AN EXAMINATION OF GUIDED IMAGERY AND ITS RELATIONSHIP TO SELF-EFFICACY AND THE IMPLICATIONS FOR EMPLOYABILITY IN COLLEGE GRADUATES SEEKING EMPLOYMENT

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A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

Capella University

November, 2012

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Abstract

The study examined the relationship between Guided-Imagery (GI) and Self-Efficacy (SE) as means to better understand how GI techniques affect SE levels, particularly in relation to career related performance. The use of GI has been found to elicit a state of relaxation where a deep level of focus is achieved which some would call an altered state of consciousness, and which coupled with specific thoughts and visual images has been found to affect the conscious and subconscious mind. This state of consciousness is also referred to as a mind-body connection that can manifest itself in our behavior, which includes job and employment outcomes. A quasi-experimental design using a quantitative method of analysis was used, with a pretest-posttest controlled experimental research design, and independent ANOVA was used for this study to examine the relationship between guided-imagery and career development SE in college undergrads seeking employment. The sample used for the study was fifty (n=50) recent college undergrads, ages 18-30 years of age and the CDSES-SF (Betz & Taylor, 1996) were chosen for this study because its primary measurement is career decision SE. The pretest mean scores for the treatment group ranged from 3.74 to 3.89 and posttest mean scores ranged from 4.44 to 4.57, as compared to the control group over a two week period; with pretest mean scores ranging from 3.78 to 4.03 and posttest mean scores ranging from 4.07 to 4.14. The results of the study support that there is a significant increase in the subscales and overall CDSE and also showed that there is also a significant increase between the treatment and control groups throughout the five subscales levels and overall levels of SE. Results of this and other studies have clearly shown that Guided-Imagery (GI) is an effective tool in increasing Self-Efficacy levels and overall performance in those who use it.

Dedication

To my family, who have cheered me on through this long process and encouraged me when I thought I could not go on. Especially my mother Jennifer who reminded me each day that I was unconditionally loved, a special person and that I should never give up. To my children, Chelsea and Wesley, whose faces reminded me every day that it is through my example they are lead, and I have seen them blossom into amazing people using their education as a result. To my grandchildren who kept me humble and reminded me of what is important in life and that I am an example to them as well through this long journey. To all of my many wonderful friends who encouraged me along the way and inspired me to keep pushing on, and last, but not least, to my colleagues who tirelessly work alongside me with underserved populations and encouraged me that my research was important and something that would benefit the many low income participants we serve toward empowerment and self-sufficiency through education. It is because of you I am here!

Acknowledgments

There are so many people that have given of their time and their gifts to get me where I want to go in this process. You kept me focused, reminded me of why I was doing what I was doing and kept me strong on the days I thought I could not go on. You have all helped make this dream of a PhD come true, and it is because of you that the important work I am doing, and will continue to do, with career development in low income persons will continue.

To my kids, Chelsea and Wesley, who watched me study relentlessly over the last 10 years to reach my goals of higher education after being a stay-at-home mom. And to my mom Jenny, who encouraged me all of the way. Also to my cousin Linda, who walked with me together down the education path and kept me inspired to go on. Without all of you I would have quit long ago and never made this dream come true!

I most definitely would not be where I am without my mentor, Dr. Donna DiMatteo-Gibson, who talked me out of the tree many times and helped me climb down, get focused back on the task I was on. Without her I am sure I would have given up very early on. Also to my committee, Dr. Bruce Gillies and Dr. William Cameron, who were supportive and wonderful to work with during this often grueling process. Your supportive words and suggestions helped me improve my study and create a solid piece of work. Your guidance and support can never be repaid, and your dedication to your students is empowering and a reminder that we are all to strive to serve and do the greater good as a way to make a difference in the lives of others. I also have to thank wholeheartedly Dr. Lynn Joseph, a wonderful friend and colleague who so graciously allowed me to use her Guided-Imagery literature. Thank you to all of you and I will never forget what you have done for me, and I promise to return the gifts you gave me to others!

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CHAPTER 1. INTRODUCTION

Introduction to the Problem

Positive Self-Efficacy (SE) is a primary component in successful career decision making, and a predecessor to optimal performance overall (Bandura, 1982,1986, 1989; Wiener, Oei, & Creed, 1999; Munroe-Chandler & Hall, 2004; Hernandez-Guzman, Gonzales & Lopez, 2002; Sanders et al., 2008; Vernacchia, & Henschen, 2008). Guided-Imagery (GI) is a tool that has been found to improve Self-Efficacy levels and performance in those who use it. Guided-Imagery has also been found to create an altered state of consciousness that causes neurological and physiological changes in the brain, which are a determining factor in overall behavioral outcomes. GI and has a long history of having been used as a treatment in the field of psychology (Arbuthnott, Geelen, & Kealy, 2002; Crampton, 2005; Wynd, 2005).

It has been found that cognitive and neurophysiologic changes occur when GI is used (Arbuthnott et al.,2002; Wynd, 2005). When using GI, a person goes into a state of relaxation where a deep level of focus is achieved, or an altered state of consciousness. This altered state of consciousness, coupled with specific thoughts and visual images, not only affects the conscious and subconscious mind, but also profoundly effects the emotions and physical body as well (Hammerstrom & Janlert, 2002; Hermele, 2005). Joseph (2009) states that it is this mind-body connection that can manifest itself in our behavior and which ultimately can influence employment outcomes.

Guided-Imagery has been shown to be a very powerful tool in creating a bridge between the conscious and subconscious mind, with the visualized goal actually becoming the definitive predictor of outcomes (James & Barton, 2004; Munroe-Chandler & Hall, 2004, Joseph, 2009).

This phenomenon has been shown to not only be a successful cognitive-behavioral intercession in creating this bridge, but also in producing desired performance, which could have great implications for HR professionals, career counselors, coaches, I/O psychologists, management professionals and trainers in relationship to employability.

Research into this phenomenon in relation to SE and career decision making is limited, and no research has been found among college undergrads using guided-imagery in their career search. Betz and colleagues found that SE levels do support employability (1983-1994, 1996, 2006), and have developed a reliable scale in measuring self-efficacy to predict positive or negative career decision making behavior. The Career Development Self-Efficacy Scale Short Form, or the CDSES-SF, (Betz & Taylor, 1996) is broken down into 5 subscales (dependent variables) that can be measured independently using a paired *t* test (two tailed) ANOVA, MANOVA or both. By measuring these SE levels in college undergraduate using GI, we can determine whether or not there is a relationship between the GI and SE overall.

Background of the Study

There is a large amount of research on GI and it relationship to SE in sports psychology and medicine, all of which have been shown to have documented positive effects on performance and recovery in those who use it over a short period (Bandura, 1982,1986, 1989; Wiener, Oei, & Creed, 1999; Hernandez-Guzman et. al, 2004; Munroe-Chandler, & Hall 2004; Wynd, 2005; Sanders et al., 2008; Vernacchia, & Henschen, 2008). This research has also shown that there are specific cognitive changes that take place when GI is used, and these cognitive changes affect behavior on many levels. One of these is SE (or confidence), which is known to increase when GI is used because it gives the user the belief and emotional feeling that they are more in control of their circumstances (Joseph, 2009). Although the effects of GI have been well documented,

its effects on SE in job seekers, particularly undergraduates, are still mainly uncharted territory at this time.

Statement of the Problem

Previous research by Betz and colleagues (1983-1994, 1996, 2006) in career development has shown that Self- Efficacy levels (SE) decreases and other negative psychological effects are evident in those experiencing unemployment, while those with higher levels of SE have less negative effects and make better career related decisions. Current research also suggests that Guided Imagery (GI) can be used to help treat these negative effects by changing cognitive structures in the brain, which in turn effect emotions and behaviors (Arbuthnott et al., 2002, Joseph, 2009; Wynd, 2005). Specifically, a lack of SE has been shown to be a contributing factor in the lack of employability among undergraduates entering the workforce (Cassidy, 2006), and although some limited research has been done in this area in relation to laid off workers who have already been on a career path and are trying to return to the workforce (Joseph & Greenberg, 2001), there is no known study on GI and its relationship to SE in undergraduates using the techniques while attempting to enter their new field.

Purpose of the Study

The purpose of this study was to assess the relationship between GI and SE. In this study, it was important to study the relationship between GI and SE in order to better understand how GI techniques affect SE levels. Specifically, in relation to career related performance in those college undergraduates who have higher levels of SE as compared to those who do not. The study also looked at the role that GI plays in those levels. In addition, an analysis of Guided-Imagery's effects on each of the 5 CDSES-SF subscales was measured independently to alleviate any Type I Error Issues, such as the null hypothesis being true.

Rationale

This study expanded on the current body of knowledge on the effects of GI on performance and then tie in the research on SE by studying the effects of GI and its impact on SE levels, or confidence, for undergrad job seekers (Bandura, 1982,1986, 1989; Wiener et al., 1999; Hernandez-Guzman et al., 2002; Joseph & Greenberg, 2001; Munroe-Chandler, & Hall 2004; Sanders et al., 2008; Vernacchia & Henschen, 2008). The implications of this study are that since GI has been found to increase confidence and performance in those who use it, than those with higher levels of SE do experience higher levels of employability. In addition, if a relationship exists between GI and SE, than those who use GI techniques will experience higher levels of SE and perform better, which then will have positive implications for increasing employability levels.

The overall population researched in this study was college students seeking employment upon preparation for graduation from a college certificate or degree program as compared to other populations of job seekers who have worked in their field of study prior. This group was considered a solid population to study based on research by Betz and colleagues (1983-1994, 1996, 2006) that clearly shows that this population is at risk for low confidence levels upon graduation. In addition, Cassidy (2006) found that this population overall interview and behave less confidently when compared to others, and that they do not generally learn the confidence skills necessary for employability once graduated. College students are also a good sample as they tend to be more open minded and flexible to new concepts, such as GI (Billingham, 2008).

This research design was based on several already published studies (Joseph & Greenberg, 2001; Paulsen & Betz, 2004, Wynd, 2005; Kolodinsky, Schrober, Montopoli & McLean, 2006) on SE and GI research using two groups and analyzing the gain scores between

the pretest and posttest and is in line with basic statistical designs of this type (Breakwell, Hammond, Fife-Shaw & Smith, 2007; Hammond, 2003, 2004). The methodology and approach was correct for the types of data because it too is in line with other similar studies cited earlier on career SE that evaluate the relationship of SE and other quantitative variables, and the GI independent variable can be changed and adapted easily to examine the effect on other variables in the CDSES-SF 5 subscales (Betz & Taylor, 1996).

This design was suited for addressing the research problem and answering the research question because its experimental design was also consistent with basic statistical experimental models of this type. In addition, it is similar to other studies in SE and GI that used this basic experimental model. Paired *t* test (two tailed) ANOVA was used for this design instead of MANOVA because of the need to do measure the 5 subscales of the CDSES-SF (Betz & Taylor, 1996) independently to show the relationships between the CDSES-SF 5 subscales and overall SE gain scores and their relationship to GI. This design was also well suited for using SPSS for analysis as it calculated data from two sample means to look for a difference between the SE gain scores of the two groups (Field, 2005). The relationship between GI and SE gain scores before and after treatment was examined.

Research Questions

The research questions for this study are as follows:

1. Is there a difference in Self-Efficacy (SE) gain scores between those who use Guided Imagery (GI) in undergrad job-seekers? If so, how much?
2. Does Guided Imagery (GI) affect the gain scores of the 5 CDSES-SF subscales differently in undergrad job-seekers? If so, how much?

Significance of the Study

The significance of this study is that by contributing to current research by Betz (1983-1994, 1996, 2006) on Career SE and GI techniques by The Beck Institute (2009) and others (Joseph & Greenberg, 2001; Tusek, Church, Strong, Grass, & Fazio, 2005; Wynd, 2005), it contributes to understanding the relationship between these two areas of research as they pertain to specific psychological practices in career development in I/O psychology. In addition, quantitative measures are presented on the use of GI on the 5 subscales of SE in the CDSES-SF (Betz & Taylor, 1996) and overall SE. The relationship between undergraduates SE was analyzed before and after GI treatment. This not only contributes to the validity of the previous research cited, but also adds new research on the effects of GI on SE and employability outcomes. This research is useful in future research by providing data to help determine if there is a difference in confidence levels in undergrads using guided-imagery when seeking employment in a new career versus those who are using guided-imagery to find employment in their current field, and if different techniques should be used when working with this population during their job search.

Definition of Terms

Career development. The manner in which one manages their career process while between jobs and encompasses "the total constellation of psychological, sociological, educational, physical, economic, and chance factors that combine to influence the nature and significance of work in the total lifespan of any given individual"(National Career Development Association, 1993, p.2).

Job search. The active behavior of looking for a job either through being unemployed or dissatisfied with a current position.

Undergraduates. " A student who is pursuing either a certificate or an Associate or Baccalaureate degree" (Board of Trustee - University of Illinois at Urbana-Champaign, 2007, np).

Guided imagery. "A range of techniques from simple visualization and direct imagery-based suggestion through metaphor and storytelling" (Utay & Miller, 2004, p. 40). It is also considered a form of therapy in which descriptive language is used to promote a mental image in the mind if the user in order to produce positive psychological results.

Self-efficacy. "Beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1977, p. 3).

CDSES-SF. "Measures an individual's degree of belief that he/she can successfully complete tasks necessary to making career decisions" (Betz & Taylor, 2006, p. 6). Betz and Taylor state:

> Because the original CDSE was 50 items, a shorter version which could be easily used in counseling assessment and as a pre-post measure for the evaluation of career interventions was thought to be desirable. Accordingly, a 25-item form was developed (see Betz, Klein, & Taylor, 1996, for full details). The short form was developed by eliminating five of the ten items from each of the five CDSE scales. The items retained were those satisfying criterion of : 1) substantive generality (versus content specificity or narrowness); 2) item-own scale correlation equal to or above .50; 3) loading on appropriate factor (only) in Taylor and Popma (1990) factor analysis; and 4)

recommendation of retention of the basis of Gati, Osipow and Fassa's (1994) split-scale analysis of the subscale structure." (p. 8)

5 subscales. "The CDSE-SF (Betz & Taylor, 1996) consisted of five 5-item scales, or a total of 25 items. These subscales are 1) self-appraisal, 2) occupational information, 3) goal selection, 4) planning and 5) problem solving. Responses were again obtained using a 10-level confidence continuum, ranging from *No Confidence at All* (1) *to Complete Confidence* (10)" (Betz & Taylor, 2006, p. 8).

Assumptions and Limitations

Assumptions

For this study, the standard deviation (average variability) for the posttest SE scores, which is the data measured in the same unit of measure as the pretest SE scores, is the same across the entire sample (Field, 2005). Because it would be impossible to test cognitive abilities at length for this study, it is also assumed that everyone in the study had the same ability to visualize and use GI, however, it is possible that due to cognitive abilities, some may not.

The honor system was used during this study and it is assumed that all participants are answering honestly, however it is recognized that due to social desirability factors, people may not. There is the possibility that some may not answer honestly on the CDSES-SF (Betz & Taylor, 1996) assessment or listen to the guided-imagery (Joseph, 2009) as they stated that they had. It was also assumed that all participants followed the GI procedures as outlined and all participants did complete the study.

It was assumed that the testing instruments were the appropriate ones for the study as they have been carefully tested in prior studies and shown to have high levels of reliability and validity as stated prior in the rationale section of this chapter. It was also assumed that the

standard principles of statistical analysis were true and that mean score data conforms to the techniques (distributional assumptions) required for the analysis (Field, 2005). In addition, the statistical principle used assumed that average SE score data (variance) is normally distributed around the mean (center of the distribution of scores) in the population (Field, 2005). Gain SE scores were measured at least at the interval level and it was assumed that all scores obtained are independent because each participant will work alone and not in a group during the study.

Limitations

The size of the sample was somewhat small, although consistent with similar studies (Joseph & Greenberg, 2001). It could be argued that a larger sample size should have been utilized, but based on similar studies; this sample size was adequate for this study as in the published and respected study of Joseph and Greenberg (2001) that showed this sample size does have statistical significance. Another limitation was that the time of treatment was somewhat short as compared to other studies; however, the sample size was consistent with similar studies that have been shown to have high levels of reliability and validity.

Guided-imagery research has some limitations in that the ability to visualize varies among participants and can make a difference in its effect on each participant (Skaer, 2006). However, other research has shown that even in brain damaged individuals, the ability to visualize is still present and a separate brain function required for higher levels of cognitive function. This makes this a limited liability for this study among all populations using guided-imagery.

Another limitation was that there are undergraduates being used from different degree programs and levels (certificate through BA), and this may not have provided the same outcome data that can be concluded for all career outcomes. However, for this study, career outcomes

were not tested, but rather career development self-efficacy scores. Gender and age were not examined in this study, and although not documented, it is possible that these differences may have produced different SE outcomes. Another liability was that personality, mood and environmental influences may affect the ability for some participants to enter an altered state of consciousness during treatment than others (Skaer, 2006).

Statistical limitations were that the nature of this study limited it to a quantitative method. However, any future studies could use a qualitative approach using quantitative data (Skaer, 2006). A Placebo group could be used in future studies, but a placebo group was not used in this study because of time and sample constraints and the importance of keeping the design in line with similar studies that used two group, and does not present any ethical considerations (Joseph & Greenberg, 2001).

Nature of the Study

The study focused on one theoretical framework, which is Bandura's Theory of Self-Efficacy (1977, 1997). The constructs of Bandura's theory were used to investigate self-efficacy (SE) and the constructs of this theory are the basis for the design of the CDSES-SF measurement tool being used in this study (Betz & Taylor, 1996). As Betz (2004) states, "the concept of self-efficacy refers to one's belief in one's capabilities to successfully engage in a specific area of behavior" (p. 1). The theory also has built into it the concept of expectation, which are "behaviorally specific" and not general, and which are categorized into specific behavioral domains. Betz (2004) states that the theory of self-efficacy is a perfect framework for researching and understanding career behavior because of these built in expectations. There are three categories for behavioral consequences that can be measured based on a person's perceived self-efficacy; 1) approach versus avoidant behavior, 2) quality of performance behaviors in the

target domain, and 3) persistence in the face of obstacles or disconfirming experience (Betz, 2004). This theoretical framework was also foundational for this study as Bandura's model theorizes that an individual's perceptions about themselves and how they can execute a course of action are critical in their levels of motivation and the behavioral choices they make (Lightesy, 1999).

