

**Client Anticipations About Computer-Assisted Career Guidance System Outcomes:
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by

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Abstract

While the existing literature suggests that expectations play an important role in counseling and career counseling, previous studies have not systematically assessed the range of expectations for computer-assisted career guidance (CACG) use, nor have they directly related obtained results to an existing classification system. The primary purposes of the present study were to determine (1) the types of anticipations clients have for CACG outcomes, (2) whether anticipations are affected by vocational identity, and (3) whether anticipations are affected by decidedness. To achieve these purposes, a variety of instruments, including a demographic form including the Occupational Alternatives Question, the My Vocational Situation, and a free-response, thought listing method (AACO-A), followed by a Likert-type survey of CACG anticipations (AACO-B) were used to collect data. Participants included 55 people who presented themselves at the Curricular-Career Information Service in the Career Center at Florida State University. MANOVAs yielded no significant differences for expectations among clients with high and low identity or high and low decidedness. Spearman rank correlations indicated that regardless of level of vocational identity or career decidedness, clients expect the computers to help increase options, enhance self-knowledge and strengthen occupational knowledge.

CHAPTER 1

REVIEW OF THE LITERATURE

Introduction

Computer-assisted career guidance systems (CACGs) are increasing in accessibility, cost-effectiveness, and user friendliness (Hinkle, 1992). In addition, CACGS are "becoming a common technological resource in college career counseling services" (Peterson, Ryan-Jones, Sampson, Jr., Reardon, & Shahnasarian, 1994, p. 189). As such, they continue to have an appeal to clients and counselors as career interventions. Dungy (1984) raised a concern over popularity of the CACG systems at a community college, when the demand for the systems became greater than the appointment times. The situation raised concerns about the effect of long delays (up to three weeks) on the system meeting client's needs effectively. In addition, the researcher noted that some users were unable to effectively manage the information they received from the CACG, and often reported that they felt they had made no progress towards making a career decision after the system use. Dungy reported that some users were frustrated, in that they were hoping that the computer would give them the answer, instead of providing a decision-making resource. Clearly, this is a case where the clients' anticipations, regardless of whether they were appropriate, were in conflict with the design and goals of the system.

"Relatively little is known about how client perceptions and expectations relate to CACG system effectiveness"(Sampson, Reardon, Lenz, Peterson, Shahnasarian, Ryan-Jones, 1987, p. 19). Research, high demand for the systems, and informal comments from clients has shown that they enjoy using CACG systems and generally think they are effective. However, having "a more specific understanding of client perceptions will provide a better foundation for developing counselor intervention strategies for CACG systems" (Sampson, Peterson, Reardon, Lenz, Shahnasarian, Ryan-Jones, 1992, p. 76).

User anticipations are important variables to understand. If system developers know what potential users are looking for, they can design systems to be more congruent with those anticipations. If career service providers know what clients are anticipating and how those anticipations are related to vocational identity and decidedness, combined with a knowledge of system capabilities and limitations, the counselor can differentiate with more certainty those clients who might approach the use of CACGs in an unhealthy manner from those with a healthy manner.

With the increasing use of computer-assisted career guidance systems (CACGs) as a viable tool in career counseling (Rayman, 1990), several authors (Sampson, 1984; Sampson, Peterson & Reardon, 1989) have suggested the "need for attention to client variables to insure maximum effectiveness of CACGs." Existing studies suggest that expectations play an important role in counseling and career counseling, but have not systematically assessed the range of expectations for CACG system use, nor have they directly related obtained results to an existing classification system. This is unfortunate, for if counselors more clearly understood client anticipations about CACGs, they could identify potential problem areas or myths to be discussed. The primary purposes of the present study were to determine (1) the types of anticipations clients have for CACG outcomes, (2) whether anticipations are affected by vocational identity, and (3) whether anticipations are affected by decidedness. These purposes can be translated into specific research questions, as follows.

Research Questions

The following research questions were investigated in the present study.

- 1) What are the outcomes clients anticipate occurring as a result of using a computer-assisted career guidance system?
- 2) What is the relationship between vocational identity and anticipations for CACG outcomes?
- 3) What is the relationship between level of decidedness and anticipations for CACG outcomes?

Overview of Literature Review

Computer-assisted career guidance systems (CACGs) are one of many tools that a counselor may use in the career counseling process. Currently, no research exists that directly examines the anticipations clients have about CACGs. Therefore, to build hypotheses about what clients might anticipate, client anticipations about counseling and career counseling will be examined, following a theoretical discussion of what clients might anticipate specific to CACGs. In order to determine the degree of congruence between client anticipations and system performance, the goals, roles and outcomes of CACGs will be reviewed. Counselors choose interventions and use those interventions within the context of a theoretical position. No tool should be used without having a reason for using it. A counselor should be able to state how, theoretically, the intervention might further the goals for counseling. Cognitive Information Processing Theory (Sampson, Peterson, Lenz, & Reardon, 1992; and Peterson, Sampson,

Reardon and Lenz, 1996) is described as a theory of the process of career decision making and career choice. In light of this theory, the use of CACGs as interventions is discussed. When examining client anticipations with regards to CACGs, it will be important to distinguish among those clients who have high vocational identity and high levels of decidedness and those who have low vocational identity or low levels of decidedness. These client characteristics are important to examine, as they can potentially help counselors identify those who might be prone to misperceptions about the CACGs. As such, vocational identity and career decidedness will be explored. However, prior to these discussions, several definitions need to be further clarified, including the description of the development and definition of anticipations.

Definitions of Terms

In order to have a basis for logical discussion of these issues, several terms need to be defined.

CACG = A system of interrelated assessment, generation of alternatives, and information dissemination subsystems, often coupled with counseling interventions and various print and media-based support resources, that are used within an organization to assist individuals in making current career decisions, as well as improving their capacity to make effective career decisions in the future" (Sampson, 1994, p. 2).

Anticipations = The confident belief in the occurrence of some event.

Vocational identity = "The possession of a clear and stable picture of one's goals, interests, and talents," which should "lead to relatively untroubled decision-making and confidence in one's ability to make good decisions in the face of some inevitable environmental ambiguities" (Holland, Johnston & Asama, 1993, p. 1).

Decidedness = "The degree to which a person is able to identify a primary occupational goal or occupational alternatives" (Lenz, 1990, p. 9).

Review of the Literature

Anticipations

In reviewing the literature, it quickly becomes apparent that researchers and theorists differ on their definitions of anticipations and expectations, and some use them interchangeably. According to a literature review by Duckro, Beal and George, (1979), the term "expectation" has been used either to mean "expectation as anticipation" or "expectation as preference," resulting in the inconsistencies often found in expectations research. Duckro, et al. (1979) believes that this occurs due to a lack of specificity when operationalizing the definition of the

independent variable (i.e., anticipations or expectations). The older research tended to use expectation as a general term, resulting in a lack of clarity as to what was being measured. In their review of expectations literature, Tracey and Dundon (1988) concluded that the terms expectation, preference and anticipation were used interchangeably. They suggest that the lack of clarity in definition results in confusion about what clients are responding to when they answer the question, "What do you expect?".

According to Zajonc (1980), preferences are affective judgments which indicate "the state of" the person making the judgment. Preference has been defined as "the nonindifference of the individual with respect to the various aspects relevant in making career decisions" (Gati, Shenhav, and Givon, 1993, pp. 53-54). The researchers define three aspects of preference: "(a) the relative importance of the aspects to the deliberating individual, (b) the most preferred level in an aspect for the individual, and (c) the readiness to make compromises with respect to the aspect's variations" (p. 54). One characteristic that seems to distinguish preferences from expectations or anticipations is the aspect of prioritization. One has a mental set of prioritized possible outcomes that they hope will occur.

Anticipations differ from preferences as determinants of people's actions. Expectation has been defined as "a cognitively mediated preparatory set" (Kulpe, quoted by Tinsley, Workman, & Kass, 1980), that motivates people to act in certain ways, given certain situations. An earlier definition of expectation by Apfelbaum (1950) is the anticipation, with some degree of certainty, that an event will occur. It is apparent that anticipations may differ from preferences, in that anticipations are a belief in the occurrence of an event, while preferences are the specific desire for a certain outcome. For example, it is possible for a person to prefer one outcome (e.g., a bottle of expensive champagne), while actually expecting another (e.g., a bottle of discount beer).

From observations of the literature, it appears that the terms, anticipation and expectation are often used interchangeably and incorporate each other in defining itself. For the purpose of this study, the definition of anticipation is "the confident belief in the occurrence of some event". With this discussion of terms completed, the focus will shift to specific anticipations clients have for counseling, career counseling and CACGs.

Client Anticipations for Counseling

"Theoretically, clients expectations about counseling should affect their behavior during the initial counseling interview" (Tinsley, Tokar and Helwig, 1994, p. 326). Prior research has examined the anticipations that

clients have for counseling (Tinsley & Benton, 1978; Hardin, Subich, & Holvey, 1988; June & Smith, 1983; Foon, 1986; Yuen & Tinsley, 1981; Goin, Yamamoto, & Silverman, 1965; and Corbishley & Yost, 1989). Two main areas have been investigated: client expectations regarding the client's and therapist's respective roles, and the relationship between client expectations and therapy outcomes.

Early theorists placed a great deal of emphasis on the importance of understanding and meeting client anticipations. Kelly (1955) stated that the therapist "must accept the client's preconception of the therapist's role, at least in the beginning of therapy. Failure to confirm the client's expectations results in confusion or disappointment on the part of the client" (p.263).

In a study that examined the effects of not meeting a client's expectations, Heine and Trosman (1960) paired clients who had strong expectations of having an active, directive therapist (and seeing themselves as passive participants) with therapists who embraced a collaborative model. They found that those clients with strongest anticipations of a directive therapist were much more likely to drop out of therapy than were persons with somewhat less directive expectations.

Other researchers (Goin, Yamamoto and Silverman, 1965) found similar results when looking at satisfaction ratings for therapy. Goin et al., (1965) found that when satisfaction with counseling was examined for those clients who expected to receive advice from the therapist, 72% of those clients who received advice from their therapist reported satisfaction with counseling, in comparison to a 57% satisfaction report from clients who expected advice from their therapist but did not receive it.

However, the question arises as to the appropriateness of changing to meet client's anticipations, especially when those anticipations may be faulty misperceptions. This is especially true as other researchers (Cundick, 1963; Klepac, 1970) failed to find that disconfirmed expectations led to lesser client satisfaction.

The most consistent finding throughout the counseling literature is the strong, positive correlation between positive client expectations and final outcomes (Bowden, Schoenfeld, & Adams, 1980; Collins & Hyer, 1986; and Wilkins, 1973). This finding was echoed through other conclusions (Krause, Fitzsimmons & Wolf, 1969) that client motivation can be enhanced through the clarification of their anticipations. Other studies have shown that anticipation of "clinical success" was greater when clients and counselors were matched on locus of control (Foon, 1986), and that reasons for clients prematurely dropping out of counseling were related to their (the clients')

expectations not being met (Goin, Yamamoto and Silverman, 1965). In fact, some case studies indicated that clients who had relatively positive expectations about counseling were rated significantly higher on a global measure of level of involvement (Tinsley, Tokar and Helwig, 1994).

In reviewing the literature related to client anticipations for counseling, several summary statements can be made. Clients do have specific anticipations for counseling, such as therapist characteristics, or what will occur in counseling, although there is not a consensus as to what occurs when these anticipations are not met. These studies looked at client anticipations with regards to generic counseling. Other studies have examined the specific anticipations clients have for career counseling.

Client Anticipations for Career Counseling

Limited research on expectations and career counseling exists. The specific areas that have been investigated include anticipations about the length/duration of counseling time, anticipations of the counseling environment, anticipations of career counseling and behavioral change that might occur, and the relationship between client anticipations and preferences for career counseling. June and Smith (1983) found that both clients and counselors expected career counseling to take significantly less time than "personal" counseling, with clients expecting an average of two interviews, and counselors expecting three. Galassi, et al. (1992) found similar results, with clients anticipating and preferring the career counseling process to take about three sessions. Preference for a specific type of counseling environment has been investigated as well. Niles (1993) found that clients prefer counseling environments that are congruent with their primary Holland type. However, in terms of predicting, Niles found that a large proportion of the clients preferred an "Enterprising" type of career counseling environment.

Young (1985) investigated clients' expectations of cognitive and/or behavioral change as a result of career counseling. Related questions included: "How would you recognize when you are making progress in counseling?" and "What would have to happen to make counseling useful to you?" (p.52). Seven clients expected their feelings about self to change, seven expected a change in their thinking (specifically, in the way they formulate goals), and two expected a change in their behavior. Finally, two case studies examined by Metzger, Sampson and Reardon (1988) revealed the following client expectations for career counseling. Both clients expected to receive help in "structuring the career decision-making process, clarifying self-knowledge, and gaining access to career information resources" (p.1). In terms of personal expectations, one of the subjects stated that she 'wanted someone

to accept responsibility and make a career decision for me' (p. 13). Corbishley and Yost (1989) observed that "Clients may expect that the process will, like personal counseling, take place largely in-session, with the addition perhaps of a test to tell me what to do" (p. 44).

