, 1976; Walsh, Bingham, Horton, & Spokane, 1979), or intelligence (Holland, 1979; Schaefer, 1976; Zener & Schnuelle, 1976).

5. The fifth type of study concerns a practical application of the typology. Three studies (Avallone, 1974; Krivatsy & Magoon, 1976; Nolan, 1974) compared

the SDS and group counselling on a wide variety of criteria: information seeking, satisfaction with choice, realism of choice, need to see a counsellor and number of vocational alternatives. Results did not conclusively favor one over the other. This might indicate that the SDS and the counsellor have an equal influence. However, much more must be done to state this authoritatively.

In business settings, at least nine studies lend support to the SDS and its classification (Costa, McCrae, & Holland, 1984; Doty & Betz, 1979; Matthews & Walsh, 1978; O'Brien & Walsh, 1976; Rachman et al., 1981; Salomone & Slaney, 1978; Spokane & Walsh, 1978; Utz & Hartman, 1978; Varca & Shaffer, 1982; Walsh et al., 1979).

In educational settings, many studies have been undertaken to establish predictive validity of the SDS. (Geoffroy, 1985; Gottfredson & Holland, 1975; Nabors, 1981; O'Neil & Magoon, 1977; O'Neil, Magoon, & Tracey, 1978; O'Neil & Magoon, 1977; O'Neil, Price, & Tracey, 1979; Power et al., 1979; Villwock et al., 1976).

Criticisms of the SDS

Criticisms of the SDS have multiplied, ranging from the sex bias controversy (Prediger & Hanson, 1976) to simply being a trait-factor type of interest scale (Kline, 1975).

Two studies (Christensen, Gelso, Williams, & Sedlacek, 1975; Gelso, Collins, Williams & Sedlacek, 1973) examined the self-scoring of the SDS and found nearly the same results: most of the college freshmen (489 and 229 respectively) made some type of error; about half made errors which affected their final three letter summary codes and for about one third, the errors affected the high point code.

O'Shea and Harrington (1980) recommend that manuals for self-scoring instruments provide data establishing scorer reliability, that scoring be supervised and that the APGA test standards deal directly with scorer reliability.

In Buross (1978), several articles criticize the SDS for the psychometric basis of its scoring and the unreliability of the self-scoring. Michal and Graumenz (1984), describe an assessment of the accuracy of self-assessment in career decision making inventories as unrealistic. They caution about a potential bias in

self-ratings. A recent article also questions the support for Holland's congruence-achievement hypothesis (Schwartz, Andiappan, & Nelson, 1986). It must be noted however, that this was based on one profession with a 50% response rate to their questionnaire.

A number of these problems have been corrected. For example, the simpler design for adding scores and deriving the summary code encourages less errors (Holland, 1979) in the 1977 edition of the SDS.

Needed Research

Generally, the enormous amount of research has been positive. The SDS affects people in beneficial ways:

1. provides more vocational alternatives
2. reassures people about a current alternative
3. stimulates exploration
4. reduces indecision
5. leads to greater satisfaction with choice

However, knowing this is only generally helpful. We still do not know how these benefits (if they are) are derived. Is it simply because 456 vocational alternatives are presented that the user's alternatives are expanded? Does this expansion facilitate career

planning for everyone? For example, in an intriguing study examining student expectation for taking an interest inventory, 322 female and 203 male high school students were asked to evaluate their SDS experience. It seems that most students seek reassurance about their current choice, want guidance about which career to enter, and want to find out how to train for a specific job. As for narrowing or broadening the range of choices, more students opted for narrowing rather than broadening. The SDS was rated most positively by females, by students high on the identity scale and by students with good decision-making skills (Power, Holland, Daiger, & Takai, 1979).

Again, these are all averages and we still do not know which students want which benefits. Because a majority of females rated the SDS positively, does not indicate that all would rate it positively, or for the same reasons. How exactly it helps or hinders people with different expectations and desires is largely unknown.

A number of researchers (Cooper, 1976; Krivatsy & Magoon, 1976; Redmond, 1973; Talbot & Birk, 1979; Takai & Holland, 1979; Zener & Schnuelle, 1976) report that the impact of counsellor-free vocational treatments is limited and the effects of the different techniques are

more often similar than dissimilar. For example, Takai and Holland (1979) compared the Vocational Card Sort (VCS), the SDS and the Vocational Exploration and Insight Kit (VEIK). They concluded that the diverse vocational interventions have similar rather than divergent effects and that these effects are rather small. The VEIK even failed to surpass the influence of its individual components (the SDS and the VCS). Takai and Holland speculate that it is perhaps because a ceiling effect is reached and other subsequent interventions are not really effective. Another hypothesis might be that, perhaps, the evaluative instruments are not fine enough to detect changes. The complexity and the number of variables involved in such an evaluation is formidable. This illustrates the need for another type of evaluative instrument.

Holland (1979) suggests a number of areas of needed research: validation studies of the longitudinal type, person-environment interaction studies, testing and revising the diagnostic scheme, thorough examination of the environmental hypothesis, more analysis of the classifications using two and three letter codes, code popularity and cross-cultural comparisons. However, one area that he continually stresses is to show how the effects are achieved (Holland, 1979). A number of other

authors (Brown, 1972; Dolliver & Hansen, 1977; O'Neil et al., 1979; Takai & Holland, 1979; Talbot & Birk, 1979) all reiterate that while the SDS has desirable influence, they do not know how or why these effects are achieved.

In summary, while the evidence for each intervention is encouraging, it does not yield a clear and detailed enough picture to inform judgments in career counselling. For example, stimulating exploration is extremely abstract and general as an outcome. More specificity would be needed to support the judgments required in counselling practice. Both CHOICES and the SDS might stimulate career exploration, but explorations of different kinds for different purposes in relation to different stages of career planning. A different kind of study seems to be needed, one that would clarify more comprehensively and specifically how each intervention contributes to career planning. Using the critical incidents technique (Flannagan, 1954) to categorize process events that facilitate or hinder career planning in each intervention, a study that seems capable of providing a more comprehensive and detailed description of how each intervention contributes to career planning will be presented in the following chapters.

CHAPTER 4

Methodology

Subjects

Subjects were selected from volunteer students in the Career Planning Course at Matthew McNair Senior High School in Richmond, British Columbia.

This school is comprised of approximately 1000 grade 11 and 12 students, mostly from middle to upper-middle class families. This career planning course was an optional mini-course lasting three weeks. The subjects were all very fluent in English and were representative of the varied ethnic composition of the school. In the first part of this study, an attempt was made to gain participation from thirty-five grade eleven and grade twelve students (approximately half male, half female) who had used CHOICES recently (but not the SDS) and who varied in both socio-economic level and level of aspiration (see Appendix D for the consent form).

The second part of this investigation involved a similar sampling of students from the same school. However, they had used the SDS but not CHOICES.

The nature of these samples was constrained somewhat by the volunteer aspect of the study and by

other practical restrictions.

Critical Incident Technique

The students were interviewed about their experience with CHOICES and the SDS using the critical incident technique, pioneered by John Flanagan (1954). This technique consists basically of the interviewer eliciting reports of concrete and specific observations from people who are in a position to determine what helps or hinders the functioning of some process. The central task of the interviewer involves eliciting very specific reports on concrete incidents that were either high points or low points in the process. The interviewee must specify exactly what helped or hindered. From these reported incidents, a category system is developed.

This technique has proved to be very flexible and reliable. For example, Flanagan (1954) reports several methods for collecting the data. These include the individual interview, the group interview, mailed questionnaires and record forms. In each case, the specificity and exactness of what happened is required. These various forms did not alter the quality of the incidents to a significant degree as long as the

subjects were motivated to read the instructions carefully and answer conscientiously.

Another dimension adding to the reliability of the technique is that different interviewers elicit a common body of responses. Flanagan (1954) reports a number of studies using a variety of trained and untrained interviewers ranging from psychologists to industrial foremen with no interviewing experience. Results obtained were not markedly different.

Andersson and Nilsson (1964) also underline its reliability. They report that while there was a significant difference in the number of incidents produced between the interview and the questionnaire method, the rank correlation between the sizes (i.e. number of incidents per category) of the categories was .85. Also, there were no significant differences between the number of incidents elicited by the various interviewers.

The technique appears reliable in view of the trustworthiness of its procedure either through the various ways of collecting the data or the eliciting of incidents through different interviewers.

Reliability of categorization seems, at first glance, a rather subjective procedure. However, by referring to the source material, the essence is to

ascertain a category system that is obvious. Flanagan (1954) notes that one rule is to submit the categories to others for review. Andersson and Nilsson (1964) conducted an experiment to determine whether others could produce similar categories. Twenty-four students, working in pairs, independently developed categories. There was large agreement on the categories formed, indicating a plausible categorization that was not too subjective. However, more directly, a categorization scheme can be checked for reliability by testing the extent to which others can use it to categorize incidents the same way.

The validity of the critical incident technique was tested by Andersson and Nilsson (1964) by verifying whether the technique succeeds in including all the important aspects of one process. They analyzed the contents of the training literature for the internal training of managers over a number of years. In general, the data could be fitted into the category system of analysis and therefore was sound, from one perspective.

Another aspect of validity studied by Andersson and Nilsson (1964) was whether the incidents collected were really critical. That is, do judges find them important in relation to the work? They designed rating forms in which eighty-six categories were rated on a six point

scale by three hundred people (including superiors, store managers, assistants, and psychology students). They concluded that the method revealed behavior units that may be considered important to the occupation of store manager as only five of the eighty-six categories were rated unimportant.

Therefore, it appears that information collected by the critical incident technique is reliable and there is some warrant for believing the information gathered to be valid. However, it must be noted that validity is a complicated claim, requiring various answers to the question: Valid for what? The aim of this study is to develop categories with a reasonable presumption of validity. Future studies will be required to fully demonstrate validity.

Interview Procedures

The individual interviews began by familiarizing the student with the nature of the study. The right to withdraw, confidentiality and the normal access to counselling and other school services was emphasized (Appendix D). General questions about the student's career plans and his or her experiences with CHOICES were asked. Then, each student was given these

instructions:

Think back to your experience with CHOICES: filling out the Travel Guide, working at the computer terminal, and studying the printout. Try to identify those positive high-points in which something happened that you felt was important for your career planning. Now, taking the first high point, tell me exactly what happened that was so helpful at that time.

Once the high points were exhausted, the question was altered to elicit negative low points that hindered career planning. For each incident, the student specified exactly what helped or hindered and tried to specify exactly how he or she was helped or hindered. With the student's permission, these interviews, lasting approximately an hour, were tape recorded and/or notes were taken.

Exactly the same procedure was followed in obtaining incidents concerning SDS as CHOICES. Below are the major questions that either were asked or served as reference criteria for determining the completeness of each reported incident:

What exactly happened that was so helpful for your career planning?

Why was this so helpful to you?

Data Analysis

Once the interviews were completed, these incidents were divided into items that characterize the impact on career planning. Similar to Lazwell's a posteriori approach (Herzberg et al., 1966) whereby the categories of analysis are extracted from the material itself, incidents were divided into categories based on item similarity.

To assure reliability of categorization, three judges placed one hundred and fifty incidents each under appropriate categories. With an agreement of a minimum of 80% of the incidents (Flanagan, 1954), the assumption that it is reliable can be made. If agreement were below 80%, categories would have to be reframed until better agreement was reached.

CHAPTER 5

Results

Previous outcome research has not provided an adequate description of how each intervention facilitates career planning. In an attempt to provide a more comprehensive and detailed description, the present study has focused upon individual accounts of events that helped or hindered career planning. The seventy students generated a total of 776 usable incidents. The task of the chapter is to present a reliable categorization of these events that result in a more adequate descriptive map of how each intervention facilitates or hinders career planning.

There are numerous ways in which a collection of incidents may be categorized. Usually, the primary considerations in forming categories are the purpose of categorization and the uses to be made of it (Flanagan, 1954). In this study, the frame of reference for categorization was program evaluation, that is, to find out how the programs facilitated or hindered career planning. For example, in the CHOICES Travel Guide, students must specifically state their interests, aptitude, temperament, education level and so on. Are

these self-ratings merely a means of preparing for the computer terminal or do they facilitate career planning as well? It is "What happens" when one carries out an activity such as this, that is the focus of this study.

From this perspective, the types of categories sought would provide a map of each program so as to help counsellors better prepare students for CHOICES and the SDS. These categories, filtered from subjectively construed benefits and detriments of the interventions, would seem critical for individualized treatment selection, preparation and later counselling. This map might also guide the selection of appropriate interventions through a qualitative comparison of the programs.

A major part of categorization was the search for prototypes. These are clear exemplars of a category. These prototypes encompass the critical features which serve to define a category. The more features a member shares with a prototype, the more it fits within the category. These natural categories do not have rigid boundaries, but rather are more open, being held together more by common features or family resemblance (Rosch, 1977).

To initiate the categorization procedure and in order to get a sense of the complexity of the data, all

incidents were read carefully. They were then differentiated into various piles according to similarity of content. A prototype was identified for each pile and the incidents were reclassified where necessary around each prototype. Provisional categories were thus formed and problems identified. Consultation with other people and further adjustments were required to solidify the categories or resolve problems. Several cycles were necessary to achieve a satisfactory set of categories.

First the incidents from the CHOICES group were examined by providing a prototype and by describing the range of incidents involved. The categories were then listed under three headings: facilitative, hindering and other. In the facilitative incidents, the students expressed how their career planning was helped or facilitated by the CHOICES program. Table 1 (on page 50) outlines the facilitative categories. Included are the number of incidents per category, the number of students who expressed incidents subsumed by the various categories and also the percentage of students for each category. Reliability and validity of these categories will be discussed in Chapter 7. However, one can get a sense of their validity by noting (in Table 1) that independent observers report the same types of events.

In this case, subjects were the independent observers.

As can be observed in Table 1, the thirteen basic categories are grouped under three headings: Occupational awareness, self-awareness and match. This is simply one way to organize the thirteen categories that seems plausible and reflects the theoretical underpinnings of CHOICES' author. It would be mistaken, however, to assign undue importance to these superordinate categories. The major thrust of this research is focused on the thirteen categories that actually subsume the incidents.

Appendix F offers a detailed tabulation of the types of categories each student expressed, along with the sex, grade and age of each student. Appendix G outlines the type of student (sex, grade, age) that participated in each category.

Table 1

CHOICES Facilitative Categories

	Incidents	*Students (%)**
A. Occupational Awareness		
1. Considers educational requirements	24	16 (46%)
2. Expands general job options	25	19 (54%)
3. Expands job options in a specific field	23	17 (49%)
4. Narrows focus	16	14 (43%)
5. Stimulates consideration of extrinsic work features	35	24 (69%)
6. Answers specific questions	17	17 (49%)
7. Judges future of jobs	16	14 (43%)
8. Provides reference for future planning	16	16 (46%)
B. Self-Awareness		
9. Clarifies likes	14	11 (31%)
10. Clarifies capabilities and aptitudes	6	4 (11%)
C. Match		
11. Matches interests and aptitudes to jobs	7	5 (14%)

12. Confirmation of choice	13	11 (31%)
13. Disconfirmation of choice	6	6 (17%)

TOTAL	218	
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* Number of students who expressed this type of category (maximum 35).

** Percentage is based over 35.

Of the following category descriptions, the majority are self-explanatory. For example, "Expands job options in a specific field" means exactly that. Job options in a specified area are enumerated for the student. Further explication seems redundant. Therefore, each category will be presented, not so much by an elaborate explanation but rather by providing prototypical examples and by portraying the range of these facilitating incidents for CHOICES.

CHOICES Facilitative Categories

1. Considers educational requirements:

The educational level really helped because it shows you how much education you have to commit to. I want to train for maybe 1 more year, then I want to start working. CHOICES listed what you needed to become a teacher.(Student #22)

Generally, most of the incidents in this category acknowledged that knowing the level of training or education for a job was helpful in planning their career. Some found it helpful because they already had a preconceived idea of what career they wanted and

therefore needed information on exactly how many years of education was required. Others, like the first example above, wanted to train or go to school for no more than a specified amount of time and then start working. If their aspired career took more training, they were ready and willing to reduce their ideal to a more manageable, less time-consuming training. It seemed that for some the priority was the career itself; for others, the length of preparation was paramount. For both, the knowledge of the training requirements was helpful in their career planning.