The CDSES-SF (Betz & Taylor, 1996) was used as a measurement tool for this study. This test was created by Betz and Taylor (1996) and measures SE levels in students and is based on SE theory (Bandura, 1977). This test measures "an individual's degree of belief that he/she can successfully complete tasks necessary to making career decisions" (Betz & Taylor, 2006, p. 6). The constructs of this test are that it measures 5 career choice competencies and focuses on five subscales that effect behavior, which are 1) Accurate self-appraisal, 2) Gathering occupational information, 3) Goal selection, 4) Making plans for the future and 5) Problem solving. The test was done on a Likert scale and consists of 50 questions for the long form and 25 for the short form. The short form was used for this study and has been shown to have the same levels of reliability and validity as the long form.

The sample type was two groups of 25 each, which is consistent with previous studies on GI (Joseph & Greenberg, 2001, Wynd, 2005), one treatment group and one control group. The research procedures involved a pretest be given to both the treatment and control groups before treatment and an analysis of the average SE gain scores will be done. Those in the treatment group listened to the Guided Imagery CD while the control group will not. Treatment time was for a two week period (Joseph and Greenberg, 2001, Spett, 2008). After the treatment, a posttest was given and the data analyzed based on the average SE gain scores of the two groups. The average SE gain scores of the treatment and control group will be analyzed using SPSS.

Organization of the Remainder of the Study

This research study was organized into five chapters. Chapter one focuses on the introduction, background of the study, purpose, significance, rationale, assumptions and limitations and nature of the study. Chapter two presents a review of the literature that pertains to GI and SE, which includes a review of GI, GI research, Self-Efficacy, measures of SE, the influence of SE on career decision making and performance and GI and its relationship to SE.

Chapter three focuses on the research methodology that will be used in the study. This consists of an outline of the participants of the study, the experimental design, the independent and dependent variables, the treatment, the debriefing of participants and the data analysis. Chapter four focuses on the data collection process and looks at the hypothesis and a summary of both. Finally, chapter five focuses on the results, conclusions and recommendations of the study and covers a summary, findings, conclusions, limitations, implications and an overall conclusion of the study results.

CHAPTER 2. LITERATURE REVIEW

Introduction

This chapter is a brief overview of the chosen literature for this study. This chapter will discuss the main topics for the research done, of which there are volumes of previous research. This literature was surveyed using electronic library databases of peer reviewed journals using specific search criterion. The specific search criterion used was the terms GI, SE, Sports Psychology, Symptoms of Unemployment, Cognitive Behavioral Theory and mind-body connection. The phenomenon of GI and GI research is reviewed first, followed by research on SE and the relationship between thoughts and emotions, or the "mind-body connection". This mind-body connection is examined and a relationship between GI and SE levels is shown, as well as the influence this connection has on career decision making and overall job performance in undergraduate job seekers.

Theoretical Orientation

Review of Research on the Topics

Guided imagery (GI) defined. GI is a technique or program of carefully directed thoughts that are guided by suggestion, which can encompass anything from simple visualization or imagery guided through suggestion, and which physical abilities are rehearsed cognitively (Page, Levine, Sisto & Johnston, 2001; Utay and Miller, 2004). These suggestions guide ones imagination, which in turn can direct and focus the mind into a deep and relaxed state (Joseph, 2009). This relaxed and focus state can also be defined as an altered state of consciousness, which to date as shown to have no adverse effects when used. However, those who have used it have been shown to "achieve mental, physical, and emotional goals for health, well-being and success" (Joseph, 2009, p. 22). This altered state of consciousness and the imagined experiences

found in using GI create a different cognitive process in those who use it, where the user is aware of their surrounding yet are able to see in their minds eye an outcome and experience this outcome on an emotional and physical level, also known as the mind-body connection (Skaer, 2006; Vernacchia & Henschen, 2008).

This happens because GI creates a sensory element to the imagined experience, or the "perceptual representation", and the subconscious mind does not know the difference between the imagined experience and a real experience (Borst & Kosslyn, 2008). Most important, "the subconscious understands images more clearly than words, thus experts consider imagery the dominant language of the subconscious" (Joseph, 2009. p. 23). This is thought to be the result of neurological patterns in unconscious mind that are recorded in distinct locations in the brain, creating an account of the unconscious information, and which activates a mind-body response (Sandella, 2007). In other words, the mind elicits a response from all five of the senses and guarantees that the subconscious will respond in the same manner as it would to a real experience.

General guided imagery research. GI in itself is nothing new and has historically been a part of many cultures and religions for centuries (Utay & Miller, 2004). In the early 1940's, Jacob Morena created and used a therapeutic technique he called "auxiliary egos" in which he used psychodrama to help participants experience relief by acting out their personal realities causing them problem (Utay & Miller, 2004). In terms of psychological research, some of the earliest researchers of GI were Helen Bonny in the early 1970's (Melges & DeMaso, 1980; Rossman, 1987; Grocke, 2005), who proposed that one could actually heal themselves using the technique. Since that time, GI has become a well respected therapeutic tool and "is considered a research-based approach" used in physical and emotional healing. Research on the effects of GI

can be found not only in basic psychology and psychotherapy, but also in music therapy, sports psychology and medicine" (Utay & Miller, 2004, p. 40).

Singer and Singer (2006) suggest that GI is actually a tool one learns to use in early childhood as a means of managing stress and anxiety. They state that there is a distinct connection between cognition and the emotional system and that, "the child must try to overcome the distress or anxiety occasioned by sensory and perceptual experiences of unfamiliarity through gradual formation of cognitive schemas or scripts" (p. 98). More specifically, their research suggests that these schemas or scripts are then organized, or encoded, into the memory of the child, which then provides the child with a feeling of relief. This, they suggest, it a critical part of a child learning to master their perceptual world cognitively, and is based on the cognitive meanings they assign to experiences through their "mental world". In addition, this mastery has also been shown to help children master other skills, such as social interaction in groups and with peers who once rejected them (Hernandez-Guzman et al., 2002). This same self-comforting experience used by children is one of the key benefits to using Guided-Imagery to obtain specific outcomes in many types of therapy and performance based research further expand on this be stating that when we see something, the brain then creates an "internal representation", and the body and emotions respond accordingly to that representation (Esplen, Gallop & Garfinkle, 1999; O'Regan & Noe, 2001).

Guided imagery research and hypnosis. Research in hypnosis has also connected to guided-imagery research in that like guided-imagery, hypnosis techniques use verbal suggestions in order to produce changes in the brain of patients. As with guided-imagery, those who use hypnosis also experience changes in their "perception, memory and behavior" and produce an altered state of consciousness in the patient (Kirsch, 2001, p.795; Skaer, 2006). Like guided-

imagery, hypnosis has also been used in sport psychology as a means to improve performance by changing perceptions and behavior in athletes.

Guided-imagery research and cognitive behavioral theory. Cognitive Behavior Therapy (CBT), although not used in this experiment, is one of the main theories at the foundation of GI and SE theories (Rigby & Waite, 2006; White, 2008). The pioneer in the area of CBT was Dr. Aaron Beck, who developed CBT in the 1960's and founded the Center for Cognitive Therapy at the University of Pennsylvania in 1994 (Beck, 2009). Cognitive Behavior Theory proposes that our core beliefs are the drivers of our behavior, and therefore, by changing these core beliefs we can elicit change (James & Barton, 2004). CBT has been used successfully throughout the years to treat a myriad of mental and emotional problems, even being found to reduce episodic psychosis in patients (Ford, 2005; Nuthall & Townend, 2007).

As found in GI techniques, by changing the way a person is thinking, a CBT therapist can improve the overall outcomes by changing their emotional responses by promoting self-soothing behavior, and monitor their progress as they achieve their goals (Esplen et al., 1999; Beck, 2009; Spett, 2008). CBT therapists often use GI techniques to help change the "dysfunctional beliefs and attitudes" in their patients (Rosenlicht, 2007, p. 117). One of the main reasons that the two techniques work so well together is that both have profound effects on the biological, cognitive and behavioral drivers and how they work together both positively and negatively and help users recognize the effects their thinking has on them (McKay, Abramowitz, Taylor, Deacon & Milrod, 2007; Slee, Garmefski, Spinhoven & Arensman, 2008). The primary reason for this is that both focus on the "cognitive-effective schemas" one has and how they can be changed by changing the way one thinks and mental significance one places an experience, both real and imagined (Kempke & Luyten, 2007). It is this linkage between the cognitive-behavioral

approaches found in GI and CBT that makes it necessary to review the literature on both theories despite not using CBT theory in this study.

Guided-imagery research in music therapy. GI has also been found in music therapy techniques, where visualization is paired with music and is a very important part of the success of the GI experience. This pairing has been found to be extremely effective in helping patients experience an altered state of consciousness and open up subconsciously, which in turn stimulates the person both emotionally and physically (Burns, 2001; Grocke, 2005). During the GI process, "the music acts as a stimulus and catalyst in promoting the imagery, motivating changes, and evoking emotional experiences" (Grocke, 2005, p. 5).

One method used is the "Bonny Method", which was developed in 1978 by Helen Bonny, and which has GI at the foundation of the treatment. During the GI session, specific music selections are carefully chosen and used that "matches the issues being explored" (Grocke, 2005, p. 46). Grocke states that during the sessions, patients experienced deep levels of relaxation and focus on the images being presented, and returned to a "non-altered" state of consciousness at the direction of the therapist. It is for this reason that the GI compact disc (CD) used in this study contains carefully selected music selections to help aid participants into the altered state of consciousness desired and also help guide them out of the altered state once the session has completed.

Guided-imagery research in sports psychology. The use of GI and its connection to confidence and performance has been studied in depth in the field of sports psychology. Studies have shown that not only can performance be increased by employing GI intervention techniques, or mental rehearsal, when training and coaching athletes, but it has been found to improve motivation and confidence levels in both the athletes individually and the team

collectively (Munroe-Chandler & Hall, 2004). For example, Olympic athletes have used the technique for many years as part of their training regiment and it has been found to increase not only confidence (SE), but enhanced their "peak" performance levels during competition (Joseph, 2009). Understanding the connection between confidence, performance and the use of GI techniques is important for this study as confidence levels in students will be tested and is believed to be connected to job behavior and performance.

Guided-imagery in medical research. The use of GI techniques have been shown to have great success in medical treatments, and medical research has actually been instrumental in explaining the neurological reasons why the technique works when studying the "cognitive effective processes" for states of consciousness (Skaer, 2006). Medical research has found that when given an MRI, the same portions of the brain "light up" when a patient sees an actual object as when they imagine it. As stated before, this is because the brain does not know the difference between a real or imagined experience and treats both the same, thus eliciting the same physical and emotional response to both (Mosely et al., 2002; Sandella, 2007; Joseph, 2009).

Medical researchers have found that when given GI intervention during an illness, patients recover much more quickly and also experience less psychological distress during treatment (Kolcaba, 1999; Walker, Walker, Ogston, Heys, Ah-See & Miller, 1999; Newsom, Knight & Balnave, 2003; Shenefelt, 2003; Tusek et al. 2005; Boxwell, 2006; Cohen & Fried, 2007; Hammond, H. D., 2008; Menzies, 2008). In addition, it has been shown to be a successful treatment for helping addiction, cancer pain and recovery, insomnia, and common mental health problems such as OCD and autism (Hammond, 2004; Wynd, 2005; Kempke & Luyten, 2007; Rosenlicht, 2007). It is important to review the link between medical research on Guided-

Imagery for this study because of its successful track record for reducing anxiety and psychological dysfunction in those who use it (Esplen & Gallop, 1999; Chalfant, Rapee & Carroll, 2007; Walker & Furer, 2008)

Guided-imagery in employment research. There has also been a fair amount of research on the use of GI and employment research. The research done by Joseph and Greenberg (2001) showed that laid of workers who used the technique actually experiences higher rates of re-employment and increased confidence levels when compared to those who did not. They cite that this is a function of a change in their perceptions of their circumstances. In addition, they experienced less anxiety and emotional distress as a result of the extreme life changing experience in addition to feeling more in control of their situation and the perception of new possibilities and options.

The mind, body behavior connection. The mind-body connection associated with guided-imagery refers to the meeting between thoughts and emotions and their effect on the physical body. GI is believed to be successful because of the connection between the mind and body, and specifically because the body reacts physically to the sensory images created in the brain that is produced during the guided-imagery process (Joseph, 2009). This "connection" is the result of the altered state of consciousness achieved through the guided-imagery technique, and this altered state "is a state of awareness that unites with the body in a positive, optimal, synchronized experience which moves beyond the average into the ultimate experience of transcendence" (Skaer, 2006, p. 10). And as Skaer notes, there are many levels and states of consciousness, and it is in the aware state that an individual can actually become cognizant of a change in their cognition and/or cognitive experiences produced during an altered-state of consciousness.

When a deep state of relaxation occurs, there is a nueorphysiological process that takes place between the brain and the body. This can also be described as the neurological process (neural currents) that occurs when the brain, emotions, lymbic system all work together, which when using guided-imagery, can alter the biological functions within the body (Skaer, 2006). Psychoneuroimmunology looks deeper into this process and the interaction between the neurological processes and the immune system, and has provided even more research and evidence that thoughts indeed do create physical responses within the body. This has been tested further through the study of neurolinguistic programming, or NLP, "that uses imagery to reprogram the brain in order to achieve selected goals and outcomes" (Joseph, 2009, p. 27).

When looking further at the connection between cognition and emotion, research has shown that the cognitive thoughts in the brain produce emotions that drive behavior. Because these thoughts and emotions can be negative in nature, GI is a useful tool in helping patients relieves unresolved or difficult emotions as well as the psychological stress that is produced as a result of these emotions. The use of GI is believed to actually "bypass" the cognitive part of the mind, producing a state and sense of safety and security neurologically, through the limbic system of the brain, that allows the user to confront feelings they may be otherwise uncomfortable facing (Yip, 2003; Skaer, 2006). By relieving the stress and facing the mental barriers holding them back, those using guided-imagery can actually overcome and move beyond them.

This is very important from a behavioral standpoint, where guided-imagery research has shown that when the mind has created an experience, and a physical reaction occurs, that reaction manifests itself behaviorally. This can be seen in the learning process as well where participants who used GI in addition to physical practice actually learn faster and perform better,

thus achieving goals faster (Sanders et al., 2008). In relation to employability and employment goal behavior, consciousness is the foundation in which intention and desires are found, and from where behavior originates. Skaer (2006) describes consciousness as a "force or magnetic field which directs our cognitive processes and behaviors" (p. 11). The use of GI and its results have important implications for behavior because the process "allows clients to replace unconscious destructive and painful images in the same way a message on a cassette tape can be erased and a new message recorded" , and can alter the behavior of the user (Sandella, 2007, p. 102). This is primarily because as the sensory and contextual elements of the actual experience are similar or the same to the imagined experience, thus making the source of the experience unimportant (Arbuthnott et al., 2002; Sandella, 2007, p. 102).

Quality of guided imagery – vividness and controllability. It is important to note that there are some important elements of the GI process that may have an effect on the quality of the process, and that is the ability of the participant to not only see the image vividly and clearly, but also be able to control the image in their mind (Skaer, 2006). If one does not have the ability to control the image they are imagining or influence it, or if they are unable to create the distinct details of the image in their minds, than the image will not have as much impact on the brains neurological processes. This is thought to be the result of one's ability to stimulate sensory responses, and a strong sensory stimulus is required to interact within the working memory to create the physical response.

Self-efficacy (SE) defined. SE research has its origins in the work of Albert Bandura, who defined SE as one's belief in their ability to successfully accomplish a given task or behavior, that the foundation of one's level of SE is found in their expectations of their ability, and is one of the root principles in Social Learning Theory (Bandura, 1977, 1982, 1986, 1997).

Bandura hypothesized that these expectations or beliefs are the main drivers of a person's behavior, and that it is the level of SE that determines if a person avoids or accomplishes a specific task. His work provided assessment tools used in predicting and intervening in problematic behaviors, and hypothesized the procedures in which the problematic behaviors can be changed. In addition, he hypothesized that SE is a construct and there are four main precursors and the "information through SE expectations are learned and by which they can be modified" (Betz & Taylor, 2006, p. 4, Skaer, 2006). These precursors, as outlined by Betz and Taylor are 1) performance, vicarious learning or modeling, 3) verbal influence and emotional stimulus, with anxiety being an effect of SE that increases and decreased with ones level or belief in their ability. And most important, as clarified by Bandura, it is the outcome, not the performance itself, that is to be measured (Lightesy, 1999).

General self-efficacy research. Since the early work of Bandura in 1977, SE research has branched into many areas of psychology and the power that one's beliefs have over their overall behavior. This research has solidified and expanded on Bandura's work and has shown that low-SE levels are one of the best predictors of emotional problems and problematic behaviors (Rigby & Waite, 2006). Much research has been seen in the field of sports psychology where athletes who were shown to have high levels of SE had higher levels of performance than those athletes who did not. It is merely their expectation of success that brought them the success, reduced anxiety and also increased their motivation, and as with GI, the neurological processes associated with thoughts and beliefs produced the mind-body connection needed for great success (Skaer, 2006; Joseph, 2009).