Perhaps the most thorough study on client expectations of career counseling is Galassi, et al.'s study (1992), which examined the degree to which client preferences for career counseling were congruent with their anticipations. The subjects included 92 students who were seeking career counseling. Each subject was asked to complete an open-ended questionnaire developed by the researchers. According to the researchers, fixed format questionnaires were avoided because of the inherent imposition of the researcher's perspective on the client's experience.

The Survey of Career Counseling Preferences and Anticipations (SCCPA; Galassi et al., 1992a) consisted of fifteen questions that could be compiled in five areas: number of sessions, client/counselor roles within session, activity outside of session, goals/outcomes of counseling, and the role of testing. In order to distinguish between preferences and anticipations, questions were formulated as either "What would you like to do in session?" (preference) and "What do you think you will be required to do in session?" (anticipation). Independent raters, with an agreement rate of 94%, were used to sort the responses.

Several interesting results comparing client preferences and anticipations were found. Clients preferred and anticipated gaining career/major direction as being the main goal of counseling. In terms of the focus of counseling sessions, clients preferred to talk about specific careers and/or decision making (31%), exploring careers in general (26%), or exploring self (26%), and yet anticipated that the sessions would focus on exploring self (46%) and taking tests (32%).

From these results, Galassi et al., (1992a) draw several conclusions. First, it seems that clients have "fairly clear ideas" (p.52) about what they desire (prefer) from the career counseling process. Second, clients' anticipations of what career counseling will be like is less clear. Third, when preferences and anticipations are paired, a number of mismatches are evident, suggesting that what clients prefer to happen differs from what they expect will actually happen. For example, it seems that while they would prefer a task-oriented approach, they are anticipating a person-focused process, and while they feel questionable about the value of testing, most anticipate that testing will be a

part of the process. Fourth, clients do not appear to have clear expectations about their dislikes in career counseling, possibly stemming from unfamiliarity of the process.

While the amount of research on client anticipations for career counseling is limited, several preliminary conclusions can be made. As with general counseling, it is evident that clients do have anticipations specific to the career counseling process. Some of these include length of time spent in counseling (3 sessions), counseling environment, specific cognitive and behavioral changes, client and counselor roles, goals and outcomes of career counseling, and the role of testing. Some recurring anticipations found in two studies (Metzger, et al., 1988 and Galassi, et al., 1992a) include exploring self, gaining instruction in decision-making, and obtaining career related information. Galassi's study raised the question about the issue of client's preferences for career counseling not meeting their expectations. It seems evident that in order to reduce this mismatch, counselors need to ask questions about what clients anticipate and prefer to happen, and to incorporate that information into the specific goals for counseling. In addition, perhaps as a way to explore self, Galassi also found that client's anticipate taking tests as a part of the process, and with CACGs continuing to increase in popularity, some research needs to explore what anticipations clients have specific to this type of self-assessment.

Theoretical Views and Related Studies of Client Anticipations About Computer-Assisted Career Guidance Systems

While there has been no empirical research conducted on the question of client anticipations about computer-assisted career guidance systems, some have hypothesized what beliefs might be held regarding CACGs. Krumboltz (1985) identified seven presuppositions or beliefs that may lead to the misuse of CACGs. While Krumboltz addresses these presuppositions to counselors, some generalizability to clients can be seen as well. These presuppositions include:

1. The stated purposes for using a computer include all the real purposes.
2. Because it's high technology, the computer is better.
3. The computer knows best which occupations match client characteristics.
4. Certain occupations require special temperaments.
5. Questions about job preferences and personal characteristics can be answered "yes" or "no".
6. Obtaining a satisfying entry level job for a client is the important task in career

counseling.

7. The computer can tell clients what they should do. (Krumboltz, 1985, pp. 166-169).

This last presupposition's has been echoed by Knefelkamp and Slepitza (1976) who identify this as a faulty cognition, that the test is seen as the "Authority" that will provide answers to life's questions. Other researchers (Stewart, Winborn, Burks, Johnson & Engelles, 1978) question the readiness of clients with this type of faulty cognition for engaging in career counseling services. Krumboltz (1985) provides an accompanying moral to presupposition number seven: "If you use a computer in career counseling, use it to stimulate further exploration-- only clients can decide what they should do" (p.169). In other words, the computer should be used as a tool whose purpose is to expand a person's career options, rather than narrow them to "the one".

In a similar vein, some concerns have been raised about the anticipations related to interest inventories (Brandel, 1982; Krumboltz, 1985; and Knefelkamp & Slepitza, 1976). Brandel (1982) reported a frustration with working with clients on vocational inventories, after providing an orientation to the purposes of such instruments, and then hearing from the client at the conclusion of the session that the inventory told them "what they were good at" or "what they should be" (p.225). Krumboltz (1985) suggests that computerized systems may substantiate faulty expectations held by clients by promising too much in the way of linking personality traits with a list of occupations. Finally, Knefelkamp and Slepitza (1976) highlight a common client expectation that the test is the "Authority" that determines the client's future.

While Galassi et al.'s (1992a) study didn't specifically examine client anticipations for CACGs, they did include client anticipations and preferences about testing. They found that outcome preferences included career/person match (48%), narrow or broaden options (15%), identify strengths and weaknesses (14%), and identify interests (12%). In terms of outcome anticipations, 20.7% indicated that they didn't know what to anticipate, 21% said it would serve to identify interests, 19% said that it would provide a person/career match, and 17% had responses that were miscellaneous or unclassifiable.

As a way to determine client biases towards CACGs prior to system use, Sampson et al., (1992b) used a control group who were told to "imagine what it would be like to interact with a CACG system". They were then instructed to fill out the Computer Rating Form (Sampson & Peterson, 1984), a form designed to measure client reactions to using a system. Other subjects completed the form after using either Discover or SIGI Plus. The control

group served two purposes: controlling for potential testing effects and identifying specific biases towards CACGs prior to using them. The researchers found that the control group (also called the computer imaging group) had significantly different perceptions from those who had used SIGI Plus or DISCOVER. Students who used the CACG had more positive perceptions of the attractiveness of systems than those in the computer imaging group.

Theorists and counselors have voiced concerns about faulty ideas clients may have when desiring to interact with a CACG. A specific concern is the anticipation that the computer, as the "expert", will "tell" a person what career they should pursue. While no empirical research has been conducted on client anticipations specific to CACGs, indirectly related studies seem to suggest possible anticipations of "the test" identifying interests or providing a person - career match. There was a percentage of people who indicated that they didn't know what to anticipate. While information on client anticipations for CACG outcomes is limited, there are several theorists and developers who have expressed ideas about the goals and roles that CACGS should have and play.

Goals and Roles of Computer-Assisted Career Guidance Systems

Computer-assisted guidance has been defined by Katz (1984) as a system which "aims to develop self-understanding and competencies in career decision-making. Information not just about occupations, but about the user is a crucial component of CAG". Are all CACG systems alike? According to Sampson, Peterson, and Reardon (1989), three main elements exist in all CACGs, including the provision of information, expansion of occupational alternatives, and self-assessment. The purpose of CACG has been defined by Harris-Bowlsbey (1990) as engaging "the user in interactive material that either teaches and monitors a career planning process, or at least provides data to be used by the individual in educational and vocational decision making" (p. 11).

Harris-Bowlsbey (1990) and Cairo (1983) raised a question of appropriateness of certain expectations placed on CACGs, specifically, changes in the construct of vocational maturity, as a result of an often one-time interaction with a CACG. Vocational maturity, as defined and examined in the literature, appears to be a developmental feature. As Harris-Bowlsbey (1990) stated, is four hours worth of time on a system sufficient to result in significant change?

Identifying the purposes and goals of CACG systems serves two important functions: creating a criterion against which the system can be evaluated, as well as providing a structure upon which the appropriateness of a client's anticipations can be measured. Katz (1984) raises a concern that as CACG systems grow in popularity as

viable career planning interventions, more clients may seek to use a CACG to address issues that are not appropriate for CACG use.

Several articles have identified potential goals for CACG systems (Peterson, et. al, 1994). The four most commonly stated goals for CACGs seem to be (1) enhancing client self-knowledge (Sampson, Reardon, Lenz, Ryan-Jones, Peterson, & Levy, 1993; Lenz, Reardon, & Sampson, 1990; Crites, 1982; Harris-Bowlsbey, 1984; and Katz, 1984); providing information about options (Clyde, 1979; Harris, 1974; Parish, Rosenberg, & Wilkinson, 1979; Cairo, 1983; Pitz & Harren, 1980; Hoppock, 1976; and Super, 1983); (2) improving decision making skills (Peterson et al., 1994; Sampson, Reardon, Lenz, Ryan Jones, Peterson and Levy, 1993; Harris-Bowlsbey, 1990; Katz, 1984; Reardon, Shahnasarian, Maddox, and Sampson, 1984; Sampson, Peterson, Lenz and Reardon, 1992; and Sampson and Peterson, 1984); (3) increasing options to consider (Sampson, et al., 1993; Lenz, et al., 1990; Sampson & Peterson, 1984; Harris, 1974; Parish, et al., 1979; Fretz, 1981; and Pitz & Harren, 1980); and (4) enhancing confidence/certainty (Harris, 1974; Sampson, 1984; Clyde, 1979; and Parish, et al., 1979).

According to Peterson et al., (1994), "The goal of any CACG system intervention should be to assist individuals in developing career decision-making skills" (p.91). They provide a further breakdown on decision-making skills that CACG systems should aid clients in developing. The skills include communication, analysis, synthesis, valuing and execution and are further defined in the section on Cognitive Information Processing Theory.

In contrast to clients, theorists and developers have some very clear and somewhat consistent ideas about what CACGs should do. Some of these anticipations include enhancing self-understanding, increasing occupational alternatives, teaching a career planning process, improving decision making skills, and enhancing confidence (Peterson, et. al, 1994; Sampson, Reardon, Lenz, Ryan-Jones, Peterson, & Levy, 1993; Lenz, Reardon, & Sampson, 1990; Crites, 1982; Harris-Bowlsbey, 1984; Katz, 1984; Clyde, 1979; Harris, 1974; Cairo, 1983; Pitz & Harren, 1980; Hoppock, 1976; Super, 1983; Harris-Bowlsbey, 1990; Reardon, Shahnasarian, Maddox, and Sampson, 1984; Sampson, Peterson, Lenz and Reardon, 1992; Sampson & Peterson, 1984; Fretz, 1981; Sampson, 1984; and Parish, et al., 1979). Some theorists raised a concern over expecting dramatic changes in vocational maturity as a result of using a CACG, when vocational maturity appears to be a more developmental process. With the understanding of anticipations different groups have about the CACGs, it is now time to examine what happens as a result of using CACGs. While there is limited information on client thoughts and feelings prior to using a CACG, there has been

ample research on client reactions and characterological changes following CACG use. Understanding this is crucial, as it indicates the degree to which anticipations are being met, as well as identifies other outcomes that might not have been anticipated.

Outcomes of Computer-Assisted Career Guidance Systems

In order to evaluate the appropriateness of client (and counselor) anticipations for CACG outcomes, as well as the degree to which the goals and roles of CACGS are met, research on actual outcomes of CACGs must be examined. In an early review of the literature, Sampson (1984) concluded: "(1) Clients react positively to the experience of using a CACG system; (2) Clients' knowledge of self and the world of work is expanded; (3) After using a CACG system, clients are more specific about their career and educational plans; (4) Clients have a greater confidence in their career decision-making ability; and (5) After using a CACG system, clients seem to be more motivated to use additional career planning resources to assist them in making a decision (p. 187).

Sampson (1996) summarized CACG outcome results found in six areas: improved generation of occupational alternatives, occupational knowledge, career certainty, vocational maturity, and positive user perceptions of computer use. With regards to generation of occupational alternatives, the research indicated an enhanced ability to link knowledge about self to occupational options (Harris, 1974; Parish, Rosenberg, & Wilkerson, 1979), more occupational alternatives to consider (Peterson, Ryan-Jones, Sampson, Reardon, and Shahnasarian, 1994; Harris, 1974; Parish, et al., 1979), and a greater likelihood that these occupational alternatives better fit a person's characteristics (Parish, et al., 1979).

A person's awareness of the world of work (Harris, 1974) and career exploration resources (Harris, 1974; Cairo, 1983) and informational resources (Harris, 1974; Clyde, 1979; Parish, et al., 1979; and Cairo, 1983) were found to increase as a result of using a CACG system. Research on knowledge about specific occupations seems to divide into the following categories: World of work knowledge, acquisition of relevant information, user satisfaction with information, and promoting information seeking. As a whole, users seemed to have more information than non-users, were satisfied with the information received, with information seeking behavior increasing after system use (Clyde, 1979; Harris, 1974; Parish, et. al, 1979; Cairo, 1983; Pitz & Harren, 1980; Hoppock, 1976; and Super, 1983). Other researchers (Peterson, et al., 1994) found that students rate CACG interactions as helping them obtain occupational information.

Some studies show that certain client characteristics impact the degree to which they benefit from CACG use. For example, Peterson, et al., (1994) examined the effectiveness of DISCOVER, SIGI, and SIGIPLUS, as rated by 126 volunteer students from an introductory psychology class, who were assigned to one of the three systems and then completed the CACG-EF(Sampson & Peterson, 1984). They found that "students who expressed any need for information rated the occupational information (e.g., lists of occupations, job knowledge) generated by two of the CACG systems (DCA & SP) significantly higher than participants who indicated no such need" (p.196).

