

THE IMPACT OF CAREER COUNSELING PLUS DISCOVER (INTERNET
VERSION) ON THE ACADEMIC ACHIEVEMENT OF HIGH SCHOOL
SOPHOMORES AT RISK FOR DROPPING OUT OF SCHOOL

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THE IMPACT OF CAREER COUNSELING PLUS DISCOVER (INTERNET VERSION) ON THE ACADEMIC ACHIEVEMENT OF HIGH SCHOOL SOPHOMORES AT RISK FOR DROPPING OUT OF SCHOOL

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I would like to thank my parents, Artie and Sheryl Bleier. I'm often reminded during my work with clients how lucky I was to have such loving and supportive parents. Thank you so much for that love and support. I would also like thank my sister, Jennifer, for showing me what it means to not give up. I'm amazed how you've carried yourself with dignity through impossible ordeals. And to my wife, Emily, thank you for pushing me to succeed when I needed it most.

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ABSTRACT

The United States continues to struggle with the problem of high school dropouts. Researchers and educators have identified and developed interventions to address this problem, including prevention programs within the schools to assist with academic and personal struggles, as well as career guidance programs designed to strengthen career development. Two such programs include the Success Center and DISCOVER, ACT's new internet version of its' career guidance program. Poor academic achievement has been identified as a main predictor for dropping out. Thus, the main purpose of this study was to evaluate the combined effect on academic achievement of both DISCOVER and career counseling with at-risk sophomores. Data were collected from 33 at-risk high school sophomores. Based on the analyses, there is statistical support that the number of credits earned by the students increased, supporting the use of the combined intervention in positively impacting the academic performance of at risk students. Another hypothesis was generated regarding the overall impact the Success Center has on increasing academic performance. Results give statistical support that students' overall GPA increased due to their participation in the Success Center. It is recommended that further research with a larger sample size be conducted to further explore these interventions and their impact on academic achievement and preventing high school dropouts.

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The impact of career counseling plus DISCOVER (Internet Version) on the academic achievement of high school sophomores at risk for dropping out of school

According to National Center for Education Statistics (2001), five of every 100 young adults enrolled in high school in October 1999 left school before October 2000 without successfully completing a high school program. In 2000, just over 10 percent of all 16-24 year olds were high school dropouts. Although these statistics seem to have stabilized over the last 10 years, it is still a problem that the United States faces in regards to adequately preparing young people to enter satisfying and productive careers.

The problem of the high school dropout preoccupies the attention of national media, policy makers, and educators due to the fact that there are both personal and societal costs for not graduating from high school. High school students who leave school without earning a diploma are likely to become adults who are caught in a cycle of poverty, underemployment, and social despair (Kortering, Hess, & Braziel, 1997). More specific personal costs of dropping out include earning only half as much annual income as a high school graduate by the time prime working age is reached, while the likelihood of living in poverty is nearly three times higher for high school dropouts than for those who finished high school (Hale, 1998). For society and local communities, students who fail to earn their diplomas represent lost tax revenue and reduced economic productivity, limiting the community's competitive position in the technologically sophisticated global market place (Wehlage, Rutter, Smith, Lesko, & Fernandez, 1989). Each year's class of dropouts will cost the country over \$200 billion during their lifetimes in lost earnings and unrealized tax revenue. Dropouts comprise nearly half of the heads of households on welfare and an even higher percentage of the prison population (Hale, 1998).

With this troubling problem occurring across the nation, the American Psychological Association (APA) proposed a policy statement on dropout prevention. They recommended that the association work to “increase the participation of psychology and psychologists in assisting national, state and local efforts to prevent school dropout” (APA, 1996). This policy statement led to the organization of the Task Force on School Dropout Prevention, consisting of psychologists interested in children, with the intent of implementing the mission of the APA.

Early after its’ conception, the Task Force reviewed the previous literature on dropout prevention and discovered a low number of program evaluation studies with only 20 studies, or 16.5% of the knowledge base, describing program evaluation efforts (Doll & Hess, 2001). Doll and Hess (2001) discussed the importance of such research since it is these programs and interventions that are central to any effort to reduce dropout rates. These research supported interventions are what guide school districts to redistribute limited resources toward the most effective programs and to create systemic changes in the school and community environments that increase the likelihood of school completion for all students (Doll & Hess, 2001).

Few studies have also examined predictors of dropping out of school. Previous reports indicate that 10th grade is the year of greatest risk for dropping out (Claus & Quimper, 1991; Schwartz, 1995). Thus 10th grade is a critical point to examine and identify predictors of dropout. Three such predictors that have been identified in the literature are poor academic achievement, general deviance or behavioral problems and bonding with antisocial peers (Battin-Pearson et. al. 2000). Thus developing programs

and interventions that address these predictors would be key in helping prevent students from dropping out.

Others have made efforts to identify the elements that characterize successful programs. Mann (1986) identified four elements of successful educational programs: Cash, Care, Computers, and Coalitions. The first, Cash, refers to students making the link between earning money and their school subjects. Caring refers to students getting the concern and support they need from teachers and other adults. Computers are needed for both assisting in teaching and for management purposes. And Coalitions refers to schools, businesses, and local educational foundations uniting to support these at-risk students.

Bloch (1989) expanded on Mann's elements and emphasized the importance of career development in these programs. She identified six guidelines for the design of such educational programs: "(a) the content of the programs help the students understand relationships between their current status, their planned occupational futures, and their educational needs; (b) the programs are not only delivered by caring individuals, but they have individualization built-in to ensure the communication is caring; (c) coalitions of schools and agencies, of institutions and businesses, and of counselors, teachers, and parents are fostered in developing and delivering the programs; (d) the programs include an integrated sequence of career development activities; (e) the career development activities offered are age and stage appropriate and provide opportunities for individuals to proceed at their own pace; and (f) the activities incorporate a wide variety of media and career development resources, including computer based career information systems with up-to-date and relevant information" (Bloch, 1989).

Other researchers have focused more on effective career interventions. In their meta-analysis, Brown and Krane (2000) concluded that effective career interventions have five components. The interventions (a) allow clients to clarify career and life goals in writing; (b) provide clients with individualized interpretations and feedback, e.g., test results; (c) provide current information on the risks and rewards of selected occupations and career fields; (d) include role models and mentors who demonstrate effective career behavior; and (e) provide assistance in developing support networks for pursuing career aspirations within the student's immediate environment (e.g., school, home, and the community).

The Success Center

A dropout prevention program that incorporates each of these elements of more effective programs is the Success Center, a specialized learning program created and implemented at a highly diverse suburban Midwestern high school. The Success Center assists students with academic demands, gives students a place to work one on one with teachers and counselors regarding academic and social problems and also provides an emphasis on career development and exploration activities. This program contains each of the elements described by Mann (1986) and Bloch (1989) and addresses the dropout predictors described by Battin-Pearson et. al. (2000). Students identified as being at-risk of dropping out, based on previous poor academic performance, are involved in the program during their sophomore year of high school, 10th grade.

The counselors involved in providing career counseling services in the Success Center are graduate students participating in a counseling practicum at a large Midwestern university. This practicum is part of the Partnership in Education established

in 2001 between the guidance department in the high school and counseling students' university department. The graduate student counselors work individually with students and provide both personal and career counseling support services. One career intervention used with the high school students is DISCOVER, ACT's new Internet version of its' computer-assisted career information and guidance program, (www.act.org/discover).