2. Expands general job options

It gave me a couple of ideas that I never thought about before, jobs like stewardess, cruise director. There was a lot of jobs that I didn't want to get into, but at least it gave me the opportunity that if I wanted, I could. It was helpful because it made me think of other things that I might do if things don't work out. (Student #32)

This category was concerned with expanding job options in a general way as opposed to listing jobs in a

specific area. Students felt that their career planning was facilitated because they now had, through the printout, a wider range of options that they either had ignored or had not considered beforehand.

3. Expands job options in a specific field

Similar occupations was helpful because it gives you a chance to look into other things that are closely related. This is helpful because you can look into all kinds of similar occupations like doctors, pediatricians, surgeons - similar jobs. So you can think of many others in case you don't want to go all the way. (Student #27)

Students gained lists of jobs that they had ignored or hadn't considered. However, differing from the more general category, these occupations were concentrated in one or two specific fields. This expansion in a specific area was found helpful to their career planning because they felt that they were not limited by only one job, that other similar jobs would be possible. They would also have something to fall back on in case one career was not available or practical. This category was

particularly helpful to those who already knew their occupational field and would then access the COMPARE or RELATED routes.

4. Narrows focus

CHOICES narrowed down the jobs. This is helpful because it narrowed it down to a few topics, it picks certain fields that you're interested in. (Student #26)

The essential feature of this category is the perceived helpfulness of narrowing the range of occupations to certain areas and therefore obtaining a direction towards a career. Most of the incidents were like the example above. However, another feature mentioned was the case of choice when faced with fewer options.

5. Stimulates consideration of extrinsic work features

The inside/outside consideration was helpful because it made me look at a job like a librarian where you're inside all the time, it made me look at it more closely. (Student #20)

The relatively large number of incidents encompassed in this category formed an extensive range. Earnings, hours of work including shift work, travel (commuter and pleasure), location of residence, working inside or outside, environmental conditions, physical activities and demands, all of these extrinsic work features were reported as being important, practical and helpful considerations in a job. For many, it was the first time they had contemplated these extrinsic work features. The consideration most often mentioned was "earnings". Some mentioned that it was the most important while others stated, for example, that "if it's a job you really want, the money won't be that important, but helps". These considerations were stimulated by actually doing the Travel Guide and then seeing how these choices affected their printout.

6. Answers specific questions

It was helpful to be able to simply type in the CCDO number and get a lot of information on a specific job. (Student #21)

This category illustrated the speed and specificity of the CHOICES system. After completing the EXPLORE

route, the students would be armed with a list of jobs with the accompanying CCDO number. Career planning was facilitated because they could then access these through the SPECIFIC route and get fourteen types of information varying from the earnings to what types of attitudes were representative.

7. Judges future of jobs

Future outlook was helpful because I had never really thought about it and knowing whether it was stable or increasing was good, because you don't want to get into something that has no future. (Student #10)

Most of the incidents were similar to the prototype above. Knowing the future outlook of a certain occupation was considered beneficial in career planning because it is reassuring and it permits strategic planning.

8. Provides reference for future planning

Taking the printout home and being able to read it, to think about it is helpful because you don't have to think about it all at once while the computer is rattling away. (Student #25)

These incidents are mainly concerned with the benefits of possessing the actual printout. This printout provides a future reference if their present plan fails and also frees the student from memorizing the information given by the computer. It also seems to stimulate, as in the case above, a more thorough deliberation.

9. Clarifies interests

The Travel Guide was helpful because it narrowed down my interests by really making you think about where you want to head. Like it would ask you if you could work in a stressful situation or not. (Student #9)

The interest factors in the Travel Guide helped clarify likes and dislikes. Also, some mentioned the test taken in preparation for CHOICES was beneficial in helping them gain self-awareness of their interests. In distinguishing this category from the "Matches interest to jobs" category, it is important to note that this category does not link interests to an actual occupation.

10. Clarifies capabilities and aptitudes

Choices was helpful because it showed what I can do and can't do.(Student #21)

Lack of experience on the part of most of these high school students coupled with the power of this factor in eliminating job possibilities has required that the counsellors preparing the students for CHOICES, downplay the aptitude and temperament factors in the Travel Guide. Consequently, only 6 incidents were revealed. These were concerned mostly with finding out what one can actually do and can't do. Similar to the previous category, there was no job link involved.

11. Matches interests and aptitudes to jobs

It helped me to see the different areas that I have to deal with. This is helpful because you have to choose a job that suits your interests and abilities. (Student #18)

There were surprisingly few incidents in this category, considering its general importance to career planning. Similar to the example above, most incidents were general and not sharply framed.

12. Confirmation of choice

It worked really well as a confirmation of my ideas by listing the things I was interested in. (Student #19)

This category added weight to the student's prior choice by confirming it. The machine-like, errorless print-out also affixed a certain prestige and satisfaction to the agreed upon occupations.

13. Disconfirmation of choice

The computer was helpful because it proved to me that I wouldn't make a good nurse even though I've always wanted to be a nurse. I've changed my mind now, because only one type of nurse came up and the rest of the jobs were teaching jobs. Also I'm not doing very well in chemistry and biology. (Student #7)

A positive outcome either through reality testing or an expansion of options was produced by this disconfirmation of the student's prior choice.

CHOICES Hindering Categories

As for the hindering incidents in CHOICES, a clarification is necessary. Most students did not actually express a hindrance as such, but rather that certain aspects didn't help as much as others. Certain areas in the program were in need of improvement and clarification, or were simply irrelevant. For example, knowing the inside/outside considerations of jobs was, to some students, useless information. It really didn't

"hinder" their career planning but it didn't really facilitate it either. Table 2 portrays the frequencies of the 9 hindering categories and Appendix F and G detail the participation of the individual students.

Table 2

CHOICES Hindering Categories

	Incidents	*Students** (%)
A. INFORMATION		
1. lack of information	11	8 (23%)
2. useless information	17	13 (37%)
3. unreliable occupational information	3	3 (9%)
B. OPTIONS		
4. fails to confirm a prior choice	7	6 (17%)
5. puzzling and inappropriate job options	6	6 (17%)
6. questionable basis for narrowing jobs	9	8 (23%)
7. needs more options	6	6 (17%)
C. TERMINAL		
8. rushed on terminal	4	4 (11%)
9. machine malfunction	1	1 (3%)

TOTAL	65	

* Number of students who expressed this type of
category (Maximum 35)

**** Percentage is based over 35**

In the same manner as the facilitating categories, the categories are presented as a prototypical example and a range of incidents.

1. Lack of information

Only the starred occupations can be accessed. This is frustrating because I could not get "teacher of the blind", I could not get all the information I wanted. (Student #8)

This category yielded numerous gaps of information that could have facilitated career planning, according to the students. CHOICES could have produced a list of universities and colleges with the corresponding faculties, the subjects needed to be accepted into university, the courses necessary to graduate, a longer list of jobs obtainable after high school, the actual places of employment, a Canada-wide bank of jobs (instead of having to choose a province), and complete access to all the occupations not just the starred ones.

2. Useless information

The inside/outside considerations were useless. You already know if you are going to work inside or outside. (Student #14)

These incidents are contrary to the facilitative category "stimulated consideration of extrinsic work features". Features such as inside/outside considerations, temperament, aptitudes, interest, environment, travel, location of employment, future outlook, earnings, physical demands and education did not seem important or facilitative to career planning for these students.

3. Unreliable occupational information

The future outlook was supposed to be stable for forestry - and it's not stable right now. How can they say that? (Student #24)

This category contains incidents revolving around outdated and unreliable occupational information. This was especially true concerning salary levels and employment outlook. For example, CHOICES lists \$5000. as

a level of salary. Who would choose a job which pays below the poverty level?

4. Fails to confirm a prior choice

I feel it's not that helpful to me because I already know what I wanted to do. It didn't come out as a pilot and that was depressing and I was dissappointed about that. It wasn't a career finding for me. (Student #34)

Contrary to the facilitative category "Disconfirmation of prior choice" where the students viewed disconfirmation as a fair reality test, most of these incidents stressed the disappointment and non-facilitative aspect of the confirmation failure. One student went as far as to fudge the data until he succeeded in getting his prior choice.

5. Puzzling and inappropriate job options

Some of the jobs I didn't find appealing. This wasn't really helpful because it didn't interest me. Like things I know I

couldn't do. Like nursing. Not because of the educational factor but because of the sight of blood, I'd keel over.
(Student #32)

The puzzlement as expressed in these incidents ranged from wondering what the connection was between seemingly divergent jobs, to not wanting to widen their options, to being confused as to what to do next if they did not like their list.

Inappropriateness was also a key ingredient as evidenced by the prototype above and by having already tried some of the listed jobs and not liking them.

6. Questionable basis for narrowing jobs

I found that because the questions are so definite, that I cut out a lot of jobs, that maybe I would be interested in. So it should've been told to us that it was really easy to cut out a lot of jobs. (Student #25)

The prevalent theme in these incidents was one of wondering how exactly the computer worked to narrow down

the jobs. Either through misunderstanding of directions, uncertainty of how to answer, or a feeling that everything was too general, the students felt hampered. They seem to indicate that with more knowledge of the computer functions it would be more facilitative.

7. Needed more options

But it wasn't really that helpful because it only offered me 2 types of jobs. Because, say I don't want to teach music after awhile and I don't want to go into secretarial, what will I do? I could have used more choices. It wasn't quite complete. It could have offered me more types of occupations.(Student #4)

This category is typified by a demand for more job options. These students have no desire to be narrowed down. Rather they want a wider range of occupations or more related occupations. This does not indicate a real hindrance to their career planning but more a lack of facilitation.

8. Rushed on terminal

I didn't have enough time on the computer terminal to really get all the information on all the jobs I wanted. Should be allowed as much time as you need. (Student #2)

The three incidents in this category communicated a rushed feeling, implying that if they would have had more time on the terminal it would have been more facilitative to career planning.

9. Machine malfunction

The computer printout got stuck therefore it printed over itself. Quite a hindrance! (Student #5)

This was the only incident of a machine malfunction. Naturally it was not conducive to career planning.

SDS Facilitative Categories

The SDS facilitative categories will be presented in the same way as CHOICES. Table 3 outlines the frequencies of the 14 facilitative categories. Included are the number of incidents per category, the number of students who expressed incidents subsumed by the various categories and also the percentage of students for each category. Appendix H outlines the types of categories each student expressed and Appendix I, the type of student who participated in each category.

Table 3

SDS Facilitative Categories

	Incidents	*Students** (%)
A. OCCUPATIONAL AWARENESS		
1. Considers educational requirements	15	14 (40%)
2. Expands general job options	57	29 (83%)
3. Expands job options in a specific field	11	8 (23%)
4. Narrows focus	42	21 (60%)
5. Guides information search	2	2 (6%)
B. SELF-AWARENESS		
6. Confirms or clarifies likes and dislikes	28	19 (54%)
7. Confirms or discovers capabilities or incapacabilities	31	23 (66%)
8. Stimulates deliberation	14	12 (34%)
9. Understanding oneself over time	8	8 (23%)
10. Find out where to improve	17	12 (34%)

C. MATCH

11. Matches capabilities		
to jobs	25	17 (49%)
12. Matches interest		
to jobs	22	11 (31%)
13. Matches interest and		
capabilities to jobs	8	6 (17%)
14. Confirms or justifies		
choice	18	13 (37%)

TOTAL	298	

* Number of students who expressed this type of category.

** Percentage is based over 35.

1. Considers educational requirements

Having the educational level by the occupation was helpful because it helps you to plan financially - whether you should work first to get enough money to get the education you need. It helps you to plan for your schooling. (Student #47)

This category conveys the importance of knowing the educational or training requirements for a job. Most of the incidents were similar to the example above ranging from correcting misconceptions to avoiding surprises, aiding financial planning or helping to choose courses at the high school or college level. Also, similar to the CHOICES category, some students valued length of training time as a priority in choosing an occupation while others were prepared to train as long as necessary.

2. Expands general job options

Occupations section: it gives me an idea of what might be available. This is helpful because it gives me a better outlook, a

wider range of options. (Student #56)

The daydream section made me list opportunities, it gave me time to write them down on paper. This was helpful because I don't really know what I want to do after my travelling - I can see this in black and white. I can't skate forever. I need something to fall back on. (Student #48)

Being able to switch the letters of the code and get new codes was helpful because I got the most interesting occupations (to me) when I did do that. I also got a lot more occupations. (Student #47)

The way the question is worded in Occupations like it says an occupation that you would find interesting or would like to do, not something that you would actually do. This is helpful because you don't really think of it in terms of a lifelong career, but rather of would you do this. This really opens various fields up that I hadn't thought of before. (Student #47)

This category, with a relatively large number of incidents reported, had quite an extensive range.

Similar to the CHOICES category of the same name, it implied an expansion of options as opposed to listing jobs in a specific occupational field. As expected, the occupations section generated the most incidents. These tended to include, an appreciation of a wider range of options due to a better overall view, a forced look at a variety of jobs not thought of or ignored, and a feeling of having numerous alternatives.

The daydream section revealed similar reactions but with a different twist. Many expressed the value of having the time to write, to actually put down on paper options that they had considered. This action seemed to liberate and yet make more concrete their wishes.

The summary code and occupation finder also produced a fair proportion of incidents mostly revolving around job expansion. For example, it was stressed that being able to interchange the code was facilitative because it opened up a greater number of jobs with some of them being the more interesting ones.

3. Expands job options in a specific field

Showing all the occupations gives ideas of what you might go into. The way it was arranged is helpful because if you're

good in one field, you're probably good in all the jobs listed in that field. Also you get to see what other jobs are listed in that field. (Student #43)

This category is very similar to the CHOICES category of the same name. The incidents concentrate on a helpfulness of maximizing options in a specific area. Most were generated through the occupations sections, the occupations booklet and summary code.

4. Narrows focus

The summary code and occupations finder narrowed it down to the medical field, so that helped me right there. (Student #61)

The occupations section narrowed it down. It sort of gave me the basic occupations that I could do. This is helpful because this way I'll be led in the right direction. (Student #49)

Listing the daydreams helped me to realize that there are really two areas that are interconnected. This helps me to eliminate some and concentrate on these

two areas. (Student #47)

In the competencies section, similar to the activities section, I really noticed that I leaned to one side. This is helpful because it shows an aptitude in one direction. (Student #58)

Basically, the thrust of this populous category (43 incidents) is again very similar to the same category in CHOICES. Narrowing the range of options and getting a career direction is considered facilitative. The numerous examples above serve to illustrate the diversity of sources for this funnelling feature of the SDS.

5. Guides information search

Having the number of the CCDO is helpful because you can get more information in the books. The more information, the better the decision. (Student #47)

The few incidents included in this category stress the guidance provided for further information search through the CCDO. Even though there were only 2 incidents, it was felt that they were different enough

yet logically plausible to demand a category of their own.

6. Confirms or clarifies likes and dislikes

In the activities section, I listed what I liked and disliked. This was helpful because it made me aware of what I liked and disliked. It gives you a basic idea of where you starred (where you fared well). (Student #42)

Most of the incidents more or less duplicated the example above and involved a clarification, a self-awareness, a discovery or a confirmation of the person's interests. This was achieved mostly through the activities section and there was no job link in evidence.

7. Confirms or discovers capabilities or incapacabilities

In the self-estimate section it was helpful because you don't really think of your abilities and this is helpful because you can find out what kind of person you are, what you're

good at, stuff like that. (Student #41)

The competencies section makes you see what sort of rounded person you are. Things you can do and can't do. Reinforce what I already knew about myself. (Student #57)

Throughout, what is at stake is either a confirmation or a discovery of the student's capabilities or incapacibilities with no job link. Students perceived benefits through the self-estimate section because it rendered explicit the abilities required in each section, forced them to be honest and realistic about themselves, gave them confidence if they were strong in a certain area, but most importantly, they stressed that it gave them a chance to assess or confirm their abilities.

Although fewer in number, students also considered incapacibilities in the competency section and answered questions that they had never asked themselves before. For example "Can I make pottery - yes or no."

8. Stimulates deliberation

Putting your daydreams down in writing was helpful because it makes you think more seriously

about them and doesn't let you ignore them. Sometimes you think it's too ridiculous but putting it in writing, it's right there and you can't really ignore it. (Student #47)

Generally, the whole test and each category stimulated deliberation of some sort. However, this category is specifically a collection of incidents focused more fully on this thinking process.

Most of the incidents stemmed from the daydream section and were similar to the example above. Some added that the situation caused them to "consider things not normally considered about jobs", that being made to sit down and think about their career was facilitative, that it was important, that it helped test the reality of their ideas and that this deliberation was an individualized process, not necessarily what parents wanted.