Much of the research being done currently suggests that SE is not a trait based on personality, but rather a state of mind that can be achieved through mental skills training, with

guided-imagery techniques being a compatible choice (Utay & Miller, 2004; Vernacchia & Henschen, 2008). This mental state actually has been shown not only to increase motivation, but also increase levels of aspirations and provide higher coping strategies for those who have high SE levels, both individually and collectively (Munroe-Chandler & Hall, 2004). However, it is important to note that high SE is not the same as overconfidence, and those with high levels of overconfidence experience negative psychological and emotional effects upon task completion and have been shown to make faulty decisions based on faulty assumptions, resulting in negative outcomes (McGraw, Mellers & Ritov, 2004; Li, Chen & Yu, 2006)

Self-efficacy and career development. SE levels have been directly linked to career decision making behavior in college students primarily because, as Bandura postulated (1977, 1982, 1986, 1997), the degree of belief one has in their ability to accomplish a specific task dictates their career making decisions (Betz and Taylor, 2006). This prominent theoretical construct is found throughout career development research and has been shown to be a very critical component in understanding and working with people and their career related behaviors (Paulsen and Betz, 2004 Secker, Grove & Seebohm, 2006). Bandura (1986) also stated that the efficacy expectations one has are linked to expectations of outcome, and this was further substantiated by Betz and Klien (1995) who "measured career decision outcome expectancies" and found that these expectancies directly lead to "desired academic and career outcome behaviors" (Betz and Taylor, 2006, p. 18). This measurement of SE and its link to career behaviors was termed by Betz and Taylor as "career self-efficacy".

There is also a connection between career interests and SE levels, and research has shown that those who have clearer goals (imagined or actual) have higher levels of occupational SE than those who do not (Kolodinsky et. al., 2006). Early intervention in the lives of college

students is critical in their levels of SE and career decision making behaviors, and the process that takes place in this population as they develop their career path is one that requires knowledge, understanding and maturity (Rowland, 2004). This is especially important during the early years where in some minority groups career and educational paths are not encouraged or modeled early, and as a result, self-efficacy levels effect their occupational outcomes as well as directly affecting the over-all workforce. Kolondinsky and Schroder et. al. (2006) stated that "self-efficacy is a critical variable related to career choice" and that constructs found in the work of Bandura (1977) and social cognitive theory further support these findings.

Causes of negative self-efficacy and employment research. SE levels are one of the most accurate indicators of behavioral problems in people (Rigby & Waite, 2006) and there does seem to be a link in the construct of perfectionistic personality traits and lower self-efficacy levels. Ganske and Ashby (2007) found that people with this trait tend to set very high standards for themselves and can be very self-critical, which resulted in a never ending cycle of perceived failure and neurotic behaviors that can effect career decision making behavior negatively. Overconfidence can also create problematic career-decision making behaviors due to a lack in judgment based on faulty perceptions and assumptions. The results of this can also lead to low SE levels, and there does appear to be a link in overconfidence levels and the geographic location of where one obtains their education (Li et al., 2006).

An unemployed person, as defined by the Bureau of Labor Statistics and Dooley (2003) , is an individual who is not currently working and desire to work, but is also actively seeking work within a four week period. Unemployment also has a major effect on SE levels, and is often perceived as a traumatic loss or catastrophic life event for those experiencing it (Joseph & Greenberg, 2001). Job loss can have significant effects on the mental health and feelings of

well-being of the one experiencing it, as well as high levels of anxiety, with depression being the most common result, and which if left untreated, can have long term effects on the ability of one to function successfully in society (Murphy & Athanasou, 1999; Borgen, Amundson & McVicar, 2002; Guindon & Smith, 2002). Physical health problems can also be a present problem in those who are experiencing unemployment as well as in those who are dissatisfied in their current jobs (Benavides, Benach, Diez-Roux & Roman, 2000).

It is important to note that the symptoms and level of distress can vary based on the population sampled, and the perspective varies between groups. Older adults with past work experience tend to experience higher levels of distress due to increased financial responsibility compared to younger college age students who do not carry the same level of responsibility, with younger persons seeing the event as an opportunity to grow and do something new (Lowe, 1999; Murphy & Athanasou, 1999; Borgen et al., 2002). However, Murphy and Athanasou (1999) found significant mental health disturbances are still present in unemployed college students, and as in all age groups, were reversed once employment was obtained in addition to medical related illness (Grossi, Perski, Lundberg & Soares, 2001). Hammerstrom and Janlert (2002) found that "early unemployment can contribute to adult health problems. Thus youth unemployment constitutes a significant public health problem, which to a certain extent remains in adult age", and which justified the importance of this study (p. 647).

Job search intensity also is affected by unemployment and does seem to vary between age groups and gender (Kulik, 2001), and length of time unemployed also seems to be a factor. Marital strain shows a strong link to prolonged unemployment as do general attitudes and perceptions of circumstances. Prolonged job loss presents specific challenges for unemployed workers who may find it harder to reenter the workforce as the direct result of low self-efficacy.

Kulik (2001) asserts that early intervention in the job loss process is key across all populations in curbing these negative effects and producing a more positive outcome. Joseph and Greenberg (2001) and Vuori and Silvonen (2005) found that early intervention programs decrease levels of depression in job searchers and increase SE long-term, which gave credence to this study as a means to help eliminate some of these negative effects by increasing SE (Borgen et al., 2002).

Influence of self-efficacy on performance. There has been a great deal of research done on the performance among athletes who have low levels of self-efficacy, with the research showing that those who have the expectancy that they will fail more than likely will (Joseph, 2009). In contrast, those with high levels of SE performed better, which was the direct result of their expectations, and is in line with what Bandura proposed (1977). Athletes with low SE had the tendency to have high levels of anxiety, difficulty concentrating and their performance suffered when they perceived they were under pressure (Skaer, 2006). In addition, and as discussed earlier, those who became bored had lower performance levels due to overconfidence and/or perfectionistic personality traits (Li et al., 2006; Skaer, 2006; Ganske & Ashby, 2007). These same characteristics are present in job seekers, and with self-confidence, or SE, being one of the main traits employers look for in potential employees as it directly is correlated to performance levels (Joseph, 2009).

Behaviors in college graduates seeking employment. One of the biggest problems facing new college graduates seeking employment upon graduation is that they lack high levels of SE, which affects their ability to get hired (Cassidy, 2006). This is thought to be because they lack the belief in themselves that they can achieve the task before them successfully and their domain of interest can be limited (Betz & Taylor, 1996). The anxiety and stress associated with low SE is thought to be at the root of their negative career decision making behavior, and

intervention, such as GI, has been shown to enhance "psychological adaptation to ongoing stressors in college students" (Joseph and Greenberg, 2001, p. 170).

Implications for employability. Although this study does not measure employability, understanding how SE levels affect employability is an important part of successful career development strategies in college students and all populations. This is primarily because for a person to become gainfully employed, they must "successfully execute the behaviors necessary to get a new job", and as previously discussed, the level of SE is a determinant of these behaviors (Wiener, Oei & Creed, 1999; Joseph and Greenberg, 2001, p. 170). Continued SE research and its link to job seeking behavior could have great implications for HR professionals, career counselors, coaches, I/O psychologists, management professionals and trainers in relationship to employability.

Theoretical Orientation - Review of Methodological Literature

Measures of self-efficacy. Albert Bandura (1977) was the first to create a measurement for SE expectations and focused it on specific behavioral domains, and since that time it has been studied in depth and his measurement methods used widely throughout the field of psychology. The application of Bandura's theory was later applied to the field of career psychology by Hacket and Betz (1981, 1991), and the "conceptualization and measurement of career decision SE involved the integration of two major theories, one originally stemming from clinical / social psychology and the other having its origins in counseling / vocational psychology" (Betz & Taylor, 2006, p. 6). Additional research by Betz and others (1983-1994, 1996, 2004, 2005, 2006) has further expanded on this application and the specific domains of behavior affected by self-efficacy levels. From this research the Career Development Self-Efficacy Scale (CDSES) was

developed, and later a short for (CDSES-SF) was developed, which was used in this study (Betz & Taylor, 1996).

Instrument of measurement– CDSES-SF. The CDSES-SF (Betz & Taylor, 1996) was chosen for this study because its primary measurement is career decision SE, its psychometric evaluation of career decision SE and its relationship to career decision making behaviors. Developed by Betz & Klein (1996) and further validated by Betz, Hammond & Multon (2005), this scale has been found to have high levels of validity and reliability when tested on college students, and measures SE (confidence) on five subscales, or career choice competencies. The five subscales measured in the instrument and in this study include are 1) accurate self-appraisal, 2) gathering occupational information, 3) goal selection, making plans for the future and 5) problem solving and measures the belief that an individual has in their ability to complete the tasks necessary in making appropriate career decisions as well as the "pertinent" behaviors associated with those decisions. (Betz & Taylor, 1996).

The CDSES-SF (Betz & Taylor, 1996) questionnaire was adapted from the original CDSES and consists of 25 questions instead of the original 50, and responses are gathered and interpreted using a "10-level confidence continuum ranging from no confidence at all (1) to complete confidence (10)" (Betz & Taylor, 1996, p. 8). In addition to an overall confidence score derived from summing the confidence scores from the 25 items, "confidence scores for each of the five subscales is calculated from the sum of responses to the 10 scale items" (p. 8). A scoring key is provided to aid in accurate scoring of the assessment.

Before measuring validity, Betz & Taylor (1996) first carefully defined the domains of interest being measured, and the CDSES (Betz & Taylor, 1996) measures "career decision making across a broad range of decision making behavior" (p. 11). In this case, "the construct of

self-efficacy refers to beliefs of capabilities with respect to a specific domain of behavior, adequate specification of that domain is preconditioned for content validity" (p. 10). Upon completion of a factor analysis with varimax rotation, the five subscales were substantiated.

The CDSES-SF (Betz & Taylor, 1996) has been validated and shown to be reliable, and was originally tested by Betz & Taylor (1996) on 346 state and private college students, and the short form was found to have the same levels of reliability and validity as the long form. Betz & Taylor (1996) cite that alpha ranged from .86 to .89 internal consistency reliability for the long form and .69 to .83 for the short form, with total confidence scores on both forms ranging from .93 - .97. "There is now evidence that the five-level response continuum provides comparably reliable assessment in comparison to the 10 level continuum" between the short and long forms (p. 9). Betz & Taylor (1996) also cite that there is also evidence to support that there is reliability in test-retest stability, with students testing at a .83 coefficient for their total score after a 6 week retest.

Betz & Taylor (1996) also cite that "conclusions regarding the validity of the construct and measures of career decision-making self-efficacy depend on research showing its relationships to other variables related to educational and career attitudes in progress" (p. 13) This statement justifies the CDSES-SF as the appropriate tool for this study because it will be tested against another variable, GI, and the progression of attitudes after using the GI treatment.

Justification for study methodology and approach. The methodology used for this study is in line with many similar studies that justify its use. One similar study was by Joseph and Greenberg (2001), who provided evidence of the relationship between GI and SE. Their study used a similar sample size of 76 laid off workers, one was given guided imagery and one was not, and both continued their job search behaviors as usual. The study was done over a two

week period, 6 GI treatments were given, and participants were tested pre-test and post-test for SE and other measures.

A similar study was also done by Cohen & Fried (2007) where participants were assigned to one of two groups and one group was treated using GI while the other was not. Pretest and posttest measures were taken and those who received GI treatment showed significant and lasting improvement in their perception of their circumstances. Wynd (2005) also used a sample size of 71, and the treatment group was given a GI audio tape and asked to practice the guided-imagery treatment daily for 20 minutes in their homes, while the control group was given no treatment and carried on as normal. Results showed significant and long-term improvement in the treatment group who used GI as compared to those who did not have the treatment. Hammond (2004) also used recorded GI audiotapes as a treatment intervention in a sample of 62 over a short treatment period, with the treatment group showing significant improvement pretest / posttest.

The use of computerized self-reported questionnaires and recording of the sessions is justified by similar research. Athletes were tested using a similar sample size of 40 and a computerized questionnaire, similar to that used in this study was used pretest and posttest to measure cognitive perceptions and performance (Anonymous, 2008). Hammond (2004) also used a 1-10 rated scale questionnaire to record GI intervention results and had successful results. In addition, Allbutt, Ling, Hefferman & Shafiullah (2008) found there was a low positive correlation with using a self-reporting GI questionnaire and social-desirable responding. Proper recording of the sessions, which will be done by the participants themselves, is important in maintaining the quality of the study and GI sessions (Pretorius, 2006). The use of the recorded homework for the GI treatment is also a good way to increase the effect of the GI sessions,

motivate those in the treatment group to continue with their treatment and retain personal accountability among the treatment group (Broder, 2000).

The use of paired *t* test (two tailed) ANOVA was justified for this study as compare to similar studies because the five subscales were be assessed independently as well as overall SE gain scores and will show any relationships between independent variables. This is similar to other studies that measured attitudes of job seekers (Kulik, 2001) using paired *t* test (two tailed) ANOVA and a scale based questionnaire with subscales. Rowland (2004) also used a similar career decision scale questionnaire with subscales and paired *t* test (two tailed) ANOVA to look for significant main effects. For this study, by doing paired *t* test (two tailed) ANOVA it was be possible to determine which specific areas of career development SE that the GI was affecting.

Synthesis of Research

Guided Imagery and Its Relationship to Self-Efficacy

The research on both GI and SE is numerous and widespread across many disciplines of research, and GI has become a respected approach to psychological treatment for numerous conditions (Beck Institute, 2009). GI has a large effect on SE levels in those who use it, and "furthermore, imagining positive versions of self may promote and protect self-esteem" (Joseph & Greenberg, 2001, p. 171). It has been shown to improve many psychological constructs and behaviors, including SE, with only short 20 minute treatments, and has been used in many fields of psychology including sports psychology and in medical research as well. It is not a new approach and can be found throughout many cultures and generations of literature and has been shown to have not only psychological effects, but also physical and emotional as well (Utay & Miller, 2004).

SE is essentially the belief that one has in their ability to complete a tasks successfully. It was originally developed as a construct and then measured by Albert Bandura in the early 1970's, and since then a great deal of research has been done on SE and its constructs. Research done by Betz and colleagues (1983-1994, 1996, 2004, 2005, 2006) has further expanded on the work of Bandura into the realm of career SE and career decision making behavior. This research has made is possible to measure SE levels as it pertains to career decision making behavior and help predict the outcomes, as postulated by Bandura.

Mind body connection between guided-imagery and self-efficacy. Research has shown that there is a link between thoughts and the body, and this link is called the mind-body connection. This mind-body connection and its association with GI refer to the connection between thoughts and emotions and how those emotions directly affect the physical body. GI, which creates an altered state of consciousness, is believed to be a successful treatment in removing negative thoughts and behaviors because of its ability to create sensory images in the brain and create an actual physical reaction in the body, emotionally and physically (Skaer, 2006).

Guided-imagery, self-efficacy and career decision making behavior. As stated before, the link between the use of GI and SE is well documented. There is also well documented literature on the effect of SE on career-decision making behavior in college students. Pham &d Taylor (1999) and Rivkin & Taylor (1999) found that GI treatments help reduce stress and improve coping and performance behaviors in college students. Therefore, it stands to reason that the use of GI to increase SE levels will also improve career decision making behaviors, performance and career SE as well in college students (Betz and colleagues, 1983-1994, 1996, 2004, 2005, 2006; Joseph and Greenberg, 2001; Joseph, 2009). This connection

between GI and SE, although well researched (Page, Levine & Sisto & Johnson, 2001, Utay & Miller, 2004; Menzies & Kim, 2008), has not been studied in depth in relation to career development SE or in college students, which if shown, can have great implications for employment across the board.

Critique of Previous Research

Methodological strengths and weaknesses. Although there are many research designs using GI and SE, the majority of studies are similar in design with one control group, one treatment group and the introduction of the guided-imagery treatment over a specific period. These designs do vary in terms of sample size and treatment time, but the research does justify the use of a small sample size of 50 participants and a small treatment time, about two weeks to gain quantifiable results (Joseph & Greenberg, 2001; Hammond, 2004; Rigby & Wait, 2006; Cohen and Fried, 2007; Drake & Wilson, 2008; Sanders et al., 2007). Other researchers argue that a small sample size may not be a good representative sample or consistent with recommended calculations for a large effect size as produced by G*Power (Erdfelder, Faul & Buchner, 1996), which can make it easier to determine the real difference between the means of the two groups. However, this did not affect the design of this study because it was in line with other similar and well respected studies that have produced appropriate result, and the sample size for this study is actually a little larger than other studies cited to ensure a large effect size. The study results also showed that the small sample size was adequate for the study.

Arguments on guided-imagery and brain function abilities. Much of the research on GI and mental perception suggest that the ability to do it well is based on information that is stored in memory, and the significance one places on the information being stored (representation) is a function of the senses (Borst & Kosslyn, 2008). However, some argue that

this is not the case and that the mental imagery and mental perception are in fact two separate functions requiring two separate kinds of brain processing (Borst & Kosslyn, 2008). It was found that in patients with brain damage, while their perception abilities may have been damaged, their ability to have in-tact mental imagery was still present. This means that not all areas of the brain are activated during GI treatment as previously thought, and that guided-imagery and perception do not rely on the same "representations' in memory to work. However, this also implies that GI can be an effective treatment in those with healthy brains as well as those with brain damage because they are separate brain functions and not dependent on one another, and having the ability to visualize is all that is required to successfully practice GI techniques.

Arguments on methodological approaches to measuring efficacy. Another area of argument seems to be in how to accurately measure perceptions and confidence (efficacy). Haase and Fisk (2001) argue that in terms of methodological approaches to measuring ones awareness and perception, it can be very difficult. Specifically, they cite that:

> "If one equates the lack of conscious perception with a simple verbal report and subsequently shows that the presented stimulus has influenced participant's behavior in some way, then via operational definition, unconscious perception has occurred. However, subtle details in the participants' perceptual states could be responsible for their responses in these situations". (p. 440)

The same argument arises in measuring confidence levels. Metzger (2006) found that when testing confidence levels, although confidence levels did remain higher at delayed post-test, memory and performance can decline as time passes. This research suggests that it is critical to have a limited amount of time lapse between treatment and testing, which is consistent with the design of this study and the immediate post-test upon completion of treatment.

