

An Investigation Of Master's Level Counseling Students' Clinical Efficacy: The Relationship Between Graduate Record Examination Scores And Demonstration Of Clinical Skills In Practicum

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AN INVESTIGATION OF MASTER'S LEVEL COUNSELING STUDENTS'
CLINICAL EFFICACY: THE RELATIONSHIP BETWEEN GRADUATE
RECORD EXAMINATION SCORES AND DEMONSTRATION OF CLINICAL
SKILLS IN PRACTICUM

by

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A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
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ABSTRACT

The admission of students into Counselor Education programs aims to select those applicants with the best potential to successfully complete the graduate program as well as acquire effective clinical skills. The primary method of measuring achievement potential for graduate students in Counselor Education programs represents Graduate Record Examination Scores (GRE); minimal scores on the examination are required for program admission. This study examined the relationship between student achievement of clinical skills and incoming GRE scores.

The study participants were 47 master's level Counselor Education students who were enrolled in Practicum in Counselor Education (MHS 6800) in the spring, summer, and fall semesters of 2002 as well as the spring, summer, and fall semesters of 2003. All students were required to submit videotapes of live counseling sessions conducted in the Community Counseling Clinic at the University of Central Florida. The videotapes were rated using the *Global Scale for Rating Helper Responses*, developed by George Gazda. An independent samples t-test was utilized to assess between group differences for the sample participants. The study results showed no significant differences between the demonstration of clinical skills in Counselor Education students with a GRE score over 1000 and those students with a GRE score below 1000. The study results suggested that other factors outside of those skills measured by the GRE might attribute to successful acquirement and demonstration of clinical counseling skills.

This is dedicated to my daughters, Tiffany and Arianna, who have been with me throughout this journey. They continue to inspire me to be a better woman.

ACKNOWLEDGMENTS

Immeasurable thanks go to the many people that have guided and supported me during this journey. To my family: Mom, Dad, Gary, Tiffany, and Arianna. Thanks also to Kitty who showed me you can have it all, and to Kenneth and Kathy for their love and faith. I am also eternally grateful to the mentorship and guidance provided by my dissertation committee: Dr. Mike Robinson, Dr. Dayle Jones, Dr. Grant Hayes, and Dr. Pat Moskal. Also, for their kindness and support, my eternal gratitude goes to Dr. Mike Robinson and Dean Sandra Robinson. To my friends and colleagues, Ximena and Verna, we did it together. And finally, to the memory of Dr. Franklyn Williams—he inspired us all with his dedication and fortitude.

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LIST OF ABBREVIATIONS

Community Counseling Clinic (CCC)

Council for Accreditation of Counseling and Related Educational Programs (CACREP)

Graduate Record Examination (GRE)

Global Scale for Rating Helper Responses (GSRR)

Undergraduate Grade Point Average (UGPA)

University of Central Florida (UCF)

CHAPTER ONE: INTRODUCTION

Counselor Education programs focus on the training of students to become future counselors. The development and application of clinical skills represents an important element of this training (Baird, 1977; Gazda, Asbury, Balzer, & Childers, 1999; House & Johnson, 1998; Jackson-Cherry, 1998). The selection of students into Counselor Education programs targets admission to those who will be able to develop the clinical skills necessary to implement a therapeutic relationship. The development of counseling skills is a critical component for students training to be future counselors.

One primary form of admissions criterion represents the applicants' scores on the Graduate Record Examination (GRE). There is minimal research examining the relationship between student potential (measured by GRE scores) and the ability to learn and demonstrate counseling skills during the graduate course of study (House & Johnson, 1998; Jackson-Cherry, 1998; Morrison, 1995). The GRE is a standard component of graduate admissions in Counselor Education; however, research is needed that addresses the ability of the GRE to predict successful acquisition of counseling skills in graduate level Counselor Education programs.

One important element of clinical efficacy is the development of effective interpersonal skills (Baird, 1977; Gazda et al., 1999; Jackson-Cherry, 1998). There has been research questioning the ability of the GRE to indicate implementation of effective interpersonal skills (Baird, 1977; Haverkamp, 1994; Jackson-Cherry, 1998). Additionally, the GRE does not purport to measure the core elements indicated in establishing a therapeutic relationship (Baird, 1977). Although the delivery of counseling skills in practicum has been assessed using instruments that measure implementation of interpersonal skills necessary to establish a counseling relationship,

there is no current research directly examining demonstration of clinical skills and GRE scores (Haverkamp, 1994; Jackson-Cherry, 1998).