9. Understanding oneself over time

The SDS also helped me get a historical perspective on how I'm changing. This is helpful because the more I see what's involved in my choices, the better choice

I'll make. (Student #37)

All of these incidents were generated by the daydream section and, in each case, underlined a self-understanding with an emphasis on the historical dimension. Most noted how interesting and helpful it was to compare old and new aspirations and to see the differences or similarities between occupations picked.

10. Find out where to improve

In the activities section, you can see what section you do well in. It's helpful because you know when they're in categories like that, you can see what specific sections, you can see it right there in front of you, what skills you need to develop. (Student #40)

The self-estimates showed me where I need to improve myself, where I'm lacking in ability. This is helpful because like in forestry, you need to know stuff like mechanical ability. I might be stuck out in the bush and need to fix the truck. (Student #54)

Competencies: this is helpful because it gives you enthusiasm to learn the things

you don't know how to do. (Student #59)

The self-estimate, activities and competencies sections equally produced the incidents, with the Understanding Yourself and Your Career contributing a few. The above examples are representative of the others and contain basically the discovery of what skills to improve.

11. Matches capabilities to jobs

Self-Estimates: you can separate all your abilities into these different categories. You might not have thought of them before. It helps you find which ones are open to you, might find a new field. Like music, maybe this field is still open to me. (Student #45)

Competencies: seeing what things I've done. This was helpful because it's easier to plan your career if you see which part of the career you're good at. If I'm good at it, I'll do it. (Student #55)

This category was primarily focused on a self-awareness of capabilities which could be translated

into some type of job. Most of the incidents originated from the self-estimate and competencies sections. These are typified by the examples above. A few scattered incidents were expressed from the summary code, the daydream and occupation sections. Most stressed that the capability factor was paramount in choosing and acquiring a certain job. Being interested in a certain occupation was not as important. For example, some said "If you can do it, you can always learn to like it."

12. Matches interests to jobs

The activities section lists different things asking you whether you like or dislike it. This is helpful because at the end you can add up all the "R"'s and "A"'s. The ones you do like show up. It shows what I'm interested in, then it shows what types of careers are offered in these interests. (Student #52)

Most of the incidents stemmed from the activities section with a portion generated by the occupation and summary code sections. This category was concerned with a matching of interests to jobs as opposed to matching

abilities to jobs. Capabilities were not taken into account. The example above is prototypical. Some incidents stressed an appreciation of what they don't like and therefore, knowledge of jobs to avoid. Generally, the attitude seemed to be "If I like it, I'll do it" with job satisfaction being paramount.

13. Matches interest and capabilities to jobs

The summary code takes into account what sort of person you are and what sort of person is suitable for this job. It made me think of things like coaching. I hadn't thought of that - I didn't think it would be suitable for me. (Student #57)

The primary emphasis of this category with incidents originating from a range of sections (competencies, self-estimate, activities, summary code) is the combining of both interests and capabilities in the search for an occupation. Not only do they note their interests but also they maintain a realistic check by determining their competence areas. Some expressed the familiar. "If I'm good at it and I like doing it, I'll go for that job."

14. Confirms or justifies choice

Occupational Booklet and summary code: Codes really helped because it really confirmed what I thought about myself. It gave me an assurance of my career plans. (Student #68)

The booklet on Understanding Yourself and Your Career was helpful because of the hexagon - the congruence - it makes a lot of sense, it makes you feel that what you're into is justifiable. (Student #40)

This category was dominated by incidents from the summary code and the Understanding Yourself and Your Career booklet. These incidents facilitated career planning by justifying or confirming the student's prior choice as exemplified in the prototypes above.

SDS Hindering Categories

Similar to CHOICES hindering categories the SDS hindering categories are also a bit of a misnomer. They tend to facilitate less, rather than actually hinder. The 7 categories are outlined in table 4 and are

illustrated in the same manner as CHOICES. Appendix H and I offer a more detailed tabulation of the participation of individual students.

Table 4

SDS Hindering Categories

	Incidents	*Students** (%)
1. Lack or misleading		
occupational information	9	8 (23%)
2. Misidentification/		
misdirection of interests	13	10 (29%)
3. Irrelevance of some items	9	6 (17%)
4. Unreliability of		
self-estimates	24	13 (37%)
5. Fails to provide specific		
direction	21	12 (34%)
6. Need expansion of options in		
finder	20	15 (43%)
7. No new information	4	3 (8%)

TOTAL	96	

* Number of students who expressed this type of category.

** Percentage is based over 35.

1. Lack of (or misleading) occupational information

In the occupational booklet, they could have given more information about money, need for the job, etc. (Student #59)

In the occupational booklet, it's misleading because of the numbers. It should be the number of years after high school graduation, not from the beginning. Because just about everyone graduates. (Student #40)

This category resulted from the student's interaction with the occupational booklet. Most of the incidents implied a lack of information concerning the number of options available, the vocabulary level of the occupational titles and simply, that the information was much too general, that it was very superficial. Several attacked the confusing and misleading way the educational level was portrayed. They would have preferred a clearer numerical system as demonstrated by the example above.

2. Misidentification/misdirection of interests

The summary code is not helpful because I had a letter missing for most of the jobs I really like to do. It did not seem to be as good an indicator of what jobs are good for you. (Student #45)

Most of the incidents were extrapolated from the student's summary code interventions. Basically, the category reflects that the interests do not agree with the code received and that this seemed to cause some consternation. A few other incidents were occasioned by the activities, occupation or competencies section. These were also mainly concerned with a misdirection or a misidentification of interests but brought on by a lack of depth or scope to the choices available. For example, one person criticized the lack of sports in the activities section and thought that those types of jobs would not show up, even though they were of interest.

3. Irrelevance of some items

In the competencies section, musical instruments, poetry, acting in a play are all useless to me. They aren't things that I'll be doing. (Student #69)

Perceived useless information forms the basis of this category. Incidents were drawn from the activities and competencies sections. They all stressed the irrelevance of some items mostly due to the difficult vocabulary (and therefore the incomprehensible questions), the uninteresting topics, the unnecessary skills, and the attitude "if I'm not good at it, I'm not interested in it therefore it's useless."

4. Unreliability of self-estimates

In the self-estimates, maybe if they could attach an example, like the #7 here in scientific ability, some people might not know what they mean by excellent, is it making a new chemical or what? No real criteria to base it on. (Student #60)

This category, while concentrated heavily in the self-estimate section, also includes incidents from the other sections as well. For example, in the competencies section, a person didn't have the experience, so she felt restricted in estimating her level of competence. The unreliability underlying most of the incidents stems from a lack of criteria, an elevated vocabulary level, a

restriction to "yes or no" type answers, a lack of understanding of how to interpret the questions, and especially, the difficulty in evaluating oneself.

5. Fails to provide specific direction

The occupations were too general.

This kind of was not helpful because it just leaves me in the open, I don't have a real direction. (Student #48)

The majority of incidents in this category was formed by incidents derived from the occupational booklet and resembled the prototype above. The general thrust of the category was a lack of specific direction. Incidents mentioned that the booklet was too general, had no real order, had too much variety, fostered sexual stereotypes and did not really take individual differences into account. One person, who had five out of six summary letters in his code, was directed towards 5/6 of the booklet. He wondered why he had not simply read the whole booklet instead of doing the test.

6. Need expansion of options in finder

There were not enough choices in the Occupations finder. This was not helpful because they were only remotely concerned with the things I wanted to do. Plus you were never sure of the proper code for the exact occupation - because again, the choices were so limiting. (Student #45)

In direct contrast to the previous category, these incidents dwell mostly on a need for more options in the occupational finder. These expressed needs ranged from a desire for more jobs per code to simply having at least one job per code. Also, students felt that some jobs in the finder were exotic while the common types were left out. For example, "tree surgeon" is listed while "police officer" is omitted. Several incidents concerning the daydream section were expressed. Many daydream occupations could not be coded because they were not included in the finder

7. No new information

The competencies section, I found
useless because you already know
what you can do. (Student #38)

In the few incidents in this category, the key ingredient is that the person was not particularly helped by the SDS because no new information was available because the person already knew what he/she wanted to do.

The results presented in this chapter provide a more comprehensive and detailed descriptive map of process events that facilitate or hinder career planning. Previous outcome research has provided information that is promising, but very general and incomplete, ill-suited for the refined judgments that must be made in counselling practice. In contributing to the resolution of this difficulty, the category systems include 13 facilitative categories and nine hindering categories for CHOICES, 14 facilitative categories and seven hindering categories for the SDS. These category systems are intended to provide relatively clear, comprehensive, and detailed descriptions of how each interventions contributes to career planning. In

particular, CHOICES and the SDS have been used interchangeably as if each contributed to career planning in the same way. In the following chapter, the category systems will be used to make a more refined comparison of these interventions and to distinguish them for counselling practice. In addition, safeguards for using these interventions and supportive activities will be described.

CHAPTER 6

Comparison

Upon the basis of the results, the problematic use of these interventions can be clarified in three different ways. First, the facilitative categories for these interventions provide a more refined basis for comparing the contribution of each intervention to career planning. Given the comparison, a counsellor would have a more informed bases for choosing between these interventions in designing and sequencing programs and in helping particular clients. Second, the hindering categories provide a basis for preparing clients to benefit from each program and to avoid or minimize hindrances. Third, each intervention has limits that call for supportive interventions that might improve effectiveness for particular clients. The third section is based upon student answers to the question of what else could be done to facilitate career planning.

Comparison of CHOICES and the SDS

In comparing CHOICES and the SDS, the procedure will be to compare and contrast the categories and their incidents as they are listed in tables 1 and 3. The

percentage and the number of students who gave incidents of each type is presented in these tables.

The first thing that one is struck with is that the superordinate categories Occupational Awareness, Self-Awareness and Match are identical for both interventions. Upon closer inspection, however, different categories and varying percentages of participation are revealed for each. Occupational Awareness received a very high participation rate from each program, but CHOICES had eight categories while the SDS had five. SDS Self-Awareness compiled 86% participation to CHOICES' 40%. Also SDS had five categories to two for CHOICES. In the last superordinate category, SDS doubled CHOICES (91% to 46%) in participation and had four categories to three.

These initial observations give a sense of what the two programs stress. Now, in more detail the categories will be examined in six different sections. The first section is comprised of categories one through four (Considers educational requirements; Expands general job options; Expands job options in a specific field; Narrows focus) and are similar for both CHOICES and SDS. A closer examination of the actual incidents, however, reveals differences.

In the first category (Considers educational requirements) the percentages are quite similar but CHOICES is much more specific. For example, one person stated that she was able "to look at the various educational levels and see what I could earn depending on my education." The student has 16 various levels of education ranging from grade 8, to one year community college to a graduate degree. In comparison, SDS offers only 6 levels of education producing incidents with much less specificity.

In the second category (Expands general job options), the types of incidents again varied in focus. The SDS group expressed the positive effects of being forced to look through the Occupational Finder. For example, one student stated that "this was kind of helpful because by going through the whole thing, it kind of forced you to look at some occupations you hadn't thought of before." This realization of the sheer number of careers available and the subsequent exposure to jobs they would have otherwise ignored, seemed beneficial to their career planning. CHOICES, on the other hand, did not generate this type of incident. It produced a list of not more than 25 jobs at the end but did not permit an overview of all jobs such as presented in the Occupational Finder.

Several students generated incidents about the ease of reading the job list in CHOICES mainly because of the detailed explanation that can be accessed. The SDS simply presents a list. A few students had trouble with the vocabulary level. One noted for example, that the jobs looked interesting but he didn't know what they meant. The SDS did, however, generate 83% student participation in this category as compared to 54% for CHOICES.

CHOICES did have close to twice the participation in the third category (Expands job options in a specific field), as compared to the SDS (49% vs 23%). Differences in the incidents themselves revealed that the SDS students expressed the helpfulness of having a wide variety of clustered jobs laid out in front of them. This seemed to promote a better understanding of occupational fields. The CHOICES group stressed the COMPARE or RELATED routes and the accompanying job description as being facilitative. For example, one student thought that the comparison of two or three occupations was helpful because then "you can see which one is better, which one appeals to you." The specificity of CHOICES and the generality of the SDS seem to surface again.

In the fourth category (Narrows focus), both groups seem to be expressing the need for channelling their energies towards a field and how both programs permit this. The only appreciable difference between the two, appears to be the source of this feature. CHOICES narrows by virtue of eliminating. The students only know the number of jobs they have remaining. They cannot literally see the operation as in the SDS. The SDS group can observe, at every section, how the jobs are clustered and how they are choosing. For example, one student stated that she liked "the way they grouped the sections, now I can narrow it down to different sections." As can be seen in tables 1 and 3, SDS garnered 60% participation and CHOICES had 43%.

The second section of this more detailed comparison is concerned with CHOICES' stress on the extrinsic work features. This fifth category is unique to CHOICES. The SDS did not generate any incidents comparable to it. Yet this category garnered the highest participation rate (69%) of all the CHOICES categories. Numerous students stated that they had never thought to consider the 12 extrinsic work features and now they realize their importance. They described this feature as a realistic check on their aspirations and perceived it as facilitating their career planning. This seems to be one

of the major accomplishments of CHOICES along with one of the major differences with the SDS.

The third section addresses the specificity and amount of information produced by CHOICES as compared to SDS. Although the SDS had one category (Guides Information search) concerned with information, only 6% expressed the helpfulness of providing the CCDO number for the 456 jobs in the Occupational Finder. CHOICES went much beyond this limited feature. Half of the students (49%) generated incidents stressing the ease of access to specific information on specific occupations. They simply had to punch in the supplied CCDO number and this would produce 12 various topics concerning the occupation in question.

Future outlook was also deemed important and helpful by 43% of the CHOICES group as indicated by the "Judges future of jobs" category.

"Provides reference for future planning" was another category formed only in the CHOICES group. This category was concerned with the beneficial aspects of possessing the printout and keeping it for future reference. The SDS group was also able to store the program for future reference but this was not mentioned by anyone. Yet, 46% participation was achieved by the CHOICES group.

Therefore, in terms of occupational information, specifically in future outlook, specific topics and future reference, CHOICES clearly gives more information than the SDS, with only minor facilitation in providing some direction in searching for information.

The fourth section focuses on self-awareness categories. The SDS had 5 categories with 86% participation and 88 incidents compared to 2 categories in CHOICES with 40% participation and 19 incidents. The SDS seems to be more concerned with self-awareness features than CHOICES. The difference also lies in the nature of the incidents. CHOICES generated superficial types of self-awareness incidents. For example, a student related that "it made you aware of your interests." Also, students who did express a discovery of self, focused primarily on the tests prior to going on CHOICES. Aptitudes and temperaments, as previously mentioned, did not play a major role in the Travel Guide preparations.

The SDS, however, seems to be much more effective in eliciting self-awareness. The five categories all indicate a concern over understanding oneself in a specific way. For example, a girl stated that the activities section showed her "stuff that I've never thought of before that might be interesting, like

building things with wood."

Three of the categories are not mentioned by CHOICES (Stimulates deliberation, Understanding oneself over time, and Find out where to improve). These would seem quite important to someone planning a career. Of particular interest is the "Understanding oneself over time" category which was generated mostly by the daydream section. CHOICES does not have this feature which also serves as a confirming instrument. That is, if the Daydream codes and the actual worked-through code correspond, the inventory validates itself. This interval check is a primitive reality testing feature. Also the "Find out where to improve" category seems to be a needed checklist of skills that CHOICES addresses indirectly through the GATB test but which was not mentioned in the incidents. Therefore the SDS evokes more self-awareness both in quantity and quality of incidents.

In the fifth section, the SDS seems to emphasize matching and the understanding of it much more so than CHOICES. For example, the SDS produced 57 incidents in 3 categories (Matches capabilities to jobs, Matches interests to jobs, and Matches interests and capabilities to jobs) for 74% participation as compared to CHOICES' 7 incidents in one category (Matches

interests and aptitudes to jobs) for 14% participation. Also the range of incidents is much more varied in the SDS, linking jobs to interests, capabilities or both.

This sixth and final section compares the confirmation capabilities of the two programs. Both the SDS category "Confirms or justifies choices" and CHOICES' "Confirmation of choices" category seem to revolve essentially around the positive effects of this confirmation. While percentages are approximately the same (SDS = 37%, CHOICES = 31%), the thrust of the incidents reveal more of a difference. The machine-like accuracy of CHOICES seems to promote a different quality of confirmation. For example, one girl stressed that she knew it was correct because "it's not human, no errors". The SDS, with its Understanding Yourself and Your Career booklet, was apt to explain the confirmation and justify it. One student, for example, noted that the booklet was helpful "because of the hexagon, it makes a lot of sense, it makes you feel that what you're into is justifiable."