In addition, during testing, it is important to ensure all students obtain the same amount of time and treatment as this too can affect efficacy ratings upon testing (Borgmeier & Hormer, 2006), which is consistent with the design of this study. Pallier et al. (2002) also note that cognitive and perceptual abilities are often ignored in many confidence models. Bandura himself faced similar criticism and clarified much of this in his works between 1977 and 1982. He argued that it is important to understand how the cerebral system functions of the brain and how they produce behavior, and that psychological principle must also be employed in order to fully understand the conditions of learning, which has been done well in efficacy models and the CDSES-SF scale for many years (Lightesy, 1999).

Arguments on methodological approaches to measuring beliefs and their constructs. There are some arguments in the literature as to whether it is appropriate to focus so much attention on the "content" of beliefs as well as properly measuring them (Hayes, 2005). Hayes states that to do so require providing "an adequate account of human language and cognition", and that "it is one thing to try to quantify irrational or rational thoughts. It is quite another to be able to say what a thought is, what a word is" (p. 133). In addition, cognitive behavioral approaches, such as GI, also require that language and approaches be adapted culturally in order to remain effective (David, 2007). Pre-existing beliefs may also determine the effectiveness of GI techniques and their effect on cognition and efficacy, and treatment techniques should be adjusted to fit the population being treated (Ayers, McKenzie-McHarg & Eagle, 2007). Finally, measuring the construct of reality scientifically can be problematic and "a mistake occurs when a mathematical model – a convenient calculation device – is ascribed physical reality, being perforce thrust into a realm of physics" (Szentagotai, Rusu, Gavita & David, 2008, p. 239). Although valid arguments for the methodological approaches being used are evident, they will

not affect the design of this study as all instruments and protocols are well tested in previous studies and tailored for the population being studied, which are college students. In addition, a Likert scale is being used, which allows participants to rate themselves.

Summary

In conclusion, GI has been shown to produce positive outcomes in those who use it. It has also been shown to produce higher levels of SE as well as performance because of the mind body connection. Performance rates are of the measurable outcomes of career decision making behavior, and GI treatment is believed to influence this behavior and affect career decision SE. The methodology of this study was in line with many similar published studies on GI and SE and the CDSES-SF (Betz & Taylor, 1996) is a respected and tested tool in measuring career decision SE.

CHAPTER 3. METHODOLOGY

Purpose of the Study

The work of Betz and colleagues (1983-1994, 1996, 2005) in the field of career development SE has shown that SE levels are directly related to career decision making behaviors. More specifically, their results have shown that college students with higher levels of SE displayed more positive career decision behaviors than those with low levels of SE, which has a great impact on employability of college undergraduates (Cassidy, 2006). Current research has also shown that GI techniques have a strong effect on SE levels in those who use it when compared to those who do not use it. This is believed to be the results of cognitive changes in the brain resulting in changes in emotion and behavior (Arbuthnott et al., 2002; Wynd, 2005; Joseph, 2009). Although there have been some studies done on SE in college students using GI, at this time there is no known study on GI and its relationship to SE in undergraduates seeking employment. If a relationship could be shown between GI and SE levels in college undergraduates seeking employment, it would have great impact on employability among this population.

The purpose of this study was to test for a relationship between GI and SE levels in college undergraduates on the 5 subscales and overall SE of the CDSES-SF (Betz & Taylor, 1996). In studying this relationship, the effect GI has on SE levels can better be understood as well as where SE levels are most impacted among the 5 subscales. An analysis of GI on each of the 5 subscales was measured independently in order to minimize any Type I Error issues. In doing so, the goal was to solve the research problem and look for a relationship between GI and career development SE among college undergraduates, and answer the research questions of whether 1) there a difference in SE gain scores of the 5 CDSES-SF subscales for those who use

GI in undergrad job-seekers? If so, how much? and 2) does GI effect the gain scores of the 5 CDSES-SF subscales differently in undergrad job-seekers? If so, how much?

Research Design

A quasi-experimental design using a quantitative method of analysis, with a pretest-posttest controlled experimental research design, and independent ANOVA, was used for this study to examine the relationship between guided-imagery and career development SE in college undergrads seeking employment. GI has been shown to be an effective behavioral modification technique in increasing SE and performance in athletes, medical patients and laid off workers (Joseph & Greenberg, 2001; Munroe-Chandler & Hall, 2004). Differences in career development SE gain scores (dependent variables) are examined pretest and posttest in order to evaluate whether the GI treatment (independent variable) is successful.

In addition to overall career development SE gain scores, gain scores of the 5 subscales of career-development SE was examined using paired *t* test (two tailed) ANOVA in order to show relationships between the independent outcome variables. By using paired *t* test (two tailed) ANOVA to analyze the 5 subscales of career development SE in addition to the overall SE gain scores, the impact of GI on the each of the five subscales was examined in order to determine what constructs of career development SE are affected by the GI treatment.

Methodology

This study was a quasi-experimental design using a quantitative method of analysis, pre-test, posttest and using Paired *t* test (two tailed) ANOVA to test differences of means among the two groups. The test looked at the effects on SE gain scores (unit of analysis) and to test the differences between the two variables (GI and SE). Based on other research and the larger effect size calculated by G*Power (Erdfelder, Faul & Buchner, 1996), the sample type is two groups of

50 college students preparing for graduation, which was consistent with previous studies on GI (Joseph & Greenberg, 2001; Wynd, 2005), one treatment group and one control group. The research procedures involved a pretest CDSES-SF questionnaire was given to both the treatment and control groups before treatment to analyze average SE gain scores, both the total SE score as well as the 5 subscales.

This research design was based on several already published studies (Paulsen & Betz, 2004, Wynd, 2005; Kolodinsky et al., 2006) on SE and GI research using two groups or more analyzing the gain scores between the pretest and posttest and is in line with basic statistical designs of this type (Breakwell et al., 2007; Hammond, 2003,2004). The methodology and approach was correct for the types of data because it is in line with other similar studies cited earlier on career SE that evaluate the relationship of SE and other quantitative variables, and those variables can be changed and adapted easily to examine the effect on other variables. As stated by Field (2005), this design does assume that "1) observations are statistically independent, 2) the data is randomly sampled from the student population and is measured on an interval level, 3) the dependent variables have multivariate normality with groups, and 4) there is homogeneity of variance and that the correlation between any two dependent variables is the same in all groups" (p. 592).

This design was suited for addressing the research problem and answering the research question (s) because, as stated before, its experimental design was also consistent with basic statistical experimental models of this type that have produced respected peer reviewed published results. In addition, it was similar to other studies in SE and GI that used this basic experimental model. Paired *t* test (two tailed) ANOVA were used for this design and was well suited for using SPSS Graduate Pack 20.0 for analysis as it calculated data from the sample

means to look for a difference between the SE gain scores of the two groups for overall SE and the 5 subscales of SE (Field, 2005). This was because there are two or more outcomes variables (SE scores), continuous outcome, one predictor variable (GI), the data was categorical and met the assumptions for parametric tests (Field, 2005).

Those in the treatment group listened to the GI compact disc (CD), and the control group did not. Treatment was for a 2 week period (Joseph & Greenberg, 2001; Spett, 2008) and consist of 6 treatments, 3 each week. After the treatment, a posttest was given, and the data analyzed based on the average SE gain scores of the two groups. The average SE gain scores of the treatment and control group were analyzed using SPSS Gradepack 20.0. The GI intervention involved participants receiving GI sessions consecutively for two weeks (Spett, 2006), with those sessions being logged by the participant. Those in the treatment group received instructions on using GI in their homes. The treatment group was also provided additional instructions on how to use the GI compact disc (CD) and were asked to practice the imagery techniques at least once a day for a minimum of 20 minutes a day, 3 times a week, along with the CD for reinforcement.

This quasi-experimental design used also protected the internal validity of the study (Breakwell et al., 2007) as the study did not meet the criterion for true randomization because it did not equalize the possible pre-existing conditions. Internal validity was protected by calculating the estimated proper effect size, which was calculated by G*Power (Erdfelder, Faul & Buchner, 1996) .8 and was considered a large effect size and appropriate for this study (Field, 2005). This effect size, according to Field (2005, p.32), had a large effect because "a correlation coefficient of 0 means there is no effect, and a value of 1 means that there is a perfect effect", so r=.80 means the effect accounts for 25% of the total variance and was closer to a perfect effect, or "magnitude of the observed effect" (p. 32). In addition, this confirms that the sample size was

adequate based on this estimated effect size and statistical power of .95 "we can be confident that we achieved sufficient power to detect any effects that might exist" and then estimate our sample size (p.33). Finally, it was important to achieve a power of 1-.2, or .8, which has an 80% chance of detecting an effect, which this study does based on the G*Power calculations provided in the following sections showing that the allocation ratio $N2/N1 = 1$ in this study.

Target Population and Participant Selection

The population being researched was job seekers seeking employment upon graduation of an undergraduate college degree program. Undergraduates are describes as students enrolled in a certificate or level under graduate at a local college or university (Board of Trustees of Illinois at Urbana-Champaign, 2007). Participants for the study were on campus or online, and all met the sample criteria. Sample criteria for this study were recent college undergrads all seeking employment from the same or similar degree programs and with the same level of employability. Inclusion criteria were that they will be between 18 & 30 years of age, approximately 25 male and 25 female, who were seeking employment during their undergraduate program and no longer than one year upon graduation. Exclusion criteria were students over 30 who may have established themselves in careers already, or who had graduated more than a year ago and may already have secured employment.

College graduates were chosen because of research showing that college graduates can be unemployable due to low efficacy levels and can exhibit behaviors that correspond to their level of efficacy when interviewing (Cassidy, 2006). In addition, research by Betz and colleagues (1983-1994, 1996, 2005) in career development focused on college students and the development of the CDSES-SF (Betz & Taylor, 1996), the instrument for this study, was done so using the same population. In addition, this group was considered a solid population to study based on

research by Betz and colleagues (1983-1994, 1996, 2005) that clearly shows that this population is at risk for low confidence levels upon graduation. Cassidy (2006) also found that this population overall interview and behave less confidently when compared to others, and that they do not generally learn the confidence skills necessary for employability once graduated. College students are also considered a good sample as they tend to be more open minded and flexible to new concepts, such as GI (Billingham, 2008).

As stated before, this sample size was also in line with other similar studies and research (Wynd, 2005, Munroe-Chandler & Hall, 2004, 2005) using an average sample of 50 participants, 25 per group respectfully (Wynd, 2005; Rigby & Wait, 2006; Sanders et al., 2007; Drake & Wilson, 2008), and taken from a G*Power calculation, which calculated a sample of 50, which further confirmed the sample size that was used.

Procedures

Sample Recruitment, Selection and Group Assignment

Participants were recruited from either of the participating local Riverside, San Diego, LA County, San Bernardino and online colleges and universities. They were recruited on campus using posters, email and a sign-up Table located on campus and student social locations for soon-to-be and recent graduates who fit the qualifying criteria. The students were solicited and contacted using email addresses taken at sign-ups, from online student databases and posters posted on campus or social location looking for participants, and a registration website address were provided where they could sign-up as well. Each participant who took the test was entered in a raffle for an item not over $25.00, which was gift card. To prevent coercion, a disclaimer was clearly posted that the study was completely voluntary, that each participant must be between the ages of 18 and 30 and meet the selection criteria to participate. It was also clearly disclaimed that the study results

would be kept completely confidential. At the end of the study a drawing was done and two winners were randomly selected in a drawing and given a $25.00 gift card.

Once a sample was secured, they were randomly assigned to one of the two groups. At that time, they were given a written briefing outlining the study, the requirements and instructions on how to proceed. These instructions included their group assignment, their participant ID number, GI use techniques and online CDSES-SF (Betz & Taylor, 1996) questionnaire completion instructions. After the registration process, and prior to receiving their participation instructions, participants were given forms to complete at that time that include informed consent, complete instructions and all other required forms. The informed Consent for Research form and instruction procedures were to ensure that the participants understood the study completely (specific details of the research, techniques used and activity requirements), that they understood that they could exit the study at will and that they understood and held harmless the researcher and Capella University for any damages they could incur during the study. The participants had one week to read over, sign and return their informed consent forms and return them via email, mail or secured fax to the researcher. They were not allowed to begin their participation in the study until the informed consent forms had been received. These forms were also in line with APA ethics codes (2002) and standards to ensure that there was no deception in the research, there were proper debriefing procedures, there was no data sharing, no opinions of individual participants were examined in the study, no release of raw test data to anyone other than the researcher themselves, test security was followed per FERPA law and there was no conflict of interest (Fisher, 2003).

Once all forms were received and instructions sent to the participants, all participants were sent an email to take their pretest CDSES (Betz & Taylor, 1996) and results were collected

for later logging. The treatment group was also given their GI compact disc (CD) for listening to prior to the online posttest. Those participants in the treatment group were all given instructions on how to use the CD and the specific GI techniques. They were given the GI CD as well as a log sheet to log their GI participation in detail. This log consisted of a check list to ensure that participants were following the required steps for the GI techniques and to ensure that everyone in the treatment group were following the same instructions and practicing the techniques in the same manner. CDSES-SF (Betz & Taylor, 1996) tests were done online and results went directly to the researcher to maintain confidentiality.

Data collection, Security and Analysis

Once participants were screened, secured, all informed consent forms received and all study materials sent to them, they were notified via email that they are to take their CDSES-SF (Betz & Taylor, 1996) pretest. The results of the pretest and posttest were confidentially sent automatically to the researcher via the internet and not gathered at that time, protecting any possibility for contamination of data or breach of confidentiality. Students in the treatment group were provided detailed instructions in their packet on how to use the GI compact disc (CD) and instructing them to listen to the CD daily for two weeks as instructed.

After the 2 week treatment time had ceased, students were notified via email that it was time to take their posttest. An email was sent to all participants instructing them when and how to take their survey online and a link was provided to the Survey Monkey site. The survey asked for their assigned participant ID number making it easier to track responses by group rather than a lengthy sorting process later. The only identifying difference in the forms was that the group the participant was assigned to and no names were given to protect confidentiality, but rather ID numbers were used to distinguish participants. Survey Monkey also allowed for tracking those

who responded and sent a follow-up reminder to those who do not participate who have signed up for the study**.** To eliminate any possible coercion, all participants were notified in advance that they would be getting a reminder prior to the posttest in the informed consent form and during the informed consent process. This process also helped make tracking and notification easier, however all reports were sent only to the researcher and kept in a safe location to avoid any breach of confidentiality problems. Survey Monkey also allowed rating scale survey to be created that matches the CDSE-SF (Betz & Taylor, 1996), and reproduction of the form in Survey Monkey had been approved by the author as long as results were only cited and the actual questionnaire was not published. In addition, the survey could be taken online with results being transmitted anonymously to the researcher via email. This survey also allowed questions to be randomized to eliminate bias, and all confidential results were emailed directly to the researcher and to a secure email address accessible only by the researcher.

Matching pretest and posttest data was done by assigning an ID to each participant to which the researcher matched to the participant name anonymously. Each participant only knew their ID, and that ID number was listed on their materials and used to log into the assessments. This online survey also allowed results to be collected in real time and imported them into charts and graphs, making data review easy. The results were secure and were tracked confidentially by the individual responses of the participants as well. The filtering tool allowed for additional filtering and tabulation of data for clarification and further analysis. The online survey software also allowed data to be downloaded into a simple spreadsheet, making it easy to transport into SPSS Graduate Pack 20.0, which was used to process data for this study. SPSS Graduate Pack 20.0 data was then analyzed and those results were reported as final for this study.

As noted before, a quantitative quasi-experimental design was used to analyze data for H01 and HA1, and SPSS Graduate Pack 20.0 statistical analysis software was used to run the data. Both hypotheses were analyzed using this application and the data from both groups was analyzed to determine if there was a difference in pretest and posttest SE gain scores between the two groups. Standard error, power and effect size have were verified using G*Power, but SPSS, which also calculate this as well in the data analysis. Data was loaded into SPSS using the data editor feature and an analysis run for descriptive statistics, comparing means. Descriptive statistics, as outlined in the following sections of this document, were run and produced using SPSS, which made for easy data analysis of the differences between the two groups. A few assumptions were present when running the data analysis and using SPSS. Those assumptions were that the gain score data were normally distributed, there was homogeneity of variance, the data was interval and being that each participant was taking the assessments themselves the data from the participants were independent from one another, and not influencing behaviors, all required for a *t*-test (Field, 2005). All of these tests and analysis produced by SPSS allowed for a comparison of the means of both groups and a solid test of the hypothesis.

Instruments CDSES-SF Online Questionnaire

The Career Development Self-Efficacy Scale Short Form (CDSES-SF) questionnaire was the instrument being used for this study to test career decision self-efficacy among college students (Betz & Taylor, 1996). As stated earlier, this was a proper instrument to use as it was previously developed and tested on college students preparing to or currently seeking employment. The concept for the measurement of career decision SE was based on two main psychological theories, which are clinical / psychological and counseling / vocational psychology. The development of the actual measure of SE itself is based on the "behavioral domain of interest", which is further broken down into five subscales that pertain to this behavioral domain (Betz & Taylor, 2006, p. 7). The five subscales of SE measured in this scale are 1) accurate self-appraisal, 2) gathering occupational information, 3) goal selection, 4) Making plans for the future and 5) problem solving. These five subscales, or level responses, were based on previous research and theoretical determinants.

The CDSES-SF (Betz & Taylor, 1996) was validated originally using a sample population of college students of 346, with 68 being males and 88 being females. It was scored using a Likert scale from 1-5 with 1 being no confidence and 5 being complete confidence. The long form has 50 questions, while the short form has 25 questions, which has been shown to have the same levels of reliability. This was an easier form to use in assessment pretest and posttest. Authors, Betz and Taylor (2006), state that "responses were again obtained using a 10 level confidence continuum, ranging from no confidence at all (1) to complete confidence. The internal consistency reliability of the short form ranged from .73 (Self-Appraisal) to .83 (Goal Selection) for the 5-items subscales and .94 for the 25 item total score" (p. 8).