Theoretical Background

Counselor Education programs focus on the training of students to become future counselors. The development and application of clinical skills represents an important element of this training (Baird, 1977; Gazda, Asbury, Balzer, & Childers, 1999; House & Johnson, 1998; Jackson-Cherry, 1998). The selection of students into Counselor Education programs targets admission to those who will be able to develop the clinical skills necessary to implement a therapeutic relationship. In the counseling field, a master's level degree is a partial requirement for licensure; thus, the development of counseling skills is a critical component for students training to be future counselors (Baird, 1977; Gazda et al., 1999; House & Johnson, 1998; Jackson-Cherry, 1998).

The specific requirements of graduate school admissions policies in the United States vary among institutions. One primary form of admissions criterion represents the applicants' scores on the GRE. There is a paucity of research examining the relationship between student potential (measured by GRE scores) and the ability to learn and demonstrate counseling skills during the graduate course of study (Doris, 1990; House & Johnson, 1998; Jackson-Cherry, 1998; Market & Monke, 1990; Morrison & Morrison, 1995). The GRE is a standard component of graduate admissions in Counselor Education; however, research is needed on the ability of the GRE to predict successful acquisition of counseling skills in graduate level Counselor Education programs.

Statement of the Problem

This study will assess Counselor Education students who have completed an initial practicum course in the Counselor Education program at UCF. The master's level counseling program at UCF has been accredited by the Council for the Accreditation of Counseling and Related Education Programs (CACREP) since 1998. This is true for both tracks of the Counselor Education program: mental health counseling and school counseling.

CACREP accredited programs have standardized the course of study in Counselor Education programs. One CACREP standard is the requirement of an on-site practicum course evaluated by qualified supervisors (Myers & Smith, 1995). CACREP standards also require student counselors to develop a minimal level of clinical competency that includes the demonstration of clinical skills targeted at facilitating the therapeutic relationship (Holcomb-McCoy & Myers, 1999; Prieto, 1998). The ability to select counseling students who can establish and maintain a counseling relationship with diverse clientele represents an additional requirement of CACREP accredited Counselor Education programs throughout the nation (Holcomb-McCoy & Myers, 1999).

The counseling practicum course is the first opportunity to assess the students' ability to apply counseling skills to actual clients in a non-simulated setting. Bradley and Fiorini (1999) posit that counselor competence has a direct influence on the quality of counseling services. For the purposes of this study, counselor clinical skills in the initial practicum course will be evaluated specifically in relation to the students' ability to facilitate a counseling relationship. Clinical skills will be rated by videotaped counseling sessions. The completion of a videotape recording during practicum is a requirement for successful completion of the initial practicum in

CACREP accredited programs such as that at UCF.

Purpose

The general purpose of this research is to add to the existing knowledge regarding the selection of graduate students in Counselor Education programs in the United States. The participants' clinical performance in their initial practicum course will be assessed. The demonstration of student clinical skills during their initial practicum course will be rated and examined as the ratings relate to the participants' scores on the GRE.

The admissions policy of the Counselor Education program at UCF requires a 1000 minimum score on the GRE—this represents the combined verbal and quantitative numeric. Students are admitted with GRE scores between 840 and 1000; however, those students with scores below 1000 must have an incoming Undergraduate Grade Point Average higher than a 3.0. Those students with lower than an 840 GRE score can be admitted on a provisional basis. The findings of this study would be useful to the admissions committee in the Counselor Education program at UCF due to the overarching goal of admitting students with the potential to be effective clinicians instead of those with the highest GRE scores.

As a result, this study may be of interest to the faculty of the Counselor Education program at UCF as well as other CACREP accredited programs nationwide. Also, the results of this study may be of interest to potential graduate counseling students that are making decisions regarding how their ability level and potential skills can be best utilized. Finally, those developing and modifying standardized admissions tests may incorporate the findings of this study into the application of their instrument in order to enhance validity. This is especially

needed due to the paucity of research in this area (Haverkamp, 1994; Jackson-Cherry, 1998). It is assumed that the findings of this study hold implications for admissions criterion for masters level students in Counselor Education programs that hold CACREP accreditation, such as the Counselor Education program at UCF.

Research Question

The research question is as follows: Do Counselor Education students with GRE scores over 1000 demonstrate more effective clinical skills in their initial practicum course than Counselor Education students with GRE scores below 1000?

General Research Hypotheses

Null hypothesis: Counselor Education students with GRE scores over 1000 will demonstrate no difference in the efficacy of their clinical skills in their initial practicum course than Counselor Education students with GRE scores below 1000.