Certain client characteristics may impact how helpful they perceive a computer to be. In an investigation (Lenz, Reardon, & Sampson, 1993) of the relationship between Holland codes and effectiveness ratings of CACG systems, the results revealed that people who scored higher on the Social and Enterprising scales tended to rate the system lower than other "types" on its ability to help them gain knowledge about themselves and their options.

Career certainty has been found to increase after CACG interaction (Clyde, 1979; Seeger, 1988; Gerardi & Benedict, 1986; Katz, 1980). Marin and Splete (1991) found that, as a result of using the system, adults levels of career decidedness and commitment to an occupational choice increased. Several of these studies investigated the construct of vocational maturity. Some specific aspects of vocational maturity included an awareness of a planning need (Harris, 1974; Cairo, 1983), an increased concern about a current vocational decision (Cairo, 1983), improved attitude with career decision (Glaize & Myrick, 1984; Parish, et al., 1979), increased specificity with regards to career planning (Harris, 1974), greater degree of exploratory behavior (Harris, 1974; Parish, et al., 1979), and an increased confidence in making career decisions (Harris, 1974). As mentioned earlier, a question has been raised about the likelihood of vocational maturity, a developmental construct, changing dramatically after a two hour CACG intervention.

With regards to system use, research consistently indicates that users generally find CACGs easy to use (Parish, et al, 1979; Katz, 1980; Pyle & Stripling, 1976), easy to understand (Cairo, 1983), and that users are generally satisfied with the information they received (Parish, et al., 1979). In addition, they reported that the experience was interesting (Parish, et al, 1979) and enjoyable (Cairo, 1983; Snodgres, 1988), with an overall perception of the system being helpful (Parish, et al., 1979; Cairo, 1983). Zmud (Zmud, Sampson, Reardon, Lenz & Byrd, 1994) created an instrument to measure attitudes toward computers. This instrument was administered before

the students ($N = 112$) used a CACG system. Three factors emerged: Clients perceive computers to be enjoyable, nonthreatening, and easy to use.

Other client characteristics that have been examined is self-knowledge and decision making abilities. "Self-understanding," according to Katz (1988, p. 518), "is an essential component of guidance if people are to gain competence in making their own decisions". Another area that has been examined is the outcome of enhanced knowledge about self. The outcome literature seemed to divide this area into the following domains: sense of autonomy (Chapman, 1978; Katz, 1980), confidence toward career decisions (Tulley & Risser, 1977; Garis & Niles, 1990), expanding self-knowledge (Peterson, et al., 1994; Fadden, 1983; Pyle & Stripling, 1977;), barriers (Katz, 1980; Garis & Niles, 1990), and awareness of the need of planning (Fadden, 1983; Frederickson & Fullerton, 1978). The majority of these studies expressed positive gains within each of these areas.

Research on improved decision making as a result of CACG interaction indicated the following categories of decision-making: career decision-making skills (Glaize & Myrick, 1984; Chapman, Katz, Norris & Pears, 1977; Tulley & Risser, 1977; Garis & Niles, 1990; Pyle & Stripling, 1977), realistic planning (Katz, 1980; Seeger, 1988; Pyle & Stripling, 1977), narrowing options (Katz, 1988), finding congruent occupations (Frederickson & Fullerton, 1978; Lenz, et al., 1990), providing a model for effective decision-making (Seeger, 1988; Frederickson, 1978; Tulley & Risser, 1977; Katz, 1980) and specificity of plans (Katz, 1988; and Reardon, et al., 1984). Again, most of the studies revealed positive trends in each area of decision-making, with the exception of specificity of plans, which had several studies revealing non-significant differences.

Other studies have examined the degree to which clients find CACGS to be attractive, expert-like, and trustworthy. Sampson, Jr., Reardon, Lenz, Peterson, Shahnasarian, & Ryan-Jones, (1987) investigated user perceptions of CACG expertness, attractiveness and trustworthiness for students using DISCOVER, SIGI, and students in a control group. Both groups of students who used a CACG system rated the system significantly more positive ($LSD = 4.88, p < .05$) in terms of attractiveness, than did the nonusers in the control group. The researchers interpret this finding as a change in perception as a result of user interaction with a CACG.

Another study (Sampson, Reardon, Lenz, Ryan-Jones, Peterson, & Levy, 1993) revealed that as adults gained more experience with the CACGS, their perceptions of the computer as an "expert" declined, which may indicate that their anticipation of the computer being more expert like changed as a result of the interaction with the

CACG. The researchers (Sampson, et al., 1993) also reported on anecdotal comments that many of the adult users made to staff, which indicated that many of the adults initially expected the CACGS to provide very specific information relevant to their particular situation, requiring only minimal effort from them to solve the career problem. The problem is not that the CACGS are failing to provide relevant information, but rather in the incorrect anticipation of how specific that information would be. The researchers summarize that this "finding implies the further need for more effective orientations prior to adults' use of CACG systems so that their expectations are more in line with system capabilities" (Sampson, et al., 1993, pp. 13-14).

In another study, Sampson et al., (1992) compared means of the Computer Rating Form for SIGI and DISCOVER against the means of studies using the Counselor Rating Form in actual counseling sessions, and found "that the two CACG systems earned means on the expertness dimension similar to actual counseling situations". They were, however, "considerably less well perceived on the attractiveness and trustworthiness dimensions. The means of social influence variables with regard to the a priori imaging condition were considerably below those of counselors, especially in attractiveness" (p.80).

Students using SIGI or DISCOVER had more positive perceptions of attractiveness than those in the a priori imaging condition. Thus, we can conclude that it is likely that students altered their perceptions of the liking of the medium as a result of their experience with it. In terms of the dimensions of expertness and trustworthiness, students using DISCOVER and SIGI did not rate these differently than those students in the imaging condition. Therefore, we can conclude that students' perceptions of expertness and trustworthiness remained unchanged from their a priori expectations" (p.80).

It is apparent that a large amount of information exists on the various outcomes that occur as a result of using a CACG system. Some of these include generating options, enhancing knowledge about self, learning more about the world of work and specific occupations, increased confidence in making decisions, enhanced awareness of resources, career maturity and certainty, and improved decision making skills. Other studies show mixed results with regards to perceptions of specific features of CACGS, such as attractiveness, expertness and trustworthiness. There is a debate on the appropriateness of using vocational maturity as an outcome measure to be examined after CACG use, in that theoretically, vocational maturity occurs over time, not instantaneously. If a counselor understands a client's anticipations of what the CACG will do, the counselor can then correct faulty misperceptions

prior to system use, and thus decrease the potential for disappointment with the results when those anticipations are not realized.

Having examined the outcome literature for CACGs, and having determined that it can be an effective intervention within the career counseling process, a need develops for determining the theoretical framework from which to introduce and define the purpose of the intervention, as well as interpret the results. A variety of career theories exist and can serve such a purpose. However, for the purposes of this research, the Cognitive Information Processing Model was chosen because of the degree to which it matches with the outcome research related to CACGS in that it incorporates self-knowledge, occupational knowledge and decision making skills in its definition.

Cognitive Information Processing Theory

“Before a person can attempt to solve a problem, he must understand or assimilate a description of the problem” (Greeno, 1977). “The cognitive information processing (CIP) paradigm provides a comprehensive approach to career problem solving and decision making. It incorporates and unifies existing theories of career development. The CIP paradigm represents cognition as a series of stages, beginning with the perception of external and internal stimuli and culminating in the implementation of a decision to solve a problem” (Peterson, Sampson, & Reardon, 1991, p. 7).

The cognitive information processing approach includes “a pyramid of information processing domains” (Sampson, Peterson, Lenz and Reardon, 1992, p. 67), the purpose of which is to define three domains associated with career choice. The bottom tier of the pyramid is known as the knowledge domain, followed by the decision skills domain (middle tier) and the executive processing domain (top tier) (Peterson, Sampson, & Reardon, 1991). The knowledge domain divides into two other domains: self-knowledge (which includes information as a person’s values, interests, and skills), and occupational knowledge (which includes an understanding of specific occupational information as well as a schema for organizing occupations).

The decision-making skills domain consists of generic skills associated with the career decision making process, referred to as the CASVE Cycle, a “recursive process” which allows for movement among stages as individual needs develop (Sampson, et al, 1992a, p. 68). The process begins with the Communication “C” stage, with the primary focus on understanding the problem, or identifying the “gap” between a real and ideal state of

being. Often, this includes examining external and internal forces, "avoidance behaviors" or physical indicators associated with the decision at hand.

The second stage is Analysis "A", which focuses on the process of examining existing knowledge, as well as gaining additional information about self, options, decision making style and often metacognitions. The next stage, Synthesis "S" involves a two step process of increasing and decreasing options under consideration, while the Valuing "V" stage allows for a closer examination of options by examining the associated costs and benefits, prioritizing existing options and making a tentative first and second choice. The Execution "E" stage is the strategic planning part of the cycle where steps are specified for implementing or achieving the first occupational choice. The cycle then returns to the Communication stage where a person would revisit their initial reason for seeking help, i.e., the "gap", and determines the degree to which the answer solves the problem.

The Executive Processing Domain consists of metacognitions, whose purpose is to monitor the decision making process. This domain includes a person's self-talk, self-awareness (a person's awareness of their self-talk), and the monitoring and control of this self-talk (Sampson, et al., 1992).

CIP Theory and CACG System Intervention

In a study by Garis and Niles (1990) comparing the separate and combined effects of SIGI, DISCOVER and a career planning class on undecided students, they found that the control group's post-test scores were not significantly different from the scores of those who used DISCOVER or SIGI as a stand-alone intervention. The researchers suggest that their findings add support to the contention that CACGS are not as effective as they could be when used in a stand alone manner. The thought of using CACGS within the context of a theory stems in part from this belief.

With regards to using a CACG system as an intervention, the career counselor has four main responsibilities to assume (Sampson, et al., 1993). First, the counselor must help the client adopt a realistic attitude toward the CACGS by instructing them on the nature and purpose of the CACG, including information about what the CACG can and can not do. Second, the counselor must educate the client on the various informational resources available through CACGS, and make sure that the client knows how to use them appropriately. Third, the counselor needs to help the client integrate the information provided by the CACG with his or her own ideas as part of the decision-making process. Fourth, the counselor should be able to integrate CACG information with other

interventions and resources available to the client. Sampson, et al. (1993) state that the purpose of counselor intervention, from an information-processing point of view, is to help the client sustain positive metacognitions with regards to his or her decision-making process, in addition to sustaining realistic, positive client self-talk.

There are several possible intervention points when using CACGS as a tool. The first intervention point is prior to system use. It is the responsibility of the counselor to determine if a CACG is an appropriate intervention for the client at a given time. This is based on two factors: the emotional, physical and cognitive readiness of the client to use the system appropriately and effectively, and the degree to which the goals of the CACG matches client needs (Pyle, 1987; Sampson, 1983, 1986).

If the counselor decides that the CACG is an appropriate intervention, the counselor then has seven main issues to discuss with the client prior to allowing the client to use the system (Sampson, et al., 1993). These seven points were designed with the purpose of increasing the likelihood of a positive interaction with the CACG. The seven points include discussion of (1) CACG capabilities and limitations; (2) common myths that people have about CACGS, such as the CACG providing the perfect choice; (3) the fact that a person does not need to have extensive experience with computers in order to have a "successful" experience with the CACG; (4) taking a "playful" approach and taking risks when using the CACG for career exploration; (5) printing out certain displays, such as a summary page of self-assessment activities, list of occupations, etc.; (6) how computer records are kept and client confidentiality; and (7) any CACG introductory handouts or exercises (Sampson, et al., 1993).

Another potential counselor intervention point, in CIP terminology, would be at the analysis stage, which corresponds to the self-assessment modules/sections of the CACG systems. According to Sampson, et al., (1993), when the counselor describes the specific variables of a particular CACG systems (i.e., interests, values), this prepares the client with a conceptual understanding of how to use the system, and builds client confidence in the ability to successful use the CACG. Sampson and Johnson (1993) suggests several potential intervention points, including prior to, during and following CACG use.

The goal of "prior to system use" interventions is to prepare the client for effectively using the first CACG modules or sections recommended by the counselor. Interventions occurring during or between system use should focus on discussions of the experience thus far, integrating the experience into the process of career decision making, reviewing printouts and helping the client prepare for the next CACG module or section. Interventions

following system use should focus on helping the client take the information gained from the CACG and apply it to the career decision he or she is trying to make, as well as linking the client with other available resources.

In reviewing CIP theory and the goals, roles and outcomes of CACGS, it is apparent that some similarities exist. Within the process of the CASVE cycle, the person begins with understanding their career problem, followed by analyzing self and options, expanding and narrowing options, weighing the positives and negatives of certain options, prioritizing options and then acting on that choice. Most CACGS lead a person through the same process. In addition, counselors can intervene in ways that complement this process as well, as described in this section. Having an understanding of how a CACG fits into a theoretical perspective allows the counselor and client to have a more realistic perspective as to how the CACG, as a tool, will help move the client towards a successful career decision.