Other tests have shown that alpha for the 25-item short form was at .95, with alphas being "somewhat higher when the five level response continuum was used" (p. 5). Content validity and factor structure were also carefully tested and show evidence for content validity and a factor analysis with varimax rotation was done to look deeper into the structure of the test items. Rotation showed that 52% of the total variance of the five factors was accounted for and showed heterogeneousness and were theoretically based. Low and high item correlations were also found to be eliminated and emergence of the five factors did become apparent when a cluster analysis was performed. Test reliability was also shown to be at .83 for the 25 item total confidence score after a 6 week retest (Betz & Taylor, 2006).

Criterion and construct validity was reported by Betz & Taylor (2006) to be dependent on the relationship of SE to other variables, such as educational and career attitudes and perspectives. They further state that "in this regard, evidence for the validity of the CDSES and the CDSES-SF is solid and varied in the nature of criterion variables examined "(p. 13). Most important for this study is that the "relationship between career indecision and the test were quite high and ranged from -.19 to -.66 for indecision and from -.03 to -.76 for certainty" (p. 14). In addition, there was also a relationship between certainty scale correlations among gender groups, and the short form, which was used for this study, showed evidence of "a tighter connection between SE perceptions of career decision making competence and decision certainty" (p. 14).

Instrument – Survey Monkey Online

As stated in previous sections, Survey Monkey was used as an online questionnaire delivery system and has been approved by the CDSES-SF publisher as a means to electronically administer the questionnaire. This survey also allowed results to be collected in real time and imported them into charts and graphs, making data review easy. The results were secure and

could be tracked confidentially by the individual responses of the participants as well. The filtering tool allowed for additional filtering and tabulation of data for clarification and further analysis. The software allowed data to be downloaded into a simple spreadsheet, making it easy to transport into SPSS, which was also used to process data for this study. SPSS results were then analyzed and those results were reported as final for this study. Results were delivered confidentially to only the researcher and ID numbers were used to track participants.

Treatment Instruments - Guided-Imagery Compact Disc (CD)

A sample was used that had similar characteristics such as degree type, age group and experience. The two groups were treated in the exact same fashion in terms of briefing, pretest and posttest, except for the treatment group, who received the GI compact disc (CD) to listen to at home (Breakwell, Hammond, Fife-Shaw & Smith, 2006). Those in the treatment group received instructions on how to properly use the GI compact disc and listened to the CD for two weeks at home.

Those in the treatment group were asked to listen to the CD for a minimum of 20 minutes a day (the length of the CD), three days a week over a two week period, and were asked to log their use. The contents of the CD is "The Job Loss Recovery Program: The Ultimate Visualization System for Landing a Great Job Now" by Lynn Joseph, Ph.D. (2009).

Role of the Researcher

The role of the researcher was to interact with participants, explain the experiment, explain the CDSES-SF test and its components explain and collect all informed consent forms, gather and analyze data. The researcher first contacted participants via email and instructed them on the experiment, assigned participants to groups, provided experiment materials and documentation and administered the CDSES-SF (Betz & Taylor, 1996) pretest to participants.

The researcher also send out the CDSES-SF (Betz & Taylor) posttest reminder notices to all participants and gathered both pretest and posttest data. The researcher confidentially gathered all score data and entered that data into data analysis software and reported all results.

Research Questions and Hypotheses

Research Questions

The research questions for this study are as follows:

1. Is there a difference in Self-Efficacy (SE) gain scores between those who use Guided Imagery (GI) in undergrad job-seekers? If so, how much?

2. Does Guided Imagery (GI) affect the gain scores of the 5 CDSES-SF subscales differently in undergrad job-seekers? If so, how much?

These questions directly pertained to the research problem as it looked to investigate if the GI techniques will help increase SE among undergraduate job seekers. Although there is a great deal of research on GI and SE levels in laid off job seekers and SE in career decision making behaviors in college age job seekers, there is little to no research on college students using GI while job seeking or its effect on SE.

Hypotheses

The hypotheses for this study are as follows:

H01 - There is no significant difference in overall SE gains scores within the treatment and control groups.

HA1 - There will be a significant difference in overall SE gain scores between the treatment and control groups.

H02 -Guided-Imagery does not positively affect gain scores of the 5 CDSES-SF subscales differently in undergrad job-seekers

HA2 - Guided-Imagery does positively affect gain scores of the 5 CDSES-SF subscales differently in undergrad job-seekers

Data Collection and Data Analysis

Organizing, managing, processing and preparing raw data. Raw data was gathered using the CDSES-SF scores (overall SE and the 5 subscales) derived from the Survey Monkey online CDSES-SF questionnaire (Betz & Taylor, 1996). This data was organized and categorized by group (control or treatment) and by participant ID#. This data was logged into an Excel spreadsheet that was categorized by both pretest and posttest scores and those scores were summed to determine if there are gain scores. This data was logged into 3 columns, one with the coding variable for the group variable (GI), and two columns that contain the scores for each dependent variable (SE scores). Doing so was the same as running identical separate paired *t* test (two tailed) ANOVA in SPSS for each of the dependent variables (Field, 2005). Those gains scores logged into the Excel spreadsheet were used later to import into SPSS 20.0 and analyzed to look for any significant relationships between the 5 outcome variables (SE).

Data analysis. Since previous research suggests that the direction of this effect can be predicted, the paired *t* test (two tailed) ANOVA of the five subscales and overall CDSE, which did result in increasing the likelihood of showing significant differences or results due to chance (Type I Error). Paired *t* test (two tailed) ANOVA was used for this study because this study was looking for a difference relationship between variables (GI & SE). By using paired *t* test (two tailed) ANOVA, it was determined what affect GI has on each of the 5 subscales as well as overall SE, and the significance of this affect on the 5 subscales. Paired *t* test (two tailed) ANOVA also gave a clear picture about the relationship between the scales with one another in addition to saying more about the outcome.

The sequence of this analysis was done once pretest and posttest scores are collected and loaded into SPSS and gain scores were calculated. Specifically, upon collection of the pretest

scores, those scores were loaded into the Excel spreadsheet for later analysis. Once the posttest scores were collected, they too were loaded into the Excel Spreadsheet and gain scores were calculated. Those gain scores were then loaded into SPSS 20.0 and the paired *t* test (two tailed) ANOVA analysis completed. At that time all descriptive statistics were run and results verified.

The results of the paired *t* test (two tailed) ANOVA were shown using descriptive statistics (see following section) to display the data. A histogram by SPSS 20.0 was the most visibly clear chart used for this study because it clearly defined the contents of the Tables as well as data value labels, such as exact mean, variance, standard deviation, mean and scaling factor. It was also used to plot how many times each score occurs (frequency distribution) in the data as well as skewness (Field, 2005). The box plot produced by SPSS showed the relationship and means between the dependent variables (the 5 subscales) in the treatment and control group. In addition, SPSS output for paired *t*-test (two tailed) ANOVA, which provided Tables of descriptive statistics (see Tables 1-15), and which contained "overall group means and standard deviations for each dependent variable in turn", which are the 5 subscales and overall SE (Field, 2005, p. 598).

Expected Findings

Previous research on GI and SE (Cohen and Fried, 2007; Drake & Wilson, 2008; Hammond, 2004; Joseph & Greenberg, 2001; Sanders et al., 2007; Rigby & Wait, 2006) did find there is a relationship between GI treatment and SE levels. In addition, Betz & Taylor (2006) found that SE levels do affect career decision making behavior, and that "results of the paired *t* test (two tailed) ANOVA indicated that the Goal Selection, Planning, and Self-Appraisal subscales and the CDSE total score significantly differentiated in high versus low identity groups" (p. 15). It was therefore expected that there would be a statistically significant

relationship between GI and career- development SE levels in students tested who use it during their job search at the p= .03 level. It was also expected that there would be a significant difference in SE gain scores of the 5 CDSES-SF subscales and overall SE within the treatment and control groups (Betz & Taylor, 1996).

CHAPTER 4. DATA COLLECTION AND ANALYSIS

Introduction

The purpose of this study was to appraise and evaluate the relationship between GI and SE. The study proved important as it investigated the relationship between GI and SE as a means to better understand how GI techniques affect SE levels. Namely in its relation to career performance, and how it relates to the college undergraduates who have higher levels of SE as compared to those who do not possess those higher levels. The study also inspected the impact that GI plays in those levels. In addition, an analysis of Guided-Imagery's effects on each of the 5 CDSES-SF (Betz & Taylor, 1996) subscales was completed and measured independently to mitigate any Type I Error Issues that may have occurred during the analysis process.

Paired *t* test (two tailed) ANOVA (*t*-tests) were done and its use in this study confirmed after reviewing similar studies that also analyzed multiple subscales and assessed independently in addition to overall gain scores. The use of paired *t* test (two tailed) ANOVA in this study did showed relationships between the independent variables. Similar methodology was done in similar students reviewed, which also measured attitudes of job seekers (Kulik, 2001; Rowald, 2004) using paired *t* test (two tailed) ANOVA of multiple scales as well as utilized a scales based questionnaire with subscales. As in the studies reviewed, the use of paired *t* test (two tailed) ANOVA in this study made it feasible to determine the clear-cut locality and affect of career development SE on GI. The results of each paired *t* test (two tailed) ANOVA, for both the 5 Subscales of SE and overall SE scores, were also analyzed and are presented later in this chapter using descriptive statistics (see Tables 1-15), and showed clearly that there was a significant difference in the SE Group B (Treatment Group) scores at posttest as compared to Group A (Control Group).

Hypotheses of the Study

Hypothesis 1.The first proposed hypothesis was that there would be a significant difference in overall SE gain scores between the treatment and control groups.

Hypothesis 2.The second proposed hypothesis was that Guided-Imagery does positively affect gain scores of the 5 CDSES-SF subscales differently in undergrad job-seekers

Null Hypothesis 0. There would be no significant difference in overall SE gain scores between the treatment and control groups.

Null Hypothesis 01. Guided-Imagery does not positively affect gain scores of the 5 CDSES-SF subscales differently in undergrad job-seekers.

Data Analysis

Data analysis was done by the use of SPSS Statistical Software Graduate Pack 20.0. The research design was a pretest-posttest control group design and Split Plot ANOVA was used on each of the 5 subscales as well as the total Career Development Self- Efficacy Scale (CDSES) results, which is a repeated measure within groups and looks at the effects on the groups and the differences between groups over time by adding one level of analysis (Betz & Taylor, 1996). This was shown to be an acceptable measure for this study as research shows that paired *t* test (two tailed) ANOVA was fairly robust for this study design (Tabachnick & Fidell, 2007). Paired *t* test (two tailed) ANOVA was used to test the interaction, or differences between groups over time, for each of the 5 subscales and the CDSES (Betz & Taylor, 1996) overall score and found no significance when the groups were pooled together (1= .001, 2= .002, 3= .00, 4= .00, 5= .005 and Total= .00). A Levene's Test for Equality was also done pretests and posttest to test the null

hypothesis and the error of variance of the dependent variable is equal across groups and nothing significant over 1 was found (1= .2-.03, 2= .3-.07, 3= 08-.01, 4= .74-.03, 5= .17-.07 and Total= .68-.05. Descriptive statistics were calculated for each set of data in the control and experimental group and are shown in the Tables below.

The descriptive statistics presented in this chapter (see Tables 1-15) were analyzed and inspected for distribution of each of the scales for normality by looking at the box plots to identify any outliers or skewness as well as the shape of the distribution as a means to identify any violations. Mean statistics, standard deviation, and Kurtosis were also reviewed for Group A and B for each of the 5 subscales as well as the total CDSES (Betz & Taylor, 1996) score and found that the sample size (n=50) was adequate as the results did not exceed 1.5 and the peak of the curve for any of the scale results were not extreme and Kurtosis was not over 2 for any of the scale results (Standard Error = .464 and Kurtosis= .902). As seen in Tables 1-15, the results of the Kolmogrov-Smirnov and Sharipo-Wilk results also showed nothing over .05, which was within the acceptable range of 1. Nothing substantial was found and no significant deviations for normality were identified and no reason was found to eliminate and outliers or transform any variables. A Box Test for Equality of Covariance Matrices was also completed on each of the 5 subscales and the overall CDSES score (Betz & Taylor, 1996) to test the null hypothesis of the dependent variables across the groups and the results showed no reason for concern as it is a very sensitive test and results are recommended to be below .00 (Tabachnick and Fidell, 2007).

Differences were analyzed by the use of Paired Samples t test (two tailed) between the pretest and posttest CDSES scores (Betz & Taylor, 1996) in the control and treatment groups. The first test done was to identify a change in the average score for group A over-time and group B over time (within subjects), and as expected, found that group A did not have a significant

change while group B did over the same time period as discussed further in this chapter. A second test was done to consider whether group A and group B were different when they started (pretest). A *t* test for independent groups was also done as they were independent groups. No significant difference was found at pretest, but as expected, there was a significant difference in the group scores at posttest. The results also showed no significant difference in the means of any of the scales in group A or B. Paired *t* test results in Tables 1-15 confirm that there were no great mean differences in the groups at pretest as compared to posttest and the Levene's Test of Equality of Error Variance confirmed that the homogeneity assumption of the paired *t* test (two tailed) ANOVA's had not been violated. As seen in Tables 1-15, the *F*-values in the study results are large because of the low value of the Mean Square term for *"Error (time)"*. The scores tended to cluster very closely to the mean, which does result in a small sum of squares error value, and this ultimately affects the *F* value.

This can be addressed in further research by breaking down the calculation for the *"Error (time)"* Mean Square to determine why it is so low (i.e. values like .120, .228, etc.), however it is not necessary due to the fact that the scores don't vary much from one another and from the mean. To see how this impacts the *F* scores, further research could be done to break the computation of *F* down into its component parts keeping in mind the following equations:

1) *F* = Mean and 2) Square/Mean Square Error and 3) Mean Square Error = Sum of Squares Error/degrees of freedom. The sum of squares was calculated by taking the difference between each observed value and the group mean, squaring that difference, and then totaling all of these *"squared differences"* up. This process would have been very tedious to do by hand, and since most values don't differ very much from the mean, then the Sum of Squares was likely to below (as seen in the Tables showing results within subjects). When reviewing row labeled

"Error(time)", Mean Square Error was obtained by dividing the sum of squares error by the degrees of freedom, and which was clearly low. Had the Sum of Squares for the Error been higher (perhaps by having more variability in the sample) or had a smaller sample been used, then it would not have been extremely low. Had, for example, we used the .130 to compute *F*, we would get the following; 1) *F*= Mean Square/Mean Square Error and 2) *F*= 4.571/.130 = 35.061. This would show that the MS error was really small, and had it been larger, then the *F*-value would not have been very high. Since there were only two time periods in the study, the degrees of freedom (*df*) were only 1 for time. Had the study used 3 time periods, the *df* results would have been 2 and the Mean Square would have been lower (half what it was). As a result, the *F* value results would have been lower. Final analysis of the *F* value results showed that the Mean Square error value of the study results was very low relative to the other study results in the descriptive Tables (1-15) below and it appeared to be low because there was such a small Sum of Squares error value, likely to be small because most observations are pretty close to the mean (Field, 2005).

Statement of the Results

Career Development Self-Efficacy

Paired *t* test (two-tailed) ANOVA results of the data for Hypothesis 1 confirmed that there was a significant difference in overall CDSE gain scores between the treatment and control groups and that the use of Guided-Imagery is an effective way to increase CDSE levels in the students who use it (see Tables 1-15). Therefore hypothesis 1 was accepted. In addition, the data also confirmed that the use of Guided-Imagery does positively affect gain scores of the 5 CDSES-SF subscales (Betz & Taylor, 1996) differently in undergrad job-seekers; therefore

Hypothesis 2 was accepted as well. As a result of the analysis of data, both null hypotheses are rejected.

Control Group Self-Efficacy

As shown in Tables 1-15, the data analysis of Group A (*n*=25) showed that there was a slight increase in the five subscale and overall CSDE over a two week period, with pretest mean scores ranging from 3.78 to 4.03. Posttest mean scores in Group A ranged from 4.07 to 4.14, verifying the slight increase in the subscales and overall CDES. There was a slight peak on the Kurtosis scale as seen in Table 2 (.902), but nothing over 2, which meant the results are well within acceptable limits. Skewness ranged from .015-1.012, which also was below 1.5, which is not considered extreme, therefore there were no violations present (Tabachnick & Fidell, 2007).

Treatment Group Self-Efficacy

As shown in the tables provided, the data analysis of Group B (*n*-=25) showed that there was a significant increase in the five subscales and overall CDSE over a two week treatment period, which was expected. The pretest mean scores for the treatment group ranged from 3.74 to 3.89. Posttest mean scores in Group B ranged from 4.44 to 4.57, verifying the significant increase in the subscales and overall CDSE. Like the control group, there was also a slight peak on the Kurtosis scale (.902), but nothing over 2, indicating that it was well within acceptable limits (Tabachnick & Fidell, 2007). In this group, skewness also was also below 1.5 (.150-1.357), which is not considered high, therefore no violations were present.

Treatment and Control Group Correlation

The Descriptive Statistics provided in the tables provided confirm the data presented and that there is indeed a significant increase in CDSE among those in the treatment group who use Guided- Imagery during their job search. This can specifically see seen in the tables provided

where the significant increase between Groups A and B can been seen throughout the five subscales and in their overall CDSE scores (A= 3.89, B= 4.57). The *t* tests provided in Tables provided confirm there was no significant change or group correlation between Group A and Group B for paired differences over time within subjects in Group A ranging from .00 to .72 and Group B ranging from .00 to .08 and equality of means of the groups ranging from a level of significance of .19 to .5 pretest and .00 to .03 posttest throughout the 5 subscales and in their overall CDSE scores.

Descriptive Statistics

Table 1

Descriptive Statistics – Demographics Group A and B

Group	Female	Male
Control Group A	14	11
Treatment Group B	13	12

Note: Table shows the basic demographic of both the treatment and control groups for the study as described in the Statement of Results above. Group A (control Group) consisted of 14 females and 11 males and Group B (treatment group) consisted of 13 females and 12 males for a total *n*=50.