CHOICES also goes one step further as it seems to be able to disconfirm more clearly than the SDS.

No incidents of positive disconfirmation were expressed by the SDS group; 17% of the CHOICES group did stress the role of disconfirmation played by the

computer. For example, a student mentioned that he wouldn't do any of the jobs he had chosen prior to CHOICES because, with the detailed description, he was able to get a clearer picture of the actual occupations.

To conclude this qualitative comparison, the overlap between CHOICES and the SDS seems rather superficial. There is a similarity but it tends to be minor. These are two distinct programs with different advantages. CHOICES offers information on 12 topics stressing reality constraints, specificity and extrinsic work features. The SDS emphasizes understanding, self-awareness and understanding of the matching process. CHOICES seems more appropriate for planning and specific decisions regarding options while the SDS seems more valuable for general exploration, understanding and decisions regarding fields. SDS is more general, global while CHOICES tends to be more specific (Appendix O).

Safeguards: CHOICES

Following this qualitative comparison, safeguards on ways to prepare people for these two interventions will be outlined. This will be done by following what the students have stated hindered them in their career planning. As previously mentioned, no incidents

emphasized directly the hindering or the prevention of career planning. It was more a case of being less helpful, less facilitative. Table 2 (p. 59) portrays the percentages of students who gave hindering incidents for each category in CHOICES, Table 4 (p. 82) in the SDS.

Looking at CHOICES first, the most popular hindering incident, "Useless information" with 37% participation, suggests that the instructor underlines the importance of reading and filling out a clause in the Travel Guide entitled "This doesn't matter to me". The student can then choose to ignore any or all features with this simple clause. CHOICES will then not take that feature into account.

The category "Questionable basis for narrowing jobs" raises problems of a lack of understanding of how the system functions. In the instructions prior to accessing CHOICES, students could be explained how the computer deducts and eliminates all but 25 jobs, how their answers affect the narrowed down options. A clear example of this process is apt to promote an understanding of the process to facilitate and encourage a flexibility of options.

The "Lack of information" category suggests warning students of missing information such as: no list of colleges and universities, the courses necessary to

graduate, the actual places of employment, a provincial choice only, not Canada wide, detailed information on only the starred occupations (the others can be researched with the given CCDO number). CHOICES does now have a list of universities, the courses necessary to graduate etc.

Seventeen percent of the students expressed their disappointment in the category "Fails to confirm a prior choice." To combat the shock of disconfirmation, the instructor could well advise the student to backtrack and find out how he or she answered the Travel Guide. Another way would be to access the preferred choice to discover what he or she is missing for that particular occupation.

In the category "Puzzling and inappropriate job options", the instructor could prevent problems, that 17% expressed, by stressing the "garbage in, garbage out" computer syndrome. Also he or she could indicate that the 12 topics do not cover every situation and all areas. For example, queasiness over the sight of blood is not a topic therefore a person might be saddled with a non-viable option such as surgeon.

A safeguard to eliminate hindrances such as those expressed in "Needed more options" and "Rushed on terminal" is to promote an attitude of experimentation

with the computer. That is, try the other routes, not only EXPLORE. Time is a factor so it would be necessary to encourage them to schedule an hour after their initial time to generate more options and not be rushed.

The category of "Unreliable occupational information", highlights some problems that could be corrected if the system was continually updated. It is important, even though only 9% produced this type of incident, to maintain credibility. The instructor could forewarn the students particularly in regards to the salary level and the employment outlook.

Since there was only one incident in "Machine malfunction", it does not seem to be a major problem.

Safeguards: SDS

In a similar way to CHOICES, safeguards for the SDS will be presented following the hindering categories as displayed in Table 4 (p. 87). This table also outlines the percentages of students who gave hindering incidents in the various categories.

Looking at the category with the most incidents "Need expansion of options in finder" with 43% participation, one safeguard could be a stress in the

instructions about the limited number of occupations in the finder and about ways of expanding these options. For example the person could use an interchangeable two letter code instead of the normal three, or he or she could generate options by referring to the CCDO number thus gaining a cluster of related jobs.

The category "Unreliability of self-estimates" produced a participation rate of 37%. This total is apt to be lower if the criteria for the self-estimates are firmly established and emphasized. Also, if Holland's (1974) recommendations are followed such as showing the booklet to friends and family for their input.

The "Fails to provide specific direction" category also had a high participation rate (34%). One safeguard that could be implemented easily would be to stress Holland's (1979) comment to the students:

The SDS is only intended to facilitate a person's occupational search. At best, it can only indicate a class of occupations a person prefers: it cannot efficiently predict a single choice for a person. (p.14)

This knowledge would hopefully lower expectations.

With 29% participation, the next category "Misidentification/misdirection of interests" also seemed quite popular. The safeguards, as outlined by

Holland (1979), appear to be strong enough if properly emphasized and understood, to counteract this category:

1. A person's resemblance to each of the 6 types in the personal assessment is determined 5 times, not once.
2. A person searches for all permutations of the 3 letter summary code, not one permutation.
3. A person compares the summary code with the codes of his/her occupational daydreams.
4. The user is referred to a counsellor for more information or for other kinds of help.

Slightly more than a quarter of the students (23%) were involved in the category "Lack or misleading occupational information". The major safeguard would be to stress the numerical system of the educational levels. Another solution would be to change this confusing system to a simpler one.

The next two categories, "Irrelevance of some items" and "No new information" did not garner as much participation as the others (17% and 9% respectively). However, it is important to stress the range of

activities and competencies included in the SDS to safeguard against not trying the item if they are not interested in it. Fostering an open attitude is apt to promote better career planning.

Other

Coupled with the facilitative and hindering questions, the students were also asked what else could be done to facilitate career planning. One must note, however, that these categories are different than the preceding categories. They are based on opinions and not on specific observations. Both the CHOICES and the SDS groups generated similar categories as well as similar participation patterns (Table 5). The types of categories each student participated in are outlined in Appendix F and H. Appendix J lists the type of student who expressed an incident for each category.

Following Table 5, prototypical examples of each category are presented with a brief explanation of the range and richness of the category.

Table 5

What Else Could be Helpful in Career Planning

CATEGORIES	NUMBER OF INCIDENTS			
	CHOICES	SDS	TOTAL	*STUDENTS** (%)
1. More realistic occupational information	16	9	25	20 (29%)
2. Reality testing	7	7	14	14 (20%)
3. Start planning earlier and also later	6	15	21	17 (24%)
4. Job hunting skills	10	3	13	12 (17%)
5. More information on educational opportunities	8	5	13	13 (19%)
6. Nothing else. It's a personal direction	5	4	9	9 (13%)
7. More tests to measure interests and abilities	2	1	3	3 (4%)
8. Teacher involvement	2	0	2	2 (3%)
	-----	-----		
TOTAL	56	44		

* Number of students who expressed this type of category.

** Percentage is based over 70.

1. More realistic occupational information

It would be helpful to talk to someone in my field. They can give you the "truth". It's not like reading a book. They can really help because they've been through it and they can tell you the pros and cons - so you know the reality of it. (Student #40)

Similar to the example above, this category contains incidents suggesting ways of obtaining more realistic occupational information. These range from guest speakers during career days, to going and meeting people at the job site, to seeing videos of the job, to obtaining information via a personal interview with the counsellor, to having better pamphlets and books on individual occupations.

2. Reality Testing

The job experience program would be good because then you could really see if you're fit for the job. (Student #9)

The suggestions involved in these incidents revolve around getting hands-on experience either through a work experience program or a work without pay experience. Most of the incidents are similar to the prototype.

3. Start planning sooner and also later

In grade 8, have a career planning course with a list of jobs available with what's involved in these jobs, courses necessary etcetera. Because in Grade 12, it's like a shock! What am I going to do? I was confused. (Student #37)

The general gist of this category is to urge authorities to institute programs that will encourage planning. Most of the incidents were concerned with planning earlier in the school. Grade 8 seemed to be the favorite starting off point. Career planning courses, CHOICES, the SDS and the ability to take a variety of courses were cited as important tools for instituting earlier planning. Only two incidents mentioned that communities should also offer programs for seniors and drop-outs.

4. Job hunting skills

Learning how to do a job search
would be helpful. (Student #59)

This category has incidents concerned mainly with ways of obtaining a job. Students would like to know how to get a job, how to write resumes, how to conduct oneself in an interview, how to write applications correctly and would like practice in doing these skills.

5. More information on educational opportunities

I do like to be able to plan what
courses I'll need so I can determine
how to get there. I'd like to be able
to sit down with someone to determine
those courses I need for special ed. at UBC.
(Student #20)

As the title and example indicate, this category concentrates on academic information. Other types of incidents underline the need for specific information, for requirements at certain smaller universities, for knowledge on how to acquire a loan and on how to apply

to the universities.

6. Nothing else, it's a personal decision

School is doing everything possible to
help us. It's really up to you. (Student #68)

Most students in this group expressed a certain
satisfaction with the career planning effects of the
school and simply believed that it was now "up to them."

7. More tests to measure interests and abilities

Should have different tests to
measure your abilities instead of
the very few we have now. (Student #66)

Included in this category are incidents expressing
a need for more objective measures of their interests
and abilities.

8. Teacher involvement

Teachers should take more interest.
Some only get you through the course.

They don't give you an overall view.

(Student #32)

This category is comprised of only 2 incidents. However, it was felt that it still did merit consideration as a full fledged category because of the importance of the idea. It does seem plausible that a teacher's influence would instigate better career planning.

To conclude this section, these various categories are important to people wishing to implement a career planning program in a school. Knowing other facilitative actions possible to students seems inherently helpful. With this knowledge of how the instruments work, that is how they help or hinder career planning, counsellors are in a better position to enable students to maximize benefits and minimize potential detriments.

CHAPTER 7

Reliability and Validity

The category systems examined in the preceding chapter were generated from the various incidents expressed by the subjects. This study was not designed to establish a clearcut validation of these category systems, but rather to develop a set of categories which map what each program does to facilitate career planning. However, a range of prominent kinds of doubt both in terms of reliability and validity will be considered in this chapter. If these can be successfully resolved, then a reasonable warrant might be established for the reliability and validity of the category systems.

Reliability of Categorization

One source of evidence for increasing confidence in these categories is the reliability with which they are used. Reliable categories are categories that can be used in a trustworthy manner by independent judges. This form of reliability is different than others. For instance, is the method of collecting the data reliable?

Andersson and Nilsson (1964) demonstrate that both the number of incidents and the subsequent distribution in the various categories are independent from the method of collection or from the interviewers. Flanagan (1954) also provides evidence that similar incidents can be collected from a variety of formats including individual interviews, group interviews, questionnaires and record forms. Along with a reliable way of collecting the data, category construction is also of concern. This categorization does not purport to be the only system possible. Others are possible depending on the purpose of categorization.

However, categories must reflect the incidents. This can be determined largely by whether independent judges can use the categories to reliably categorize the incidents. Three female graduate students acted as judges. The incidents were rewritten (stripped of all identifying data) on 3x5 cards for the judges' use. A stratified random sample of 150 incidents was drawn to insure that each category was represented at a ratio of one incident to five. A preliminary run through was administered to determine the clarity of the instructions. It was found that simply providing the title of the category on 3x5 cards and then asking the judge to match the incidents was not clear enough. Word

ambiguities coupled with the sheer number of categories produced reliability ratings of 90% for CHOICES and only 72% for SDS. Subsequently, the category titles were supplemented with a brief explanation. For example, "Narrows focus" was further explained by stating that "it gives direction by narrowing and it helps to reduce down to one or two areas."

The three judges were interviewed twice for a total of approximately an hour and a half each. The interviews were conducted at the university and the students' homes.

After a brief description of the study, the categories, written on 3x5 cards, were described. The judges were given the following instructions:

Place these incidents under categories
that you feel encompass the incidents.
Please ask any questions you wish. If the
incident doesn't fit any of the categories
displayed, please discard it.

This procedure was repeated four times over two different days. On the first day, only the facilitative incidents for both CHOICES and SDS were categorized. On the second day, the hindering incidents were categorized

in the same way.

The high reliability of over 80% agreement, as depicted in Table 6, seems to warrant the claim that the category systems are trustworthy. That is, independent judges can differentiate and integrate incidents in about the same way using these sets of categories.

Table 6

Percentage of Agreement between Judges and Established
Category Systems

	CHOICES		SDS	
	Facilitative	Hindering	Facilitative	Hindering
Judge #1	100%	100%	96%	94%
Judge #2	90%	100%	85%	94%
Judge #3	95%	100%	90%	88%

Another means of support, although indirect, is provided by an inquiry into the nature of the judges' errors.

These errors appear to have been due largely to haste and were triggered by key words. For example, one judge placed an incident with the interrogative words "How much" in the "Answers specific questions category." However, this category was concerned more with specific questions about occupations and not specific considerations like salary or shift work. Upon reading the whole incident and not just a few trigger words, one realizes that the incident involves a deliberation about general salary issues and should be placed in the "Stimulated consideration of extrinsic work features" category.

As was expected, there were a few borderline cases, but most were quite clearcut. In summary, the independent judges demonstrated that the category systems have high reliability because of the limited number of errors, most of which were correctable and not substantive in nature.

Reliability as Validity

Validity reflects the extent to which the categories are sound or well-founded. That is, do the categories reflect the elicited incidents or are they simply made up to perpetuate one's existing theoretical formulations? In the reliability section, it was noted that all incidents were subsumed by the category system and were subsequently confirmed by the independent judges. One could conclude that the category system is not subjective but rather attains objectivity through the confirmation of the judges. Reliable categorization, therefore gives categories an objective status.

Comprehensiveness

Another feature of validity is to determine whether the categories are comprehensive. That is, would more students have generated more categories? This was tested by categorizing only the first 25 (out of 35) students' incidents from each of the two groups. Responses by the remaining ten students were categorized only afterwards and all their incidents fitted into the existing category system. That is, no new categories had to be

formed to accommodate these new incidents. This check provides reasonable evidence for the comprehensiveness of the category system. This claim is provisional because there is always a possibility of discovering new categories. For example, prior to the study, a hindering incident thought to be common among computer users is the so-called computer phobia or cyberphobia. The students' fear of the machine would hinder them so much that they would be unable to derive anything from it. No one mentioned this, except for a few comments along the lines of being confused at first but that the aide put them at ease and they quickly learned what to do. It seems justifiable, therefore, to conclude that the category system is reasonably comprehensive.

Level of Abstraction

To achieve the right level of abstraction, it is necessary to use the prototypes as guides rather than abstracting features from whole incidents. In this way, one is forced to examine thoroughly all incidents, comparing them to various prototypes. The language and structure of reports were untouched to conserve all the richness that they might contain. Uncontaminated by a theoretical overlay that may or may not undermine the

actual message, the prototype procedure insures that the material is conserved.

As for the actual level of abstraction, the set of categories is valid if they strive for a level that establishes order but yet clearly subsumes the incidents. Too low a level would produce a multitude of categories too numerous to handle effectively. Too high a level generates a type of artificial simplicity. For example, the superordinate facilitative categories do not really give us direction because they are not specific enough. Naturally, the possibility of a lower level of abstraction always exists. For example, "Consideration of extrinsic work features" could still generate many categories. Earnings and travel are only two features that could evolve into new categories.

Basis of Categories

Inherent in the critical incident technique is the advantage that categories are formed by similarities of a group of incidents reported by independent people. When several people report the same type of incident, it seems reasonable that the category is well-founded. As can be viewed from the tables on participation rates (Tables 1-2-3-4), most of the categories have

considerable support, both in terms of number of incidents and percentage of students. Independent people report the same kind of facilitation or hindrance with CHOICES and the SDS. The exceptions can readily be supported through a common-sensical viewpoint. For example, the "Guides information search" category had only two incidents. However, both incidents were clearly stated and were powerful yet different enough to form their own category. And it seems quite sensible that a guided information search would be beneficial to someone planning a career.

The face validity of the categories is another important source of confidence to support the categorization scheme. There is nothing shocking or surprising about these categories. In fact, one could conceivably come up with similar categories by a careful examination of each intervention. It seems evident, for example, that a category such as "Narrows focus" makes sense for both CHOICES and SDS. CHOICES reduces 1114 occupations to 25 occupations while the SDS, through the letter code, also narrows the focus.

Position of Reporters to Report Valid Incidents

One claim to validity noted by Flanagan (1954) stems from the people reporting incidents. Are they in a position to make first hand reports? The seventy students interviewed were enrolled in a career planning course prior to the study. This presupposes that they have some interests, and desire some help in planning their career. Their sensitivity to problems of planning a career would seem to be sharpened because of their involvement.