Tabor and Luzzo (1999) reviewed the previous research on the earlier versions of DISCOVER and have found that it increases users' vocational identity, level of career development, and career decision-making self-efficacy. However mixed results were found regarding the effectiveness of DISCOVER as a tool for increasing career decidedness, occupational certainty, career maturity, and career exploration (Taber & Luzzo, 1999). Taber and Luzzo (1999) also noted that DISCOVER appears to be most effective when used in conjunction with additional career exploration and planning activities, such as individual counseling or group workshops.

Purpose of Study

The main purpose of this study was to evaluate the combined effect on academic achievement of both DISCOVER and career counseling with at-risk high school sophomores. Indicators of academic performance were collected and compared to freshman year achievements to assess whether or not their work with the DISCOVER program and participation in career counseling have positively affected their academic performance.

A second focus of this study was to assess the Success Center as a whole, gathering data on student GPA, attendance, and credits earned on all students who

participated in the Success Center and assessing if these three areas improved for students because of their participation in this program.

A third focus of this study was to assess both high school students and the graduate students perceptions of DISCOVER. This is an important component to the study in that their opinions could help the developers of DISCOVER improve their product so that it could be revised before it is recommended for widespread use with diverse adolescent populations. For example, it would be important to know if users found the program too difficult to use or unhelpful in their career development and exploration. This is also important information for program administrators or counselors when developing the career development options in their educational programs.

METHODS

This section is divided into four subsections: Participants, Instruments, Procedures, and Hypotheses. The Participants section discusses the characteristics of the participants involved in this study. The Instruments section discusses DISCOVER, as well as the other evaluation instruments used. The Procedures section describes how the data was collected. The Hypothesis section describes the separate hypotheses for this study and how the data was analyzed.

Participants

The participants consisted of 33 at-risk high school sophomores and 16 graduate students. The high school students were from a suburban Midwestern high school. These students were labeled at-risk due to their poor academic performance during their freshman year. The credits earned were well below what is typical for freshman and puts them on a trajectory where they will not be able graduate from high school in four years. These at-risk students chose to participate in the high school's Success Center, a two-hour structured study hall that provides daily support for sophomores to address the academic demands of content area classes. Each student signed a contract with the director of the Success Center stating their intentions to fully participate in the program.

The 16 graduate students, which were all Caucasian females ranging in age between 22 and 26, were master's level students completing a counselor training program at a Midwestern university. They were being trained in providing career and personal counseling services for high school students, received supervision from their university professor who taught the practicum course and earned practicum credit for working in the Success Center. Their participation in the Success Center was for one semester, with the

sole purpose of providing individual and group career counseling. Eight graduate students took part in the fall semester of the study, while the other eight took part in the winter semester. There were no distinguishing differences between the students from the fall or winter semesters, and thus were very comparable. All the graduate students were trained in the use of DISCOVER, basic career counseling skills and in administering the Structured Career Development Interview (Lapan, 2004).

Instruments

DISCOVER (Internet Version). DISCOVER (Internet Version) is a new version of ACT's career guidance system. Developed in 2002, this new version allows users to access the DISCOVER program via the Internet. DISCOVER consists of several components designed to assist the user in making important career and educational decisions. One component, "Plan my Path" assists the user in gathering and organizing information important to meeting the career or educational goals of the user. Another component of DISCOVER is the Inventories section, which provides self-assessments in the areas of interests, values and abilities. The program also allows the user to search for occupations, majors, and schools. It also assists the user in several of the processes involved in searching for a job, such as writing cover letters, resumes and interview tips. DISCOVER also includes a "Career Portfolio" section that contains a summary of all the information the user has entered. The major program components of DISCOVER are shown in Figure 1.

Upon exiting the DISCOVER program, users are asked to complete an online evaluation to indicate how they felt about their experience with the program. The evaluation asks users to rate their overall experience, how useful the information was for

each section, their overall impressions of DISCOVER, and allows for written comments or feedback.

In this study, graduate student counselors were interviewed and given an opportunity to critique the DISCOVER program. The counselors were then asked how “hard” each of the areas of the program were to understand, what they would change about DISCOVER, what they liked most about the program, and what parts they think a client might have difficulty with. They were also given the opportunity to add any thoughts or opinions on the program.

Structured Career Development Interview (SCDI). The SCDI, developed by Lapan in 2002, is designed to provide the counselor or teacher a comprehensive and in-depth understanding of their student’s orientation to future educational and career options. This interview is theory-based for assessing the current functioning and career development of the student. The protocol consists of nine subscales or subsections that are based on nine career constructs and are designed to assess the specific career behaviors in which an individual might engage, those purported as critical in the formation of vocational self-understanding (Lapan, 2004). The constructs on which the subscales are based are as follows: proactive opportunity seeking; goals and exploratory actions; academic achievement; expectations; social skills; person-environment fit; interests; emotional supports; and instrumental supports. This framework describes how an individual’s style of engagement in the present and approach to possible career futures develops within an interwoven structure of demographic, social/cultural, economic, and political contexts (Lapan, 2004).

The Success Center. The Success Center is a two-hour structured study hall, which is taken for class credit, with the overall purpose of providing intensive support to at-risk sophomores. The goal of the program is to have each student successfully complete all of their sophomore core content area classes and develop the skills necessary to graduate from high school. The Success Center's overall mission is to provide a structured environment in which stable relationships of mutual respect can be developed and thus open the door for more successful educational experiences for these high school students.

Within the Success Center, individualized and small group tutoring is available as well as other resources necessary to complete assignments (computers, books, and project materials) and ensure progress toward graduation. In addition, students organize their academic day and homework, as well as engage in study skills, and counseling and career planning activities, such as job shadowing. Counselors focus on the students' academic and organizational skills, career exploration and the social/emotional growth necessary to be successful in school. The center also provides a "home base" for students who need to have a place staffed by supportive people in the building who know them well and can act as liaisons between them and the rest of the high school.

Another service provided to students includes both individual and group counseling from university graduate students in counseling psychology. This service is part of the Partnership in Education between the university's counseling psychology department and the high school guidance department. Graduate students provide counseling related to not only career issues, but personal and mental health issues as well.

EXPLORE. ACT's EXPLORE achievement test is a high school measure designed to give educators the means to structure high school planning and career exploration activities for both students and parents (ACT, 2005). It also serves as a baseline to monitor academic performance. The EXPLORE tests is one component to the EXPLORE program. Another component of the program is a student report that gives students information about their knowledge, skills, interests and plans. Students can use this information to begin planning high school coursework and thinking about college or work. The EXPLORE program as a whole can identify a student's strengths and weaknesses earlier in their educational development, when they have the greatest opportunity to develop a plan that will help them achieve their educational and career goals (ACT, 2005).

The EXPLORE Test is typically given to students in the 8th or 9th grade. It consists of 4 sections, English, Math, Reading and Science. Scores for each section range from 1 to 25, with 25 being the highest score possible. The English Test measures a student's understanding of standard written English, such as: punctuation; grammar and usage; and sentence structure. The test also measures a student's understanding of the use of strategy, organization and style in writing. The English section contains 40 items and students have 30 minutes to complete the section.

The EXPLORE Mathematics Test measures a student's mathematical reasoning. The test focuses on one's ability to reason in math rather than one's ability to memorize formulas or how well one can do involved or complicated mathematical computations. Questions on the test cover four areas: knowledge and skills; direct application; understanding concepts; and integrating one's understanding of concepts in pre-algebra,

elementary algebra, geometry, and statistics and probability. The Mathematics section consists of 30 questions and students also have 30 minutes to complete this section.

The EXPLORE Reading Test measures one's ability to understand different material from different school subjects. The skills measured include referring to details in the passage, drawing conclusions and making comparisons and generalizations. The test does not cover information outside the passages, vocabulary taken out of context, or formal logic. The passages are typical of material one might read in school, including Prose Fiction, Humanities and Social Sciences. Like the Math section, there are 30 items and students have 30 minutes to complete the section.