According to CIP theory, the thoughts a person has about themselves impacts the way they process information about self, occupational alternatives and make decisions. Vocational identity and decidedness are both statements of how a person currently feels in relation to their career decision. In fact, significant negative relationships were found between high dysfunctional career thoughts (as measured by the Career Thoughts Inventory; Sampson, Peterson, Lenz, Reardon and Saunders, 1996) and low vocational identity (as measured by the Vocational Identity Scale of the My Vocational Situation; Holland, Daiger and Power, 1980) and low levels of decidedness, as measured by the Career Decision Scale (Osipow, Carney, Winer, Yanico, & Koschier, 1987) and the Career Decision Profile (Jones, 1988). As this is true, it will be important to examine the history of vocational identity and decidedness and the impact that has upon client anticipations.

Vocational Identity

Vocational identity has been defined as "the possession of a clear and stable picture of one's goals, interests and talents" (Holland, 1993, p. 1). This clear and stable view of self should result in a person having confidence in their decision-making skills, even when their surrounding environment is filled with ambiguity. Other researchers (Forrest & Mikolaitis, 1986; Chodorow, 1978; Gilligan, 1982; and Lyons, 1983) have expanded the concept of vocational identity to include how one defines oneself in relationship to others. These researchers believe that vocational identity becomes more apparent as a person makes a commitment to him or herself in light of his or her relationships to others. Leung, Conoley, Scheel, & Sonnenberg (1992) defined the outcomes of a clear or high

vocational identity as a narrowing down of occupational options to a reasonable number, and having confidence in one's ability to make decisions.

Several studies have been conducted on vocational identity, which enables researchers to specify certain characteristics of people with high versus low vocational identity. Vocational identity has been found to be related to vocational maturity, as measured by the Career Decision Scale (Osipow, Carney, Winer, Yanico, & Koschier, 1987) for both males ($r = .63$) and for females ($r = .67$; Super, Thompson, Lindeman, Jordaan, and Myers, 1981). Characteristics of males with high vocational identity included social extroversion, being well adjusted socially, not overly independent or dominant, and having strong interests in science. High vocational identity has also been associated with a higher sense of well-being (Henkels, Spokane, and Hoffman, 1981). According to Holland, et al. (1993), Costa and McCrae (1985) found a relationship between five NEO Personal Inventory scales and identity, with higher scores reflecting extroversion, conscientiousness, and non-neuroticism. In their review of recent research on the MVS, Holland et. al (1993) summarized that "other personality scales or inventories...imply that high scorers possess ego identity, hope, are tolerant of ambiguity, are inner-directed, value using special abilities, being creative and original, and wanting to exercise leadership" (p. 5).

A more recent study by Lucas and Epperson (1990) used a MANOVA with Vocational Identity which identified five clusters. For the purpose of this review, the cluster with the lowest and highest vocational identities will be reviewed. In cluster 1, the average vocational identity of the group was 4.30. People in this group were characterized as having "high anxiety, low self-esteem, little or no interest in work and related activities, external locus of control, dependent decision-making style, need for occupational information, and perceptions of barriers." (p. 463). People in cluster 5 had an average vocational identity of 6.76, and were described as having "little or no anxiety, high self-esteem, little or no interest in relationships and work activities, some interest in leisure activities, external locus of control, non-dependent decision-making style, not perceiving barriers when pursuing career goals, and do not express a need for occupational information" (465). Other outcomes of a low vocational identity include having many unrelated career options and a lack of confidence in one's ability to make decisions (Leung, Conoley, Scheel, & Sonnenberg, 1992).

Enhancing client vocational identity is an obvious goal for career counseling, and career counselors employ many tools to help clients develop a more stable picture of themselves. From Cognitive Information

Processing theory, this might include self-assessment activities, providing information about occupations, teaching decision-making process and skills, and providing training in metacognitive strategies. High vocational identity has been found to be related to confidence, career maturity, social interactions, little or no anxiety, higher sense of well being, hope, being inner-directed, creativity, and an ability to narrow options. People with low vocational identity may have characteristics of high anxiety, low self-esteem, inability to narrow options and a dependent decision making style. Clearly, people with low identity may come to the counseling situation, and the CACG interaction, with incorrect perceptions of what will occur. People with dependent decision making styles may expect the CACG to provide the answer for them, or tell them what to do. People with low self-esteem may not give an honest evaluation of their skills and interests, in that their view of self is often jaded. Understanding how a person with a low vocational identity might be perceiving the purpose of the CACG will help the counselor know to evaluate the degree to which these misperceptions are held.

If building vocational identity is one goal of career counseling, then helping clients become more decided about their futures is certainly another goal of career counseling. There are a variety of characteristics associated with the factor of decidedness, and these will be discussed in the next section.

Decidedness

Decidedness has been defined as "the degree to which a person is able to identify a primary occupational goal or occupational alternative (Lenz, 1990, p. 9). Lucas and Epperson (1988) cluster analyzed multivariate data on undecided students. Five types emerged. The first group included people who were very close to deciding on their career goal, with the main need being that of integrating their plans and their priorities. The second group was characterized by a difficulty in deciding which area of their life to concentrate on: work, relationships or leisure. The third group had a very small number of interests, who also felt unmotivated and helpless. The fourth group reported feeling distressed and unclear about their plans, while the fifth group, similar to the first, were close to deciding, but at that point had no real interest in work or relationships.

Another study (Peterson, Ryan-Jones, Sampson, Jr., Reardon, & Shahnasarian, 1994) examined the effectiveness of DISCOVER, SIGI, and SIGIPLUS, as rated by 126 volunteer students from an introductory psychology class, who were assigned to one of the three systems and then completed the CACG-EF. They also looked at the impact of career decidedness and vocational identity, and found career decidedness to be significantly

related to subject's perceptions of CACG systems. "Subjects who were more decided about their career goals viewed CACG systems more positively in terms of: (1) helping individuals to acquire self-knowledge and occupational knowledge (analysis); (2) helping users to identify potential career options (synthesis); and (3) obtaining a more enjoyable and rewarding computer interaction (effects)" (p.7)

Peterson, Sampson and Reardon (1991; Peterson, Sampson, Reardon & Lenz, 1996) identified three states of career decision: the decided individual, the undecided individual, and the indecisive individual. A decided individual is defined as someone who has made a career decision. From a CIP perspective, the decision would have been made as a result of successfully integrating knowledge about self and options in rational way. According to Peterson, et al., decided individuals may seek career counseling to confirm their choice, define specific steps for implementing their choice, or they may actually say they are decided, when, in fact, they are undecided or indecisive. Sometimes people will say they are decided to avoid the stigma or anxiety of being labeled otherwise.

An undecided person is defined by Peterson, et al. (1991; 1996) as someone who has not yet committed to an occupational choice. Their lack of decidedness may be due to several factors, such as not having a need to decide at the present time (i.e., a freshman in college), needing additional information about themselves or occupations, or having multiple interests and aptitudes. Being undecided may have a mild amount of anxiety associated with the state.

An indecisive person tends to have problems in approaching and making all types of decisions, and often experiences a "dysfunctional level of anxiety" when attempting to make decisions (Peterson, et al., 1991, p. 171). In their review of the literature, Peterson, et al. (1991) mention two types of indecisive people, the "planless avoiders" (people who do not seek out or adhere to a career plan and have inappropriate coping strategies) and the "informed indecisives" (people with information and knowledge about career planning activities, accompanied with an inability to decide) (p. 171). According to Peterson, et al. (1991; 1996), inappropriate self-talk is also evident with indecisive people. They provide several examples of faulty thoughts, including "there is only one vocation in the world that is right for me; someone else can discover the vocation suitable for me; and intelligence tests will tell me how much I am worth" (Peterson, et al., 1991, p. 172). It is easy to see how these dysfunctional thoughts are similar to potential client anticipations about a CACG "should" perform.

Fretz (1981) suggested that career decidedness was a potentially important client attribute for inclusion in vocational intervention studies. In addition, Fretz and Leong (1982) hypothesized that career decidedness would be "a most logical source of client differences that might predict outcomes of career treatment" (pp. 388). It is apparent that different levels of decidedness exist. Depending on their characteristics, a person may need different emphases in career counseling in order to help them move towards the goal of becoming decided. The study by Peterson, et al., (1994) demonstrates that the degree to which a person is decided impacts their reactions to a CACG experience. If, as a career counselor, one of our goals is to ensure that our interventions benefit our clients, then we must understand what type of characteristics will lend themselves to success. Knowing that clients with low levels of decidedness tend not to find the CACGS as helpful equips the counselor with the understanding that something needs to occur prior to CACG interaction to increase the likelihood of the interaction being successful.

Analysis of the Literature

Upon reviewing the literature, three main criticisms arose. These included the ambiguity of terminology, instrumentation, and gaps in the literature.

Ambiguity of Terminology

Throughout the literature, the use of the term "expectation" and "anticipation" seem to be interchangeable, and unfortunately, largely undefinable. In their research, Galassi et al., (1992a) failed to operationally define the terms "anticipation" and "preference", except through the differentiation of the statements "What do you think you will be required to do in session?" representing anticipation, and "What would you like to do in session?" representing preference. Tinsley (1992) states that in the psychology literature, the term expectation is what Galassi et al. (1992a) call anticipation, while "the more serious problem is the use of the hybrid term, expectations, as preferences" (p.61). It is interesting to note that while Tinsley (1992) alerts the reader to this problem, he also fails to provide an operational definition of either term. It is apparent, that in conducting research, the researchers must directly define the terms they are using.

Instrumentation

The one article (Galassi, et al., 1992a) that addresses anticipations and testing utilized only one instrument in determining anticipations, an open-ended questionnaire. In his critique of Galassi et al.'s (1992a) work, Tracey (1992) elaborated on the concern of using an open-ended question, stating that not all clients will put as much effort

into filling out open-ended questions as will other clients, and therefore perhaps a willingness to complete an open-ended survey is more a measurement of cooperativeness. Another concern Tracey (1992) raises is the practice of clients providing multiple responses, and the resulting violation of "the key assumption of independence involved in the statistical tests used, specifically the correlation of correlated proportions and the chi square tests of independence" (p.57). In a separate critique, Tinsley (1992) also raised a question about the open-ended survey, stating that questions, whether open-ended or not, are by their very nature, a reflection of the researcher's perspective or hypothesis. Tinsley (1992) makes the statement that the questionnaire begins from the clients' perspective and ends with the researchers'.

While Tracey (1992) and Tinsley (1992) raise some important issues, it must be stated that Galassi et al.'s research was the first study to be conducted in this area, and therefore was designed as an exploratory study. It would have been desirable to see a more objective measure of anticipations included with the open-ended questionnaire. However, that is not what was done, and what we have is a first attempt at presenting qualitative data on the matter. Another point is that regardless of whether or not a questionnaire consists of open or close ended questions, free response or a Likert scale, the researcher's perspective will be inherently present in the fact that those specific items were included. In a study that utilizes free responses, the researcher must provide some structure for classifying the responses. Ideally, this classification should be based on theory, in combination with professional experience and expertise.

Gaps in the Literature

From reviewing the literature, it is apparent that very little research (seven articles) exist that examine client expectations and career counseling. Several articles do exist, however, on client expectations and the counseling profession as a whole. Galassi et al. (1992a, b), Tracey (1992), and Tinsley (1992) identified a philosophical concern about the degree to which research (and results) from the general field of counseling psychology can be applied to career counseling. For example, Tinsley and Bentley. On the one hand, it is apparent that there are several similarities between career counseling and personal counseling, especially if examined in light of cognitive theory. On the other hand, it would seem somewhat premature to assume that the findings of one field are automatically generalizable to another field, regardless of how similar the fields may be. Galassi et al. (1992b) state that "counseling researchers have tended to apply these guidelines [established by counseling researchers] with

too much certainty to various areas of inquiry,... failing to address the unique ways in which those endeavors differ from one-to-one, personal counseling” (p. 66). To summarize their point of view on this matter, they state “There is little to be gained by replicating the mistakes of personal counseling expectations theory and research in career counseling through haphazardly applying the theories and procedures of the former to the latter” (p.67).

In searching for a balance between both extremes, it seems that research conducted within the career counseling field should be compared to findings in the counseling field, to determine similarities and contrasts. Seeking such a balance would maximize the possibility of strengthening the uniqueness of one field while enhancing the gestalt of the profession of counseling as a whole.

Secondly, based on Galassi et al.'s (1992a) research, it seems that clients seeking career counseling services are frequently anticipating that their preferences will not be met. In addition to a need for having this finding replicated, there is a need to find out exactly how clients' preferences and anticipations affect the process and outcome of career counseling. Another question to be addressed is what can be done to minimize the discrepancy between clients' preferences and their anticipations. Expanding from those questions, until now, no study has directly examined client anticipations in relation to using CACGS. As CACG systems continue to emerge as a viable instrument for helping clients with career decision making, having an understanding what clients anticipate occurring as a result of using CACGS as well as what the CACG systems actually provide will become increasingly essential.

CHAPTER II METHODOLOGY

Introduction

This chapter includes a discussion of the methodology used for the present study. Topics to be covered include identification of hypotheses, and a presentation of research design, participants, independent and dependent variables, instrumentation, procedures, and data analysis. The primary focus of this research was to identify the anticipations clients have for computer-assisted career guidance (CACG) outcomes, and to examine the relationships between vocational identity and anticipations, and decidedness and anticipations. The major research questions included:

- 1) What are the outcomes clients anticipate occurring as a result of using a computer-assisted career guidance system?
- 2) What is the relationship between vocational identity and anticipations for CACG outcomes?
- 3) What is the relationship between level of decidedness and anticipations for CACG outcomes?