In concert with this question, is the traditional invalidation of self-reports. There is growing evidence, however, that self-reports can indeed be accurate and that, in some cases, more accurate than objective measures. Holland (1978) has shown that self-reported interests are about twice as accurate in predicting future vocations as objectively measured interests. Scott and Johnson (1972) concluded that direct self-reports were consistently superior to indirect objective measures when the criteria for personality characteristics were supplied by friends.

Agreement with Research

Another aspect of validity is to determine the extent of corroboration with past research. This section will examine relevant research for support, first from CHOICES then from the SDS.

CHOICES, as noted in the review of literature chapter, has not been adequately investigated. However, the studies tend to generally support the categories elicited from this research. For example, the content of the category "Considered educational requirements" was reported by Donovan (1981), Gu  rette (1981), Sloan (1980), and Wright (1981) in their studies with CHOICES. Turgeon (1979) focused on reality testing, one of the prime functions of the CHOICES system. The "Answers specific questions" category resembles Turgeon's reality testing emphasis. He stressed CHOICES ability to respond to specific questions about occupations without having to actually experience them. The category "Expands general job options" was reported in various forms by eight studies (Donovan, 1980; Gu  rette, 1981; Gosse, 1980; Jarvis, 1978; Laird, 1982; Sloan, 1982; Stahl, 1984; Van Zoost, 1982; Wright, 1981).

A similar category, "Expands job options in a specific field," was mentioned in three of these studies

(Gu  rette, 1981; Jarvis, 1978; Sloan, 1980). Only one study was found to formally state the narrowing reflected in the "Narrows focus" category (Gu  rette, 1981). The category that reported the most incidents, "Stimulated consideration of extrinsic work features," was, surprisingly, only noted in three articles (Donovan, 1980; Gu  rette, 1981; Jarvis, 1978). Similarly, most of the other categories had a scattering of support from the literature. The only two lacking support were "Judged future of jobs" and "Matches interests to jobs."

The hindering categories had fewer mentions in the literature. Five of the nine categories enlisted support: Lack of information (Gu  rette, 1980; Laird, 1982; Stedham, 1982), Unreliable occupational information (Stedham, 1982), Questionable basis for narrowing jobs (West 1981), Rushed on terminal (Gu  rette, 1980), and Machine malfunction (Gu  rette, 1980; Sloan, 1980; Stedham, 1982). This supplies independent support for the validity of these categories.

The SDS categories are also supported by many research studies. Unfortunately, most studies have focused on validating Holland's theoretical assumptions rather than investigating the overall effects of the

inventory. Of the over 200 studies, there are only approximately 10 that actually stress the effects of the SDS on career planning. These however, serve to illustrate and add weight to the categories outlined in this research.

The two facilitative categories "Expands general job options and expands job options in a specific field" were supported by Avallone (1974), Cole and Hanson (1975), Holland (1974, 1976a), Prediger (1972), Takai (1979), Talbot and Birk (1979), and Zener and Schnuelle (1976).

Provoking thought about career planning was underlined by a number of studies (Avallone, 1974; Cole & Hanson, 1975; Holland 1973, 1976a; Prediger, 1972; Reardon et al., 1982; Talbot & Birk, 1979.) This offers another measure of credibility to the "Stimulates career deliberation" category.

The "Narrows focus" category drew support from many of the same studies which stressed the need to give the search for a career a certain direction by narrowing the focus (Cole & Hanson, 1975; Holland, 1974, 1976a; Prediger, 1972; Talbot & Birk, 1979). They found that the SDS, similar to other types of interest measures, also measured current choice. The category "Confirms or justifies choice" falls into this domain of

reassurance. Other studies also reaffirm this (Cole & Hanson, 1975; Holland, 1974; 1976a; Prediger, 1972; Reardon, et al., 1982; Zener & Schnuelle, 1982).

Holland's view of career decision which stands behind the SDS, seems to be reflected in the facilitative categories uncovered by the students interviewed. The three matching categories (Matching capabilities to jobs, Matches interests to jobs and Matches interests and capabilities to jobs) parallel Holland's stress on matching personality and occupation.

The seven hindering categories were not reported as such in the studies surveyed. The literature points to sex-related biases and lack of scoring reliability as the two main criticisms of the SDS.

Generally, however, the literature seems to support the various categories in both CHOICES and the SDS thereby lending independent support to validate these categories.

Validity as Usefulness

Another aspect of validity is usefulness. This was inspected by two means; by personally interviewing three counsellors with extensive experience with CHOICES and the SDS, and by sending a questionnaire (see Appendix

N), based on the categories found in this study, to 126 schools.

Three counsellors, experienced with CHOICES and the SDS, were interviewed extensively and were presented with the results of this study in the form of maps and safeguards (Appendix K, L, and M). They were asked whether the categories would be useful in anticipating what each program does and what could be done to better prepare prospective students.

The counsellors expressed their reassurance that the students appreciated the worthwhileness of CHOICES. More importantly, not only were students concentrating their energies on planning a career, but they were also learning the career planning process as evidenced by these maps.

While acknowledging the validity of most of the categories, they did underline the weakness of the "Future of jobs" category. They felt that the students were not given enough up-to-date or current information to properly validate future job prospects. The Safeguards section, however, was emphasized for its usefulness in implementing the program. Two CHOICES training instructors also stressed the utility of the Safeguards section in training prospective counsellors. This independent confirmation as to what CHOICES

actually does balances and adds weight to the theoretical aspects of the counsellor preparation.

As for the SDS, the counsellors also generally agreed with the various categories found. They stressed the clarity and specificity that each section of the test elicits from students. Having a clearer picture of what the test does helps them in preparing students for the intervention. They were not surprised by any of the SDS categories. The SAFEGUARDS section was especially appreciated as it would be applicable to forewarning students to the fuzzier aspects of the SDS.

Counsellor reaction to the OTHER section, that is, what else could be done to help students plan their career, was enthusiastic. They plan to use the list to implement or safeguard existing programs. They were especially gratified to see the "Start planning sooner" category.

A second means of inspecting the usefulness of the categories of CHOICES and the SDS was through a questionnaire sent to 126 schools, listed as having CHOICES, from the Lower Mainland of British Columbia. This questionnaire attempted to elicit from experienced practitioners (see table 7) whether they agreed, disagreed or were undecided about the various categories distilled from this study. That is, they were asked

whether they thought that their students would generate similar categories (Appendix E).

As can be observed from Tables 8 and 9 (pp.136-138), the counsellors generally agreed with the category system for both programs. Their reaction was quite similar to the three counsellors interviewed. Specifically, they had strong agreement with the CHOICES facilitative categories (Table 8, p.136) except for the "Judges future of jobs" category. The three counsellors interviewed also expressed their reservation concerning this category. This finding might be interpreted in a variety of ways. It would seem that, according to the counsellors, this category does not fit in the CHOICES program. However, this is precisely where the critical incidence technique offers its richness. Referring to the source of the category, the actual incidents, one can detect the solid foundation of the 14 incidents (Table 1, p.50) that comprise the category. The students emphasized that it was comforting and facilitative to their career planning knowing if an occupation will be in demand. Paradoxically, some students also expressed disbelief concerning the future of some occupations and described this as less helpful to their career planning, as evidenced by the hindering category "Unreliable occupational information."

This problem is stressed in the Safeguards section. This is a nice illustration of the critical incident technique. It doesn't average out differences, but rather underlines them and one gets a clearer picture of actually what happened and why.

Turning to the remaining hindering categories for CHOICES, the only agreement offered by the counsellors was for the "Needing more options" category. This close to unanimous support for CHOICES seems to suggest that the counsellors do not really find that much that hinders or is not helpful with CHOICES. In the facilitative and hindering categories for the SDS, the counsellors again expressed their general agreement.

Table 7

Years of experience of counsellors responding to questionnaire

Years of experience:	1	4	3	4	5	6	7	not indicated	TOTAL
Experience with CHOICES only:	0	9	7	5	4	1	2	4	32
Experience with SDS only:	0	0	0	0	0	0	1	0	1
Experience with both CHOICES:	2	0	7	8	5	2	4	1	28
SDS :	1	4	3	4	5	3	7	1	(28)

Number of questionnaires answered : 61
 Number of questionnaires returned unanswered: 3
 TOTAL returned : 64
 TOTAL sent : 126
 Percentage of returned : 50.8%
 Average years experience : 4.2yrs

Table 8

Summary of counsellors reaction to the CHOICESCategoriesC H O I C E S

<u>Facilitative Categories</u>	<u>Agree</u>	<u>Disagree</u>	<u>Undecided</u>
1. Expands general options	54	1	5
2. Expands job options in a specific field	45	6	9
3. Narrows focus	44	11	5
4. Answers specific questions	46	9	5
5. Judges future of jobs	17	28	15
6. Provides reference for future planning	50	4	6
7. Considers occupational requirements	50	2	8
8. Stimulates consideration of extrinsic work features (salary, hours, etc.)	51	4	5
9. Clarifies likes	51	3	6
10. Clarifies capabilities and aptitudes	31	14	15
11. Matches interest and aptitudes	38	10	12
12. Confirms choices	36	4	20

13. Disconfirms choices	19	15	26
<u>Hindering categories</u>			
1. Lack of information	17	33	10
2. Useless information	9	42	9
3. Unreliable occupational information	13	33	14
4. Fails to confirm a prior choice	10	27	18
5. Puzzling and inappropriate job options	20	30	10
6. Questionable basis for narrowing jobs	19	27	14
7. Needs more options	39	11	10
8. Rushed on terminal	9	49	2
9. Machine malfunction	16	41	3

Any other category you would like to add

none

Table 9

Summary of counsellors reaction to the SDS categoriesS E L F D I R E C T E D S E A R C H

<u>Facilitative Categories</u>	<u>Agree</u>	<u>Disagree</u>	<u>Undecided</u>
1. Expands general job option	27	1	1
2. Expands job options in a specific field	17	8	4
3. Narrows focus	19	4	6
4. Guides information search	27	1	1
5. Considers educational requirement	14	14	1
6. Confirms or clarifies likes and dislikes	25	3	1
7. Confirms or discovers capabilities or incapabilities	9	14	6
8. Stimulates deliberation	26	2	1
9. Understanding oneself over time	19	4	6
10. Find out where to improve	9	11	9
11. Matches capabilities to jobs	12	12	5
12. Matches interest to jobs	27	2	0
13. Matches interest and capabilities to jobs	15	9	5

14. Confirms or justifies choice	20	4	7
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Hindering categories

1. Lack or misleading			
occupational information	15	8	5
2. Misidentification/misdirection			
of interests	6	13	10
3. Irrelevance of some items	12	6	10
4. Unreliability of			
self-estimates	21	11	3
5. Fails to provide specific			
direction	12	11	4
6. Need expansion of options			
finder	26	2	0
7. No new information	15	4	8

Any other category you would like to add

 none

In summary, a number of issues regarding the reliability and the validity of the categories have been examined ranging from the trustworthiness by independent judges, the comprehensiveness of the categories, the level of abstraction, the basis of categorization, the position of the reporters, the agreement with research, and the usefulness for counsellors. Generally, these have been successfully resolved. Therefore, there is some warrant for the reliability and validity of these categories.

CHAPTER 8

Discussion

The purpose of this study was to improve the practice of career counselling and in particular to ameliorate the use of two prominent interventions. This was accomplished through the categorization of process events that take place within CHOICES and the SDS. This categorization enables practitioners to anticipate what the outcomes will be and to build in safeguards. A critical assessment of the contribution is outlined in the following pages including limitations of the study, implications for practitioners and implications for further research.

Specifically, for CHOICES, critical incident interviews resulted in 218 reported events that facilitate and 64 events that hinder (or do not help) career planning. For SDS, there were 298 that facilitate and 96 that hinder career planning. The incidents for CHOICES were reduced to thirteen facilitative and nine hindering categories, while the SDS incidents were reduced to fourteen facilitative and seven hindering categories. Independent judges were able to reliably use

these categories to place incidents. This would indicate that the categories were a reasonable representation of events. That is, the categories for each program provide a map of what each program does to help or not help career planning (Appendix K, L and M). A qualitative comparison between the two category systems reveals some overlap, but largely the interventions seem to facilitate career planning in distinctive ways. CHOICES seems to stress reality constraints, specificity and extrinsic work features. SDS, in contrast, seems to stress self-awareness and understanding of the matching process.

Limitations

There are several limitations to consider in interpreting the results. First, the students who participated in this experiment were volunteers. Each had enrolled in a career guidance course. While there is no salient reason for believing that generalizations cannot be made to students of a similar socio-cultural background, generalizations are premature and would be better made on the basis of other kinds of research.

Second, a person can only report as facilitative or hindering those events that he or she is aware of or recognizes as important. The events reported were

limited by students' awareness and by their capability for recognizing significant events. Both programs might facilitate or hinder career planning in ways that were beyond the students' capacity to report.

Third, there is a difference between a category system and the particular categories within a system. The present study involves an attempt to establish a reasonably clear and comprehensive category system for each career intervention. The various procedures used to assess reliability and validity were also concerned with the categories as a whole. What this means is that the validity and significance of each category has yet to be demonstrated. For example, the category of "understanding oneself over time" for the SDS may or may not be important in career planning. Two types of studies would have to be done to determine its significance. First, it would have to be shown that an improved understanding of self over time was related to improvements in career planning. Second, it would have to be shown that the SDS produced understanding frequently enough or in sufficient depth to affect career planning. At present, the evidence provides indications of the strength of particular categories, but much more would have to be done to assess their relative priority or significance in career planning.

Implications

Theoretically, the results tend to confirm a number of general concepts in the field of career counselling. For example, the categories concerned with matching such as "Matches interests and attitudes to jobs" support trait-factor theorists who emphasize matching a person's traits to job conditions (Parson, 1909; Williamson & Bordin, 1941). Other categories such as "Understand one self over time", "Find out where to improve" and confirmation categories support developmental theorists such as Super (1957) and Ginzberg (1972). The "stimulates consideration of extrinsic work features" category supported the notion that it is important in helping people think about their careers (Wooler & Wisudhua, 1985). In general, what people report as facilitating incidents tend to support a broad range of factors which counselling psychologists have traditionally claimed to be beneficial.

Methodologically, the use of the critical incident technique for program evaluation is rather novel. Studies of career programs have tended to be arbitrary and disjointed. Researchers have traditionally focused on a number of variables to discover if any change occurs. The typical research design of pre-test,

intervention and post-test has not tended to add up in a coherent fashion. Ballantine (1986) concludes that it would be appropriate to evaluate CACGS as value analysis. This could be done with a qualitative type of evaluation similar to this critical incident based study. Generally, practitioners lack a map of what the intervention actually does to help people in career planning. In this context, the critical incident technique offers three advantages.

First, as the results indicate, it offers a reasonably broad map of facilitative events that occur in a program. Second, it provides grounds for distinguishing programs. For example, CHOICES, SDS and other programs are often treated as rivals, as if they were designed for the same purpose. A recent comparison of CHOICES and SDS does not reveal distinct differences on appreciation, on narrowing and other variables (Reardon et al., 1982). However, a careful consideration of the categories for each intervention indicates that these programs are quite distinct. The categories give the advantage of seeing the intervention as it is, rather than how it performs against an artificial criteria. In this way, a qualitative comparison can be made. The two sets of categories can be freely compared on their own merit. If the two sets of categories are

similar, then a quantitative comparison can be made.

Third, the structure of the categories seems to mirror the logic of the programs. Each program has a plot or a plan. For example, SDS clarifies an occupational code and then uses that code to narrow occupational fields and expand options in one or more fields. The major steps in a program tend to be viewed as important events that, after careful consideration, one could conceivably anticipate what people would report as facilitative. As another example, the developer of CHOICES decided upon an interactive rather than a batch system to allow people to ask specific questions and receive an immediate response. And, as might have been anticipated, people reported positive events in being able to get specific answers to their questions. What this suggests, is that a number of investigations tend to go astray by testing variables that the program was not designed to facilitate. For example, why should the worth of SDS rests upon whether or not it promotes information search? Or that the evaluation of CHOICES depends upon an increase in career maturity, however that is defined? While it might be interesting to know how these variables rate in each program, these questions tend to overlook what a program does do and was intended to do. There seems to be a

misleading emphasis upon variables that are less relevant to each program. In contrast, the categorical maps are very common-sensical. They ground program effectiveness in what is most obvious and reasonable. This serves perhaps as a reminder that it can be rather irrelevant to base effectiveness upon theoretical variables that were not built into the program design.