The last test included in the EXPLORE, the Science Test, measures a student's scientific reasoning skills and their ability to understand scientific information and draw conclusions from it. Six sets of scientific information are presented in one of three formats: data representation; research summaries; or conflicting viewpoints. This test consists of 28 questions, and students also have 30 minutes to complete the test.

All participants in this study completed the EXPLORE achievement test in the 8th grade. For purposes of this study, these scores were collected for use as covariates in the data analyses.

GPA. The Grade Point Average for each participant for both the 9th and 10th grades was collected, with 4.0 being the highest achievable GPA. The participating high school gave the researchers access to school files to collect this information. The GPA for both grades was used as dependent variables in the data analyses.

Credits. The number of credits earned by each of the participants was also collected and used as dependent variables in the data analyses. A full-time student

normally schedules a minimum of 3 and a maximum of 3.5 credits per semester as a class load. To successfully graduate from high school and receive a diploma, students must earn a minimum of 22 credit hours.

Attendance. The number of school days missed by each of the participants for both 9th and 10th grades was gathered as well. These records were also made available by the participating high school and used as dependent variables in the data analyses.

Procedures

Thirty-three high school sophomore students, who are deemed at-risk and are students in the Success Center, were asked to participate in this study. Students were randomly assigned to the caseload of one of the graduate students and given the SCDI. All interviews took place at the Success Center. Upon completion of the SCDI, students were randomly assigned to one of two groups, Group A (Fall) and Group B (Winter).

Fall Semester Treatment Group. During the Fall semester, students in Group A participated in individual career counseling in the Success Center, as well as using DISCOVER with the assistance of their assigned graduate student counselor. Upon the completion of his or her time with DISCOVER, each student was then asked to complete an online evaluation of the program. Career counseling activities included individual counseling and group activities to explore possible careers. Counselors focused on the students' academic and organizational skills, career exploration and the social/emotional growth necessary to be successful in school. Counselors also worked closely with Success Center students to assist them in using DISCOVER.

During this Fall semester, students in Group B did not receive career counseling or use DISCOVER. Thus, they served as a randomized control group for Group A.

Winter Semester Treatment Group. At the beginning of the second semester, all students then completed the SCDI again. Students in Group B began receiving general career counseling and were introduced to DISCOVER. They also spent time using the program with the assistance of a counselor. They too were asked to complete the online evaluation.

During this Winter semester, students in Group A did not receive career counseling and discontinued the use of DISCOVER. At the end of the Winter semester, all students (in both Group A and B) once again completed the SCDI.

Graduate Student Data Collection. Once the SCDI data collection was completed, the graduate student counselors were asked to complete consent forms, and asked to be interviewed by the researcher to critique DISCOVER.

High School Data Collection. Once the semester ended, academic records on each high school student was collected from the high school guidance department. Also, EXPLORE Test scores were collected for both the English and Mathematics section of the test. See Figure 2 for an outline of the data collection timeline.

Hypotheses and Analyses

The first hypothesis predicted that students who use DISCOVER, in conjunction with career counseling, would experience increased grade point averages, increased school attendance, and would earn more credits. The research design was a 2 X 3 repeated measures analysis of covariance (ANCOVA) performed for the dependent variables, 9th grade GPA, 9th grade attendance, 9th grade credits, 10th grade GPA, 10th grade attendance and 10th grade credits. The main effect of treatment, main effect of time,

and interaction of treatment and time was assessed. The covariate was the EXPLORE scores for English and Mathematics.

The second hypothesis predicted that students who participate in the Success Center program as a whole would experience increased academic performance and increased school attendance. The analysis for this hypothesis was a 2 X 2 ANOVA for the dependant variables 9th Grade GPA, 9th Grade attendance, and 9th Grade Credit.

And finally, the data collected from the graduate student counselor's remarks on their thoughts of the DISCOVER program as well as the student evaluations of DISCOVER are reported. All comments from these evaluations are presented to give a detailed overview of their specific thoughts and comments on the DISCOVER program.

RESULTS

Hypothesis One predicted that students who use DISCOVER and received career counseling would experience increased grade point averages, increased attendance and increased credits. A 2 X 3 analysis of covariance (ANCOVA) was performed for the dependent variables (i.e., 9th grade credits, 9th grade GPA, 9th grade attendance, 10th grade credits, 10th grade GPA and 10th grade attendance) to measure the main effect of treatment, main effect of time, and interaction of treatment and time. Results, presented in Tables 1 and 2, showed a significant difference for credits and treatment, Wilkes $\lambda = .782$, $F(2, 54) = 5.79$, $p < .005$. Figure 3 shows the gains made in credits compared across treatment groups. Results also showed a three way interaction between credits, treatment and sex, Wilkes $\lambda = .832$, $F(2, 54) = 3.83$, $p < .028$.

Hypothesis Two predicted that students who participated in the Success Center program would experience increased academic performance, as indicated by their GPA and credits earned, as well as increased attendance. A 2 X 2 ANOVA for the dependant variables (i.e., 9th Grade GPA, 9th Grade attendance, and 9th Grade Credit) was conducted to measure the main effect of time. Results, presented in Tables 3 and 4, found Overall GPA to be significant, Wilkes $\lambda = .881$, $F(1, 32) = 4.329$, $p < .046$. Thus, students did show improvement in their Overall GPA. No change was found regarding attendance or credits, however credits showed a positive trend toward improving, Wilkes $\lambda = .903$, $F(1, 32) = 3.441$, $p < .073$ (See Table 5 and 6).

Student Perceptions of DISCOVER

Of the 33 high school students who participated, 8 students completed an exit interview about their experiences with DISCOVER. All of their remarks were recorded and will be presented here.

When asked about their confidence level in regards to their ability to make informed career decisions after using DISCOVER, five of the eight indicated increased confidence. Two indicated they had the same level of confidence. One indicated less confidence in the ability to complete activities needed to meet goals due to financial constraints, however this response did not exactly address confidence in ability to make informed decisions, but rather using information obtained from DISCOVER to think about possible barriers.

When asked if they planned other career related activities after using DISCOVER, seven of the eight indicated they did plan to complete other career related activities. Students were also asked if they learned anything in general from DISCOVER. Seven of the eight high school sophomores stated they did learn some things from DISCOVER. Such things were occupational information, finding a career that might fit them, and general college information (such as detailed descriptions of college majors and related careers).

Counselor Perceptions of DISCOVER

Of the 16 counselors who took part in this study, 8 completed an evaluation of DISCOVER. Specific information as to how these counselors used DISCOVER in their work with students was gathered. Of the eight counselors who completed the evaluation, 50 percent used all major parts of DISCOVER, these include Inventories, Occupations,

Majors, Schools, Job Search, and Career Portfolio. The range of time counselors spent using DISCOVER with the students ranged between 18 to 100 minutes, with a mean of 49.5 minutes and a median of 41.5.

The evaluation of the counselor perceptions was two pronged. The first part of the evaluation focused on the counselors' perceptions of DISCOVER, as well as their use with students. The second part of the evaluation focused on how their work as a whole affected student growth, including both DISCOVER and general career counseling.