Hypotheses

The type of study conducted was an exploratory study. No research exists that examines the link between client anticipations and CACGS. No research exists that links anticipations about computer outcomes to vocational identity, nor does any research exist that relates CACG outcomes to decidedness. Therefore, the null hypotheses can be stated as follows:

Ho1: There will be no difference between participants with high and low vocational identity with respect to anticipations about CACG outcomes

Ho2: There will be no differences outcomes between participants with high and low measures of decidedness with respect to anticipations about CACG.

Research Design

As stated previously, no previous research has been conducted on the type of anticipations clients have regarding CACG outcomes. Therefore, an exploratory design was used. A nonparametric test of differences was

utilized with the free response data. In addition, a correlational design was used to help investigate the relationship between vocational identity and client anticipations and the relationship between decidedness and anticipations.

Participants

Participants included people (N=55) who presented themselves at the Curricular-Career Information Service (CCIS) in the Career Center at Florida State University. CCIS is a unit in the Career Center that seeks to serve the various career problem-solving and decision-making needs of students and community members. Typical career needs range from needing to choose a major, learning about one's self, gaining occupational information, identifying training options, writing resumes, to needs for changing careers..

Table 1 presents a summary of participant demographic information. The total sample studied consisted of 24 (44%) males, and 31 (56%) females. The ethnic composition of the sample included 43 (78%) Caucasian, 6 (11%) African American, 2 (4%) Asian-American, and 2 (4%) Hispanic-American. Two participants indicated that they preferred not to answer this item. In terms of college classification, the majority of the participants were freshmen (N = 15; 27%), sophomores (N = 13; 24%), juniors (N = 9; 16%) and "other" (N = 9; 16%). Five (9%) were seniors, and 4 (7%) were graduate students. Ages of participants ranged from 18 to 55 with a mean age of 21.7 (median = 20). Thirty (54%) indicated that they had used some type of career assistance before. Fifty-two (95%) stated that they had some type of computer experience, while only 10 of the 55 (18%) stated specifically that they had used a CACG before.

Variables

Independent Variables

The main purpose of this research was to identify the anticipations about computer outcomes that clients have when desiring to use a CACG system. Additional questions addressed the relationship between vocational identity and client anticipations for CACG outcomes, and the relationship between career decidedness and client anticipations for CACG outcomes. Vocational identity was operationalized by the identity scale of the My Vocational Situation (Holland, Daiger, & Power, 1980). Career decidedness was operationalized by the Occupational Alternatives Question (Slaney, 1980; 1988).

Dependent Variables

The specific anticipations listed by clients and the corresponding categories served as the dependent variables in this study. These specific categories were stem from CIP theory (Sampson, et al., 1992; and Peterson, et al., 1996), and include: Self-Knowledge, Occupational Knowledge, Communication, Analysis, Synthesis Elaboration, Synthesis Crystallization, Valuing, Execution and Executive Processing. In addition, a Computer Effect category was added. Appendix F provides a description of the various categories.

Instrumentation

Free Response Forms: Exercise 1 and Anticipations About Computer Outcomes-Form A (AACO-A)

Exercise 1 was created by the authors to serve as a "warm up" activity in preparation for the Anticipations About Computer Outcomes-Form A (AACO-A; see Appendix E). The instructions stated "Please list the occupations that you have considered, from the time you were a child to this point. Imagine that you are doing this at home, and express how you actually feel. Put down what immediately comes to mind. There are no prizes for the longest list". The paper was numbered from 1 to 12, and allowed room for additional occupations.

The AACO-A consisted of one question, "What do you anticipate the computer will do for you?". Instructions were similar to those listed for Exercise 1: "Please list each anticipation below. Imagine you are doing this at home and express how you actually feel. Put down what comes immediately to mind. There are no prizes for the longest list". The paper was numbered from 1 to 10, with a statement at the bottom of the page, "Record on the back if there are more anticipations."

For scoring purposes, several categories were predetermined, based on the Cognitive Information Processing Theory proposed by Sampson, Peterson and Reardon (1991), and further described by Peterson, Sampson, Reardon and Lenz (1996). These were not presented on the actual AACO-A, but were used as a code for classifying the free responses. These categories included anticipations related to: Self Knowledge, Occupational Knowledge, Communication, Analysis, Synthesis Elaboration, Synthesis Crystallization, Valuing, Execution, Executive Processing, Computer Effect, and Non-Classifiable. See Appendix F for the category code, which describes and gives examples of each of these categories.

Swanson and Tokar (1991) used a similar free response, thought-listing instrument to elicit college students' perceptions of barriers to career development. Their rationale for using this type of instrument was that it

made the data collection more participant-guided, and less researcher-guided, thus reducing the likelihood that experimenter bias influenced the results. They modified related classification systems to determine categories for the instrument.

Survey Form: Anticipations About Computer Outcomes-Form B (AACO-B)

The Anticipations About Computer Outcomes-Form B (AACO-B; See Appendix G) is a modified version of the Computer-Assisted Career Guidance Evaluation Form (Peterson, et al., 1988). The CACG-EF (Peterson, et al., 1988), a modified version of the Counselor Rating Form (Barak & LaCross, 1975), was developed to measure clients' perceptions of how effective a CACG system had been in relation to three scales: Analysis, Synthesis and Computer Effect. The Analysis Scale consisted of items related to needs for occupational knowledge, knowledge of occupational rewards and demands, and clarifying self-knowledge. The Synthesis Scale included items related to the credibility of alternatives and satisfaction of alternatives. The Computer Effect Scale included items related to the attractiveness of CACG systems. The CACG-EF was utilized after a client interacted with a CACG system as an evaluation measure; therefore, the items were all in past tense. For example, "The computer was helpful in accurately clarifying my interests". Intercorrelation between the three scales ranged from .39 to .60, and alpha reliabilities were reported at .83 for Analysis, .77 for Synthesis, and .87 for Computer Effect (Peterson, et al., 1987).

The AACO-B modified the CACG-EF in two main ways. First, the language was translated into future tense, i.e., "The computer will help me better understand myself," so as to reflect "anticipation". Secondly, items were added to or discarded from the form that were thought to more fully represent the most recent version of Cognitive Information Processing Theory (Peterson, Sampson, & Reardon, 1991; Peterson, Sampson, Reardon & Lenz, 1996), raising the number of items from 24 to 30. This resulted in the following distributions among 10 categories: Self Knowledge (3 items); Occupational Knowledge (7 items); Communication (3 items); Analysis (2 items); Synthesis Elaboration (3 items); Synthesis Crystallization (1 item); Valuing (2 items); Execution (2 items); Executive Processing (1 item); and Computer Effect (1 item). A five-point Likert-type rating scale was developed, where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree. Table 6 indicates the intercorrelations among the surveyed anticipations categories. Correlations of the categories ranged from .01 to .52, with a median of .24, suggesting that the individual dimensions were independent.

My Vocational Situation

Vocational identity was determined by the Vocational Identity Scale (VIS) of the My Vocational Situation (MVS; Holland, Daiger, & Power, 1980). The VIS consists of 18 true/false items, such as "I don't know what my major strengths and weaknesses are" and "I'm unsure of myself in many areas of life". The "falses" are scored to produce a maximum score of 18. The higher the score, the higher the level or the clearer the sense of a person's identity (Holland, Johnston, and Asama, 1993). According to Holland (1985, p. 28), the vocational identity scale of the MVS "measures the clarity of a person's vocational goals and self-perceptions". This definition was further explicated by Holland, et al. (1993) as being "the possession of a clear and stable picture of one's goals, interests, and talents," which should "lead to relatively untroubled decision-making and confidence in one's ability to make good decisions in the face of some inevitable environmental ambiguities" (p.1).

Reliability estimates for the MVS were reported at .89 for the Vocational Identity Scale (Holland, et al., 1980). Test-retest reliability was found to be .75 for a 1 to 3 month interval (Holland, 1991) and .64 at 3 to 5 months (Lucas, Gysbers, Buescher & Heppner, 1988). In terms of construct validity, Monahan (1987) found that high levels of decidedness, as measured by the OAQ are related to high levels of vocational identity. The concurrent validity between vocational identity items and career indecision items on the Career Decision Scale (Osipow, Carney, Winer, Yanico & Koschier, 1987) was found to be -.73 (Williams-Phillips, 1983).

Two studies used the MVS in a factor analysis. One study (Taylor, 1980) reported that confused identity and aspects of making a choice appeared to be the 2 main factors represented in the Vocational Identity Scale. Another study (Tinsley, Bowman, & York, 1989) found the vocational identity scale to be measuring "clarity," as well as other "obstacles that also load on certainty, decision-making obstacles, and informational deficit factors (p. 119). Vocational identity and academic classification have been found to be significantly correlated ($r = .1560$, $p = .027$), with seniors having a mean VI score of 11.24, versus freshman, whose mean score was 9.38 (Poe, 1991). Also, Leong and Morris (1989) found the VI scale positively related to career maturity and the use of a rational decision-making style, and negatively related to social anxiety and intolerance of ambiguity. Holland, Johnston and Asama (1993) provided a further elaboration on the characteristics of high scorers, stating that "high scorers possess ego identity, hope, are tolerant of ambiguity, are inner-directed, value using special abilities, being creative and original, and wanting to exercise leadership" (p. 5).

A person's scores on the MVS can also be useful in designing and assigning treatment interventions. Holland et al., (1980) "expect the MVS to help determine the type of vocational assistance needed by respondents, allowing differential assignments of clients to interventions". According to Leung, Conoloy, Scheel, and Sonnenberg (1992), "Knowing an individual's level of vocational identity, along with other information from the MVS, suggests to the counselor appropriate treatment goals for clients with diverse needs" (p. 95).

In this study, local norms were used to set the cutoff. The average person seeking career advising services at CCIS has a vocational identity of 5. Therefore, the decision was made that scores of 5 or less would be labeled "low identity" (N = 26), while scores of 6 or more would be labeled "high identity" (N = 24). In addition, other research (Reardon, Lenz, & Strausberger, 1993) conducted in this setting supports this break as well, where the mean VI score was 5.26, with a standard deviation of 3.15.

Occupational Alternatives Question

Decidedness was measured by The Occupational Alternatives Question (OAQ; Zenner & Schnuelle, 1972; modified by Slaney, 1978; 1980; See Appendix C). Slaney (1988) suggested viewing the OAQ as "a rough estimate of career indecision rather than as a scale" (p. 62). "The OAQ consists of two parts: (a) "list all of the occupations you are considering right now," and (b) "which occupation is your first choice? (if undecided, write undecided)" (1988, p. 61). This creates four response possibilities: (a) A first choice is listed with no alternatives; (b) A first choice is listed with alternatives; (c) Alternatives are listed without a first choice, or (d) No first choice and no alternatives are listed. Scoring was calculated on the above code, so that a= 1, b=2, c=3, d=4.

Redmond (1973) reported test-retest reliability at .93, and Slaney (1978) reported stability over a six week period. Burkey-Flanagan (1981) found a correlation between OAQ score and Vocational Identity scores of -.48. People with an OAQ score of 1 had higher vocational identities than people with an OAQ score of 2, who had higher vocational identities of people with OAQ scores of 3 or 4. In summarizing the research conducted on characteristics of individuals with various OAQ scores, Slaney (1988) described people with an OAQ score of 1 as being relatively decided about their career choices" (p.64). Even though they do not normally seek out career counseling, when they do so, it is likely to be for the purpose of confirming their first choice (Slaney & MacKinnon-Slaney, 1986).

According to Slaney (1988) people with an OAQ of 2 score of seem to be considering a tentative first choice along with some other alternatives. Similarly, for people with an OAQ score of 3 may seek assistance in comparing the alternatives from which they are trying to choose. Clients scoring a 4, i.e., not listing any alternatives nor a first choice, may need information on their options, as well as guidance on how they may relate to the world of work. Due to the low number of participants in this study ($N = 55$), as well as the low number of OAQ scores of 1 and 4, the decision was made to combine OAQ levels 1 and 2 as "decided" and to label OAQ levels 3 and 4 as "undecided".

Procedures

Fifty-five people presenting themselves at the Career Advising desk of CCIS with a request to use a computer or take a test volunteered for this study. Individuals were informed of a research study investigating what people anticipate to happen as a result of using a computer-assisted career guidance system, and then asked if they would like to participate. If the person said "No," service delivery would continue in the usual manner. If the person said "Yes," they were handed a folder containing an informed consent form (Appendix B), a demographic sheet including the OAQ (Appendix C), Exercise 1 (an occupational listing exercise to prepare them for the free response question; Appendix D), Anticipations About Outcomes-Form A (AAO-A; the free response question; Appendix E), Anticipations About Outcomes-Form B (AAO-B; a survey; Appendix G), and the My Vocational Situation, in that order. The Human Subjects Committee at Florida State University granted approval for the use of participants at the university for this research project (see Appendix A). The free response forms (Exercise 1 and AAO-A) were placed before the survey form (AAO-B) and the MVS, so as to reduce cueing of anticipations. After completing the materials, service delivery resumed with the person. Participation in the research had no influence on the content of advising or interventions chosen.