Hypothesis one: Counselor Education students with GRE scores over 1000 will demonstrate more effective clinical skills in their initial practicum course than Counselor Education students with GRE scores below 1000.

Hypothesis two: Counselor Education students at UCF with GRE scores over 1000 will demonstrate less effective clinical skills in their initial practicum course than Counselor Education students at UCF with GRE scores below 1000.

Hypothesis three: There is a positive relationship between GRE scores and demonstration of effective clinical skills in the initial practicum course for Counselor Education students.

Hypothesis four: There is a negative relationship between GRE scores and demonstration of effective clinical skills in the initial practicum course for Counselor Education students.

Definitions

Study participants

The study participants will be defined as master's level Counselor Education students at UCF who completed a videotape of a non-simulated counseling session with a client from the community during their initial practicum course. Each of the students were enrolled in the practicum course, MHS 6800, during the completion of the videotape and each of the sessions were completed at the CCC, located on-campus at UCF. The CCC is a training facility offering free counseling services to community members; counseling students enrolled in the practicum course provide the services. Counseling sessions can include: individual, couples, family, and group counseling. The CCC serves children and adults; clients are screened for suicidal ideation, substance abuse, and active psychoses. The completion and submission of the videotape is a requirement for all students in their initial practicum course; this is also a requirement for all CACREP accredited Counselor Education programs.

Clinical counseling skills

Clinical counseling skills are operationally defined as the core skills needed to establish and build a therapeutic relationship in an actual counseling situation. The specific skills measured in this study represent the following: confrontation, reflecting of feeling, reflecting of meaning, encouragers, empathy, paraphrasing, summarization, immediacy, and concreteness.

Student counselors' demonstration of these skills will be assessed and assigned a numerical rating by the Global Scale for Rating of Responses, GSRR (see Gazda et al., 1999). These basic skills are taught in counseling techniques classes throughout CACREP accredited Counselor Education programs. The counseling techniques course, MHS 6401, is a prerequisite for enrollment in counseling practicum (MHS 6800) at UCF.

Admissions scores

The participants' scores on the Graduate Record Examination (GRE) represent their admissions scores and will be operationally defined as the total of their verbal and quantitative numeric. The range for scores on the verbal and quantitative portion of the GRE is from 400 to 1600 with the latter representing the highest possible score.

Live supervision

Live supervision represents a form of supervision that occurs during the counseling session. For the purposes of this investigation, it is operationally defined as on-site monitoring of the counseling session by a senior member of the profession with doctoral level experience who observes the student counselor with his/her client(s) and who has the capacity to provide immediate feedback to the student counselor. Practicum instructors at the CCC are experienced clinicians who provide supervision during the counseling session through the use of one-way cameras that are viewed through the monitoring room. The student counselor wears a "Bug in the Ear" (BITE) that allows the supervisor to provide feedback and guidance during the counseling session. This assists in the building of maximum capacity for acquirement and demonstration of clinical skills in practicum students.

Methodology

Population

The ideal population for this study encompasses students applying to CACREP accredited Counselor Education programs throughout the United States. The exclusion of non-CACREP programs represent the attempt to justifiably generalize the study findings. The standardization provided by accreditation allows for increased external generalization of the results. Other studies in this area have investigated CACREP programs in an attempt to standardize program requirements and training (Duys & Hedstrom, 2000; Freeman & McHenry, 1996; Myers & Smith, 1995).

Sampling

This study utilizes archival data collected in the CCC from first semester counseling practicum students at the UCF. The sample will include 47 students that have completed MHS 6800 during the spring, summer, and fall semesters of 2002 as well as the spring, summer, and fall semesters of 2003. Study participants will be selected from a convenience sampling of the existing database set and will be grouped by those with GRE scores above 1000 and those with GRE scores below 1000.

Instrumentation

Two instruments will be utilized in the study: the GRE and the GSRR. The GRE is a nationally utilized aptitude test necessary for admission to a myriad of graduate programs

nationwide (Mandell, 1972) as well as the one traditionally utilized for admissions into Counselor Education programs (cited in Jackson-Cherry, 1998). According to

Jackson-Cherry (1998), there is little research examining the relationship between GRE scores and counselor skill development. Since the traditional selection of students into Counselor Education programs represents submission of the GRE score during the admissions process, it is important to assess its applicability to the acquirement of counseling skills. Morrison and Morrison (1995) completed a meta-analysis of the predictive abilities of the GRE as it relates to graduate grade point averages as a criterion for graduate success and reported that the GRE held minimal predictability for graduate success. Other studies have supported these findings and have indicated the need for further examination of the GRE as a measure of ability to succeed in graduate school (House & Johnson, 1998; Market & Monke, 1990).