The counselors found the curriculum content materials of DISCOVER to be very helpful. Their comments were:

1. "It provided hints and tips for dealing with clients each step of the way"
2. "The plan my path activities were very helpful"
3. "The kit was much more helpful in explaining/beginning to develop a plan with clients"
4. "The inventories seemed helpful in helping the students to think more about different aspects of what they want in a career and then explore those for themselves"
5. "The Path summary provided a framework to let them know what to expect in computer career activities as well as determining a purpose to the activities"
6. "It was helpful to have a list of occupations with description, college majors, military considerations and salary"
7. "Discussing specific ways that computer-assisted career guidance activities can benefit students more than other sources"
8. "Focus on multiculturalism let students see people like themselves in various work sectors"
9. "Areas of content were quite comprehensive"

When asked how helpful the exercises in the toolkit were, seven of the eight counselors indicated the exercises in DISCOVER were helpful or useful in their work with students. Their comments include:

1. “The exercises were helpful in getting students to think even deeper about their choices”
2. “Very helpful, ...helps them reflect and consider reasons they do or don’t want a certain career”
3. “...very helpful in starting the whole DISCOVER process”
4. “I like how the activities require a student to think and pull different ideas together rather than rely on feedback from the computer or counselor”

Counselors also answered a question regarding skills they developed while using DISCOVER. Several cited the ability to help clients learn about some careers in which they had little knowledge, with one counselor commenting, “it has broadened my knowledge of non-traditional career paths.” Another counselor discussed the program as being easy to use and rich in content, thus allowing the sessions to be more productive. Others discussed the program as a useful tool in staying focused during a session as well as helping them develop a plan with clients. Another counselor believed DISCOVER has “helped me be more patient, and it has given me the knowledge on how to use the program and navigate through it” for future use with clients.

Counselors were also asked how comprehensive this experience has been in preparing them to help clients with career counseling issues using a computerized program such as DISCOVER. Seven of the eight counselors found the experience good or helpful, while two felt the experience was not comprehensive enough. Counselor comments were:

1. “I feel that it has given me a good start with feeling comfortable assisting students”
2. “This experience has added to my repertoire of online career guidance tools”
3. “Not very comprehensive, I needed practice on the website and role playing with a peer to feel ready”
4. “I think it’s been very comprehensive. It allows students to explore their options with just a high school education all the way up to postgraduate work”
5. “Useful, but I am still apprehensive about the use of computer-assisted career guidance for students. The program seems more directed and developed at college-bound students”

The next section of the evaluation asked counselors for suggestions they may have on what could be improved for both the materials and the exercises. Some felt that the amount of materials and information to be a bit overwhelming, stating it could be “intimidating” toward some students. One counselor discussed the lack of culturally sensitive information, stating it “lacked consideration of ethnic, cultural and religious factors.” Several counselors discussed the possibility of making the program more interactive with the students. One counselor suggested “greater incorporation of tool kit activities online,” to allow the students more interaction with the program independent of the counselor.

DISCUSSION

This section will discuss the implications of the results from this study. First, the findings of the hypotheses are reviewed and possible explanations of these findings are discussed. The data generated from both student and counselor evaluations are also reviewed. In addition, the theoretical and research implications of the study, as well as suggestions for future directions are discussed throughout this section. Finally, limitations of the study are reviewed and discussed.

Hypothesis One

Hypothesis One predicted that students who used DISCOVER and received career counseling will experience increased academic performance (i.e., GPA and credits earned) and increased attendance. This hypothesis was partly supported by the results. Students did not experience significant increases in attendance or GPA, however, there was a significant increase in credits earned. Students who worked with DISCOVER and received career counseling earned more credits than those who did not receive this combined intervention. This finding is encouraging in that it shows a direct link between the use of DISCOVER and career counseling and an increase in academic performance. Students in both groups also increased their GPA overall, although there was no significant difference between these groups, this is also promising efficacy of the Success Center, as GPA is a very important measure of academic performance.

Research has shown that poor academic achievement is one of the most important predictors for students dropping out of high school. Thus developing programs and interventions that specifically address this factor is vital in solving the problem of the high dropout rate in this country. The intervention used in this study, DISCOVER and

career counseling, specifically addresses this predictor of poor academic achievement. Students who received the intervention during the fall semester were able to increase the number of credits earned compared to the control group of students who did not receive the treatment until the winter semester. This knowledge is not only valuable to the educators and counselors who work with these at risk students, but to researchers as well. Future dropout prevention programs can utilize both DISCOVER and career counseling activities as an integral part of their curriculum with the knowledge that these activities can increase their students' academic performance. Previous research on DISCOVER has mainly focused on career development, however these findings support the possible use of DISCOVER as a tool which can be used for more than just career development or career exploration.

It is also important to look at the data related to the students who received the intervention during the second semester. When finally introduced to DISCOVER and career counseling during the winter semester, the students in Group B did not raise their credits earned as Group A had done the previous semester. The mean for credits earned actually decreased. This suggests that the intervention may perhaps be best introduced during the early part of the school year. Further research is needed to address this issue, however the possibility exists that reaching out to students early in the tenth grade, and helping them learn about the importance of staying in school and reaching their career goals may positively affect their motivation for increased academic achievement.

It is also interesting to note that students in Group A achieved a lower mean for credits earned during the semester in which they no longer received the intervention of DISCOVER and career counseling. Further research would be needed as well to assess

this difference, however one can hypothesize the importance of continued interventions throughout the school year to assist students in staying focused toward increasing their academic achievement.

Hypothesis Two

Hypothesis Two predicted that students who participated in the Success Center would experience increased academic performance (GPA and credits) and increased attendance. This hypothesis was also partly supported by the results. Although credits and attendance showed no significant increases, overall GPA was found to increase significantly while students participated in the program. An increase in the number of credits earned was found, however the increase was not significant.

This finding is very encouraging for the educators who developed this program. This increase in GPA shows that the program is successfully carrying out its' mission of increasing the educational success of at-risk students. As previously noted, research emphasizes poor academic achievement as being a strong predictor of dropping out of high school. Thus increasing their students academic achievement coincides with the Success Center's overall goal of decreasing the dropout rate of their school.

The Success Center has many of the important components identified in the literature to help decrease the chances for students dropping out (Mann, 1986; Bloch, 1989; Brown & Krane, 2000). This prevention program helps the students understand the relationship between their current status, their planned occupational futures, and their educational needs. It employs educators and counselors who are generally concerned for their students and assist them not only academically but personally as well. It uses up-to-date resources and materials, such as computers and the internet. The program receives

support from the community, both businesses and educational foundations. And the program also understands the importance of career counseling and guidance, and incorporates both into the curriculum.

Another important element of the Success Center is that it identifies at-risk students early in high school and begins working with them during the tenth grade, the grade most identified in the research as the year of greatest risk for students dropping out of high school (Claus & Quimper, 1991; Schwartz, 1995). The success of the program, as described by the results of this study, supports the importance of reaching out to at-risk students during the tenth grade.

Counselor/Student Perceptions

Another important piece to this study involved counselor and student perceptions of DISCOVER. Counselors were asked to evaluate DISCOVER and answer several questions on how helpful they found certain aspects of the program, such as curriculum content and exercises in the toolkit. Counselors also answered questions regarding skills they developed while using DISCOVER. Overall, the counselors had positive things to say about DISCOVER. A majority of them felt the curriculum content and the specific exercises were helpful or useful in their work with the students. Several counselors stated DISCOVER was a helpful tool in broadening their knowledge and staying focused during sessions, as well as helping develop a plan with their clients. Several also discussed the importance of having a comprehensive program that addresses not just careers, but one's interests and college majors. Knowledge that DISCOVER was well received by the counselors shows a promising future in the continuation of using this program with this special population.