Table 2

Descriptive Statistics – SPSS Group A

	n	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
prescale1 self-appraisal	25	4.032	0.46433	-0.015	0.464	-0.444	0.902
postscale1 self-appraisal	25	4.144	0.56131	-0.462	0.464	0.305	0.902
prescale2 occupational information	25	4.024	0.65656	-0.807	0.464	0.561	0.902
postscale2 occupational information	25	4.144	0.63645	-0.92	0.464	1.143	0.902
prescale3 goal selection	25	4	0.6455	-0.566	0.464	-0.403	0.902
postscale 3 goal selection	25	4.136	0.65248	-1.012	0.464	1.907	0.902
prescale4 planning	25	3.904	0.66863	-0.19	0.464	-1.072	0.902
postscale4 planning	25	3.952	0.70541	-0.954	0.464	0.467	0.902
prescale5 problem solving	25	3.784	0.64529	0.272	0.464	-0.656	0.902
postscale5 problem solving	25	4	0.56862	0.035	0.464	-0.651	0.902

Table 2 continued

Descriptive Statistics – SPSS Group A

	n	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
prescore self-efficacy	25	3.9488	0.54706	0.045	0.464	-1.199	0.902
postscore self-efficacy	25	4.0752	0.55502	-0.609	0.464	0.53	0.902

Note: Table shows the pretest and posttest scores for group A for all of the 5 Subscales of SE as well as the total SE score for group A (Control Group). The descriptive statistics in the Table include the sample size, standard deviation, Skewness and Kurtosis for the 25 participants of the study as described in the Statement of Results above.

Table 3

Descriptive Statistics – SPSS Group B

	n	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
prescale1 self-appraisal	25	3.848	0.64104	-0.187	0.464	-0.15	0.902
postscale1 self-appraisal	25	4.44	0.3559	-0.135	0.464	-1.236	0.902
prescale2 occupational information	25	3.888	0.78545	-0.453	0.464	-0.663	0.902

Table 3 continued

Descriptive Statistics – SPSS Group B

	n	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
postscale2 occupational information	25	4.504	0.36111	0.057	0.464	-1.417	0.902
prescale3 goal selection	25	3.76	0.62981	0.026	0.464	-0.278	0.902
postscale3 goal selection	25	4.568	0.30375	-0.25	0.464	-0.768	0.902
prescale4 planning	25	3.656	0.7292	0.109	0.464	-0.332	0.902
postscale4 planning	25	4.48	0.3873	-0.022	0.464	-1.357	0.902
prescale5 problem solving	25	3.568	0.84396	-0.197	0.464	-0.213	0.902
postscale5 problem solving	25	4.384	0.39967	0.153	0.464	-1.103	0.902
prescore pre-total: self-efficacy	25	3.7448	0.66316	0.302	0.464	0.037	0.902
postscore post-total: self-efficacy	25	4.4736	0.31595	0.093	0.464	-1.156	0.902

Note: Table shows the pretest and posttest scores for group BA for all of the 5 Subscales of SE as well as the total SE score for group B (Treatmentl Group). The descriptive statistics in the Table include the sample size, standard deviation, Skewness and Kurtosis for the 25 participants of the study as described in the Statement of Results above.

Table 4

Descriptive Statistics – Test For Normality: Group A

	Kolmogorov-Smirnov[b]			Shapiro-Wilk		
	Statistic	*df*	Sig.	Statistic	*df*	Sig.
prescale1 prescale 1: self-appraisal	.131	25	.200*	.954	25	.301
postscale1 postscale 1: self-appraisal	.152	25	.141	.950	25	.247
prescale2 prescale 2: occupational information	.126	25	.200*	.936	25	.119
postscale2 postscale 2: occupational information	.134	25	.200*	.932	25	.099
prescale3 prescale 3: goal selection	.220	25	.003	.917	25	.043
postscale3 postscale 3: goal selection	.143	25	.198	.919	25	.048
prescale4 prescale 4: planning	.135	25	.200*	.932	25	.098
postscale4 postscale 4: planning	.167	25	.070	.904	25	.022
prescale5 prescale 5: problem solving	.164	25	.081	.946	25	.199
postscale5 postscale 5: problem solving	.117	25	.200*	.968	25	.594
prescore pre-total: self-efficacy	.126	25	.200*	.934	25	.108
postscore post-total: self-efficacy	.115	25	.200*	.965	25	.533

Note: Table shows the pretest and posttest ANOVA scores for test for Normality for group A (Control Group) using the Kolomogrov-Smirnov and Shapiro-Wilk test measurements. The Table also shows the sample size and level of significance for the 25 participants of the study as described in the Statement of Results above.

Table 5

Descriptive Statistics – Test For Normality: Group B

	Kolmogorov-Smirnov[b]			Shapiro-Wilk		
	Statistic	*df*	Sig.	Statistic	*df*	Sig.
prescale1 prescale 1: self-appraisal	.150	25	.149	.969	25	.626
postscale1 postscale 1: self-appraisal	.193	25	.017	.922	25	.058
prescale2 prescale 2: occupational information	.117	25	.200*	.952	25	.279
postscale2 postscale 2: occupational information	.160	25	.098	.896	25	.015
prescale3 prescale 3: goal selection	.112	25	.200*	.980	25	.888
postscale3 postscale 3: goal selection	.142	25	.200*	.934	25	.107
prescale4 prescale 4: planning	.117	25	.200*	.969	25	.609
postscale4 postscale 4: planning	.165	25	.077	.912	25	.033
prescale5 prescale 5: problem solving	.136	25	.200*	.964	25	.501
postscale5 postscale 5: problem solving	.152	25	.141	.920	25	.052
prescore pre-total: self-efficacy	.094	25	.200*	.979	25	.856
postscore post-total: self-efficacy	.127	25	.200*	.953	25	.290

Note: Table shows the pretest and posttest ANOVA scores for test for Normality for group B (Treatment Group) using the Kolomogrov-Smirnov and Shapiro-Wilk test measurements. The Table also shows the sample size and level of significance for the 25 participants of the study as described in the Statement of Results above.

Table 6

Descriptive Statistics – ANOVA Scales 1-5 and Total CDSES Score

	Group	Mean	St. Deviation	*n*
prescale1 prescale 1: self-appraisal	A	4.0320	.46433	25
	B	3.8480	.64104	25
	Total	3.9400	.56170	50
postscale1 postscale 1: self-appraisal	A	4.1440	.56131	25
	B	4.4400	.35590	25
	Total	4.2920	.48858	50
prescale2 prescale 2: occupational information	A	4.0240	.65656	25
	B	3.8880	.78545	25
	Total	3.9560	.71974	50
postscale2 postscale 2: occupational information	A	4.1440	.63645	25
	B	4.5040	.36111	25
	Total	4.3240	.54344	50
prescale3 prescale 3: goal selection	A	4.0000	.64550	25
	B	3.7600	.62981	25
	Total	3.8800	.64270	50
postscale3 postscale 3: goal selection	A	4.1360	.65248	25
	B	4.5680	.30375	25
	Total	4.3520	.54893	50
prescale4 prescale 4: planning	A	3.9040	.66863	25
	B	3.6560	.72920	25
	Total	3.7800	.70363	50
postscale4 postscale 4: planning	A	3.9520	.70541	25
	B	4.4800	.38730	25
	Total	4.2160	.62315	50
prescale5 prescale 5: problem solving	A	3.7840	.64529	25
	B	3.5680	.84396	25
	Total	3.6760	.75148	50
postscale5 postscale 5: problem solving	A	4.0000	.56862	25
	B	4.3840	.39967	25
	Total	4.1920	.52366	50

Table 6 continued

Descriptive Statistics – ANOVA Scales 1-5 and Total CDSES Score

	Group	Mean	St. Deviation	*n*
prescore pre-total: self-efficacy	A	3.9488	.54706	25
	B	3.7448	.66316	25
	Total	3.8468	.61041	50
postscore post-total: self-efficacy	A	4.0752	.55502	25
	B	4.4736	.31595	25
	Total	4.2744	.49017	50

Note: Table shows the pretest and posttest scores for the ANOVA measurements for the dependent variables (the 5 subscales and Total SE score) and the Between- Subject Factors for groups A (Control Group) and B (Treatment Group). The Table also shows the sample size, mean and standard deviation for the 50 participants of the study as described in the Statement of Results above.

Table 7

Descriptive Statistics – ANOVA Scales 1-5 and Total CDSES Score Test of Within Subjects Affects

Source MEASURE 1: Scale 1		Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
time	Sphericity Assumed	3.098	1	3.098	25.713	.000
	Greenhouse-Geisser	3.098	1.000	3.098	25.713	.000
	Huynh-Feldt	3.098	1.000	3.098	25.713	.000
	Lower-bound	3.098	1.000	3.098	25.713	.000
time * group	Sphericity Assumed	1.440	1	1.440	11.954	.001
	Greenhouse-Geisser	1.440	1.000	1.440	11.954	.001
	Huynh-Feldt	1.440	1.000	1.440	11.954	.001
	Lower-bound	1.440	1.000	1.440	11.954	.001

Table 7 continued

Descriptive Statistics – ANOVA Scales 1-5 and Total CDSES Score Test of Within Subjects Affects

Source	MEASURE 1: Scale 1	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
Error(time)	Sphericity Assumed	5.782	48	.120		
	Greenhouse-Geisser	5.782	48.000	.120		
	Huynh-Feldt	5.782	48.000	.120		
	Lower-bound	5.782	48.000	.120		

Source	MEASURE 1: Scale 2	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
time	Sphericity Assumed	3.386	1	3.386	23.910	.000
	Greenhouse-Geisser	3.386	1.000	3.386	23.910	.000
	Huynh-Feldt	3.386	1.000	3.386	23.910	.000
	Lower-bound	3.386	1.000	3.386	23.910	.000
time * group	Sphericity Assumed	1.538	1	1.538	10.859	.002
	Greenhouse-Geisser	1.538	1.000	1.538	10.859	.002
	Huynh-Feldt	1.538	1.000	1.538	10.859	.002
	Lower-bound	1.538	1.000	1.538	10.859	.002
Error(time)	Sphericity Assumed	6.797	48	.142		
	Greenhouse-Geisser	6.797	48.000	.142		
	Huynh-Feldt	6.797	48.000	.142		
	Lower-bound	6.797	48.000	.142		

Source	MEASURE 1: Scale 3	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
time	Sphericity Assumed	5.570	1	5.570	34.239	
	Greenhouse-Geisser	5.570	1.000	5.570	34.239	
	Huynh-Feldt	5.570	1.000	5.570	34.239	
	Lower-bound	5.570	1.000	5.570	34.239	
time * group	Sphericity Assumed	2.822	1	2.822	17.351	
	Greenhouse-Geisser	2.822	1.000	2.822	17.351	
	Huynh-Feldt	2.822	1.000	2.822	17.351	

Table 7 continued

Descriptive Statistics – ANOVA Scales 1-5 and Total CDSES Score Test of Within Subjects Affects

Source	MEASURE 1: Scale 3	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
	Lower-bound	2.822	1.000	2.822	17.351	
Error(time)	Sphericity Assumed	7.808	48	.163		
	Greenhouse-Geisser	7.808	48.000	.163		
	Huynh-Feldt	7.808	48.000	.163		
	Lower-bound	7.808	48.000	.163		

Source	MEASURE 1: Scale 4	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
time	Sphericity Assumed	4.752	1	4.752	22.757	.000
	Greenhouse-Geisser	4.752	1.000	4.752	22.757	.000
	Huynh-Feldt	4.752	1.000	4.752	22.757	.000
	Lower-bound	4.752	1.000	4.752	22.757	.000
time * group	Sphericity Assumed	3.764	1	3.764	18.022	.000
	Greenhouse-Geisser	3.764	1.000	3.764	18.022	.000
	Huynh-Feldt	3.764	1.000	3.764	18.022	.000
	Lower-bound	3.764	1.000	3.764	18.022	.000
Error(time)	Sphericity Assumed	10.024	48	.209		
	Greenhouse-Geisser	10.024	48.000	.209		
	Huynh-Feldt	10.024	48.000	.209		

Source	MEASURE 1: Scale 5	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
time	Sphericity Assumed	6.656	1	6.656	29.169	.000
	Greenhouse-Geisser	6.656	1.000	6.656	29.169	.000
	Huynh-Feldt	6.656	1.000	6.656	29.169	.000
	Lower-bound	6.656	1.000	6.656	29.169	.000
time * group	Sphericity Assumed	2.250	1	2.250	9.860	.003
	Greenhouse-Geisser	2.250	1.000	2.250	9.860	.003

Table 7 continued

Descriptive Statistics – ANOVA Scales 1-5 and Total CDSES Score Test of Within Subjects Affects

Source						
MEASURE 1: Scale 5		Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
	Huynh-Feldt	2.250	1.000	2.250	9.860	.003
	Lower-bound	2.250	1.000	2.250	9.860	.003
Error(time)	Sphericity Assumed	10.954	48	.228		
	Greenhouse-Geisser	10.954	48.000	.228		
	Huynh-Feldt	10.954	48.000	.228		
	Lower-bound	10.954	48.000	.228		

Source						
MEASURE 1: All Scales		Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
time	Sphericity Assumed	4.571	1	4.571	35.061	.000
	Greenhouse-Geisser	4.571	1.000	4.571	35.061	.000
	Huynh-Feldt	4.571	1.000	4.571	35.061	.000
	Lower-bound	4.571	1.000	4.571	35.061	.000
time * group	Sphericity Assumed	2.268	1	2.268	17.396	.000
	Greenhouse-Geisser	2.268	1.000	2.268	17.396	.000
	Huynh-Feldt	2.268	1.000	2.268	17.396	.000
	Lower-bound	2.268	1.000	2.268	17.396	.000
Error(time)	Sphericity Assumed	6.258	48	.130		
	Greenhouse-Geisser	6.258	48.000	.130		
	Huynh-Feldt	6.258	48.000	.130		
	Lower-bound	6.258	48.000	.130		

Note: Table shows the pretest and posttest scores for the paired *t* tests (two tailed) ANOVA measurements for the dependent variables (the 5 subscales and Total SE score) and the Within-Subject Effects for groups A (Control Group) and B (Treatment Group). The Table also shows the time*group (a key effect of the study showing the effect of the interaction of time and the group), Type III Sum of Squares, *df*, Mean Square, *F* and Signifance for the 50 participants of the study as described in the Statement of Results above.

Table 8

Descriptive Statistics - ANOVA Scales 1-5 and Total CDSES Score Test of Between Subjects Affects

Measure: MEASURE_1 – Scale 1
Transformed Variable: Average

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
Intercept	1694.146	1	1694.146	4095.437	.000
group	.078	1	.078	.190	.665
Error	19.856	48	.414		

Measure: MEASURE_1 - Scale 2
Transformed Variable: Average

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
Intercept	1713.960	1	1713.960	2636.321	.000
group	.314	1	.314	.482	.491
Error	31.206	48	.650		

Measure: MEASURE_1 – Scale 3
Transformed Variable: Average

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
Intercept	1694.146	1	1694.146	3368.083	.000
group	.230	1	.230	.458	.502
Error	24.144	48	.503		

Measure: MEASURE_1 – Scale 4
Transformed Variable: Average

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
Intercept	1598.400	1	1598.400	2644.753	.000
group	.490	1	.490	.811	.372
Error	29.010	48	.604		

Measure: MEASURE_1 – Scale 5

Transformed Variable: Average

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
Intercept	1547.636	1	1547.636	2679.115	.000
group	.176	1	.176	.305	.583
Error	27.728	48	.578		

Measure: MEASURE_1 – All Scales

Transformed Variable: Average

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
Intercept	1648.847	1	1648.847	3721.308	.000
group	.236	1	.236	.533	.469
Error	21.268	48	.443		

Note: Table shows the pretest and posttest scores for the ANOVA measurements for the dependent variables (the 5 subscales and Total SE score) and the Between-Subject Effects for groups A (Control Group) and B (Treatment Group). The Table also shows transformed variable average, Type III Sum of Squares, *df*, Mean Square, *F*, and Significance for the 50 participants of the study as described in the Statement of Results above.

Table 9

Descriptive Statistics - ANOVA Scales 1-5 and Total CDSES Score Test of Estimated Margin Means

group * time

Measure: MEASURE_1- Scale 1

group	time	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
A	1	4.032	.112	3.807	4.257
	2	4.144	.094	3.955	4.333
B	1	3.848	.112	3.623	4.073
	2	4.440	.094	4.251	4.629

Table 9 continued

group * time

Measure: MEASURE_1 – Scale 2

group	time	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
A	1	4.024	.145	3.733	4.315
	2	4.144	.103	3.936	4.352
B	1	3.888	.145	3.597	4.179
	2	4.504	.103	4.296	4.712

Measure: MEASURE_1- Scale 3

group	time	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
A	1	4.000	.128	3.744	4.256
	2	4.136	.102	3.931	4.341
B	1	3.760	.128	3.504	4.016
	2	4.568	.102	4.363	4.773

Measure: MEASURE_1 – Scale 4

group	time	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
A	1	3.904	.140	3.623	4.185
	2	3.952	.114	3.723	4.181
B	1	3.656	.140	3.375	3.937
	2	4.480	.114	4.251	4.709

Measure: MEASURE_1 – Scale 5

group	time	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
A	1	3.784	.150	3.482	4.086
	2	4.000	.098	3.802	4.198
B	1	3.568	.150	3.266	3.870
	2	4.384	.098	4.186	4.582

Table 9 continued

group * time

Measure: MEASURE_1 - All Scales

group	time	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
A	1	3.949	.122	3.704	4.193
	2	4.075	.090	3.894	4.257
B	1	3.745	.122	3.500	3.989
	2	4.474	.090	4.292	4.655

Note: Table shows the pretest and posttest scores for the paired *t* test (two tailed) ANOVA measurements for the dependent variables (the 5 subscales and Total SE score) and the Estimated Margin Means for groups A (Control Group) and B (Treatment Group). The Table also shows the group * time (a key effect of the study showing the effect of the interaction of time and the group), Mean, Standard Error and the Lower and Upper Bound measurement using a 95% Confidence Interval for the 50 participants of the study as described in the Statement of Results above.