Study participants' clinical skills will be evaluated using the GSRR. The scale requires the raters to score individual responses in session on a 4 point Likert scale with a scores ranging from .5 to 4.0 (Appendix A). The response rating range falls from a numerical rating of .5 to a numerical rating of 4.0. The responses of .5 to 1.5 are defined as being not helpful; harmful, scores of 2.0 to 2.5 are defined as being not helpful; ineffective, scores of 3.0 to 3.5 are defined as being helpful; facilitative, and a score of 4.0 is defined as being helpful; additive (Gazda et al., 1999).

Developed in 1977, the GSRR has been utilized in many studies as a tool to rate clinical responses (e.g. Hayes, 1997; Jackson-Cherry, 1998; May, Powell, Gazda, & Hausser, 1985; Robinson & Wilson, 1980, 1987). The basic intent of the GSRR is to assess overall communication demarcated by facilitative and non-facilitative responding. Specifically, the

rating scale addresses the facilitation of the relationship and the counselor's ability to help the client self-explore. This scale then enables the rater to assess counselor responses during the initial phases of the counseling relationship (Gazda et al., 1999).

The GSRR was developed on the theoretical foundations of the Human Relations Development Model (see Gazda et al, 1999). Hayes, Taub, Robinson, and Sivo (2003) posit that the content validity of the GSRR is "substantiated" by its development around the aforementioned model (p. 179). Reliability information was also examined, and the GSRR was found to evidence construct validity as well as content validity (Hayes et al., 2003). Specifically, the GSRR measures: confrontation, reflection of feeling, reflection of meaning, encouragers, empathy, paraphrasing, summarization, immediacy, and concreteness (Gazda et al., 1999). These elements consistently represent a sample of the core skills needed to establish and develop a counseling relationship (Young, 2001).

Procedures

After the selection of the participants, the two tape raters underwent duplicate training procedures. Both of the tape raters were doctoral candidates at UCF and had previously instructed practicum for the past three semesters. The raters also had extensive clinical experience evidenced by prior completion of the 1,500 direct client contact hours required for licensure in the state of Florida. The raters also had previous experience utilizing the GSRR through their instruction of Techniques of Counseling (MHS 6401). Students in MHS 6401 are required to submit videotape of a simulated counseling session; their skill demonstration was evaluated using the GSRR.

Specifically, to establish reliability in the rating process, both raters familiarized themselves with the scale by completing the practice exercises depicted in *Human Relations Development: A Manual for Educators* (Gazda et al., 1999). Additionally, prior to rating the videotapes from the sample participants, both raters completed four practice ratings from video vignettes accompanying *Learning the Art of Helping: Building Blocks and Techniques* (Young, 2001). As with the participants' tape ratings, five minutes of the simulated counseling session were reviewed and individual responses were averaged.

In order to address the inter-rater reliability threat to internal validity, this principal investigator and another doctoral candidate at UCF rated each tape separately and blindly; the total response scores for each of the raters were averaged. One total score was compiled for each study participant; the total score was then examined in relation to the participant's GRE score.

Data Analysis

After the data collection process, several statistical procedures were implemented and assessed for relationships between the variables. Specifically, on a descriptive level, bar graphs, means, and standard deviations were utilized. An independent samples t-test was incorporated to examine for any differences between means. This was due to the nominal nature of the independent variable (GRE scores over 1000 and GRE scores below 1000) and the interval nature of the dependent variable (GSRR rating). Finally, a correlation was utilized to assess for a relationship between GRE scores and GSRR rating.

Indications and Limitations

The findings of this study hold implications for admissions policies in Counselor Education programs. As the master's degree in counseling often represents a terminal degree from a clinical standpoint, the selection of students with the ability to develop a higher level of efficacy in clinical skills should be a goal of admissions committees in Counselor Education programs throughout the United States.

One limitation of the study is the inability to randomly select subject participants from the sample population. The threat to internal validity of convenience sampling is a concern due to possible extraneous variables, such as personality factors, that those students completing the videotapes as instructed, may possess. Another limitation of the study represents mitigating variables that may be extant in the composition of the study participants that impact on counselor skill development. Examples of such include: individual personality constructs, prior counseling experience, analytical reasoning ability, motivation, time commitment into the pre-practicum course work, variances in number of classes completed prior to enrolling in the initial practicum course, and clinical performance anxiety due to the evaluative nature of the practicum course.