Counselors were also asked how working with DISCOVER assisted them in developing additional skills and competency in career counseling using a computerized program. Of those who shared their views, mostly positive remarks were noted. This is encouraging for the developers of DISCOVER in that they have a program that can assist not only students or clients, but counselors as well. Research has shown the increasing number of interventions that are available via computer or the internet (Gore & Leuwerke, 2000; Reile & Harris-Bowlsbey, 2000; Robinson, Meyer, Prince, McLean, & Low, 2000). As with the use of technology increasing in the field of career counseling, more professionals are thus needed to be trained to utilize such interventions. This information shows that DISCOVER can assist counselors with increasing their competency in this area.

Student perceptions of DISCOVER were also positive and encouraging. A majority of the students stated working with DISCOVER was a helpful activity and that they learned several things related to their career goals. Most indicated increased confidence in making career decisions. The majority of students also indicated learning something new during their work with DISCOVER, such as occupational information, finding a career that fits them, as well as learning information related to college majors. And perhaps more importantly, a majority of the students indicated a plan to participate in future career related activities. This information is valuable in that it indicates the usefulness of the DISCOVER program in not only providing them with career guidance information, but stimulates further career development activities. This information also assists the developers of this program with the knowledge that their program is well

received by this special population, thus can be more widely used with at-risk students throughout the country.

Limitations of Study

As with all studies, this study has several limitations. First, the sample size was small, with only 33 total subjects participating in the study. Some of the analyses could have been affected with such a small sample size. For example, more statistical significance could have been provided for increased GPA for the intervention of DISCOVER and career counseling with a larger sample size. GPA was shown to increase due to the intervention, however not significantly.

A related concern is the geographical restriction of the sample. The students who participated were from the same school and geographical location in the mid-west. Thus the results may not be generalizable to other high schools or locations.

Yet another limitation involves noncompliance with protocol. Not all counselors used every major part the DISCOVER program. Also, the range in use of the program by counselors was 18 to 100 minutes. Different results may have been found if the DISCOVER program was used more uniformly as the protocol required. Another break in protocol involved the number of student evaluations collected. Of the 33 students who participated, only 8 evaluations were completed. A larger number of opinions of the DISCOVER program could have provided additional information important for future use with at-risk populations.

Conclusion

The study reported here provides support for the combined use of an online career guidance program, DISCOVER, and career counseling with at-risk high school students.

This intervention was shown to increase the credits earned by high school sophomores at-risk for dropping out school. As academic performance is widely shown to be a strong predictor of dropping out of school, this finding is particularly encouraging. This study also provides the data on the positive benefits of using the Internet version of DISCOVER in working with high school students at-risk for dropping out of school.

This study also supports the use of a prevention program, the Success Center, in addressing the problem of high school dropout. This program utilizes many of the components identified in the research as vital in preventing students from leaving school early. This program was found to have increased overall GPA, thus effectively addressing one of the main predictors of dropping out of school.

This study also reported several counselor and student opinions regarding the DISCOVER program, essentially supporting its use with this population. Positive remarks were given regarding: the comprehensive information given to students; the ability to assist counselors with their work with clients; as well as stimulating additional career counseling activities for students at-risk for dropping out of high school..

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APPENDIX

TABLES

Table 1: Analyses of Covariance for Credits Earned

Source	df	F	η^2	p
Between Subjects				
Intercept	1	46.889	.635	.000
English	1	.367	.013	.550
Math	1	.058	.002	.812
Treatment (Trt)	1	.001	.000	.970
Sex (S)	1	.454	.017	.506
Trt x S	1	.477	.017	.495
Error	27	(1.099)		
Within Subjects				
Time	2	.027	.001	.974
Time x English	2	2.972	.098	.062
Time x Math	2	.787	.028	.460
Time x Trt	2	5.794*	.177	.005
Time x S	2	.407	.015	.668
Time x Trt x S	2	3.803*	.123	.028
Error	54	(.519)		

Note: Values enclosed in parentheses represent mean square errors.

*p < .05

Table 2: Means of Credits Earned across Semesters

	9 th Grade Spring		10 th Grade Fall		10 th Grade Spring	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Trt 1 (Fall)	2.34	.954	3.28	.481	3.01	.613
Trt 2 (Spring)	2.84	1.21	2.93	.874	2.77	.868

Table 3: Analysis of Variance for Overall GPA

Source	df	F	η^2	p
Between Subjects				
Intercept	1	211.611	.896	.000
Error	32	(.842)		
Within Subjects				
GPA	1	4.329*	.119	.046
Error	32	(.070)		

Note: Values enclosed in parentheses represent mean square errors.

*p < .05

Table 4: Means for GPA for all participants across the school year

	9 th Grade Spring		10 th Grade Spring	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
All Groups	1.58	.720	1.71	.629

Table 5: Analysis of Variance for Overall Credits

Source	df	F	η^2	p
Between Subjects				
Intercept	1	453.5	.934	.000
Error	32	(1.08)		
Within Subjects				
Credit	1	3.44	.097	.073
Error	32	(.613)		

Note: Values enclosed in parentheses represent mean square errors.

*p < .05

Table 6: Means for Overall Credits for all participants across the school year

	9 th Grade Spring		10 th Grade Spring	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
All Groups	2.55	1.08	2.91	.729

FIGURES

Figure 1: DISCOVER's Major Components

Home	Inventories	Occupation	Majors	Schools	Job Search	My Portfolio
Introduction	Introduction	Introduction	Introduction	Introduction	Introduction	Introduction
Plan My Path	Interest Inventory	Alphabetical List	Alphabetical List	Alphabetical by State	Resumes	Personal Information Summary
News letters	Abilities Inventory	By Keywords	By Keywords	My Major	Cover Letters	Path Summary
About Discover and ACT	Values Inventory	By Majors	By Occupations	By Keyword	Interviews	Inventory Summary
Links to Related Sites	Inventory Summary	By Military Experience	By World-of-Work Map	By Degree Type	Find Job Openings	Occupations Summary
Counselor Functions		By World-of-Work Map	My Favorites	By School Types	Internships	Majors Summary
My Path		Search Occupations by Characteristics		By Characteristics Search	Apprenticeship Information	Schools Summary
		Hot Occupations		Scholarships Aid	Apprentice-able Occupations	Job Search Summary
		Military Occupations		My Favorites	My Favorites	Portfolio Printout
		My Favorites				

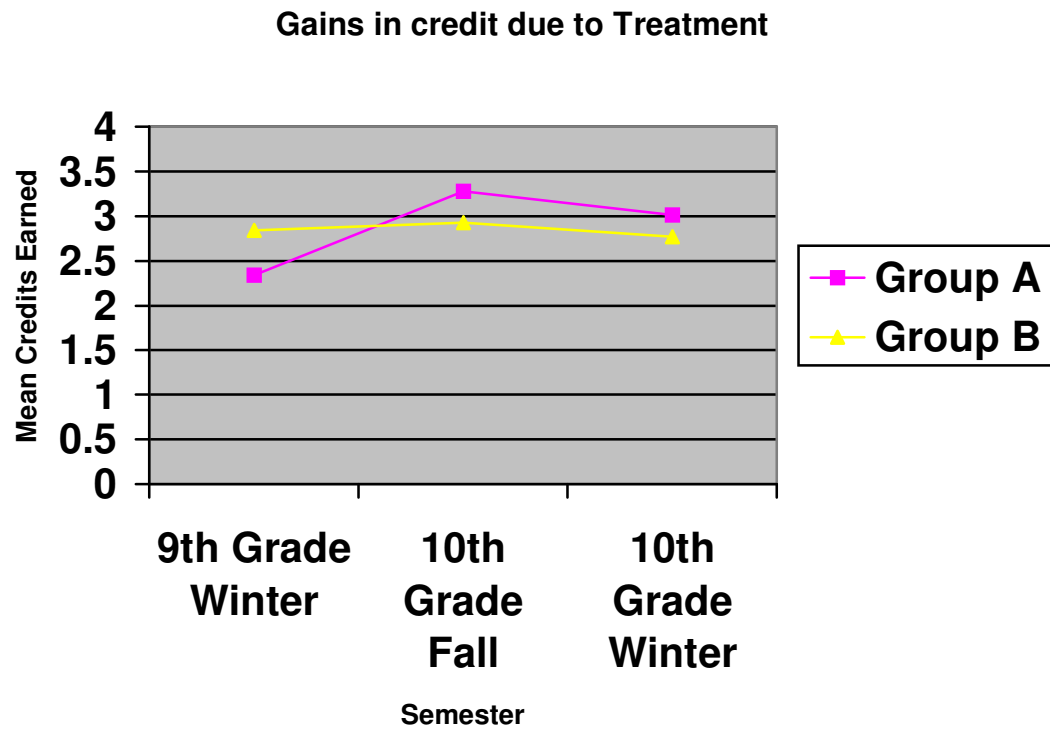
Note: Figure 1 displays an overview of the content for the Internet Version of DISCOVER.