Practically, there are two major implications. First CHOICES and SDS emerge from this study as quite different interventions as illustrated in chapter six. Some of the differences include that CHOICES stresses ease of access to specific information while the SDS generalizes, that the SDS seems much more concerned and effective in cultivating self-awareness than CHOICES, and that CHOICES seems to be able to confirm or disconfirm a prior choice with more credibility than the SDS (see Appendix O for a graphic comparison).

Therefore, CHOICES seems more appropriate for planning and specific decisions regarding options while the SDS seems more valuable for general exploration, understanding and decisions regarding fields. One tends to move from the general to the specific in career planning. It follows that it would be advantageous to complete the SDS prior to CHOICES.

Second, the category systems provide maps of each

intervention that allow a counsellor to anticipate how each is apt to facilitate or hinder a client's progress. One practical advantage of maps such as these, is a more informed basis for placing each program within a larger career program. A counsellor would be in a better position to coordinate other interventions to supply lacks or fill gaps. Another advantage to these maps is a more informed basis for program selection to meet a client's particular situation. For example, if specific information was a prominent need, CHOICES would be an appropriate intervention. If general exploration was required, the SDS would be convenient. A third practical advantage of maps is that a counsellor can strive to maximize program benefits and minimize detriments. To facilitate full use of a program, one can prepare clients more appropriately. For example, a summary of safeguards for CHOICES is to:

1. underline the importance of the Travel Guide, especially the clause "This doesn't matter to me" which enables the client to bypass the feature.
2. give a clear example of how the computer reduces its bank of 1114 occupations to 25, stressing a bargaining mentality.
3. inform clients of the meaning of the starred occupations, how to research an occupation using the

CCDO number and the lack of college information.

4. teach clients how to backtrack, to discover how one answered the questions and why the prior choice is confirmed or disconfirmed. This also emphasizes Herr's (1985) conclusion that people can negotiate their own future.

5. stress the old computer adage "garbage in, garbage out."

6. encourage an attitude of experimentation, of bargaining, of accessing other routes and rescheduling more time.

7. forewarn clients of the lack of updating and to overlook discrepancies in salary level and in employment outlook.

8. warn clients that just because a computer has suggested certain occupations, it doesn't mean they can only research those. This is to counter-balance the popular view that if it's from a computer, it must be more legitimate (Herr & Best, 1984; Loesch, 1986; Sampson & Pyle, 1983).

9. use only in conjunction with a qualified counsellor (Engels, Caulum, & Sampson, 1984).

Corresponding safeguards for the SDS are to:

1. delineate ways of multiplying options in the finder such as letter code rearrangement and utilization

of the CCDO number.

2. stress the need to show self-estimates to family and friends.

3. lower expectations by insisting on the generality of the instrument, that it is not designed to predict the specific job, only the direction.

4. read Holland's four safeguards to the client (Holland, 1979, p. 4-5).

5. describe the numerical system of the educational levels.

Implications for Future Research

There are several possibilities for future research in this area. First, future studies would be desirable to validate and refine the categories. Also, the comprehensiveness of each categorical map requires further investigation.

Second, assuming the categories are sound and reasonably comprehensive, it would be possible to develop norms for each intervention. That is, norms might illustrate, for example, the percentage of people who have had their career planning facilitated by the "Answers specific questions" category in CHOICES. Or norms might differentiate the percentages of various age

groups that were helped by particular categories. In this way, one can determine what is most probable and least probable.

Third, the categories can serve as scales to evaluate program effectiveness. One method, adapted from Flanagan's (1978) work on the quality of life, is a pre-test, post-test evaluation. Before the actual intervention, clients can rate the importance of each category for their career planning. After the intervention, clients can rate their degree of satisfaction with the help they received in each category. For example, the client, before accessing CHOICES, answers the question, How important is the category "Clarifies interest" to you? Then, after CHOICES, How satisfied are you with the help you received in clarifying your interests? It would seem that this would generate a direct evaluation of the program.

Fourth, is the effectiveness of each intervention enhanced when people are properly prepared to maximize benefits and minimize detriments? Can counsellors enhance effectiveness by the way people are prepared for them?

Last, if enough programs or even life histories, (for example Passages by Sheehy, 1976), were

investigated, a very comprehensive list of what facilitates and hinders career planning could be established. Conceivably, such a list would help to organize the field of career development more broadly and more coherently. There would be a broader possibility for an orderly, coordinated development and/or use of programs to facilitate career planning and a broader base for theories of career development.

Summary

The purpose of this study was twofold. First, the CHOICES career planning computer program was evaluated by interviewing 35 grade 11 and 12 students using the critical incident technique, reports were elicited of what facilitated or hindered their career planning. These collected incidents were categorized by similarity to provide a map of what the program does to help or hinder career planning. This map potentially enables counsellors to capitalize on benefits and to minimize possible detriments.

Secondly, this map was qualitatively compared to a similar evaluation of the SDS. Overall, it was found that the two interventions have differing advantages and disadvantages. CHOICES stresses reality constraints,

specificity and extrinsic work features. The SDS underlines self-awareness and an understanding of the matching process. It seems that CHOICES is more appropriate for planning and specific decisions regarding options while the SDS tends to focus on general exploration and decisions regarding fields.

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Appendix A

COMPUTER-BASED GUIDANCE SYSTEMS

1. Computer-Assisted Career Exploration System (CACE).
2. Educational and Career Exploration System (ECES)
3. Computerized Vocational Information System (CVIS)
4. Oregon Career Information System (CIS)
5. System of Interactive Guidance and Information
(SIGI)
6. Information System for Vocational Decision (ISVD)
7. Guidance Information System ((GIS)
8. Computer-Based Career Development System (DISCOVER)
9. Computer-Assisted Career Guidance Program (CVIS
technology)
10. Wisconsin Occupational Information System (WOIS)
11. Michigan Occupational Information System (MOIS)
12. Student Guidance Information Services (SGIS)
13. Computerized Career Information System (CCIS)
14. Education and Career Exploration systems (ECES 111)
15. Alabama Occupational Information System (AOIS)
16. Oregon Occupational Information Accessing System
(OIAS)
17. Vocational Information through Computer Systems
(VICS)

18. Vocational Information Service for Alberta (VISA)
 19. Computer Assisted Career Counselling System (CAGCS)
 20. Automated Client Information System (ACIS)
- (Guerette, 1980; Jarvis, 1976)

Appendix B

ROUTES TO INFORMATION

1. **INTEREST:** People who work in the same occupation often share basically the same types of interest. This route makes it possible for clients to compare their interests to those typical of workers in each occupation.
2. **APTITUDES:** Each occupation requires a unique set of abilities of aptitudes. Using this route, clients compare several of their abilities with those typical of each CHOICES occupation.
3. **TEMPERAMENTS:** The temperament factors used in CHOICES are really descriptions of widely different types of work situations. By using this route, clients can see how their preferences suit them for various occupations.
4. **EDUCATION LEVEL:** This route provides information about the minimum acceptable level of formal education required for entrance into an occupation.
5. **ENVIRONMENTAL CONDITIONS:** Many occupations require people to work under physical conditions that some people would consider unpleasant. This route allows clients to identify occupations that suit their

needs in this respect.

6. FUTURE OUTLOOK: The requirement for workers in some occupations is declining while others there is a pressing need. Clients use this route to discover the supply/demand situations in any of the CHOICES occupations.
7. EARNINGS: For some people, the amount of money they expect to earn is an important consideration. This route allows clients to discover the average yearly earnings in each CHOICES occupation.
8. HOURS OF WORK/TRAVEL: Clients use this route to determine the work schedule characteristic of an occupation.
9. PHYSICAL NEEDS: The levels of physical exertion vary greatly among occupations. This route allows clients to identify how much strength they are prepared to use in an occupation.
10. PHYSICAL ACTIVITIES: Some people are either unwilling or unable to perform some types of physical activities. Through this route, clients are provided with information about those activities that form a regular part of the work.
11. INDOOR/OUTDOOR CONSIDERATIONS: This route enables clients to see how occupations satisfy their preference for working inside, outside or both.

12. OCCUPATIONAL FIELDS: All the occupations in CHOICES have been grouped in 22 general occupational fields. If clients have clear ideas about the fields for which they are best (or least) suited, this route should be useful.

Appendix C

ROUTES

A. TOPICS ALL FOUR ROUTES HAVE (Explore, specific, compare, related)

- | | |
|--------------------|---------------------|
| 1. Interests | 5. Future outlook |
| 2. Aptitudes | 6. Earnings |
| 3. Temperaments | 7. Physical demands |
| 4. Education level | 8. Inside/outside |

B. TOPICS FOR EXPLORE, SPECIFIC, COMPARE

- | | |
|-----------------------------|------------------------------|
| 9. Environmental conditions | 10. Hours of work/
travel |
| 11. Physical activities | |

C. TOPICS FOR SPECIFIC AND COMPARE

- 12. Training required
- 13. Summary of work
- 14. Similar occupations

D. TOPICS FOR EXPLORE

12. Occupational fields

E. TOPICS FOR RELATED

9. Occupational fields

Appendix D

CONSENT FORM

This research project was designed by Dr. Larry Cochran and Chuck Provost from the University of British Columbia to find out more specifically how CHOICES and the Self-Directed Search help in career planning. The results might be used by counsellors to prepare students more to take advantage of benefits and to safeguard against detriments.

In this study, you will be asked how your involvement in CHOICES or in The Self-Directed Search benefitted you in your career planning. You may withdraw from the study at any time without prejudice. You may also refuse to answer any question. The interview will be tape recorded unless you prefer otherwise. The tape will allow us to study your comments and to extract a summary of the experiences you describe. When extractions of information have been made, the tape will be erased. All information you provide will be treated with confidence and will be used anonymously for research purposes. Refusing will, in no way, jeopardize your school standing or access to school counselling services. Final results of this study will be made

available to the counsellors at McNair to enable them to benefit from the study.

Your participation is greatly appreciated. Please sign below and check the appropriate line. Thank you.

I consent _____

I do not consent _____

(parent's signature)

(student's signature)

Appendix E

CATEGORIES

CHOICES (Facilitative categories)

1. Considers educational requirements
2. Expands general job options
3. Expands job options in a specific field
4. Narrows focus
5. Stimulates consideration of extrinsic work features
6. Answers specific questions
7. Judges future of jobs
8. Provides references for future planning
9. Clarifies interests
10. Clarifies capabilities and aptitudes
11. Matches interests to jobs
12. Confirmation of choice
13. Disconfirmation of choice

CHOICES (Hindering categories)

1. Lack of information
2. Fails to confirm a prior choice
3. Useless information
4. Unreliable occupational information
5. Puzzling and inappropriate job options
6. Questionable basis for narrowing jobs
7. Needed more options
8. Rushed on terminal
9. Machine malfunction

SDS (Facilitative categories)

1. Considers Educational requirements
2. Expands job options
3. Expands job options in a specific field
4. Narrows focus
5. Guides information search
6. Confirms or clarifies likes or dislikes
7. Confirms or discovers capabilities or
incapabilities
8. Stimulates deliberation
9. Understands oneself over time
10. Find out where to improve
11. Matches capabilities to jobs
12. Matches interest to jobs
13. Matches interest and capabilities to jobs
14. Confirms or justifies choice

SDS (Hindering categories)

1. Lack or misleading occupational information
2. Misidentification/misdirection of interests
3. Irrelevance of some items
4. Unreliability of self-estimates
5. Fails to provide a specific direction
6. Need expansion of options
7. No new information

Appendix F

TYPES OF CATEGORIES

EACH STUDENT EXPRESSED - CHOICES

<u>Student</u>	<u>Sex-Grade-Age</u>	<u>Facilitative Categories **</u>
1	M - 12 - 17	2-2-3-5-6- -13
2	F - 12 - 17	3-5-6- 9
3	F - 12 - 17	4- 7- * <u>9</u> -10-12
4	F - 12 - 17	1-2 5-7-8- 12
5	F - 11 - 16	-2 5-7-8
6	F - 11 - 18	1-1-3-3-4-5-5-6-7-7-7-9
7	F - 12 - 17	1- 6-7- 12- * <u>13</u>
8	F - 12 - 16	2-2- 5-5-7 11
9	F - 12 - 17	3-4- 8-9
10	F - 12 - 17	2- 5-5- * <u>7</u> -8-9-12-13
11	F - 11 - 16	1-2-3 8-9-9-12-12
12	F - 12 - 17	3-4-4
13	F - 11 - 16	1- 5 -8
14	F - 11 - 16	1-1-1-1 -6
15	F - 12 - 17	2-2-3-4-5-6-8-9
16	F - 11 - 16	3-5-5-9-9-13-13
17	F - 12 - 17	2-2-3- 7-8
18	F - 11 - 16	2 5-5-5-6-8-10- * <u>11</u> -11-11
19	M - 12 - 17	1-1-1-3-3-3-5-6-7-8-11- * <u>12</u>
20	F - 12 - 17	1-1-1-2- * <u>5</u> -5-5- 12

21	F - 11 - 16	1-2-3-3-4-5- * <u>6</u> -7-7- * <u>10</u> -11
22	F - 11 - 17	* <u>1</u> -2 -5-6-8- 13
23	F - 12 - 17	3-4-5-5-6-8
24	F - 12 - 17	1-3-6 -12
25	F - 12 - 17	1-3-3-5- * <u>8</u> -9
26	F - 12 - 17	1-3- * <u>4</u> -5-6-7 -12
27	M - 11 - 16	1-1- * <u>3</u> -3-5-5-5-7
28	F - 11 - 16	2-4-4-5 -8 -12
29	F - 11 - 16	4-5-6 -9
30	F - 11 - 16	2-2-4 7-8-9-9-10-10
31	F - 12 - 17	2 5-5-6
32	F - 12 - 19	1- * <u>2</u> -4-5-7
33	F - 11 - 16	2-3
34	M - 11 - 16	2-2- 4- 6
35	F - 11 - 16	1-2- 4- 6

<u>Student</u>	<u>Sex-Grade-Age</u>	<u>Hindering Categories</u> **	<u>Other</u> **
1	M - 12 - 17	4-5-6	2-4
2	F - 12 - 17	* <u>8</u>	2
3	F - 12 - 17	5-7	3-4-5
4	F - 12 - 17	2- 6- * <u>7</u>	4
5	F - 11 - 16	6- * <u>9</u>	
6	F - 11 - 18	8	

7	F - 12 - 17		
8	F - 12 - 16	* <u>1</u> 7	1-2
9	F - 12 - 17	2-4- 6-6	1- * <u>2</u>
10	F - 12 - 17	1-2	
11	F - 11 - 16	2-3	4-5
12	F - 12 - 17		5
13	F - 11 - 16	1-2-2-6-7	
14	F - 11 - 16	* <u>2</u>	
15	F - 12 - 17	4	2
16	F - 11 - 16	2- 5- 7	1-5-6
17	F - 12 - 17	6	4-4-5
18	F - 11 - 16	2-5	1 -7
19	M - 12 - 17	7	6
20	F - 12 - 17	1-1 -6-	4- * <u>5</u>
21	F - 11 - 16		1-1 -6
22	F - 11 - 17	2-2-3-4 -8	4
23	F - 12 - 17	1-	1-1-2
24	F - 12 - 17	1-1- * <u>3</u>	2
25	F - 12 - 17	* <u>6</u>	1- 6-7
26	F - 12 - 17	2-4	1-3-3
27	M - 11 - 16	1-1-2-2	
28	F - 11 - 16	2-2	1-4-5
29	F - 11 - 16	8	1-
30	F - 11 - 16	5	1-1-1
31	F - 12 - 17		4

32	F - 12 - 19	1- * <u>5</u>	* <u>8</u>
33	F - 11 - 16		3- 6
34	M - 11 - 16	* <u>4</u> -4	8
35	F - 11 - 16	2	1-3-3-5

* Prototype

** See Appendix E for the categories

Appendix G
 TYPE OF STUDENT WHO PARTICIPATED
 IN EACH CATEGORY (CHOICES)

<u>Category</u>	<u># of incidents</u>	<u># of students</u>
1. Considers educational requirements	24	16 (46%)
2. Expands general job options	25	19 (54%)
3. Expands job options in a specific field	23	17 (49%)
4. Narrows focus	16	14 (43%)
5. Stimulates consideration of extrinsic work features	35	24 (69%)
6. Answers specific questions	17	17 (49%)
7. Judges future of jobs	16	14 (43%)
8. Provides reference for future planning	16	16 (46%)
9. Clarifies interest	14	11 (31%)
10. Clarifies capabilities		

and aptitudes	6	4 (11%)
11.Matches interests and		
aptitudes to jobs	7	5 (14%)
12.Confirmation of		
choice	13	11 (31%)
13.Disconfirmation of		
choice	6	6 (17%)