A final study limitation represents an inter-rater threat to internal validity. The utilization of more than two raters would be optimal for the present study; however, due to staffing limitations, this was not feasible for the present study. Each of these limitations will be thoroughly discussed in the relevant sections of the dissertation.

CHAPTER TWO: LITERATURE REVIEW

Chapter Two presents the relevant literature relating to Counselor Education admissions and training programs and is divided into the following four major categories: 1) graduate schools admissions policies in general, 2) Counselor Education admissions policies, 3) counselor training after admittance, and 4) evaluation of student counselor performance.

Counselor Education programs focus on the training of students to become future counselors. The development and application of clinical skills represents an important element of this training (Baird, 1977; Gazda et al., 1999; House & Johnson, 1998; Jackson-Cherry, 1998). The selection of students into Counselor Education programs targets admission to those who will be able to develop the clinical skills necessary to implement a therapeutic relationship. In the counseling field, a master's level degree is a partial requirement for licensure; thus, the development of clinical skills is a critical component for students training to be future counselors (Baird, 1977; Gazda et al., 1999; House & Johnson, 1998; Jackson-Cherry, 1998).

Graduate School Admissions Policies

The following incorporates material addressing the literature pertaining to admissions procedures for general graduate programs. Specific admissions policies in Counselor Education are discussed as well the applicability and predictive validity of GRE scores in relation to admissions policies in Counselor Education.

Graduate school admissions policies in the United States vary regarding the specific requirements between institutions. One primary form of admissions criterion represents the applicants' scores on the GRE. There is a paucity of research examining the relationship between

student potential (measured by GRE scores) and the ability to learn and demonstrate counseling skills during the graduate course of study (Doris, 1990; House & Johnson, 1998; Jackson-Cherry, 1998; Market & Monke, 1990; Morrison & Morrison, 1995). The GRE is a standard component of graduate admissions in Counselor Education; however, research is needed on the ability of the GRE to predict successful acquisition of counseling skills in graduate level Counselor Education programs.

Originally developed in 1940 by the Educational Testing Service (ETS), the GRE has since been utilized for graduate applicant screening (Jackson-Cherry, 1998). Traditionally, the GRE is the most frequently utilized instrument for selection into master's level Counselor Education programs (McKee et al., 1999). ETS provides scores between 200 and 800 for the verbal and quantitative section of the exam. This study utilizes the summative scores from the verbal and quantitative sections of the GRE.

According to Doris (1990), the GRE measures subjects over a broad range of abilities instilled in undergraduate education. It does not, however, purport to measure any skills or abilities outside of its current content areas of verbal and quantitative knowledge. The developers of the GRE have expressly stated that the exam was not designed for generalization outside of the content areas. However, at the university level, the GRE is often used as selection criteria in a myriad of graduate programs with a minimal score necessary for admission (Doris, 1990; McKee et al., 1999).

Enright & Gottimer (1989) stated that important abilities for successful completion of graduate study included interpersonal skills, oral communication, creativity, problem-solving, and intrinsic motivation. These skills also prove important in Counselor Education programs and

specifically relate to clinician development (Jackson-Cherry, 1998). As a result, much of the literature focusing on the predictive ability of the GRE for success in Counselor Education and psychology programs has been unsupportive (Doris, 1990; Jackson-Cherry, 1998; McKee et al., 1999). However, most graduate programs utilize the GRE as a basic element in admissions policies (McKee et al., 1999).

ETS examined the validity of the GRE during a four year period from 1984 to 1988 and concluded that that the GRE was “slightly to moderately valid” in predicting successful graduate completion in graduate programs through the College of Education (cited in Jackson-Cherry, 1988, p. 17). Additionally, Morrow (1993) found no significant relationship between the verbal and quantitative components of the GRE and academic performance in Counselor Education programs. Morrow did find that the no longer utilized analytical reasoning score did significantly correlate with academic performance (cited in Jackson-Cherry, 1998).

A meta-analysis of Counselor Education admissions criteria emphasized that GRE scores had little to no predictive value for student success; student success being defined as attainment of counseling skills and graduate grade point average (Market & Monke, 1990). A second meta-analytic study, n=22, examined the predictive validity of the GRE (both quantitative and verbal) upon graduate grade point average and concluded that only 6.3% of the variance in graduate level grades was accounted for by the GRE. They also found correlation coefficients of .22 for the quantitative section of the GRE in accounting for academic achievement as well as .28 for verbal achievement (Morrison & Morrison, 1995). These low correlational findings raise concern regarding the utilization of the GRE as predictive of grade attainment in graduate programs and suggest minimal predictive validity.