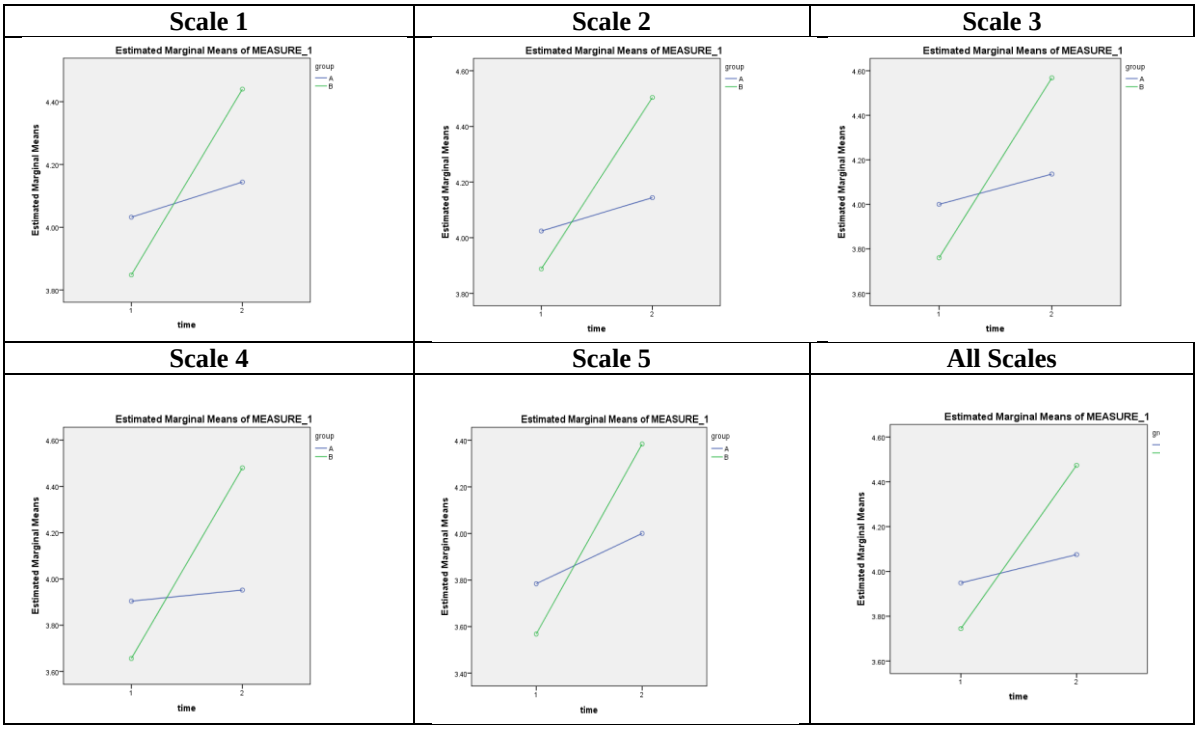

Figure 1. Descriptive Statistics - ANOVA Scales 1-5 and Total CDSES Score Profile Plot of Estimated Margin Means

Table 10

Descriptive Statistics – T-Test Paired Sample Test Group A& B Average Scores Over Time

		Paired Differences							
					95% Confidence Interval of the Difference				
GROUP A		Mean	Std. Dev	Std. Error Mean	Lower	Upper	*t*	*df*	Sig. (2-tailed)
Pair 1	prescale1 self-appraisal postscale1 self-appraisal	-0.112	0.41665	0.08333	-0.28399	0.05999	-1.344	24	0.192
Pair 2	prescale2 occupational information - postscale2 occupational information	-0.12	0.43589	0.08718	-0.29993	0.05993	-1.376	24	0.181
Pair 3	prescale3 goal selection - postscale3 goal selection	-0.136	0.54687	0.10937	-0.36174	0.08974	-1.243	24	0.226
Pair 4	prescale4 planning - postscale4 planning	-0.048	0.66151	0.1323	-0.32106	0.22506	-0.363	24	0.72
Pair 5	prescale5 problem solving postscale5 problem solving	-0.216	0.56545	0.11309	-0.44941	0.01741	-1.91	24	0.068
Pair 6	prescore pre-total: self-efficacy postscore post-total: self-efficacy	-0.1264	0.44056	0.08811	-0.30825	0.05545	-1.435	24	0.164

Table 10 continued

Descriptive Statistics – T-Test Paired Sample Test Group A& B Average Scores Over Time

		Paired Differences							
					95% Confidence Interval of the Difference				
GROUP B		Mean	Std. Dev	Std. Error Mean	Lower	Upper	*t*	*df*	Sig. (2-tailed)
Pair 1	prescale1 self-appraisal postscale1 self-appraisal	-0.592	0.55522	0.11104	-0.82118	-0.36282	-5.331	24	0
Pair 2	prescale2 occupational information - postscale2 occupational information	-0.616	0.61351	0.1227	-0.86925	-0.36275	-5.02	24	0
Pair 3	prescale3 goal selection postscale 3 goal selection	-0.808	0.59296	0.11859	-1.05276	-0.56324	-6.813	24	0
Pair 4	prescale4: planning - postscale4 planning	-0.824	0.63066	0.12613	-1.08432	-0.56368	-6.533	24	0
Pair 5	prescale5 problem solving - postscale5 problem solving	-0.816	0.77011	0.15402	-1.13389	-0.49811	-5.298	24	0
Pair 6	prescore pre-total: self-efficacy postscore post-total: self-efficacy	-0.7288	0.57219	0.11444	-0.96499	-0.49261	-6.369	24	0

Note: Table shows the pretest and posttest scores for the ANOVA measurements for the dependent variables (the 5 subscales and Total SE score) for groups A (Control Group) and B (Treatment Group) using a Paired Sample Test of average scores over time. The Table also shows the mean, standard deviation, standard error, *t, df*, upper and lower as well as significance of the 2-tailed test using a 95% confidence interval of the difference for the 50 participants of the study as described in the Statement of Results above.

Table 11

Descriptive Statistics – T-Test Paired Sample Test Group A& B Average Scores of Groups Over Time

group		*n*	Mean	Std. Deviation	Std. Error Mean
prescale1 self-appraisal	A	25	4.0320	.46433	.09287
	B	25	3.8480	.64104	.12821
postscale1 self-appraisal	A	25	4.1440	.56131	.11226
	B	25	4.4400	.35590	.07118
prescale2 occupational information	A	25	4.0240	.65656	.13131
	B	25	3.8880	.78545	.15709
postscale2 occupational information	A	25	4.1440	.63645	.12729
	B	25	4.5040	.36111	.07222
prescale3 goal selection	A	25	4.0000	.64550	.12910
	B	25	3.7600	.62981	.12596
postscale3 goal selection	A	25	4.1360	.65248	.13050
	B	25	4.5680	.30375	.06075
prescale4 planning	A	25	3.9040	.66863	.13373
	B	25	3.6560	.72920	.14584
postscale4 planning	A	25	3.9520	.70541	.14108
	B	25	4.4800	.38730	.07746
prescale5 problem solving	A	25	3.7840	.64529	.12906
	B	25	3.5680	.84396	.16879
postscale5 problem solving	A	25	4.0000	.56862	.11372
	B	25	4.3840	.39967	.07993
prescore pre-total: self-efficacy	A	25	3.9488	.54706	.10941
	B	25	3.7448	.66316	.13263
postscore post-total: self-efficacy	A	25	4.0752	.55502	.11100
	B	25	4.4736	.31595	.06319

Note: Table shows the pretest and posttest scores for the ANOVA measurements for the dependent variables (the 5 subscales and Total SE score) for groups A (Control Group) and B (Treatment Group) using a Paired Sample Test of average scores over time. The Table also shows the mean, standard deviation, standard error, *t, df,* upper and lower as well as significance of the 2-tailed test using a 95% confidence interval of the difference for the 50 participants of the study as described in the Statement of Results above.

Table 12

Descriptive Statistics – Descriptive Statistics T-Test Independent Samples Test Group A & B

	Levene's Test for Equality of Variances		*t*-test for Equality of Means		
	F	Sig.	*t*	*df*	Sig. (2-tailed)
prescale1 self-appraisal	1.321	.256	1.162	48	.251
			1.162	43.748	.251
postscale1 self-appraisal	4.901	.032	-2.227	48	.031
			-2.227	40.612	.032
prescale2 occupational information	1.018	.318	.664	48	.510
			.664	46.536	.510
postscale2 occupational information	3.430	.070	-2.460	48	.018
			-2.460	38.001	.019
prescale3 goal selection	.053	.818	1.331	48	.190
			1.331	47.971	.190
postscale3 goal selection	6.571	.014	-3.001	48	.004
			-3.001	33.936	.005
prescale4 planning	.105	.747	1.253	48	.216
			1.253	47.644	.216
postscale4 planning	4.598	.037	-3.281	48	.002
			-3.281	37.264	.002
prescale5 problem solving	1.942	.170	1.017	48	.314
			1.017	44.914	.315
postscale5 problem solving	3.304	.075	-2.762	48	.008
			-2.762	43.061	.008
prescore pre-total self-efficacy	.169	.683	1.186	48	.241
			1.186	46.326	.241
postscore post-total self-efficacy	3.914	.054	-3.119	48	.003
			-3.119	38.077	.003

Note: Table shows the pretest and posttest scores for the ANOVA measurements for the dependent variables (the 5 subscales and Total SE score) for groups A (Control Group) and B (Treatment Group) using *t* test independent samples. The Table also shows results for the Levene's Test for Equality of Variances and the *t* test Equality of Means as well as *F*, Significance, *t*, and *df* values of the two-tailed test for the 50 participants of the study as described in the Statement of Results above.

Table 13

Descriptive Statistics - Control Group Correlations

		n	Correlation	Sig.
Pair 1	prescale1 self-appraisal & postscale1 self-appraisal	25	.685	.000
Pair 2	prescale2 occupational information & postscale2 occupational information	25	.773	.000
Pair 3	prescale3 goal selection & postscale3 goal selection	25	.645	.000
Pair 4	prescale4 planning & postscale4 planning	25	.538	.006
Pair 5	prescale5 problem solving & postscale5 problem solving	25	.572	.003
Pair 6	prescore pre-total: self-efficacy & postscore post-total: self-efficacy	25	.680	.000

Note: Table shows the pretest and posttest scores for the ANOVA measurements for the dependent variables (the 5 subscales and Total SE score) for group A (Control Group) and the Paired Sample Correlations of the Control Group. The Table also shows results for *n* (meaning sample) and Significance for the 25 participants of the study as described in the Statement of Results above.

Table 14

Descriptive Statistics - Treatment Group Correlations

		n	Correlation	Sig.
Pair 1	prescale1 self-appraisal & postscale1 self-appraisal	25	.503	.010
Pair 2	prescale2 occupational information & postscale2 occupational information	25	.654	.000
Pair 3	prescale3 goal selection & postscale3 goal selection	25	.359	.078
Pair 4	prescale4 planning & postscale4 planning	25	.503	.010

Table 14 continued

Descriptive Statistics - Treatment Group Correlations

		n	Correlation	Sig.
Pair 1	prescale1 self-appraisal & postscale1 self-appraisal	25	.503	.010
Pair 2	prescale2 occupational information & postscale2 occupational information	25	.654	.000
Pair 3	prescale3 goal selection & postscale3 goal selection	25	.359	.078
Pair 4	prescale4 planning & postscale4 planning	25	.503	.010

Note: Table shows the pretest and posttest scores for the ANOVA measurements for the dependent variables (the 5 subscales and Total SE score) for group B (Treatment Group) and the Paired Sample Correlations of the Control Group. The Table also shows results for *n* (meaning sample) and Significance for the 25 participants of the study as described in the Statement of Results above.

Summary

There were two Hypothesis proposed in this study and two null hypothesis. Both were completed successfully, the null hypothesis rejected, and satisfactory results were documented in the SPSS tables presented. The study results also showed that GI techniques are an effective tool in increasing SE levels in college students who use it during their job search. These findings supported with purpose of this study, which was to appraise and evaluate the relationship between GI and SE. The study proved important as it investigated the relationship between GI and SE as a means to better understand how GI techniques affect SE levels. This relationship was shown to be critical in relation to career performance among college students seeking employment, particularly in relation to the impact that GI plays in those levels. The paired *t* test (two tailed) ANOVA used in the study were in line with similar studies and did show

relationships between the independent variables, and the study showed that the use of paired *t* test (two tailed) ANOVA in this study was appropriate in determining the affect of career development SE on GI.

Hypotheses of the Study Reviewed

Hypothesis 1- pretest-posttest differences subscales and CDSES total score. Hypothesis 1 focused on the differences of the 5 subscales and overall CDSE score between the treatment and control groups. As stated prior in this chapter, paired *t* test (two tailed) ANOVA data results were analyzed for Hypothesis 1 and confirm that there was a significant difference in overall CDSE gain scores between the groups. This also confirmed that and that the use of Guided-Imagery is an effective way to increase CDSE levels in the students who use when seeking employment it as seen in Tables 1-15.

Hypothesis 2- pretest-posttest differences subscales and CDSES total score. Hypothesis 2 focused on the 5 subscales and if they are affected differently in undergrad job-seekers as opposed to their overall CDSE score. The data also confirmed that the use Guided-Imagery does positively affect gain scores of the 5 CDSES-SF (Betz & Taylor, 1996) subscales differently in undergrad job-seekers as seen in Tables 1-15.

The analysis of the mean statistics, standard deviation and Kurtosis for each of the 5 subscales, in addition to overall CDSE, confirmed that the sample size for n=50 was adequate for the study and that the results did not exceed 1.5 and the peak of the curve for any of the scale results were not extreme and Kurtosis was not over 2 for any of the scale results. No variables had to be eliminated or outliers removed as the results of the Kolmogrov-Smirnov and Sharipo-Wilk showed nothing over .05. In addition, there were no substantial or significant deviations for normality identified and no reason was found to eliminate and outliers or transform any

variables. The *t* test results also showed that there was no significant change or group correlation between Group A and Group B for paired differences over time within subjects in Group A ranging from .00 to .72 and Group B ranging from .00 to .08 and equality of means of the groups ranging from a level of significance of .19 to .5 pretest and .00 to .03 posttest throughout the five subscales and in their overall CDSE scores.

There was a significant difference in the Group B scores at posttest. The pretest mean scores for the treatment group ranged from 3.74 to 3.89 and the posttest mean scores in Group B ranged from 4.44 to 4.57, verifying the significant increase in the 5 subscales and overall CDES. There was a slight increase in the 5 subscales and overall CSDE in Group A over a two week period, with pretest mean scores ranging from 3.78 to 4.03 and posttest mean scores in Group A ranged from 4.07 to 4.14. The results of the study confirmed and supported the study hypotheses stating that there was a relationship to CDSE and Guided-Imagery, and that this relationship can have implications for employability in college graduates seeking employment. The relationship between students's CDSE and was successfully shown from the pretest and posttest results.

CHAPTER 5. RESULTS, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The purpose of this study was to assess the relationship between GI and SE, and it was important to study this relationship as a means to better understand how GI treatments affect SE levels, particularly in relation to career confidence levels. This was a critical part of the study as the study outcomes related career performance among college undergraduates who have higher levels of SE as compared to those who do not, as well as looked at the role that GI plays in those levels. The study focus was to examine the relationship between Guided-Imagery (GI) and Self-Efficacy (SE) and the implications for employability in college graduates seeking employment. It was determined that it would be important to study the relationship between GI and SE in order to better understand how GI techniques affect SE levels, most importantly in relation to career related performance in those college undergraduates who have higher levels of SE as compared to those who do not. The study also examined the role that GI played in those levels.

The study was conducted using the CDSES-SF (Betz & Taylor, 1996), which was the measurement tool created by Betz and Taylor (1996, 2006). The test measures SE levels in students and is based on SE theory (Bandura, 1977). The test used measured overall career development SE, which is "an individual's degree of belief that he/she can successfully complete tasks necessary to making career decisions" (Betz & Taylor, 2006, p. 6). In addition to an overall SE score, the constructs of this test measures 5 career choice competencies and focuses on five subscales that effect behavior, which are 1) Accurate self-appraisal, 2) Gathering occupational information, 3) Goal selection, 4) Making plans for the future and 5) Problem solving. The test used in this study was done on a Likert scale and consisted of 25 questions.

Analysis of the 25 questions was done using a quasi-experimental design and a quantitative method of analysis, with a pretest-posttest control and treatment groups. Paired *t* test (two tailed) ANOVA was used for this study to examine the relationship between guided-imagery and career development SE in college undergrads seeking employment. This research design was used to quantify the effect using GI in total SE subscale scores. Relationships were examined between the student's SE score of both the treatment and control groups. The rest of this chapter provides a detailed examination of the study finding and a possible explanation for study results.

Two original hypotheses proposed in this study in addition to two null hypotheses. All were completed successfully, the null hypothesis was rejected, and the study resulted in satisfactory results, which were documented in the SPSS descriptive statistical results. Study results confirmed that the use of GI techniques can be an effective tool in increasing SE levels in college students who use it during their job search. Study finding also confirmed the purpose of the study, which was to appraise and evaluate the relationship between GI and SE.

The study substantiated the investigation of the relationship between GI and SE as a tool to more closely understand how GI techniques affect SE levels. The study of this relationship between GI and SE also confirmed that the relationship is a critical one as it relates to career performance levels among college students seeking employment, and the impact that GI plays in those levels. The results of the Paired *t* test (two tailed) ANOVA did show relationships between the independent variables, and confirmed that the use of ANOVA was an appropriate tool in measuring the affect of career development SE on GI.