Figure 2: Data Collection Timeline

Start of Fall Semester	During Fall Semester	Start of Winter Semester	During Winter Semester	End of Winter Semester/Spring
All students complete the SCDI	<p>Group A: Receives DISCOVER and Career Counseling</p> <p>Group B: Idol/Control Group</p>	All students complete the SCDI	<p>Group A: Idol</p> <p>Group B: Receives DISCOVER and Career Counseling</p>	<p>All students complete the SCDI</p> <p>Collect Academic Information and Evaluations</p>

Note: Figure 2 illustrates the timeline for data collections and activities.

Figure 3: Comparison of the gains in Credit due to the treatment of DISCOVER and career counseling



EXTENDED LITERATURE REVIEW

Recently, ACT has developed a new online version of DISCOVER, their comprehensive career planning system. This study evaluates the effectiveness of the combined use of this new version with career counseling for use with at-risk high school sophomores. This literature review has been organized into five main sections. The first section reviews five theories identified in the literature that predict dropping out of high school. The next section reviews the literature relevant to career development of at-risk youth, since this is the population that this study will investigate, as well as career theory in general. The empirical research on the use of the Internet and career counseling will then be reviewed, as DISCOVER is an Internet-based tool. Previous literature on the effectiveness of DISCOVER as a career guidance tool will then be discussed. The last section will describe the school-based program involved with this study, i.e., the Success Center, as well as the structured interview used in the study.

Theoretical Models of Dropout

Researchers have noted the importance of identifying predictors of high school failure (Battin-Pearson et. al., 2000). Understanding the causes of dropping out can guide and help researchers create programs that are aimed to prevent this nation-wide problem. Poor academic achievement is commonly associated with dropouts, however other variables may be associated with dropping out through their influence on lowering academic achievement.

Five leading theories or factors that lead to dropping out of school have been identified in the literature by Battin-Pearson et. al. (2000). These theories are: (a) the Academic Mediation Theory; (b) the General Deviance Theory; (c) the Deviant

Affiliation Theory; (d) the Poor Family Socialization Theory; and (e) the Structural Strain Theory.

Academic Mediation. The first theory, Academic Mediation (Battin-Pearson et. al., 2000), emphasizes poor academic achievement as being a strong predictor of dropping out of high school. Several studies have found school influences to be strong predictors of dropping out (Cairns et. al., 1989; Fagan & Pabon, 1990). School bonding has also been linked to academic achievement in several studies (Hawkins, Catalano, & Miller, 1992; Maguin & Loeber, 1996). Thus children who develop a commitment to succeed and a strong attachment to their school may be more successful academically. Because those children who are more academically successful may be less likely to drop out, it is important to understand the relationship between school bonding and dropping out of high school. Thus, Battin-Pearson et. al. (2000) propose that low academic achievement mediates the association between low school bonding and ultimately dropping out of school.

Mediational mechanisms affecting school dropout have been supported by several researchers in the past. Garnier et al. (1997) demonstrated that academic potential was an important mediator between personal and family background characteristics and dropout. Similarly, Janosz et al. (1997) found that school experience variables, such as school achievement, were the best predictors of high school dropout.

General Deviance Theory. Another theory identified in the literature by Battin-Pearson et. al. (2000) is the General Deviance Theory. This theory emphasizes the important relationship between deviant behavior and dropping out. In the past, several studies have found that general delinquency (Fagan & Jones, 1984), drug use (Weng et.

al., 1988), and pregnancy during high school (Anderson, 1993), are predictors of dropping out of school. In addition, delinquent attitudes and behavior have also been shown to be associated with low academic orientation (McGee & Newcomb, 1992).

More recently, Janosz and LeBlanc (1996) found that both delinquency and drug use had direct effects on types of high school dropout. Garnier et al. (1997) also found that teen drug use directly predicted dropout. With regards to sex and teen pregnancy, Geronimus and Korenman (1992) found that teen births significantly reduced the likelihood of the mother completing high school. Thus proponents of this theory could hypothesize that students who are involved in more deviant behavior may be at a higher risk of dropping out of school before completion, compared to those who stray away from such behaviors.

Deviant Affiliation Theory. The Deviant Affiliation Theory (Battin-Pearson et. al., 2000) emphasizes the relationship between students and their peers. Several studies have found that dropouts tend to have more deviant friends, who also show potential for dropping out (Cairns et. al., 1989; Fagan & Pabon, 1990), and these peers may influence the student to eventually dropout of school. Thus students who develop friendships or become involved with other deviant students, and those who become involved with drugs and other antisocial behaviors, may have a higher risk for eventually dropping out of school.

Poor Family Socialization Theory. The Poor Family Socialization Theory (Battin-Pearson et. al., 2000) was also identified by Battin-Pearson et. al (2000). This theory focuses on the relationship between the student and family, and how one's family could contribute to dropping out of school. Hymel et. al. (1996) pointed out the importance

family plays in the decisions to leave school and Newcomb (1997), discussed the important role one's family plays in child development. Another researcher, Rumberger (1983), also noted the influence of family background and the tendency to dropout. Such influence could be in the form of divorce, family stress, or parental deviance. Some researchers have also made the connection between parental education levels as a predictor to their child's academic success (Kaplan & Liu, 1994). Battin-Pearson et. al (2000) hypothesized that low parent expectations and low parent education would have direct effects on high school dropout. Thus proponents of this theory emphasize the importance one's family has on whether or not a student will dropout of school.

Structural Strains Theory. The last theory, the Structural Strains Theory, emphasizes the demographic factors as predictors of dropout. Studies focusing on demographic factors have indicated dropouts are more likely to be boys than girls (Rumberger, 1987), and are more likely to be from lower socioeconomic families (Ekstrom et. al., 1986). Studies with regards to ethnicity and school dropout are conflicting. Some researchers, including Chavez, Edwards, and Oetting (1989) and McMillen and Kaufman (1997) have found that African American and Hispanic American students are more likely to dropout than European Americans. However other studies have found that ethnic minorities are no more likely to drop out after the effects of socioeconomic variables are controlled (Cairns et. al., 1989).