<u>Category</u>	<u>Sex-Grade-Age</u>	<u># of</u> <u>Students</u>	<u>More than</u> <u>1 incident</u>
1. Considers	F - 11 - 16	5	#14 had 4
educational	F - 11 - 17	1	
requirements	F - 11 - 18	1	#6 had 2
	F - 12 - 17	6	#20 had 3
	F - 12 - 19	1	
	M - 11 - 16	1	#27 had 2
	M - 12 - 17	1	
2. Expands general	F - 11 - 16	8	#30 had 2
job options	F - 11 - 17	1	
	F - 12 - 16	1	# 8 had 2
	F - 12 - 17	6	#15, #17 had 2
	F - 12 - 19	1	
	M - 11 - 16	1	#34 had 2

	M - 12 - 17	1	#1 had 2
3. Expands job	F - 11 - 16	4	#21 had 2
options in a	F - 11 - 18	1	#6 had 2
specific field	F - 12 - 17	9	#25 had 2
	M - 11 - 16	1	#27 had 2
	M - 12 - 17	2	#19 had 3
4. Narrows focus	F - 11 - 16	6	#28 had 2
	F - 11 - 18	1	
	F - 12 - 17	6	#12 had 2
	F - 12 - 19	1	
	M - 11 - 16	1	
5. Stimulates	F - 11 - 16	8	#18 had 3
consideration of			#16 had 2
extrinsic work	F - 11 - 17	1	
features	F - 11 - 18	1	#6 had 2
	F - 12 - 16	1	#8 had 2
	F - 12 - 17	9	#20 had 3
			#10, #31,
			#23 had 2
	F - 12 - 19	1	
	M - 11 - 16	1	#27 had 3
	M - 12 - 17	2	
6. Answers specific	F - 11 - 16	5	
questions	F - 11 - 17	1	
	F - 11 - 18	1	

	F - 12 - 17	7	
	M - 11 - 16	1	
	M - 12 - 17	2	
7. Judges future of	F - 11 - 16	3	#21 had 2
jobs	F - 11 - 18	1	#6 had 2
	F - 12 - 16	1	
	F - 12 - 17	6	
	F - 12 - 19	1	
	M - 11 - 16	1	
	M - 17 - 17	1	
8. Provides	F - 11 - 16	6	
reference for	F - 11 - 17	1	
future planning	F - 11 - 18	1	
	F - 12 - 17	7	
	M - 12 - 17	1	
9. Clarifies	F - 11 - 16	4	#11, #16
interest			#30 had 2
	F - 11 - 18	1	
	F - 12 - 17	6	
10. Clarifies	F - 11 - 16	3	#30 had 2
capabilities	F - 12 - 17	1	
and aptitudes			
11. Matches interests	F - 11 - 16	2	#18 had 3
and aptitudes	F - 12 - 16	1	
to jobs	F - 12 - 17	1	

	M - 12 - 17	1	
12. Confirmation of	F - 11 - 16	4	#11 had 2
choice	F - 12 - 17	6	#10 had 2
	M - 12 - 17	1	
13. Disconfirmation	F - 11 - 16	1	#16 had 2
of choice	F - 11 - 17	1	
	F - 12 - 17	2	
	M - 12 - 17	1	

CHOICES Hindering

<u>Category</u>	<u># of incidents</u>	<u># of students</u>
1. Lack of information	11	8 (23%)
2. Useless information	17	13 (37%)
3. Unreliable occupational information	3	3 (9%)
4. Fails to confirm a prior choice	7	6 (17%)
5. Puzzling and inappropriate job options	6	6 (17%)
6. Questionable basis for narrowing jobs	9	8 (23%)
7. Needs more options	6	6 (17%)

8. Rushed on terminal	4	4 (11%)
9. Machine malfunction	1	1 (3%)

CHOICES Hindering

<u>Category</u>	<u>Sex-Grade-Age</u>	<u># of</u> <u>Students</u>	<u>More than</u> <u>1 incident</u>
1. Lack of information	F - 11 - 16	1	
	F - 12 - 16	1	
	F - 12 - 17	4	#20, #21 had 2
	F - 12 - 19	1	
	M - 11 - 16	1	#27 had 2
2. Useless information	F - 11 - 16	7	#13, #28 had 2
	F - 11 - 17	1	#22 had 2
	F - 12 - 17	4	
	M - 11 - 16	1	#27 had 2
3. Unreliable occupational information	F - 11 - 16	1	
	F - 11 - 17	1	
	F - 12 - 17	1	
4. Fails to confirm a prior choice	F - 11 - 17	1	
	F - 12 - 17	3	
	M - 11 - 16	1	#34 had 2
	M - 12 - 17	1	
5. Puzzling and	F - 11 - 16	3	

inappropriate	F - 12 - 17	1	
job options	F - 12 - 19	1	
	M - 12 - 17	1	
6. Questionable	F - 11 - 16	2	
basis for	F - 12 - 17	5	#9 had 2
narrowing jobs	M - 12 - 17	1	
7. Needs more	F - 11 - 16	2	
options	F - 12 - 16	1	
	F - 12 - 17	2	
	M - 12 - 17	1	
8. Rushed on	F - 11 - 16	1	
terminal	F - 11 - 18	1	
	F - 11 - 17	1	
	F - 12 - 17	1	
9. Machine	F - 11 - 16	1	
malfunction			

Appendix H

TYPES OF CATEGORIES

EACH STUDENT EXPRESSED - SDS

<u>Student</u>	<u>Sex-Grade-Age</u>	<u>Facilitative Categories **</u>
36	M - 12 - 19	2-2
37	M - 12 - 17	2- 6-7-7-8- * <u>2</u> -14
38	F - 11 - 17	1-2-3-4-7-9-14
39	M - 11 - 16	2- 7- 14-14
40	F - 11 - 16	2-2-4-7-9- * <u>10</u> -14- * <u>14</u>
41	F - 11 -17	1-2-2-2-6-6- * <u>7</u> -13-14
42	M - 11 - 16	1-2- 6-7-8-11
43	F - 11 - 16	2-3-3-4-4-4- * <u>6</u> -6-7-8-10-11 -12
44	M - 12 - 18	
45	M - 11 - 16	* <u>3</u> -6-6-6-8- * <u>11</u> -11-11-12
46	M - 12 - 19	-6-8-11-11
47	F - 12 - 17	* <u>1</u> -2-2-2-2-2-2- * <u>2</u> - * <u>2</u> -4 * <u>4</u> - * <u>5</u> -6-7-8-8- * <u>8</u> -10-11- 11-14
48	F - 11 - 16	* <u>2</u> -2-2-2-4-4-6-7-9-10-13
49	F - 11 - 17	1-2-2- * <u>4</u> -4-6-6-7-12-12- 12-14
50	F - 12 - 19	1-2-3-4-4-8-11-11-13
51	F - 12 -17	2-2-4-11-12-12-12-12-14

52	M - 11 - 17	2-2-6-10-11-11- * <u>12</u> -12-12
53	M - 11 - 17	2-2-4-4-4-6-7-11-14-14
54	F - 12 - 17	1-2-2-4-4-6-6-6- * <u>10</u> -10-12 -12-14-14-14
55	F - 11 - 16	1-1-2-2-7- * <u>11</u> -11
56	M - 11 - 16	1- * <u>2</u> -2-4-4-4-4-7-11
57	M - 12 - 17	1-3-3- * <u>7</u> -8-10- * <u>13</u>
58	F - 12 - 17	1-2-2-4- * <u>4</u> -6-7-8-12-12-12
59	F - 11 - 17	1-2-6-9-10- * <u>10</u>
60	M - 11 - 16	2-2-3-6-7-11
61	F - 11 - 17	2- * <u>4</u> -4-4-7-7-8-9-10-10-10 -11-12-12
62	F - 11 - 16	4-4-4-6-7-7-7-8-12
63	M - 11 - 16	3-3-4-7-9-10-12
64	F - 12 - 19	2 -11-13
65	F - 11 - 15	1-2-3-4-4-4-7-7-8-11-11
66	F - 12 - 18	2-4-4-14
67	M - 11 - 16	1-2-2-4-7-7-9-10-10 -13-13-13
68	F - 11 - 16	2-4-6-7-7-11-12- * <u>14</u>
69	F - 11 - 15	2-2-2-2-4-4-6-11-11
70	F - 11 - 16	2-2-4-6-6-7-7-10-14

* Prototype

** See Appendix E for categories

<u>Student</u>	<u>Sex-Grade-Age</u>	<u>Hindering Categories</u>	<u>** Other**</u>
36	M - 12 - 19	3-4	3-6
37	M - 12 - 17	1- 5-5-5-	* <u>3</u>
38	F - 11 - 17	7- * <u>7</u>	
39	M - 11 - 16	5-6	1
40	F - 11 - 16	* <u>1</u> -2-2-4-5-5-6	* <u>1</u> -3-4
			-5
41	F - 11 -17	4	1-3-5
42	M - 11 - 16	3-6	
43	F - 11 - 16		5-6
44	M - 12 - 18	5-5-6-6-7	9-
45	M - 11 - 16	* <u>2</u> -4-6- * <u>6</u>	
46	M - 12 - 19	2-4-4-4-6-6-	
47	F - 12 - 17	1- 4-5-	
48	F - 11 - 16	* <u>5</u> -5-5-5-5	2-
49	F - 11 - 17	2-2-4-5-5-6-6-	
50	F - 12 - 19	2- 4-5-6-	2-
51	F - 12 -17	2-3-6-	
52	M - 11 - 17	4-4	
53	M - 11 - 17	4-4-6-7	
54	F - 12 - 17	6-	1-1-3-
55	F - 11 - 16	3-3-3-6-	2-
56	M - 11 - 16	1- 5-	2-
57	M - 12 - 17		3-
58	F - 12 - 17	5-	2-3-6

59	F - 11 - 17	* <u>1</u>	1- * <u>4</u>
60	M - 11 - 16	* <u>4</u> -4-4-4-4-6	4
61	F - 11 - 17	1-3-6-6-	
62	F - 11 - 16	2-5-	3-
63	M - 11 - 16	2-	
64	F - 12 - 19	1-	2-3
65	F - 11 - 15		3-
66	F - 12 - 18	6-	3-3-* <u>7</u>
67	M - 11 - 16		2-3-3
68	F - 11 - 16	1-1 4-4-	1-3-5
			-* <u>6</u>
69	F - 11 - 15	2- * <u>3</u> -3-	1-
70	F - 11 - 16	2-2-4-4-4-5-	1-

* Prototype

** See Appendix E for categories

Appendix I
 TYPE OF STUDENT WHO PARTICIPATED
 IN EACH CATEGORY (SDS)

<u>Category</u>	<u># of incidents</u>	<u># of students</u>
1. Considers educational requirements	15	14 (40%)
2. Expands general job options	57	29 (83%)
3. Expands job options in a specific field	11	8 (23%)
4. Narrows focus	42	21 (60%)
5. Guides information search	2	2 (6%)
6. Confirms or clarifies likes and dislikes	28	19 (54%)
7. Confirms or discovers capabilities or incapabilities	31	23 (66%)
8. Stimulates deliberation	14	12 (34%)
9. Understanding oneself over time	8	8 (23%)

10. Find out where to		
improve	17	12 (34%)
11. Matches capabilities		
to jobs	25	17 (49%)
12. Matches interest to		
jobs	22	11 (31%)
13. Matches interest		
and capabilities		
to jobs	8	6 (17%)
14. Confirms or justifies		
choice	18	13 (37%)

<u>Category</u>	<u>Sex-Grade-Age</u>	<u># of</u>	<u>More than</u>
		<u>Students</u>	<u>1 incident</u>
1. Considers	F - 11- 15	1	
educational	F - 11 - 16	1	#45 had 2
requirements	F - 11 -17	4	
	F - 12 - 17	3	
	F - 12 - 19	1	
	F - 11 - 16	3	
	M - 12 - 17	1	

2. Expands general	F - 11 - 15	2	#69 had 4
job options	F - 11 - 16	6	#48 had 4
			#40, #55,
			#70 had 2
	F - 11 - 17	5	#41 had 3,
			#49 had 2
	F - 12 - 17	4	#47 had 8.
			#51, #54,
			#58 had 2
	F - 12 - 18	1	
	F - 12 - 19	1	
	M - 11 - 16	5	#56, #60,
			#67 had 2
	M - 11 - 17	2	#52, #53
			had 2
	M - 12 - 17	1	
	M - 12 - 19	1	#36 had 2
3. Expands job	F - 11 - 15	1	
options	F - 11 - 16	1	#43 had 2
in a specific	F - 11 - 17	1	
field	F - 12 - 19	1	
	M - 11 - 16	3	#63 had 2
	M - 12 - 17	1	#57 had 2
4. Narrows focus	F - 11 - 15	2	#65 had 3;
			#69 had 2

	F - 11 - 16	6	#43, #62 had 3 #48 had 2
	F - 11 - 17	3	#61 had 3; #49 had 2
	F - 12 - 17	4	#47, #54, #58 had 2
	F - 12 - 18	1	#66 had 2
	F - 12 - 19	1	#50 had 2
	M - 11 - 16	3	#56 had 4
	M - 11 - 17	1	#53 had 3
5. Guides	F - 12 - 17	1	
information	M - 11 - 16	1	
search			
6. Confirms or	F - 11 - 15	1	
clarifies	F - 11 - 16	5	#43, #70 had 2
likes and	F - 11 - 17	3	#41 had 3; #49 had 2
dislikes	F - 12 - 17	3	#54 had 3
	M - 11 - 16	2	#45 had 3
	M - 11 - 17	3	
	M - 12 - 17	1	
	M - 12 - 19	1	

7. Confirms or	F - 11 - 15	1	
discovers	F - 11 - 16	7	#62 had 3;
capabilities or			#68, #70
incapabilities			had 2
deliberation	F - 11 - 17	4	#61 had 2
	F - 12 - 17	2	
	M - 11 - 16	6	#67 had 2
	M - 11 - 17	1	
	M - 12 - 17	2	#37 had 2
9. Understanding	F - 11 - 16	2	
oneself	F - 11 - 17	3	
over time	M - 11 - 16	2	
	M - 12 - 17	1	
10. Find out where	F - 11 - 16	4	
to improve	F - 11 - 17	2	#61 had 3;
			#59 had 2
	F - 12 - 17	2	#54 had 2
	M - 11 - 16	2	#67 had 2
	M - 11 - 17	1	
	M - 12 - 17	1	
11. Matches	F - 11 - 15	2	#65 had 2
capabilities	F - 11 - 16	3	#55 had 2
to jobs	F - 11 - 17	1	
	F - 12 - 17	2	#47 had 2
	F - 12 - 19	2	#50 had 2

	M - 11 - 16	3	#45 had 3
	M - 11 - 17	3	#52 had 2
	M - 12 - 19	1	#46 had 2
12. Matches	F - 11 - 16	3	
interest to	F - 11 - 17	2	#49 had 3;
jobs			#61 had 2
	F - 12 - 17	3	#51 had 4;
			#58 had 3
			#54 had 2
	M - 11 - 16	2	
	M - 11 - 17	1	#52 had 3
13. Matches	F - 11 - 16	1	
interest and	F - 11 - 17	1	
capabilities	F - 12 - 19	2	
to jobs	M - 11 - 16	1	#67 had 3
	M - 12 - 17	1	
14. Confirms or	F - 11 - 16	3	#40 had 2
justifies	F - 11 - 17	3	
choice	F - 12 - 17	3	#54 had 3
	F - 12 - 18	1	
	M - 11 - 16	1	#39 had 2
	M - 11 - 17	1	#53 had 2
	M - 12 - 17	1	

SDS HINDERING

<u>Category</u>	<u># of incidents</u>	<u># of students</u>
1. Lack of misleading information	9	8 (23%)
2. Misidentification / misdirection of interests	13	10 (29%)
3. Irrelevance of some items	9	9 (17%)
4. Unreliability of self-estimates	24	13 (37%)
5. Fails to provide specific direction	21	12 (34%)
6. Need expansion of options in finder	20	15 (43%)
7. No new information	4	3 (8%)

<u>Category</u>	<u>Sex-Grade-Age</u>	<u># of</u> <u>Students</u>	<u>More than</u> <u>1 incident</u>
1. Lack of	F - 11 - 16	2	#68 had 2
misleading	F - 11 - 17	2	
information	F - 12 - 17	1	
	F - 12 - 19	1	