Selection for participation in this study was determined by an individual's initial statement of why they had come to CCIS. If the statement was similar to "I want to take a test" or "I heard there was a computer I could use," the person was asked if they would be willing to participate in a research effort that was examining what clients expect will happen as a result of using the computer. When a client specifically used the word "test," the advisor would explain that most of the assessments are available on computer, and would they like to use one of the computers. The generic term "computers" was used, so that clients might not be influenced in describing their

anticipations. If they indicated that they would like to use a computer, they were asked if they would be willing to participate in a research effort that was examining what clients anticipate will happen as a result of using the computer. If they indicated they did not want to use a computer and preferred a paper and pencil test, they were not included in the study.

All participants were volunteers, and were assisted with their career concerns after they completed the research forms. Confidentiality was maintained through the use of participant numbers (a three digit code, ranging from 001 to 055), which were placed on folders containing the completed forms. Participants' materials were stored in numbered folders in a bin in an office in the Career Center. The bin was accessible only by those involved in the research study. During the analysis, "case number" was used to record individual responses, with no additional identifying data being used.

Data Analysis Procedures

Free Response Forms (AACO-A)

Each item on the free response question was written on a 3 X 5 card. On the back of the cards, the following information was written: Case number, MVS identity score, MVS information score, MVS barrier score, sex, ethnic group, classification (freshman, sophomore, etc.), OAQ score, number of occupations listed in Exercise 1, number of computer experiences, whether a CACG had been used previously, and the number of career service activities in which the person had been involved.

The CIP model (Sampson, Peterson, Lenz & Reardon, 1992; Peterson, et al., 1996) was used to create a classification system for predetermined categories into which the anticipations would be sorted. The categories included anticipations about: Self-Knowledge, Occupational Knowledge, Communication, Analysis, Synthesis-Elaboration, Synthesis Crystallization, Valuing, Execution, and Executive Processing. In addition to these categories, a Computer Effect category was created, addressing anticipations about the actual interaction with the computer. Finally a "Not classifiable" category was created for those anticipations that could not be easily identified. A "code" sheet was created to describe the different categories (Appendix F).

The senior author then sorted the cards into the categories, marking on the back of the card as to which pile she thought the card belonged. Problem cards were discussed with another researcher involved in CIP theory development, and the code was adjusted. Two career counselors with approximately 2 years of experience were

then chosen to sort the cards. They were instructed to only look at the front of the card, which had only the anticipation written on it. Prior to sorting the cards, the raters were given a copy of the categories code, as well as a practice sorting task on similar responses. Their decisions for the placement of each card in a pile were discussed. Using the same categories, the first rater sorted the cards into piles.

The senior author then took the cards, one pile at a time, and marked on the back of each card when there was disagreement. The senior author's classification and the first rater's classification were placed on the back of the card. The second rater was not present during this rating process. This type of card-cluster approach with client anticipations was also used by Apfelbaum (1958), in looking at what clients expect the therapist's attitudes and behaviors to be like prior to the counseling experience.

After the cards were marked, they were shuffled and given to the second rater, who sorted them into the categories. When two out of three (or three out of three) of the raters agreed on a classification, the card was labeled as being a part of that category. When there was total disagreement, the card was added to the "not classifiable" pile. 95% agreement rate was reached with the raters. At this point, the three raters examined the anticipations in each category for consistent findings, by looking at the back of the cards. Also, total numbers within each group were calculated. This was followed by additional sortings by MVS score, gender, OAQ scores, and others, to see the type of anticipations that were common for each of those groups. A Chi square analysis was performed to determine if there was any difference among the groups. In addition, percentages were compared to determine rankings of anticipations. Correlations were run as well to determine the nature and degree to which a relationship exists between variables.

Survey Response Forms (AACO-B)

The surveyed item responses (AACO-B) were classified in a manner similar to the free response forms, using the same code as with the free responses. Ninety-six percent agreement rate was reached with the raters. A MANOVA was run with the dependent measures being the OAQ and MVS, and the following scales being entered: Self Knowledge, Occupational Knowledge; Communication; Analysis; Synthesis Elaboration; Synthesis Crystallization; Valuing; Execution, Executive Processing and Computer Effect. In addition, a rank order analysis was conducted.

CHAPTER III

RESULTS

Introduction

As indicated in Chapter III, a nonparametric design was used to examine the relationships among the free response items in the study. Statistics were run with the Statistical Package for the Social Sciences for Personal Computers (SPSS for Windows, Release 5). This chapter includes a report of the following results: Classification of Free Responses, Chi Square results, Classification of Survey Responses, MANOVA results and Spearman Rank Correlations of anticipations.

Classification of Free Responses (AACO-A)

The initial response pool consisted of 147 cards; 18 (12%) were discarded because they were not classifiable. The final number of responses was 129. The number of responses per participant ranged from zero to seven, (mean = 2.5, median = 2). Frequencies, percentages and rankings of anticipations (free response) by OAQ and MVS level are reported in Table 2. Three main categories of anticipations of computer outcomes: Synthesis Elaboration, or elaboration of options to consider (43 comments, 33%), the development/organization of Occupational Knowledge (30 comments, 23%), and the enhancement of Occupational Knowledge (fourteen comments, 11%) Eleven comments (9% each) were made for both Synthesis Crystallization and Executive Processing. The distribution of anticipations into other categories varied: Communication (3 comments, 2 %); Analysis (5 comments, 4%); Valuing (9 comments, 7%); Execution (1 comment, 1 %), and Computer Effect (2 comments, 1%).

Distributions, sample responses and percentages of free responses as indicated by the AACO-A forms are presented in Table 3. For the Occupational Knowledge category, anticipations of exploring interests were most frequently listed (N = 14; 47%). For Occupational Knowledge, gaining information about occupations was stated the most frequently (N = 10; 71%). For the Synthesis Elaboration category, the most frequently listed comments include "Give me a list of options to consider that I haven't thought about before" (N = 14; 33%) and "Help me match my interests/skills with potential career choices" (N = 13; 30%).

The results of the AACO-Form A were also examined in light of a client's level of decidedness, measured by the OAQ, and vocational identity, measured by the MVS. Table 2 examines the frequencies, percentages and

rankings of free response anticipations with respect to OAQ and MVS scores. OAQ scores were divided into "decided" (for OAQ scores of 1 or 2) and "undecided"(for OAQ scores of 3 or 4) categories. The MVS was divided into "low identity" (MVS scores ranging from 0-5) and high identity (MVS scores ranging from 6-18). The most commonly stated anticipation, regardless of MVS or OAQ score, was that of increasing options to consider (Synthesis Elaboration). The second most commonly stated anticipation was to enhance Self-Knowledge, followed by increasing Occupational Knowledge.

From examining the total free responses, it can be seen that clients with OAQ scores of three and four, representing those who are less decided, have almost twice as many anticipations for CACG outcomes. A similar, yet not nearly as dramatic difference was also demonstrated with MVS scores, with those with lower vocational identity having slightly more anticipations.

Chi Square Results

The use of Chi Square indicated there were no group differences on anticipations as reflected by OAQ or MVS score.

Classification of Surveyed Responses (AACO-B)

The frequencies and percentages of items endorsed as "agree" or "strongly agree" on the AACO-Form B further support the findings from the AACO-Form A. As Table 4 indicates, regardless of MVS or OAQ score, the strongest anticipations were for Synthesis Elaboration, Occupational Knowledge and Executive Processing. Table 5 demonstrates that an average of 83% of the participants endorsed items (agree or strongly agree) reflecting the anticipation of the computer helping to increase options (Synthesis Elaboration), while approximately 70% endorsed items concerning Occupational Knowledge. On average, over 50% of the participants endorsed items that indicated an anticipation towards the computer to enhance Self-Knowledge and increase confidence (Communication), while 69% agreed or strongly agreed with the anticipation of Executive Processing.

Examination of the total scores of anticipations (Table 4) reveals that clients who had OAQ scores of three or four, indicating lower levels of decidedness, scored 1,179 points higher than those who are more decided. A similar, yet not as dramatic effect is demonstrated with MVS scores, with those who have a lower level of vocational identity scoring 351 points higher than those with higher levels of vocational identity.

MANOVA Results

Means and standard deviations for the independent and dependent variables are presented in Table 4.

The following hypotheses were tested through the use of MANOVA:

Hypothesis 1-2

Ho1: There will be no difference between participants with high and low vocational identity with respect to anticipations about CACG outcomes

Ho2: There will be no differences outcomes between participants with high and low measures of decidedness with respect to anticipations about CACG.

The use of MANOVA indicated that there were no differences between groups for anticipations when examined by OAQ or MVS scores, with $F=.75$, $p=.684$ for MVS, and $F=.85$, $p=.592$. Therefore, we failed to reject the null hypotheses.

Spearman's Rank Order Correlations

Due to the lack of significance for differences between the groups (anticipations as surveyed by the MVS and the OAQ), the decision was made to determine the similarity of responses, i.e., anticipations, for both groups by using the Spearman rank correlation. Table 4 shows the sums, means, standard deviations and ranks of the surveyed anticipations, as measured by AACO-B, while Table 5 shows the frequencies, percentages and ranks of the free responses as measured by the AACO-A. When the critical values were calculated, significance was found for each category, indicating high similarity of responses. The calculated values for the free responses (AACO-A) included: OAQ, $r_{\text{ranks}} = .897$, $p < .01$; and MVS, $r_{\text{ranks}} = .7152$, $p < .05$. The calculated values for the surveyed responses (AACO-B) included: OAQ, $r_{\text{ranks}} = .9394$, $p < .01$, and MVS, $r_{\text{ranks}} = .9515$, $p < .01$.

CHAPTER IV

DISCUSSION

The overall goal of this study was to enhance the existing literature on the role of anticipations with regards to CACG outcomes. The primary purposes of this study were to determine (1) the types of anticipations clients have for CACG outcomes, (2) whether anticipations are affected by vocational identity, and (3) whether anticipations are affected by levels of decidedness. In order to systematically address these questions, the following research questions were examined:

- 1) What are the outcomes clients anticipate occurring as a result of using a computer-assisted career guidance system?
- 2) What is the relationship between vocational identity and anticipations for CACG outcomes?
- 3) What is the relationship between level of decidedness and anticipations for CACG outcomes?

Summary of Results

Qualitative and quantitative approaches were utilized to examine these questions. Chi Squares and MANOVAs yielded no significant differences between clients with high and low levels of vocational identity and anticipations for CACG outcomes. In addition, no significant differences were found between clients with high and low levels of decidedness. This suggests that what students anticipate to happen as a result of using a CACG are consistent, regardless of their level of vocational identity and/or level of decidedness. Spearman Rank Correlations further supported these analyses with an indication that rankings of anticipations were consistent within each group (OAQ 1 & 2, OAQ 3 & 4, MVS 0-5, and MVS 6-18), at the significant level.

While there were no significant differences between groups, it was possible to identify those anticipations that clients as a whole had toward CACG outcomes. In addition, it was possible to classify these anticipations into theoretical categories, using the CIP paradigm as the basis for classification. Results from the free responses and surveyed responses indicate that 33% of clients wanting to use a CACG have anticipations that the CACG will help increase their options (Synthesis Elaboration), 23% anticipate enhancing their Self-Knowledge (identify values,

interests, skills), and 11% anticipate strengthening their Occupational Knowledge, while 9% anticipate to gaining direction and focus (Executive Processing) or to narrow their options (Synthesis Crystallization).

Similar findings have been suggested by Galassi, et al.'s (1992) study. They found that 15% of the people preferred the test to help them narrow (Synthesis Crystallization) or broaden options (Synthesis Elaboration), with approximately 26% preferring the computer to enhance Occupational Knowledge (identify strengths, weaknesses, and interests).

In addition, this research showed that students vary in the degree to which they think they know what the computer will do, as indicated by a wide range of scores on the survey question. This finding is particularly interesting in that it was reported in Galassi et. al's (1992) study as well, with almost 21% indicating that they didn't know what to anticipate the computer to do.

Regardless of identity or level of decidedness, clients have clear anticipations for what computer systems will do. They anticipate that the system will help increase the options they are currently considering, enhance Self and Occupational Knowledge, as well as to help them organize their plans (Executive Processing). This data is supported by statements from two major developers (ACT, 1995, personal communication; ETS, 1995, personal communication) that the majority of clients mainly use the assessment, search and information sections of a CACG system.

Results of the categorization of the free responses indicated that (a) participants did perceive the existence of anticipations in most of the categories, and (b) anticipations of the CACG system to expand options, i.e., were more frequent than anticipations for enhancing Self-Knowledge, which in turn, were more frequent than the other categories.

According to Sampson, Peterson, and Reardon (1989), "The core elements of all CACG systems are dissemination of occupational and educational information, generation of occupational alternatives, and self-assessment" (p.144). If we interpret these elements as Occupational Knowledge, Synthesis Elaboration and Self-Knowledge, then they are consistent with the results of this study, in that clients' anticipations revolve around Synthesis Elaboration, enhancing Self- and Occupational Knowledge, in addition to gaining a sense of direction or focus (Executive Processing).