Career Theory

Some authors have discussed the need for career development for all high school students, and that school-wide guidance programs should address and facilitate the career development of students (ASCA. 2003). Gysbers and Henderson (2000) state that

implementing programs, such as the Missouri Comprehensive Guidance Program, provides career competencies that can be addressed as part of the program. Continuity and articulation across all levels of school can provide experiences that will facilitate the career development of students. A variety of activities can be implemented as part of the guidance program and can be collaboratively presented with teachers. As students progress through school, they should be provided with opportunities to learn about themselves, learn about the world of work, learn to make and implement career decisions, and to develop and implement action plans based on the decisions made (ASCA, 2003; Gysbers & Henderson, 2000). Tools currently exist, such as DISCOVER, that can assist teachers and counselors in helping their students with these career development activities. Hughey and Hughey (1999) also state that while some students may not decide to continue on to college, the goal should be that they know how to make career decisions and become prepared for the various options they may be facing. Perhaps similar programs as the American School Counselors Association program model, which begin the career development process in middle school, could reach students earlier enough before they reach high school without plans for their future, and thus fall in the category of being at-risk of dropping out.

Other theorists (Blustein et al., 1997; Lapan & Kosciulek, 2001) in career development have proposed ways in which students can successfully move from school to work. Lapan and Kosciulek (2001) proposed that an approach to servicing students and equipping them for the transition from school to work should be both measurable and responsive to concerns from parents, educators, businesses, trade unions, and community leaders. Thus it would be ideal for students to display career adaptability in their

approach to any educational or training opportunity. This career adaptability will equip them to make well-informed choices as they travel through vocational and educational paths (Lapan & Kosciulek, 2001). As a result, adolescents should approach the world of work possessing a unique understanding of themselves, particularly in relation to this new arena, without prematurely narrowing their educational and career paths. Lapan and Kosciulek (2001) offered that career development interventions should be multi-fold in their approach to addressing the needs of adolescents, including providing growth in purpose and direction, increase perceived opportunities and choice, strengthen personal agency and empowerment, encourage perseverance and foster the ability to overcome obstacles, help develop a sense of commitment, enhance maturity, and aid in the maintenance of motivation and hope (Lapan & Kosciulek, 2001).

Career Development practitioners and researchers have identified six primary constructs that promote either growth or constriction to future possible selves. These are: (a) expectations, including self-efficacy beliefs and attributions; (b) identity development through the interrelated processes of exploration and goal formation; (c) an enhanced understanding of oneself, the world of work, and how best to fit or match this self-understanding to occupational realities; (d) the pursuit of one's interests and preferences; (e) the ability to achieve academically and become more of a self-regulated and lifelong learner; and (f) the use in one's everyday interactions with others of a range of complex social skills and work-readiness behaviors (Lapan, 2004). Lapan and Kosciulek (2001) propose that these constructs, the relationships among them, their connection to vocational self-understanding, as well as their interface with surrounding demographic, social, economic, and political contexts, all collaborate to influence an adolescent's

orientation to the future. They also influence how adolescents might define their purpose and outline their direction, how they identify and consider their goals and values, how they determine which educational and vocational options are viable, how motivated and hopeful they are about pursuing and achieving their goals, and how tenacious they are in working through obstacles and challenges they may confront. Then as these factors are framed within various contexts, the complexity of the career development process is realized (Lapan & Kosciulek, 2001).

The Internet and Career Counseling

The rise of the Internet the last 15 years has resulted in the development of many resources for information, including interactive websites, online career guidance systems, e-mail, message boards, chat rooms, and mailing lists or “listservs.” Many of these resources can provide support for an individual engaged in career exploration as they not only afford opportunities for gathering information, but also for self-exploration and communication.

Computers, since their inception, have been used as a tool in the career planning and assessment process (Super, 1970). For example, in the late 1960’s, the Education and Career Exploration System (ECES; IBM Corporation, 1970), developed by Frank Minor of IBM with Donald Super as consultant, used the results of computer based interest and abilities inventories to assist students in identifying occupations. In 1968, the Information System for Vocational Decisions (ISVD; United States Office of Education, 1968), developed by David Tiedman, taught a decision-making process for career planning. Also in 1968, The System for Interactive Guidance (SIGI), developed by Martin Katz at the Educational Testing Service, administered a well-researched values assessment. The

Computerized Vocational Information System (CVIS; Illinois State Board of Vocational Education, 1968), developed by JoAnn Harris and her staff at Willowbrook High School, used results of the Kuder DD (Kuder, 1956) to help students identify occupations. This system would eventually become DISCOVER (ACT, 1997).

Today, SIGI Plus (ETS, 1995) and DISCOVER (ACT, 1997) as well as several other computer-assisted career guidance (CACG) systems have become integral parts of the career guidance and planning services of both high schools and colleges. Some authors have noted that it is not surprising with this history that career counselors embrace the Internet and the Web as vehicles for assessment in career planning (Reile & Harris-Bowlsbey, 2000). Most recently, ACT (2002) developed an online version of its career guidance system DISCOVER, thus the natural progression of computer-based programs to online-based programs is well underway.

Several researchers have evaluated the use of the Internet in career planning, assessment, and searching for career information (Gore & Leuwerke, 2000; Reile & Harris-Bowlsbey, 2000; Robinson, Meyer, Prince, McLean, & Low, 2000). Career specialists have used and have been encouraged to use computers and the Internet for over three decades since the Internet can be a valuable resource, providing endless opportunities for accessing vast stores of updated information to enhance career guidance (Gore & Leuwerke, 2000).

With the use of the Internet in career counseling becoming more popular, advantages and disadvantages are beginning to be identified. Robinson et al. (2000) discussed some of the advantages and disadvantages of the use of the Internet with regards to career information and access mechanisms. These advantages consist of:

obtaining the information from any computer with Internet access; using multiple web sites and resources simultaneously; surfing for information on many different occupations at one sitting; websites can be visually appealing and engaging; flexible navigation; information can be quickly updated; and the Internet has become very popular and widely used.

Robinson et al. (2000) also recognized some disadvantages that exist, for example: without guidance, so much information can be overwhelming; information can be untrustworthy; websites require maintenance; websites may not adequately address emotional issues; and assessments vary in validity and reliability (Robinson, Meyer, Prince, McLean, & Low, 2000). Gore and Leuwerke (2000) also addressed a number of technical issues that may serve as barriers to efficient use of a computer or the Internet, such as the capabilities, or lack thereof, of computer equipment, data transmission rates, and compatibility with different multimedia sources.

Career specialists and counselors should also recognize some of the legal and ethical issues of conducting career guidance and assessment via the computer and the Internet. Sampson and Lumsden (2000) noted some of these ethical issues, such as the reliability and validity of the online version of assessments. It is assumed that the results of online versions of an assessment will be equivalent to other versions, however this may not always be the case, as discovered by Barak and Cohen (2002) in their examination of the online version of the Self Directed Search. They found that the online version resulted in higher scores for the subscales compared to the traditional paper and pencil administration.

Other ethical issues discussed by Sampson and Lumsden (2000) include the design of the website. Due to the different levels of readiness for career exploration, websites should have “help” features and recommendations on how individuals can receive more personalized services. It is also important that these sites make sure personal information is well guarded for confidentiality reasons (Sampson and Lumsden, 2000).

It has been suggested that the Internet will play a vital role in the future of career guidance and counseling (Barak & Cohen, 2002; Reile & Harris-Bowlsbey, 2000; Robinson, Meyer, Prince, McLean, & Low, 2000). Career specialists and counselors have a valuable resource that can assist them in providing career information, however, career specialists need to recognize the potential for legal and ethical problems of conducting career guidance and assessment via the computer and Internet. Perhaps the best use of the Internet in the future with regards to career guidance is that it be used as a tool, with individualized help and guidance by career specialists and counselors, thus allowing these career specialists and counselors the opportunity to attend to other issues that may influence the career development needs of a client.