In contrast, House and Johnson (1998) conducted an examination of the predictive ability of the GRE related to grade achievement in graduate psychology courses, with an n=275, and found that higher GRE scores were “moderately” correlated with grades in several courses. They also indicated that the quantitative numeric was positively correlated with grades in graduate level statistical courses. Another study, Tyron and Tyron (1985), found that the total GRE score was positively correlated with counseling students’ ability to engage clients in a therapeutic relationship within a clinical course. An additional study also supported the predictive ability of the GRE in relation to grade attainment in graduate programs (Dolling, 1989).

Most of the studies reviewed found minimal predictive validity of the GRE in relation to academic success. This occurred either through grade achievement or attainment of clinical skills (Doris, 1990; House & Johnson, 1998; Jackson-Cherry 1998; Markert & Monke, 1990; Morrison & Morrison, 1995). There were two studies that supported the utilization of the GRE as a valid predictor of success; they both specifically addressed grade achievement and attainment of clinical counseling skills (Dolling, 1989; Tyron & Tyron, 1985). In conclusion, the need for further research regarding the predictive ability of the GRE in counseling and related programs remains important (Doris, 1990; House, 1997; House & Johnson, 1998, Jackson-Cherry, 1998; Markert & Monke, 1990; Morrison & Morrison, 1995).

Taking into account the research findings, one should question the utility of the GRE as a main predictor of graduate admissions. Many Counselor Education programs, including that at UCF, necessitate a minimal score for admission. However, there is an indication that GRE scores have low correlation with success in graduate school. In Counselor Education programs, the overarching objective is the selection of students who can demonstrate effective clinical skills.

Thus, admissions committees focus on accepting applicants with the optimal potential for success.

Counselor Education Admissions Policies

The Counselor Education program at the UCF is CACREP accredited in each of its master's level programs. This includes a Master of Arts degree in Counselor Education with a specialty in mental health counseling, a Master of Arts degree in Counselor Education with a specialty in school counseling, and a Master of Education degree. These programs have been CACREP accredited since 1998.

The study participants comprise students who submitted videotape while enrolled in their initial practicum course (MHS 6800); since both mental health and school counseling track students are required to take this course, the study participants will include students from both tracks. All practicum students submit videotape of live counseling sessions, to be housed in the CCC, regardless of program track or instructor.

At the time of this writing, admissions criteria in Counselor Education at UCF incorporated the following: GRE scores, UGPA totals, three letters of recommendation, personal essay, and an interview process. The policy for regular admissions posits a minimum of 1000 total GRE score—a median split of the GRE. Incoming UGPA consists of a minimum of a 3.0; if the GRE score is lower than 1000, then a UGPA higher than 3.0 must be obtained. Letters of recommendation and a personal essay statement must be submitted prior to the applicant's invitation to interview.

The interview process is conducted in small groups (4 to 6 applicants) with at least 1

faculty member and typically 1 Counselor Education doctoral student. Although the interview factors into student selection, increased weighting is given to those applicants with higher GRE and UGPA scores. Applicants without the requisite minimal GRE and UGPA scores will not be admitted to the program.

One research study addressed admissions policies of 100 Counselor Education programs and reported that over 75% of the programs utilized the GRE as one of the primary admissions requirements (cited in Jackson-Cherry, 1998). At this point, there is a dearth of research addressing the relationship between admissions criteria in Counselor Education and development of counseling skills (Bradley & Post, 1991; Hollis, 1997; Market & Monke, 1990). Several research investigations (Market & Monke, 1990; Bradley & Post, 1991, and Hollis, 1997) identified the importance of research criterion distinct from the GRE for the selection of master's level counseling students and question the validity of the GRE in counselor student selection. These researchers did not support the utilization of the GRE in the selection of students into Counselor Education programs. However, the majority of Counselor Education programs utilize the GRE as a primary element of admissions criteria (Baird, 1977; Doris, 1990; Jackson-Cherry, 1998; McKee et al., 1999).