Limitations of the Study and Implications for Further Research

While this study serves to enhance the field in regards to the type of anticipations clients have for CACG outcomes, some limitations exist. Further research is warranted, with the suggested changes, to examine how the effects may differ. The main limitation of this study concerns instrumentation. While the CACG-EF (Peterson, et al., 1987) had good reliabilities, ranging from .77 to .87, the modified form, AACO-B, had not been used before and therefore had no established reliability or validity estimates associated with it. The AACO-B was created from the CACG-EF, and therefore, the type and number of questions were mostly kept the same, with a few items added to ensure each pre-existing category, i.e., the categories suggested by the CIP Model (Peterson, et al., 1996) and the CASVE Cycle were represented.

The attempt to maintain the integrity of the original instrument while adding items to represent the theoretical constructs yielded one unfortunate outcome, being the unequal distribution of items across categories. In order to rectify this, category means were used in the data analysis. In addition, regardless of free response form or surveyed response form, anticipations were practically the same.

However, the need for the development of a valid and reliable instrument to measure client anticipations for CACG outcomes is imperative. This research should serve as a building block for future research. One of the strengths of the measures was the use of a theoretical paradigm with which to categorize both the free responses and the survey questions. If a new instrument is developed, it should incorporate a measure of dysfunctionality of anticipations. There is a difference between the statement, "The CACG will help me organize my interests" and "The CACG will tell me my interests", with the first statement being an appropriate anticipation and the latter being less appropriate.

Once these changes have been made, it would be prudent to re-examine the data with Chi-squares and MANOVAs with regards to vocational identity and decidedness. An additional question that should be examined would include the relationship between dysfunctional or unrealistic anticipations for CACG outcomes, unrealistic anticipations about career counseling, and dysfunctional career thoughts.

A second limitation has to do with the process of classification. In order to view the free response anticipations in view of the CIP theory, the researchers took a complex, interactional, dynamic process and divided it into concrete, measurable categories. While it provided insight into the variety of anticipations clients have for

CACG outcomes, this approach was limited in that it was evident that most of the participants had anticipations in more than one area, which was not readily demonstrated through the presentation of the results.

Some concerns have also been raised about the use of open-ended questions, such as the one used in the AACO-A form. Tracey (1992) stated that open-ended questions are "poor in determining representativeness, as there is great variability in responsiveness," and "given the time and effort required in answering open-ended questions, all respondents will not devote the same energy to completing the questionnaire" (p.56). He goes on to state that "I believe that only those cooperative clients with strong, well thought-out opinions are represented in open-ended format" (p. 57). However, the results of both the free response (projective) and survey (objective) measures were consistent, revealing that clients anticipate increasing options (Synthesis Elaboration), enhancing Self- and Occupational Knowledge, and gains in Executive Processing.

While the MANOVAs for anticipations yielded nonsignificant results, there is an obvious trend with regards to the total number of anticipations clients have, with respect to MVS and OAQ scores. The tendency appears to be that clients who are less decided and have lower identity have more anticipations about the outcomes of using CACGS, as evidenced by the totals reported in Tables 2 and 4. Such a large, yet nonsignificant difference warrants further investigations with an increased sample size.

Implications for Practice

This research identified the following client anticipations for CACG outcomes: Synthesis Elaboration (increasing occupational and/or educational alternatives), enhancing Self Knowledge (identifying values, interests, and/or skills) and enhancing Occupational Knowledge. These three anticipations are congruent with three of the four most commonly stated goals for CACGS which were identified in the introductions by theorists, researchers and developers as being: increasing knowledge about self, occupational knowledge, increasing options under consideration, and enhancing confidence. The results of this study seem to have 3 main implications for practice. These three implications include the role of orientation, relating the use of a CACG as an intervention to a theoretical orientation, and monitoring of client anticipations to identify potential unrealistic anticipations.

As CACG programs continue to increase in popularity, ethical standards need to be updated to reflect a need for accountability in using these interventions with clients. One area that counselors should pay attention to is the manner in which a client is oriented to a CACG program. When clients are not "adequately introduced to the

process involved in using a computer application" (Sampson & Pyle, 1983, p. 286), clients' misconceptions about potential outcomes of using the computer may go unchecked, and therefore, go uncorrected. For example, 48% of the people in Galassi, et al.'s (1992) study indicated that they thought the test would provide them with a person/career match. This is one of Krumboltz (1985) seven presuppositions about CACG use, in that "The computer knows best which occupations match client characteristics" (p.167). With other researchers (Stewart, et al., 1978) questioning the readiness of client with this type of faulty cognition for engaging in career counseling services, describing the general purpose of the CACG as part of an orientation to the system may aid in addressing this ethical concern, in that such a description increases the possibility of congruency between a client's anticipations and the intended outcome of using the system (Sampson, 1983).

In order to provide an effective orientation to a CACG, the counselor must be aware of the system's design, including its theoretical base, specific modules/sections, occupational database, search features and research base. Due to the lack of a standardized pre-CACG anticipations checklist or survey, perhaps it would be wise for counselors and/or developers to create a list of common anticipations (including incorrect anticipations) and anticipations that could be fulfilled with special features of specific CACGs, i.e., "I hope to explore military careers". This would serve two purposes, providing a basis of discussion for incorrect assumptions, while also allowing the counselor to recommend specific sections within a CACG to help meet realistic client anticipations.

A second implication involves the relating of CACG as an intervention into a theoretical perspective of career planning. CACGS are tools that counselors use as part of the career planning process. They are not meant to be ends in themselves, but merely instruments that help clients as they process information and make decisions. As mentioned earlier, Sampson, Peterson, and Reardon (1989) have identified "the core elements of all CACG systems [as] dissemination of occupational and educational information, generation of occupational alternatives, and self-assessment" (p.144). In CIP and CASVE terminology, these CACG sections can be related to Occupational Knowledge, Synthesis Elaboration, and Self-Knowledge. Providing the client with a consistent rationale of how a CACG fits into the career decision making process should enhance the understanding by the client of how the CACG system can be used to meet their needs.

With regards to developers, perhaps specific anticipations can be further met when designing future systems, such as anticipations that the CACG will help a person to develop a personal plan of action or teaching job

strategies. Another possibility would be for developers to include an anticipations checklist as a part of the introduction to the system, followed by a discussion of inappropriate anticipations.

In addition to providing a thorough orientation to the system, Sampson & Pyle (1983) also suggested ensuring a follow-up activity that will allow for the correction of "possible misconceptions, misunderstandings of inappropriate use as well as assess subsequent needs of the client" (p.286). Sampson and Johnson (1993) suggested providing mid-point interventions and post-system use interventions to maximize the potential benefit of the CACG and to identify and correct potentially unrealistic anticipations.

This study has been an exploratory effort into the domains of client anticipations for CACG outcomes. In order to improve the service delivery by career counselors, especially in the area of CACG programs, it is imperative that links between anticipations and outcomes of CACG use be explored and identified further. Of special concern should be the unrealistic anticipations with which some clients approach the use and interpretation of CACG programs, and the relationship between these unrealistic anticipations, anticipations for career counseling and dysfunctional career thoughts as a whole.

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Table 1
Demographic Data on Participants

Variable	Total Participant Sample (N=55)	
	#	%
SEX		
Female	31	56.4
Male	24	43.6
ETHNIC GROUP		
African-American	6	10.9
Asian-American	2	3.6
Caucasian	43	78.2
Hispanic-American	2	3.6
Prefer Not to Respond	2	3.6
CLASSIFICATION		
Freshman	15	27.3
Sophomore	13	23.6
Junior	9	16.4
Senior	5	9.1
Graduate Student	4	7.3
Other	9	16.4
AGE		
18-19	23	41.8
20-22	15	27.3
23-25	4	7.3
26-29	4	7.3
30-35	2	3.6
36+	5	9.1
OAQ		
1 & 2	21	38.2
3 & 4	34	61.8
MVS IDENTITY SCALE		
0-5	30	54.5
6-18	25	45.5
PREVIOUS COMPUTER EXPERIENCE		
Yes	52	94.6
No	3	5.4
PREVIOUS CACG EXPERIENCE		
Yes	10	18.2
No	45	81.8

Table 2

**Frequencies, Percentages and Rankings of Anticipations by Free Response (AACO-A)
by OAQ and MVS**

Frequencies, Percentages and Rankings of Anticipations by Free Response by OAQ

	OAQ1 & 2 (N=21)			OAQ 3 & 4 (N=34)			TOTAL OAQ (N=55)		
	#	%	Rank	#	%	Rank	#	%	Rank
1. Self-Knowledge	9	19%	2	21	26%	2	30	23%	2
2. Occupational Knowledge	6	13%	3	8	10%	3	14	11%	3
3. Communication	2	4%	7	1	1%	9	3	2%	8
4. Analysis	1	2%	8	4	5%	7	5	4%	7
5. Synthesis Elaboration	17	35%	1	26	32%	1	43	33%	1
6. Synthesis Crystallization	4	8%	5	7	9%	4	11	9%	4
7. Valuing	3	6%	6	6	7%	5	9	7%	6
8. Execution	0	0%	9	1	1%	9	1	1%	9
9. Executive Processing	6	13%	3	5	6%	6	11	9%	4
10. Computer Effect	0	0%	9	2	3%	8	2	1%	9
TOTAL	48	100%		81	100%		129	100%	

Frequencies, Percentages and Rankings of Anticipations by Free Response by MVS

	MVS 0-5 (N=30)			MVS 6-18 (N=25)			TOTAL MVS (N=55)		
	#	%	Rank	#	%	Rank	#	%	Rank
1. Self-Knowledge	14	21%	2	16	25%	2	30	23%	2
2. Occupational Knowledge	7	10%	4	14	11%	3	14	11%	3
3. Communication	1	1%	10	2	3%	6	3	2%	8
4. Analysis	5	8%	6	0	0%	9	5	4%	7
5. Synthesis Elaboration	18	27%	1	25	40%	1	43	33%	1
6. Synthesis Crystallization	6	9%	5	5	8%	5	11	9%	4
7. Valuing	8	12%	3	1	2%	7	9	7%	6
8. Execution	1	2%	8	0	0%	9	1	1%	9
9. Executive Processing	5	8%	6	6	10%	4	11	9%	4
10. Computer Effect	1	2%	8	1	1%	8	2	1%	9
TOTAL	66	100%		63	100%		129	100%	

Table 3

Distribution, Sample Responses and Percentages of Free Responses (AACO-A)
(Total Number of Responses = 129)

Self-Knowledge (N = 30)

- Help me discover my interests (N=14; 47%)
- Help me find my strengths, skills and weaknesses (N=9; 30%)
- Learn about myself (N=8; 27%)

Occupational Knowledge (N = 14)

- Give me information on occupations (N=10; 71%)
- Find out what I can do with my major (N=3; 21%)
- Help me learn about various academic programs (N=1; 7%)

Communication (N = 3)

- Confirm my current direction (N=2; 67%)
- Make sure I have the right major (N=1; 33%)

Analysis (N = 5)

- Give me a better understanding of my personality (N=3; 60%)
- Give me a better understanding of my wants in a job (N=1; 20%)
- Give me a better understanding of careers (N=1; 20%)

Synthesis Elaboration (N = 43)

- Give me a list of options to consider that I haven't thought of before (N=14; 33%)
- Help me match my interests/skills with potential career choices (N=13; 30%)
- Give me ideas of possible majors and careers (N=9; 21%)
- Steer me toward a different job (N=3; 10%)
- Suggest fields that will be in demand (N=3; 10%)

Synthesis Crystallization (N = 11)

- Help me narrow down my choices/fields I'm considering (N=7; 64%)
- Steer me away from different jobs; tell me what I'm not suited for (N=3; 27%)
- Further clarify the plethora of careers (N=1; 9%)

Valuing (N = 9)

- Pinpoint a job that would be best suited for me (N=6; 67%)
- Help me decide on a major/job that fits my criteria (N=2; 22%)
- Prioritize my job search (N=1; 11%)

Execution (N = 1)

- Teach me job searching techniques (N=1; 100%)

Executive Processing (N = 11)

- Give me direction/focus (N=5; 45%)
- Help me decide on a career (N=3; 27%)
- Clarify my plans (N=2; 18%)
- Compile my thoughts and interests in a sensible manner (N=1; 9%)

Computer Effect (N = 2)

- It will work easily (N=1; 50%)
 - I think it will be quite useless (N=1; 50%)
-

Table 5
Highest Agree/Strongly Agree Percentage Response to Specific Items of AACO-B

Self-Knowledge	
Q18. The computer will help me clarify my interests.	72.7%
Occupational Knowledge	
Q2. The computer will help me to learn about several occupations.	81.8%
Q6. The computer will help me understand the reward potential that occupations offer, such as salary, interesting work, prestige, variety and challenge.	74.5%
Q15. The computer will help identify important milestones to achieve in attaining a career, such as educational degrees, training or licences.	72.7%
Q19. The computer will show me whether or not I need more information about an occupation before making a career decision.	78.2%
Q21. The computer will help me become more familiar with the educational requirements of a certain occupation.	87.3%
Communication	
Q14. The computer will help me feel more hopeful of finding a satisfying occupation.	63.6%
Q20. The computer will help me become more confident of being able to choose an occupation.	64.5%
Synthesis Elaboration	
Q10. The computer will provide me with a variety of career options to consider.	85.5%
Q24. The computer will help me to expand my options.	80.0%
Q30. The computer will present logical career options given my values, interests & skills.	83.6%
Executive Processing	
Q28. The computer will help me develop a plan of action.	69.0%

Table 4:
Sums, Means, Standard Deviations and Rankings of Categorized Anticipations