DISCOVER

DISCOVER is ACT’s computer-assisted career guidance program. Between 1978 and 1998, over 20 studies have been published evaluating the effectiveness of DISCOVER. Taber and Luzzo (1999) reviewed the literature on the effectiveness of DISCOVER and found that several populations were studied, including middle school students, high school students, college students and adults in career transition. They found that overall, DISCOVER increases user’s vocational identity, level of career

development, and career decision making self-efficacy. They also found mixed results regarding the effectiveness of DISCOVER as a tool for increasing career decidedness, occupational certainty, career maturity, and career exploration. DISCOVER, although designed to be used as a stand alone tool, also seems to be most effective when used together with additional career exploration and planning activities, such as individual or group counseling (Taber & Luzzo, 1999).

Four of these studies involved high school student populations and thus will be reviewed in more depth since this study involves high school students, however none of the previous studies evaluating the effectiveness of DISCOVER involved the specific population of at-risk high school students.

The particular elements or characteristics discussed in these four studies include career decidedness, career maturity, occupational certainty, and career exploration behavior. In their comprehensive report on the effectiveness of DISCOVER, Taber and Luzzo (1999) defined these characteristics which have been investigated. In the context of career decision-making, career decidedness refers to the degree to which an individual is decided on entering a particular career. Similarly, occupational certainty is concerned with one's commitment to an occupational choice. Career maturity involves one's readiness to cope with career decisions, and career exploration behavior refers to how often one engages in career exploration.

The first study, Glaize and Myrick (1984) compared the effectiveness of DISCOVER and a group career exploration workshop, both grouped together and separately, to assess their relative impact on career decision making of 11th grade students. They found that DISCOVER, used either alone or in a combined workshop,

increased participant's decidedness relative to a control group that did not receive treatment. Thus supporting its effectiveness on career decidedness.

Another characteristic discussed in the literature is career maturity. Career maturity has been defined by Savickas (1984) as "one's readiness to cope with vocational developmental tasks" (p. 222). Taber and Luzzo (1999) explain this characteristic as involving the exploration of where a client is in terms of his or her vocational development and comparing that rate of progress with an expected degree of vocational development.

In an early study in the DISCOVER research, Rayman, Bryson, and Harris-Bowlsby (1978) was among one of the first to evaluate the effectiveness of DISCOVER in increasing career maturity for junior and senior high school students. Unfortunately, they did not find significant post-test differences in career maturity between the group using DISCOVER and a control group. They did note however, that the results may have been effected by confounds in their research design, such as using a small sample size and only implementing two modules in DISCOVER and not the complete system.

Hinkelman (1997) investigated how the use of DISCOVER can positively increase high school student's career maturity. She found that DISCOVER had no effect on career maturity, however in terms of Career Decidedness, females who used DISCOVER demonstrated a decrease in the need for self-knowledge.

Career exploration, another characteristic, was explained by Taber and Luzzo (1999) as the frequency with which a person engages in career information-seeking behavior, including making use of career resource libraries and other media resources, consulting with others regarding career/educational information, and engaging in

activities to gather relevant educational and occupational information. Yang (1991) studied career exploration behaviors and found no differences in career exploration behavior between participants using DISCOVER and those participating in another career planning intervention.

In their review, Taber and Luzzo (1999) discussed several limitations of the previous research on the DISCOVER program. For example, many of the studies limited the use of DISCOVER for less than two hours. Two hours may not provide enough time for clients to benefit from the use of DISCOVER. Other limitations include statistical issues such as not reporting power analysis results; failing to investigate specific components of DISCOVER instead of evaluating DISCOVER in general; and investigating the interaction between client attributes and methods of career intervention. For example, factors such as gender, ethnicity, or personality have received little if any attention in most of the studies.

Additional research is needed in evaluating DISCOVER's effectiveness with career counseling clients, specifically students at-risk of dropping out of high school. It is also important to note that since the early 1980's, several versions of DISCOVER have been developed with the newest online version developed in 2002. Thus additional research is needed to evaluate these new versions to gain information regarding the effectiveness of DISCOVER. More specifically, there has been no research to date on the new internet version of DISCOVER, thus the importance of this study is increased to learn more about it's effectiveness as a career guidance tool.

The Success Center

In 1995, the dropout rate for the Midwestern suburban high school involved with this study was 15 percent. Between 1995-1999 the dropout rate decreased to 8 percent, however the local school district set a goal to reduce that rate to fewer than 5 percent. This high school took several steps to keep their students in school and reach this goal. The first was to apply to become an “A+” school, a state funded program that allows qualified students two years of paid post-secondary education at the community college level. Another solution was to begin an after school tutoring program for students who felt they needed extra assistance with their course work. A third intervention was the development of the Success Center.

The Success Center is a two-hour structured study hall, which is taken for class credit, with the overall purpose of providing intensive support to at-risk sophomores. The goal of the program is to have each student successfully complete all of their sophomore core content area classes and develop the skills necessary to graduate from high school. The Success Center’s overall mission is to provide a structured environment in which stable relationships of mutual respect can be developed and thus open the door for more successful educational experiences for these high school students.

Within the Success Center, individualized and small group tutoring is available as well as other resources necessary to complete assignments (computers, books, and project materials) and ensure progress toward graduation. In addition, students organize their academic day and homework, as well as engage in study skills, and counseling and career planning activities, such as job shadowing. Teachers focus on the students’ academic and organizational skills, career exploration and the social/emotional growth necessary to be

successful in school. The center also provides a "home base" for students who need to have a place staffed by supportive people in the building who know them well and can act as liaisons between them and the rest of the high school.

The Success Center has shown a 96 percent success rate in keeping their participating students in school. Out of 158 students who have participated to date, only 15 students have dropped out (7 left to complete their GED, and one entered the Job Core program). During the 2004 academic year, 60 students began the program and only one has dropped out of high school.

Structured Career Development Interview

The Structured Career Development Interview (SCDI) is a 58-item protocol intended for persons in early adolescence to young adulthood who are in the varying stages of career planning. The SCDI (Lapan, 2000) is designed to provide the interviewer a comprehensive and in-depth understanding of the student's orientation to future educational and career options. The interview has been developed to place a trained interviewer in a position where they can gain a greater appreciation of the issues, challenges, and opportunities faced by the students. The protocol consists of nine subscales or subsections. These are proactive opportunity seeking; career expectations; academic achievement; goals/actions; social skills; job-self compatibility judgments; interests; emotional supports; and instrumental supports.

The SCDI questions, written in an open-ended format, were fashioned to engage the respondents in discussions about career issues and encourage elaborate and detailed responses. Thus, the aim of such an approach is to provide specific information about the career development issues relevant to those responding. The anticipated result is that an

adolescent's perspective about their career development process, as well as those experiences that have been most meaningful to them, will be voiced. Interviewers then complete a scoring booklet that results in a total score for each subscale. Initial reliability and validity estimates of the SCDI have been encouraging.

The SCDI was first used by the graduate student counselors to gain initial career development information, but also served the purpose of allowing the counselors to easily establish a working alliance with the students. Throughout the course of the school year, its use stimulated further discussions concerning career development and assisted the students in identifying career and/or educational goals for the future.

VITA

Joseph Kenneth Bleier was born on March 31, 1972, in Mt. Pleasant Township, Missouri. After attending public schools in Ft. Lauderdale, Florida, he received the following degrees: A.A. in Liberal Arts from Broward Community College in Ft. Lauderdale, Florida (1992); B.A. in Psychology from Florida State University (1994); M.A. in Counseling Psychology from the University of Missouri-Columbia (2001); and is expecting to receive a Ph.D. in Counseling Psychology from the University of Missouri-Columbia (2006). He is married to the former Emily Tolle of Turney, Missouri and is presently completing a Psychology Pre-doctoral Internship with the Federal Bureau of Prisons at the Federal Medical Center in Lexington, Kentucky.