Instruments

Guided-Imagery Script

The Guided-Imagery CD script is an original design and the contents of the CD is from "The Job Loss Recovery Program: The Ultimate Visualization System for Landing a Great Job Now" by Lynn Joseph, Ph.D. (2009). The Job Loss Recovery Program was designed by Dr. Lynn Joseph (2009), and used in a similar study using adults seeking employment. The words or phrases (images) in the CD script were designed to help individuals overcome their perceived barriers to success and show students visualize new opportunities and outcomes for themselves and their futures (Joseph, 2009). The treatment group was provided additional instructions on how to use the GI compact disc (CD) and was asked to practice the imagery techniques at least once a day for a minimum of 20 minutes a day, 3 times a week, along with the CD for reinforcement. The length of time, 20 minutes per session, is considered a relatively short time, which proved to be non-consequential based on the study results, and confirmed that a longer imagery session would not necessarily be more effective.

Students in the treatment group were provided detailed instructions as to how to use the GI compact disc (CD), which instructed them on how to listen to the CD daily for two week period. This script and program was chosen for the study because the constructs of the Guided-Imagery CD directly coincided with the CDSES-SF questionnaire scales. The script of the program can be found in the Appendix Section.

CDSES-SF Survey Assessment Tool

This study proved significant as it contributed to current research by Betz (1983-1994, 1996, 2005) on Career SE and GI techniques by The Beck Institute (2008) and others (Joseph & Greenberg, 2001; Tusek, Church, Strong, Grass, & Fazio, 2005; Wynd, 2005). The CDSES-SF

measurement tool used in the study measures an individual's degree of belief that he/she can successfully complete tasks necessary to making career decisions" (Betz & Taylor, 2006, p. 6). Survey Monkey was used to administer the measurement tool, and responses were gathered using a 10-level confidence continuum, ranging from *No Confidence at All* (1) to *Complete Confidence* (10)" (Betz & Taylor, 2006, p. 8).

Survey Monkey was used as a tool to implement the CDSES-SF, and was used for tracking survey results**.** The use of the Survey Monkey tool also allowed a rating scale survey to be created that matched the CDSE-SF, and reproduction of the form in Survey Monkey was approved by the publisher. In addition, the survey was taken online with results being transmitted anonymously to the researcher, which protected confidentiality.

Imagery Ability

Guided-Imagery research has been found that cognitive and neurophysiologic changes occur when GI is used (Arbuthnott, Geelen, & Kealy, 2002; Wynd, 2005). Research has confirmed that a person goes into a state of relaxation where a deep level of focus is achieved, or an altered state of consciousness, when GI is used. Joseph (2009) states that there is a connection between the mind and the body that can manifest itself in our behavior and which ultimately can influence employment outcomes, and it is through achieving an altered state of consciousness, is addition to using specific thoughts and visual images, affects the conscious and subconscious mind as well as has a deep effect on ones emotional and physical state. Many of the studies cited in the study support the use of GI in producing higher levels of SE, resulting in increased performance behavior. Skaer (2006) cites that using relaxation techniques can actually help a person create a mental state that is conducive to manifesting the optimal environment for using GI, and it is important to note that the level of relaxation experienced by participants of the study

may vary based on their ability to use the relaxation CD, which may be due to brain function ability and differing levels of ability among study participants to obtain intense focus. As stated by Skaer (2006), "There appears to be three important factors related to imagery ability that may influence the individual outcome using imagery. Some individuals have the ability to image better than others: a) vividness of imagery, b) controllability of the image, and c) the ability to absorb the image" (p. 76). However, it is not clear as to how the relaxation and visualization techniques used in this study directly affected the imagery participants other than their SE levels, which were measured in this study (Skaer, 2006).

The Belief Effect

Guided-Imagery has been shown to be a very powerful tool in creating a bridge between the conscious and subconscious mind, with the visualized goal actually becoming the definitive predictor of outcomes (Munroe-Chandler & Hall, 2004, Joseph, 2009). One of these is SE (or confidence), which is known to increase when GI is used because it gives the user the belief and emotional feeling that they are more in control of their circumstances (Joseph, 2009).

Summary of the Results

Scoring and Hypothesis Results

Scoring . The scale used for this study was the Career Development Self-Efficacy Scale (CDSES-SF), which was developed by Betz and Klein (1996) and further validated by Betz, Hammond & Multon (2005). This scale was chosen for this study because it was found to have high levels of validity and reliability when tested on college students, and measures SE (confidence) on five subscales, or career choice competencies. As a result of using the scale in line with specific experimental criteria, no scoring issues were found. At the beginning of the analysis of results, one outlier was removed once it was determined the participant was on the

end of the age criterion, resulting in skewed results. The outlier participant scores were replaced with those of another participant that matched the criterion more closely, and the skewness was elevated.

Total self- efficacy – hypothesis #1. The use of GI was shown to be an effective tool in increasing career development self-efficacy. Study results showed that there was a significant difference in the Group B total SE posttest scores as compared to Group A total SE posttest scores. The pretest mean scores for the treatment group (Group B) ranged from 3.74 to 3.89 and the posttest mean scores in Group B ranged from 4.44 to 4.57, verifying the significant increase in total CDSE. Posttest scores in the treatments group quantitatively support Hypothesis #1. The use of the GI script (CD) as detailed in the Appendix section, clearly influenced the GI experience, which resulted in a significant change in total CDSE scores.

Subscales of career development self-efficacy – hypothesis #2. Skaer (2006) states that it is a complex process for a person to achieve an altered state of consciousness, and can be broken down and described as an actual systematic mind process. To further understand these processes, the study also measured the effect if GI on the 5 subscales of CDSE. Results of the study showed that the use of GI was shown to be effective in the facilitation of the 5 subscales of CDSE. Study results showed a slight increase in the 5 subscales of CDSE in Group A over a two week period; with pretest mean scores ranging from 3.78 to 4.03 and posttest mean scores in Group A ranged from 4.07 to 4.14. Although these results showed a slight increase in CDSE scored in group A over the treatment period, the results were much lower than the treatment group using GI over the same time period. The relationship between students' CDSE and was successfully shown from the pretest and posttest results and confirmed further in the subscale results. Posttest scores in the treatments group quantitatively support Hypothesis #2.

Discussion of the Results

Significant Relationships – Total CDSE and of the 5 Subscales

Previous research has shown that positive Self-Efficacy (SE) is a dominant element in successful career decision making, and a precursor to achieving high levels of performance (Bandura, 1982, 1986, 1987; Wiener et al., 2004; Hernandez-Guzman et al. 2002; Sanders et al., 2008). Results of this and other studies have clearly shown that Guided-Imagery (GI) is an effective tool in increasing Self-Efficacy levels and overall performance in those who use it. This and other studies also clearly have shown that Guided-Imagery creates an altered state of consciousness, which results in neurological and physiological changes in the brain. These changes become the ultimate factor in overall behavior, including career decision making.

A significant relationship was found between total CDSES (Betz & Taylor, 1996) scores (total and the 5 subscales) and the use of SE in the treatment Group B. Pretest and posttest scores confirmed that all participants in group B demonstrated the ability to experience higher levels of SE as a result of using the GI treatment. The pretest mean scores for the treatment group ranged from 3.74 to 3.89. Posttest mean scores in Group B ranged from 4.44 to 4.57, supporting that there is a significant increase in the subscales and overall CDSE. The study results showed that there is also a significant increase between Groups A and B throughout the five subscales levels as shown below:

Table 15

Pretest and Posttest Significant Relationships Found In the 5 Subscales – Levels on Increase

Scale	Group B	Group A	Difference
1-Self-Appraisal	15.32%	2.72%	12.60%
2-Occupational Information	15.68%	2.98%	12.70%
3-Goal Setting	21.54%	4.49%	17.05%
4-Planning	22.04%	1.27%	20.77%
5-Problem Solving	19.51%	3.29%	16.22%

Self-appraisal – subscale #1: (Items 1, 6, 11, 16, 21, 26, 31, 36, 41 and 46 on the CDSE-SF) (Betz & Taylor, 1996). This construct addresses the one's ability to figure out what their strengths and weaknesses are, and take an honest look at one's self. It can also be defined as the self evaluation process involved in determining the level of self-efficacy and it is critical to honestly completing an internal performance appraisal on ones performance. GI is an important tool in this scale in that the higher the level of self-efficacy, the more likely that increased performance will result (Skaer, 2006)

Occupational information - subscale #2: (Items 2, 7, 12, 17, 22, 27, 32, 37, 42 and 47on the CDSE-SF) (Betz & Taylor, 1996). This construct focuses on ones perception of their career options and their ability to seek out, explore and make sound career decisions. This subscale has been shown to strong predictors in career interests, alternatives and options and also serves as the

cognitive process in which occupational information is gathered, measured, internally processed and acted upon (Bandura, 1995).

Goal selection - subscale #3: (Items 3, 8, 13, 18, 23, 28, 33, 38, 43 and 48 on the CDSE-SF) (Betz & Taylor, 1996). This subscale focuses on one's perceived ability to set and be aware of their performance goals as well as their readjustment their goals based on successes and failures (Bandura, 1995; Skaer, 2006). The script used in the study specifically used images designed to illicit visions of goal achievement as well as other constructs of the 5 subscales.

Planning - subscale #4: (Items 4, 9, 14, 19, 24, 29, 34, 39, 44 and 49on the CDSE-SF) (Betz & Taylor, 1996). This construct focuses on one's perceived ability to make realistic plans and the skills to implement those plans successfully. This cognitive process requires strong career decision making skills, which have been shown to be a critical part in career behavior, and poor planning skills can impede one from making sound career decisions.

Problem solving - subscale #5: (Items 5, 10, 15, 20, 25, 30, 35, 40, 45 and 50 on the CDSE-SF) (Betz & Taylor, 1996). The construct of this subscale focused on the perception and belief that one has in their ability to identify and solve problems, and is directly connected to once persistence and achievement levels in the face of perceived problems or barriers (Bandura, 1995). This is directly correlated to ones sense of control in any given problematic career situation, and was addressed specifically in the GI script.

Bandura (1995) concluded that there is most definitely a mind-body connection (physiological and emotional state when making judgments) to self-efficacy and performance and the make-up of the subscale in a GI study are important in understanding the delicate balance between ones perception and their belief that they can successfully complete the task accomplishment process. A lack of strong career decision making skills has actually been shown

to create anxiety in the career decision making process (Bandura, 1995; Joseph, 2009). Skaer also concluded that when high challenge is perceived by the one using GI and that perception (belief) is at the same high level, the challenge is equally matched and high levels of performance are achieved. It cannot be concluded from this study what role, and to what level, GI has in the overall self-efficacy state and any relationship to specific personality traits in college students seeking employment. Further research is required to determine if there are any specific patterns in the relationship of personality traits and overall self-efficacy levels. Previous research has confirmed that there is a significant relationship between career decision self-efficacy and career indecision, and most interesting was the research done by Betz & Klein (1997), who found that "CDSE-SF scores were the best predictor of career indecision in a model including both efficacy and outcome expectations" (p.14). Most important was that their research, which showed that the CDSE-SF (Betz & Taylor, 1996) saw a closer association between the perceptions one has of themselves in regards to their ability to make sound career choices and the amount of certainty they had about their career choices. Furthermore, when focusing on the constructs of the 5 subscales in the CDSE, Betz and Taylor (2006) state that when creating the short form used in this study, a factor analysis was done that utilized a five-factor structure that was theoretically based as well as the two-factor finding model developed by Peterson and delMas in 1994. As with previous research, the five-factor theoretical basis for the CDSE-SF was only marginally supported by factor analysis (Betz et al., 1996). "Evidence for the existence of Occupational Information and Goal Selection factors is strong, although each factor also included Planning items. Problem Solving and Self-Appraisal items distribute across two other factors and the fifth factor was constituted by one isolated Self-Appraisal item" (p. 12). This supported the use of the 5 subscale structure, and the flexibility of coaching each career

choice competency separately or as a group. Figure 2 shows the CDSES Model and provides a visual outlining the relationships of the 5 Subscales in overall CDSE.

Figure 2. CDSES-SF Model Diagram

Support of Hypothesis

Support previous research, which shows that there is a relationship between the use of Guided-Imagery and Self-Efficacy in college graduates seeking employability. The following conclusions are a result of the study conducted:

1. Research Hypothesis (#1) was supported showing that there was a significant difference in overall SE gain scores between the treatment and control groups.
2. Research Hypothesis (#2) found that Guided-Imagery does positively affect gain scores of the 5 CDSES-SF subscales differently in undergrad job-seekers.

Implications for Employability

Although this study did not measure employability, it was an important study in the quest to understand how SE levels, in particular career SE, affect employability. Previous research has shown that one's level of self-efficacy is an important factor to them developing successful career development strategies. As other studies have shown, an individual's level of career self-efficacy is one of the primary reasons one becomes gainfully employed, and particularly in their ability to successfully use and demonstrate the appropriate behaviors needed to secure employment, which determines much of their career development behaviors (Wiener et al., 1999; Joseph & Greenberg, 2001). The implications of this study and other similar studies carry great opportunity for HR professionals, career counselors, coaches, I/O psychologists, management professionals and trainers in relationship to employability, particularly because the research has shown that GI levels do increase an individual's confidence levels, and thus their career performance will increase in those who use GI as compared to those who do not. In addition, this study confirms that there is indeed a relationship between GI and SE, therefore those who use GI

techniques will experience higher levels of SE and perform better, which in turn have positive implications for increasing employability levels.

Limitations

There were a number of limiting factors that may have influenced the study results. In reference to the design of the study, some weaknesses may be found in the following areas:

1. The size of the sample is somewhat small, although consistent with similar studies (Joseph & Greenberg, 2001). It could be argued that a larger sample size should be utilized, but based on similar studies and study outcomes; it was shown that the study sample size was adequate for this study. This was confirmed in the results of this study as well as the similar published work of Joseph and Greenberg (2001), which showed this sample size does have not statistical significance in this type of study.
2. The treatment time of this study could in some cases be considered a limitation as it was somewhat short as compared to other studies. It could be argued that the treatment results could be more effective if carried out over a longer period; however, study results showed that this was not affect the levels of reliability and validity as shown in similar studies.
3. Previous research has shown that Guided-imagery itself has some limitations in that the ability to visualize varies among participants. This has been thought to make a difference in its effect on each participant (Skaer, 2006). However, other research has shown the ability to visualize is still present and a separate brain function in individuals required for higher levels of cognitive function, confirming that this a limited liability for this study among all populations using guided-imagery.

4. As discussed prior, another potential limitation is the use of undergraduates from different degree programs and levels (certificate through BA). The possible limitation is that this group may not provide the same outcome data that can be concluded for all career outcomes. Fortunately for this study, career outcomes were not being tested, and the focus was on career development self-efficacy scores, making this limitation minimal at best.
5. Another possible limitation to the study is that gender and age were not examined, which may have produced different SE outcomes. However, this did not prove to have an impact in this study and could be something to measure in future studies. Personality, mood and environmental influences were also not tested, and therefore could be a limitation that may affect the ability for some participants to enter an altered state of consciousness during treatment than others (Skaer, 2006).
6. The study design did not include a placebo control group, which could be considered a weakness or limitation to this study. However, when reviewing similar studies (Joseph & Greenberg, 2001; Skaer, 2006), it was determined that introducing a placebo group into the study could actually created unwanted verbal influences, which may have caused images to be formed in the minds of the participants, thus skewing the results.

Recommendations for Further Study

The study provides a strong foundational basis for future research in the use of GI as a cognitive-behavioral intervention in the facilitation of higher levels of self-efficacy. There are many possible follow-up studies that could be conducted based on the research results of this and other similar studies, and specifically the relationship GI has to self-efficacy levels and the

implications those levels have for individuals seeking employment or looking to increase their level of career behaviors. These include:

1. Measuring levels of employability as a follow-up study would provide a better perspective of the influence GI and SE have on overall career development behavior.
2. Expanding inclusion criterion to include older students would show greater detail as to the SE levels within different age groups.
3. Examining other factors such as race, gender, imagery ability and economic groups will provide additional information as to the outside influences that may affect self-efficacy levels in current college graduates and their ability to obtain employment upon graduation.
4. Personality type and SE levels would provide additional information as to how personality, and in particularly resiliency skills, affect SE levels and career development behavior.
5. An adjustment in the time of the GI treatment as well as altering the script to include specific phrases and images, as well as possibly introducing an external imagery treatment as a means to produce specific outcomes.

The possible opportunities for further research on the use of GI and its relationship to SE are many. Since this is a fairly new area of research, additional studies could help add to the body of knowledge and assist HR professionals, career counselors, coaches, I/O psychologists, management professionals and trainers with delivery new methods and approaches to assist individuals in reaching high levels of career development performance and increase their level of employability.

Conclusion

In conclusion, Guided-Imagery (GI) has been shown to be an effective treatment in the improvement of Self-Efficacy (SI) levels and performance in those who use it. Guided-Imagery creates an altered state of consciousness that produces neurological and physiological changes in the brain, which are a key factor in achieving desired behavioral outcomes. GI and has a long history of having been used as a treatment in the field of psychology (Arbuthnott et al., 2002; Crampton, 2005; Wynd, 2005). Guided-Imagery has been found to have a positive relationship to high levels of Self-Efficacy in college students seeking employment. Positive Self-Efficacy levels are the primary component to successful career decision making behavior, and a precursor to high levels of overall performance (Bandura, 1982, 1986, 1987; Wiener et al., 1999; Munroe-Chandler & Hall, 2004; Hernandez-Guzman et al., 2002; Sanders et al., 2008; Vernacchia, & Henschen, 2008).

Future research should continue to look further at the relationship between GI and SE in job seeking behaviors, and specifically at measuring levels of employability as a way to gain more information on the influence GI and SE have on overall career development behavior. Developing a future study that includes a qualitative-experimental design to study other factors such as age, race, gender, economics, external influences and personality as well as imagery ability cold prove to be a means to provide an even more comprehensive picture of the use of GI and neuroscientific - phenominigical impact on those who use it.

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