	M - 11 - 16	1	
	M - 12 - 17	1	
2. Misidentification /			
misdirection of	F - 11 - 15	1	
interests	F - 11 - 16	3	#40, #70
			had 2
	F - 11 - 17	1	#49 had 2
	F - 12 - 17	1	
	F - 12 - 19	1	
	M - 11 - 16	2	
	M - 12 - 19	1	
3. Irrelevance of	F - 11 - 15	1	#69 had 2
some items	F - 11 - 16	1	#55 had 3
	F - 12 - 17	2	
	M - 11 - 16	1	
	M - 12 - 19	1	
4. Unreliability of	F - 11 - 16	3	#70 had 3;
self-estimates			#68 had 2
	F - 11 - 17	2	
	F - 12 - 17	1	
	F - 12 - 19	1	
	M - 11 - 16	2	#60 had 5
	M - 11 - 17	2	#52, #53
			had 2
	M - 12 - 19	2	#46 had 3

5.	Fails to provide	F - 11 - 16	4	#48 had 5;
	specific direction			#40 had 2
		F - 11 - 17	1	#49 had 2
		F - 12 - 17	2	
		F - 12 - 19	1	
		M - 11 - 16	2	
		M - 12 - 17	1	#37 had 3
		M - 12 - 18	1	#44 had 2
6.	Need expansion	F - 11 - 16	2	
	of options in	F - 11 - 17	2	#49, #61
	finder			had 2
		F - 12 - 17	2	
		F - 12 - 18	1	
		F - 12 - 19	1	
		M - 11 - 16	3	#45 had 2
		M - 11 - 17	2	
		M - 12 - 18	2	#44 had 2
		M - 12 - 19	1	#46 had 2
7.	No new	F - 11 - 17	1	#38 had 2
	information	M - 11 - 17	1	
		M - 12 - 18	1	

Appendix J
TYPE OF STUDENT WHO PARTICIPATED
IN EACH CATEGORY (OTHER)

<u>Category</u>	<u># of incidents</u>	<u># of students</u>
1. More realistic occupational information	25	20 (29%)
2. Reality testing	14	14 (20%)
3. Start planning sooner and also later	21	17 (24%)
4. Job hunting skills	13	12 (17%)
5. More information on educational opportunities	13	13 (19%)
6. Nothing else. It's a personal decision	9	9 (13%)
7. More tests to measure interests and abilities	3	3 (4%)
8. Teacher involvement	2	2 (3%)

<u>Category</u>	<u>Sex-Grade-Age</u>	<u># of Students</u>	<u>More than 1 incident</u>
1. More realistic	F - 11 - 15	1	
occupational	F - 11 - 16	11	#30 had 3
information	F - 11 - 17	2	#21 had 2

	F - 12 - 17	5	#23, #54
			had 2
	M - 11 - 16	1	
2. Reality testing	F - 11 - 16	2	
	F - 12 - 16	1	
	F - 12 - 17	6	
	F - 12 - 19	2	
	M - 11 - 16	2	
	M - 12 - 17	1	
3. Start planning	F - 11 - 15	1	
sooner and also	F - 11 - 16	5	#35 had 2
later	F - 11 - 17	1	
	F - 12 - 17	4	#26 had 2
	F - 12 - 18	1	#66 had 2
	F - 12 - 19	1	
	M - 11 - 16	1	#67 had 2
	M - 12 - 17	2	
	M - 12 - 19	1	
4. Job hunting	F - 11 - 16	3	
skills	F - 11 - 17	2	
	F - 12 - 17	5	#17 had 2
	M - 11 - 16	1	
	M - 12 - 17	1	

5.	More information	F - 11 - 16	7
	on educational	F - 11 - 17	1
	opportunities	F - 12 - 17	4
		M - 12 - 18	1
6.	Nothing else.	F - 11 - 16	5
	It's a personal	F - 12 - 17	2
	decision	M - 12 - 17	1
		M - 12 - 19	1
7.	More tests to	F - 11 - 16	1
	measure	F - 12 - 17	1
	interests	F - 12 - 18	1
	and abilities		
8.	Teacher	F - 12 - 19	1
	involvement	M - 11 - 16	1

Appendix K

MAP OF CHOICES

FACILITATIVE CATEGORIES

1. Considers Educational Requirements.
 - knowledge of training requirements helpful
2. Expands General Job Options.
 - wider range of options
3. Expands Job Options in a Specific Field.
 - look into other related fields
 - not limited
 - fall back on something else
 - COMPARE or RELATED routes
4. Narrows Focus.
 - Get a direction, a field
5. Stimulates Consideration of Extrinsic Work Features
 - earnings, hours of work, travel, location of residence, working inside/outside, environmental conditions, physical activities (in travel guide)
6. Answers Specific Questions
 - permits easy access
 - CCDO number (reality test)
7. Judges Future of Jobs.
 - reassuring and promotes strategy.

8. Provides Reference for Future Planning.
 - print-out (being able to take it home)
9. Clarifies interest
 - (travel guide)
10. Clarifies Capabilities and Aptitudes.
 - (in travel guide)
11. Matches Interest and Aptitudes to Jobs.
 - helped to see different areas of concern
12. Confirmation of choice
13. Disconfirmation of choice.
 - reality test.

SAFEGUARDS: CHOICES (from hindering categories)

1. Useless information.
 - stress the use of the "this doesn't matter to me" option.
2. Lack of information.
 - list of colleges and universities forthcoming.
 - no list of courses necessary to graduate.
 - no places of employment.
 - Provincial only (but you can access to any Province in Canada).
 - detailed information on only starred occupations.
 - CCDO number can be researched.

3. Fails to confirm prior choice

- Backtrack, find out how you answered
- Access preferred choice - what is needed.
- *** Stress Bargaining.

4. Puzzling and Inappropriate Job Options.

- "garbage in, garbage out"
- 14 topics do not cover every situation in all areas.

Ex.: Not being able to stand the sight of blood yet wanting to be a surgeon.

5. Needed more options.

Rushed on terminal.

- promote an attitude of experimentation, of bargaining.
- Reschedule an hour or two after initial exposure.

6. Unreliable Occupational Information

- Continually update system, forwarn students regarding salary levels and employment outlook.

7. Machine Malfunction.

- only 1 incident
- pretty well rectified

Appendix L

MAP OF SDS

What the seven section of the SDS do: that is, which sections promote which categories? (from Appendix E, page 189)

- | | |
|---|---------------------------------|
| 1. <u>Daydream section</u> | <u>facilitative categories</u> |
| - time to write their wishes | - Expands general job options |
| - listing daydreams | - Narrows focus |
| - forces one to deliberate; test reality of ideas, not what parents want | - Stimulates deliberates |
| - interest to jobs | - Matches interest to jobs |
| - self-understanding over time compare old and new aspirations see differences and similarities | - Understands oneself over time |
| | <u>Hindering categories</u> |
| - could not code daydreams options | - Need expansion of options |

2. Activities section

- leaning to one area
- awareness of likes and dislikes
- what skills to improve
- interests and capabilities

Facilitative categories

- Narrows focus
- Confirms or clarifies likes or dislikes
- Find out where to improve
- Matches interests and capabilities to jobs

Hindering categories

- no sports
- useless items (vocabulary too difficult)

- Misidentification / Misdirection of interests
- Irrelevance of some items

3. Competencies section

- concentrate in one area
- what you can and can't do
- what skills to improve
- capabilities to jobs
- interests and capabilities

Facilitative categories

- Narrows focus
- Confirms or discovers capabilities of incapacabilities
- Find out where to improve
- Matches capabilities to jobs
- Matches interest and capabilities to jobs

Hindering categories

- misdirection of interests

- Misidentification / Misdirection of interests

- | | |
|--|-----------------------------------|
| - useless items (vocabulary too difficult) | -Irrelevance of some items |
| - unreliability of self-estimates | - Unreliability of self-estimates |
| - already knew | - No new information |

4. Occupations section

Facilitative categories

- | | |
|---|---|
| - better overall view, wider range, forced look at a variety of jobs, feeling of having numerous alternatives | - Expands general job options |
| - maximize option in specific area that is the cluster of jobs available | - Expands job options in a specific field |
| - interests to jobs | - Matches interests to jobs |

Hindering categories

- | | |
|-----------------------------|---|
| - misdirection of interests | - Misidentification / Misdirection of interests |
|-----------------------------|---|

5. Self-Estimates section

Facilitative categories

- | | |
|--|--|
| - Forces one to look at your code more | - Confirms or discovers capabilities or incapacabilities |
|--|--|

- skills to improve
- Find out where to improve
- Capabilities to jobs
- Matches capabilities to jobs
- Interests and capabilities
- Matches interests and capabilities

Hindering categories

- Unreliability because of criteria
- Unreliability of Self-Estimates

6. Summary Code

Facilitative categories

- Interchange of letters
- Expands general job options
- Check cluster
- Expands job options in a specific field
- Narrowing
- Narrows focus
- Interest to jobs
- Matches interest to jobs
- Interest to capabilities
- Matches interest and capabilities to jobs

Hindering categories

- Interests don't agree with code
- Misidentification / Misdirection of interests

7. Booklet

Facilitative categories

- Educational level
- Considers educational requirements

- Job expansion
 - Expands general job options
 - Clustered jobs
 - Expands job options in a specific field
 - Narrowing
 - Narrows focus
 - CCDO number guides search
 - Guides information search
- Hindering categories
- lack of occupational information
 - Lack or misleading occupational information
 - lack of specific direction
 - Fails to provide a specific direction
 - More jobs per code, common jobs left out, daydream jobs left out
 - Need expansion of options

SDS: SAFEGUARDS

1. Need expansion of options in finder:
 - stress limited number of occupations in finder
 - how to stretch these options
 - 2 letter code instead of 3
 - referring to CCDO number - cluster of jobs
2. Unreliability of Self Estimates:
 - criteria for self estimates emphasized
 - show booklet to family and friends.
3. Fails to provide specific direction:
 - Forwarn students of SDS Objective - (Holland's quote-) "The SDS is only intended to facilitate a person's occupational search. At best, it can only indicate a class of occupations a person prefers: it cannot efficiently predict a simple choice for a person." (lower expectations)
4. Misidentification/misdirection of interests:
 - Again Holland's directions if followed -
 - a) resemblance determined 5 times
 - b) all permutations of code
 - c) code and daydream comparison
 - d) talk to counsellor

5. Lack or misleading occupational information

- Numerical system of educational level in booklet should be explained.

6. Irrelevance of some items:

- No new information
- an open attitude is apt to promote better career planning

Appendix M

Map of Other Ways of Facilitating Career Planning

1. More realistic occupational information.
 - talk to people in the field
 - video of work place
 - better literature
2. Reality testing.
 - experience through work
3. Start planning sooner and later
 - start in grade 8
 - keep doors open
 - keep planning even later in life
4. Job hunting skills
 - resume writing, interviewing skills,
application writing
5. More information on educational opportunities
 - academic information - courses etc.
 - how to apply for a loan
6. Nothing, it's up to me.
7. More tests to measure interests and abilities
8. Teacher involvement.
 - relating subject matter to the real world.

Appendix N

Letter and Questionnaire to 126 Experienced Counsellors

June 3,

1986

Dear Sir/Madam:

Please take a few moments to answer a few questions about career planning. The 5 or 10 minutes it will take will help clarify and help validate a study concerning the Self-Directed Search and CHOICES. Please return the completed questionnaire in the self-addressed stamped envelope as soon as possible.

Thank you for your co-operation.

Sincerely,

Chuck Provost

Doctoral student

Department of Counselling Psychology

U.B.C.

- Have you used CHOICES with your students?

Yes_____ No_____

If yes, please indicate the number of years _____
and answer the page on CHOICES.

- Have you used the SELF DIRECTED SEARCH (SDS) with your students?

Yes_____ No_____

- If yes, please indicate the number of years _____
and answer the page on the SDS.

How the study was done:

A number of students were interviewed after they had used CHOICES or the SDS. They were asked what had helped them (facilitative categories) and what was less helpful (hindering categories) in their career planning.

Now based on your experience as a counsellor, please indicate whether you agree, disagree or are undecided about these various categories. That is, do you agree that your students would generate similar categories.

Thank you for your contribution.

C H O I C E S

<u>Facilitative Categories</u>	<u>Agree</u>	<u>Disagree</u>	<u>Undecided</u>
1. Expands general options	_____	_____	_____
2. Expands job options in a specific field	_____	_____	_____
3. Narrows focus	_____	_____	_____
4. Answers specific questions	_____	_____	_____
5. Judges future of jobs	_____	_____	_____
6. Provides reference for future planning	_____	_____	_____
7. Considers educational requirements	_____	_____	_____
8. Stimulates consideration of extrinsic work features (salary, hours, etc.)	_____	_____	_____
9. Clarifies likes	_____	_____	_____
10. Clarifies capabilities and aptitudes	_____	_____	_____
11. Matches interest and aptitudes	_____	_____	_____
12. Confirms choices	_____	_____	_____
13. Disconfirms choices	_____	_____	_____

Hindering categories

- | | | | |
|--|-------|-------|-------|
| 1. Lack of information | _____ | _____ | _____ |
| 2. Useless information | _____ | _____ | _____ |
| 3. Unreliable occupational
information | _____ | _____ | _____ |
| 4. Fails to confirm a prior
choice | _____ | _____ | _____ |
| 5. Puzzling and inappropriate
job options | _____ | _____ | _____ |
| 6. Questionable basis for
narrowing jobs | _____ | _____ | _____ |
| 7. Needs more options | _____ | _____ | _____ |
| 8. Rushed on terminal | _____ | _____ | _____ |
| 9. Machine malfunction | _____ | _____ | _____ |

Any other category you would like to add

Thank you

S E L F D I R E C T E D S E A R C H

<u>Facilitative Categories</u>	<u>Agree</u>	<u>Disagree</u>	<u>Undecided</u>
1. Expands general job options	_____	_____	_____
2. Expands job options in a specific field	_____	_____	_____
3. Narrows focus	_____	_____	_____
4. Guides information search	_____	_____	_____
5. Considers educational requirements	_____	_____	_____
6. Confirms or clarifies likes and dislikes	_____	_____	_____
7. Confirms or discovers capabilities or incapacabilities	_____	_____	_____
8. Stimulates deliberation	_____	_____	_____
9. Understanding oneself over time	_____	_____	_____
10. Find out where to improve	_____	_____	_____
11. Matches capabilities to jobs	_____	_____	_____
12. Matches interest to jobs	_____	_____	_____

- | | | | |
|--|-------|-------|-------|
| 13. Matches interests and capabilities to jobs | _____ | _____ | _____ |
| 14. Confirms or justifies choices | _____ | _____ | _____ |

Hindering categories

- | | | | |
|---|-------|-------|-------|
| 1. Lack or misleading occupational information | _____ | _____ | _____ |
| 2. Misidentification / misdirection of interest | _____ | _____ | _____ |
| 3. Irrelevance of some items | _____ | _____ | _____ |
| 4. Unreliability of self-estimates | _____ | _____ | _____ |
| 5. Fails to provide specific direction | _____ | _____ | _____ |
| 6. Need expansion of options in finder | _____ | _____ | _____ |
| 7. No new information | _____ | _____ | _____ |

Any other category you would like to add

Thank you

Summary of Similarities and Differences ofCHOICES and the SDS**CHOICES****SDS****FACILITATIVE**

* WORK FEATURES

* SPECIFIC QUESTIONS

* JUDGES FUTURE

* REFERENCE

* LIKES

* CAPABILITIES

* MATCHES

* DISCONFIRMS

* EDUCATION

* NARROWS FOCUS

* EXPANDS-GENERAL

* EXPANDS-SPECIFIC

* CONFIRMS

* GUIDES SEARCH

* LIKES & DISLIKES

* CAPABILITIES

* DELIBERATION

* UNDERSTANDING

* WHERE TO IMPROVE

* MATCHES CAPABILITIES

* MATCHES INTERESTS

* MATCHES BOTH

HINDERING

* USELESS INFO.

* UNRELIABLE

* RUSHED

* MALFUNCTION

* FAILS TO CONFIRM

* PUZZLING OPTIONS

* QUESTIONABLE BASIS

* NEEDS MORE OPTIONS

* LACK OF INFO.

* MISIDENTIFICATION

* IRRELEVANCE

* SELF-ESTIMATES

* SPECIFIC DIRECTION

* OPTIONS IN FINDER

* NEW INFO.