Categorized Anticipations by OAQ Level															
OAQ1 &2	(N=21)			OAQ3&4			(N=34)			TOTAL OAQ					
	Sum	Mean	Standard Deviation	Category Mean	Rank	Sum	Mean	Standard Deviation	Category Mean	Rank	Sum	Mean	Standard Deviation	Category Mean	Rank
SK	223	10.62	2.01	3.54	5	355	10.44	2.06	3.48	6	578	10.51	2.03	3.50	6
OK	559	26.62	3.37	3.80	2	925	27.21	3.65	3.89	3	1484	26.98	3.52	3.85	2
COMM	221	10.52	1.40	3.51	6	368	10.82	1.62	3.61	4	589	10.71	1.54	3.57	4
AN	120	5.71	1.10	2.86	9	216	6.35	1.32	3.18	8	336	6.11	1.27	3.05	8
S-E	263	12.52	1.40	4.17	1	409	12.03	1.60	4.01	1	672	12.22	1.54	4.07	1
S-C	75	3.57	1.08	3.57	4	120	3.53	0.90	3.53	5	195	3.55	0.96	3.55	5
VAL	130	6.19	1.03	3.10	7	224	6.59	1.50	3.29	7	354	6.44	1.34	3.22	7
EXTN	117	5.57	1.36	2.79	10	179	5.26	1.19	2.63	10	296	5.38	1.25	2.69	10
EXPROC	76	3.62	0.86	3.62	3	133	3.91	1.19	3.91	2	209	3.80	0.73	3.80	3
CE	63	3.00	0.95	3.00	8	97	2.85	1.05	2.85	9	160	2.91	1.01	2.91	9
Total	1847					3026					4873				

Categorized Anticipations by MVS Level															
MVS0-5	(N=30)			MVS6-18			(N=25)			TOTAL MVS					
	Sum	Mean	Standard Deviation	Category Mean	Rank	Sum	Mean	Standard Deviation	Category Mean	Rank	Sum	Mean	Standard Deviation	Category Mean	Rank
SK	308	10.27	1.78	3.42	5	270	10.80	2.29	3.60	6	578	10.51	2.03	3.50	6
OK	800	26.67	3.64	3.81	2	684	27.36	3.41	3.91	2	1484	26.98	3.52	3.85	2
COMM	318	10.60	1.38	3.53	4	271	10.84	1.72	3.61	5	589	10.71	1.54	3.57	4
AN	182	6.07	1.34	3.03	8	154	6.16	1.21	3.08	9	336	6.11	1.27	3.05	8
S-E	361	12.03	1.47	4.01	1	311	12.44	1.61	4.15	1	672	12.22	1.54	4.07	1
S-C	100	3.33	0.96	3.33	6	95	3.80	0.91	3.80	4	195	3.55	0.96	3.55	5
VAL	192	6.40	1.25	3.20	7	162	6.48	1.48	3.24	7	354	6.44	1.34	3.22	7
EXTN	156	5.20	1.10	2.60	10	140	5.60	1.41	2.80	10	296	5.38	1.25	2.69	10
EXPROC	113	3.77	0.68	3.77	3	96	3.84	0.80	3.84	3	209	3.80	0.73	3.80	3
CE	82	2.73	0.78	2.73	9	78	3.12	1.20	3.12	8	160	2.91	1.01	2.91	9
Total	2612					2261					4873				

APPENDIX A

APPENDIX B

PARTICIPANT CONSENT FORM

DATE _____

I, _____, freely and voluntarily, consent to be a participant in the research project entitled "Client Anticipations About Computer Outcomes," to be conducted at Florida State University, during the period October 1994 to January 1995, with Debbie Norris as the Principal Investigator and Dr. James P. Sampson as the faculty advisor.

The procedures to be followed, and their purposes, include the following: Persons seeking assistance at the Career Center's Curricular-Career Information Service (CCIS) will be asked if they are willing to complete a set of forms to help the Career Center collect information to better understand the anticipations clients have for using computers and/or tests. These instruments include: this Participant Consent form, the Participant Information form, The Anticipations About Computer Outcomes-Form A (AAO-A), the Anticipations About Computer Outcomes-Form B (AAO-B) and My Vocational Situation (MVS). Participants will be given information about the location in the Career Center of their folder containing each of the above forms, and will be encouraged to make ongoing use of the Career Center if they desire additional assistance with their career planning and decision-making concerns.

I understand that it is not expected that exploring my anticipations will create any issues that cannot be addressed in the advising process that follows.

Any benefits reasonably to be expected from my participation and any alternative procedures that might be advantageous have been explained to me and are as follows:

Participants will help contribute to a better understanding of what clients anticipate occurring as the result of using a computer or taking a test. This information will be used to improve the knowledge base of counselors and advisors in relation to client anticipations. In addition, this information will be useful to system developers in the development of future software that will better meet clients' anticipations for using such software.

The records of this research which identify you will be afforded the following confidentiality:

Subject folders will only be identified by I.D. number. These folders will be maintained in the Career Center, out of the public view and under the control of a permanent Career Center staff member.

I understand that this consent may be withdrawn at any time without prejudice, penalty or loss of benefits to which I am otherwise entitled. I have been given the right to ask and have answered any inquiry concerning the foregoing. Questions, if any, have been answered to my satisfaction. In the future, I understand I may contact Debbie Norris, 1415 University Center (4th floor), 644-6433, or Dr. Jim Sampson, Jr., 1439 University Center (4th floor), 644-2490 for answers to pertinent questions about this research and my rights. I have read and understand the above information.

Subject

Witness

APPENDIX C

FSU CAREER CENTER/CCIS
PARTICIPANT INFORMATION FORM

Name _____

Date _____

FOR QUESTIONS 2-5 AND 8, PLACE THE NUMBER IN THE SPACE IN THE RIGHT MARGIN WHERE INDICATED:

1. Major (print major or "undecided").....1. _____

2. Age2. _____

3. Sex (1 = Male 2 = Female).....3. _____

4. Ethnic Group.....4. _____

- | | |
|---------------------|--------------------------|
| 1. African-American | 5. Hispanic-American |
| 2. American Indian | 6. Other _____ |
| 3. Asian-American | 7. Prefer not to respond |
| 4. Caucasian | |

5. Year in school.....5. _____

- | | |
|--------------|---------------------|
| 1. Freshman | 4. Senior |
| 2. Sophomore | 5. Graduate Student |
| 3. Junior | 6. Other _____ |

6. List all the occupations you are considering right now.

_____	_____
_____	_____
_____	_____

7. Which occupation is your **first choice**? (If undecided, write "undecided.") _____

8. How well satisfied are you with your first choice?.....8. _____

- | | |
|-------------------------------------|---|
| 1. Well satisfied with choice | 4. Dissatisfied, but intend to remain |
| 2. Satisfied, but have a few doubts | 5. Very dissatisfied and intend to change |
| 3. Not sure | 6. Undecided about my future career |

9. What type of computer experience have you had? (Please check all that apply).

- | | |
|--|---|
| <input type="checkbox"/> computer-assisted testing | <input type="checkbox"/> desktop publishing |
| <input type="checkbox"/> computer-assisted instruction | <input type="checkbox"/> electronic bulletin boards |
| <input type="checkbox"/> computer-assisted career guidance | <input type="checkbox"/> electronic mail |
| <input type="checkbox"/> computer-based games | <input type="checkbox"/> electronic spreadsheets |
| <input type="checkbox"/> database management | <input type="checkbox"/> word processing |

10. What type of experience have you had involving career services? (Please check all that apply).

- | | |
|---|--|
| <input type="checkbox"/> individual career counseling | <input type="checkbox"/> self-help book/workbook |
| <input type="checkbox"/> group career counseling | <input type="checkbox"/> interest inventory |
| <input type="checkbox"/> career planning course | <input type="checkbox"/> aptitude test |
| <input type="checkbox"/> career workshop | <input type="checkbox"/> personality inventory |

APPENDIX D

EXERCISE 1

Please list the occupations that you have considered, from the time you were a child to this point. Imagine that you are doing this at home, and express how you actually feel. Put down what immediately comes to mind. There are no prizes for the longest list.

- | | |
|----|-----|
| 1. | 7. |
| 2. | 8. |
| 3. | 9. |
| 4. | 10. |
| 5. | 11. |
| 6. | 12. |

APPENDIX E

ANTICIPATIONS ABOUT COMPUTER OUTCOMES

(Form A)

What do you anticipate the computer will do for you?

Please list each anticipation below. Imagine you are doing this at home and express how you actually feel. Put down what comes immediately to mind. There are no prizes for the longest list.

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

Record on the back if there are more anticipations

APPENDIX F

Code for Classifying Free Responses

1. **Self Knowledge Development** - Information pertaining to the development of personal knowledge through life experiences. Self concept development.
Examples: "The computer will identify my interests and skills"
"The computer will show me what I'm good at"
2. **Information About Options** - Any information related to the world of work or education. The building of occupational knowledge structures. Schema development; organizing the world of work. "Out there knowledge"
Examples: "The computer will show me the salaries of jobs of interest"
"The computer will give me information about majors"
3. **Communication** - Becoming aware that a problem/gap exists; includes being in touch with feelings. Also encompasses knowledge that a good choice has been made or that I need to make a good choice; awareness of a gap between existing lack of indecision and a desired level of decidedness. Becoming in touch with the tension between the real and the ideal.
Examples: "The computer will help me feel better about my future"
"The computer will confirm my career choice"
4. **Analysis** - Understanding causal components of the gap. Why does the gap exist? How do I remove it?
Example: "The computer will help me understand...."
5. **Synthesis Elaboration** - Help with identifying/expanding potential alternatives.
Examples: "The computer will help me think of new options"
"The computer will show me what I can do with my education"
6. **Synthesis Crystallization** - Help with the process of narrowing down options under consideration.
Examples: "The computer will help me narrow down the fields I'm considering"
"The computer will help me get rid of options that don't fit me"
7. **Valuing** - Assessing alternatives in relation to one's value system; also involves prioritization of alternatives. Personalized criteria emerges (beyond that which can be measured and sorted by the computer).
Example: "The computer will help me identify the occupation I'm best suited for"
8. **Execution** - Information pertaining to the development of a plan or strategies.
Example: "The computer will show me how to get a job"
9. **Executive Processing** - Includes general problem solving skills, including task/goal orientation and approach skills. Monitor and control of the task. Learner strategies.
Examples: "The computer will provide me with direction"
"The computer will help me decide on a career"
10. **Computer Effect** - Comments on how interacting with the computer will be.
Examples: "It will be fun"
"It will be easy to understand"
11. **Not Classifiable** - For responses that cannot be placed in any other category. Incomplete fragmented statements or thoughts. No objects to verb. Or statements that could fit into 2 or more categories. Off the wall statements.
Examples: "The computer will not assess my aptitudes"
"The computer will be a hot commodity in the future"

APPENDIX G

ANTICIPATIONS ABOUT COMPUTER OUTCOMES (Form B)

Please circle the most appropriate response for each of the statements below using the 5-point scale that follows: (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree).

	strongly disagree				strongly agree
The computer will help me to sort out what is best for me and best for the important people in my life.	1	2	3	4	5
The computer will help me to learn about several occupations.	1	2	3	4	5
The computer will help me better understand myself.	1	2	3	4	5
Using the computer will be like talking with a career counselor.	1	2	3	4	5
I really don't think the computer will help.	1	2	3	4	5
The computer will help me understand the reward potential that occupations offer, such as salary, interesting work, prestige, variety and challenge.	1	2	3	4	5
I believe that the computer will understand my career problems.	1	2	3	4	5
The computer will help me clarify my values.	1	2	3	4	5
I will find most of the final list of occupations generated by the computer satisfying.	1	2	3	4	5
3. The computer will provide me with a variety of career options to consider.	1	2	3	4	5
1. Computers frustrate me.	1	2	3	4	5
2. The computer will show me what career I should follow.	1	2	3	4	5
3. I will learn about new educational programs as a result of using the computer.	1	2	3	4	5
4. The computer will help me feel more hopeful of finding a satisfying occupation.	1	2	3	4	5
5. The computer will help me to identify important milestones to achieve in attaining a career, such as educational degrees, training, or licenses.	1	2	3	4	5
6. The computer will help me better understand how the world of work is organized.	1	2	3	4	5
7. The computers are not all they're cracked up to be.	1	2	3	4	5
8. The computer will help me clarify my interests.	1	2	3	4	5
9. The computer will show me whether or not I need more information about an occupation before making a career decision.	1	2	3	4	5
0. The computer will help me become more confident of being able to choose an occupation.	1	2	3	4	5
1. The computer will help me become familiar with the educational requirements of a certain occupation.	1	2	3	4	5
2. The computer will help me learn what I'm good at.	1	2	3	4	5
3. Using the computer will be a waste of time.	1	2	3	4	5
4. The computer will help me to expand my options.	1	2	3	4	5
5. The computer will help me narrow my options.	1	2	3	4	5

16. The computer will help me decide on a first choice from among my options. 1 2 3 4 5
17. The computer will help me find a job. 1 2 3 4 5
18. The computer will help me develop a plan of action. 1 2 3 4 5
19. I'm really not sure what the computer will do. 1 2 3 4 5
20. The computer will present logical career options given my values, interests and skills. 1 2 3 4 5