One important element of clinical efficacy is the development of effective interpersonal skills (Baird, 1977; Gazda et al., 1999; Jackson-Cherry, 1998). There has been research questioning the ability of the GRE to indicate implementation of effective interpersonal skills (Baird, 1977; Haverkamp, 1994; Jackson-Cherry, 1998). Additionally, the GRE does not purport to measure the core elements indicated in establishing a therapeutic relationship (Baird, 1977). Although the delivery of counseling skills in practicum has been assessed using instruments that

measure implementation of interpersonal skills necessary to establish a counseling relationship, there is no current research directly examining clinical skills and GRE scores (Haverkamp, 1994; Jackson-Cherry, 1998).

Additionally, Mandell (1972) discussed the importance of distinguishing between counseling skill ability and academic ability and reported that selecting students in counseling programs on the basis of academic records was inappropriate. Rogers (1965) discussed the importance of identifying student counselors with interpersonal abilities and intrapersonal characteristics that necessary, in his paradigm, for the development of a therapeutic relationship. These included: empathy, unconditional positive regard, congruence, genuineness, and acceptance. Rogers asserted that these characteristics were necessary for the development of the therapeutic relationship; as previously discussed, the GRE does not measure abilities, such as these, that are outside of its content area (Doris, 1990).

Certain academic abilities are necessary for the completion of any graduate program. Counselor Education students at UCF engage in research, written projects, oral expression, and group participation as regular assignments throughout the program of study. Additionally, UCF and the College of Education hold specific requirements for student admission. As a result, there is a critical need for research related to GRE scores and attainment of clinical skills. The validity of the admission process should be established through well-designed research endeavors. This keeps in mind that the ultimate goal of the admissions process is to focus on accepting students with the best potential to display both academic and counseling ability.

Counseling Skill Development

The literature pertaining to the attainment of counseling skills at the graduate level in Counselor Education and related programs emphasizes the importance of student ability to develop client counselor relationships (Crutchfield, Baltimore, & Felfeli, 2000; Jackson-Cherry, 1998; Mallinckrodt & Nelson, 1991; Sharpley, Fairnie, Bates, & Lee, 2000; Sharpley & McNally, 1997). Training counselors in the attainment of microskills represents a predominate approach in techniques of counseling courses (Ivey, 2003). The developmental aspects of counselor training focus on the acquisition of skills needed to establish a therapeutic relationship (Ivey, 2003; Mallinckrodt & Nelson, 1991). These provide the foundation for the initiation and development of a counseling relationship. Students at UCF are required to complete Techniques of Counseling, MHS 6401, prior to enrolling in the initial practicum course. The micro-skill approach is utilized throughout the course text for MHS 6401 (Young, 2001). Counseling students need to achieve foundational understanding and demonstration of the microskills, considered building blocks, to effectively develop a therapeutic relationship (McKee et al., 1999).

The research shows that the attainment of counseling micro-skills enables the student counselor to form the foundation of the therapeutic relationship (Crutchfield et al., 2000; Ivey, 2003; Sharpley & McNally, 1997). Empathic responding represents one necessary skill in counseling; student counselors must demonstrate this ability to be successful. Rogers (1965) also identified empathic responding as a necessary element in a therapeutic relationship. Empathic responding also represents an overarching element in counseling and demonstrates to the client this he or she is being heard and understood (Crutchfield et al., 2000). In most Counselor

Education programs, the concept of empathic responding is taught early in the course rotation. The research also shows a relationship between the counselor's sense of self-efficacy and heightened clinical performance (Urbani, Smith, & Maddox, 2002).

According to Ivey (2003), the purpose of microskills training is to assist clients with the ability to achieve insight, generate alternative solutions, and initiate and attain behavioral and emotional change. The microskills approach is not aligned with a specific theoretical orientation, thus allowing it to be applied by counselors with diverse theoretical paradigms (Ivey, 2003). The overarching goal of microskills training is to provide student counselors with an understanding of diverse client phenomenology.

Predominate microskills that are measured by the GSRR include: confrontation, reflecting of feeling, reflecting of meaning, confrontation, encouragers, empathy, paraphrasing, summarization, immediacy, and concreteness. Counselor skills needed for effective listening represent those of encouraging, paraphrasing, and summarization. This allows the counselor to orally present what he/she has heard the client saying in order to allow for deeper self-understanding on the client's part (Ivey, 2003).

Specifically, encouragers represent nonverbal gestures such as open body position and affirmative head nods. Encouragers also comprise vocal utterances such as "ah ha" and "um." This is used to facilitate client disclosure and build the relationship. Paraphrasing and summarization assist clients with hearing their verbalizations (Jackson-Cherry, 1998). Verbal and non-verbal behaviors have both been shown to be important; one example an increase in counselor-client rapport through sustained eye contact (Sharpley & Sagris; 1995). Additionally,

culturally appropriate eye contact is important to allow the client to know that he/she is receiving undivided attention.

According to Young (2001), reflection of feeling is a skill that addresses feeding back to the client the underlying emotions of their story. It is a deeper level skill that includes counselor integration of listening skills, paraphrasing, and identification of underlying feelings. This helps in the clarification process and allows the client to gain awareness of underlying feelings. Reflection of feeling also provides clarification to the student counselor that he/she understands the client's phenomenology. Reflection of meaning refers to uncovering core thoughts and feelings that underlie the experience. This allows for counselor and client understanding of the client's deeper phenomenology.

Confrontation is utilized to give the client awareness of discrepancies; this allows for increased client awareness and helps facilitate growth (Ivey, 2003). Confrontation style and the presentation should be tailored to client readiness (Young, 2001). Learning the appropriate utilization of confrontational skills, and the importance of timing as it relates to those skills, are crucial elements of counselor training.

Counselor training of clinical skills focuses on the acquisition of the specific skills measured by the GSRR. The requirement for completion of the techniques course prior to enrollment in practicum provides the pre-requisite training needed for the assessment of the participants' clinical skills. Thus, each student has had exposure to the skills identified in the GSRR ratings.

Personality characteristics can also play an important part in the initiation and facilitation of the therapeutic relationship as well as leading to the students development of clinical self-

efficacy (Urbani et al., 2002). Larson and Daniels (1998) posit that student counselors who possess high counseling self-efficacy display reduced levels of anxiety related to clinical performance and, as a result, display improved performance. This sense of self-efficacy allows for enhanced communication levels with a range of clients (Soley, Hooper, Marshall, & Chambliss, 1999).

Evaluation

The quality of the relationship is an important factor in psychotherapeutic outcome. This has been identified as a critical element in achieving successful outcome in the clinical relationship (Mallinckrodt & Nelson, 1991). Additionally, the assessment of the relationship remains an important issue for the development of clinical efficacy.

According to Mallinckrodt and Nelson (1991), student counselors may not have the specific skills required for establishing a therapeutic relationship. Thus, the assessment of counselor practicum skills is important and directly related to clinical efficacy. Duys & Hedstrom (2000) addressed the importance of cognitive complexity in demonstrating counseling skills and also posited the importance of the relationship. This would indicate the need for student counselors to be able to understand and process clients' presenting concerns.

Microskills have become a predominant training modality for student counselors (Sharpley & McNally, 1997). Specifically related to the measurement of clinical skills, effectiveness of clinical interventions has become increasingly important (Granello & Granello, 2001). Additional studies that examine the training and demonstration of microskills in relation to client outcome measures are needed.

CACREP requires a training facility where students see clients in individual or group settings. Supervisory activities that provide opportunity for different feedback modalities are also required (Myers & Smith, 1995). CACREP standards define the on-campus laboratory as “a curricular experience which provides both observation and participation in specific activities” (Myers & Smith, 1995, p.71). Additionally, the delivery of clinical supervision is integral to CACREP standards; this requires 1 hour per week of individual and 1.5 hours per week of group supervision (Freeman & McHenry, 1996). These rigorous training requirements help insure quality of therapeutic treatment in graduates of CACREP programs.

UCF Counselor Education students complete their practicum on-campus at the CCC where free services are provided to community members. One study, by Foster and McAdams (1999) asserted that student counselors’ deal with difficult issues such as client suicidal ideation. In part as a result of this, student counselors at UCF are provided live supervision throughout their practicum experience.

The diverse composition of today’s society, as well as the emphasis of multiculturalism in Counselor Education programs, necessitates the development of student counselors who are competent in addressing diversity issues in their training programs. This aligns with the importance of an on-campus laboratory that provides opportunities to counsel a wide range of clientele (Holcomb-McCoy & Myers, 1999). It also offers mental health services to community members that would not otherwise have access to services.

Mastery of counseling skills increases self-efficacy and reduces anxiety; this enhances clinical performance (Urbani et al., 2002). These include the skills of: reflection of feeling, reflection of meaning, confrontation, encouragers, empathy, paraphrasing, summarization,

immediacy, and concreteness. Additionally, the utilization of videotape in the practicum situation has been established as an important element of counselor training (Crutchfield et al., 2000; Spruill, 1994). Using videotape allows student counselors to review their sessions as well as receive feedback from supervisors and peers.

Conclusions

Studies are needed to enhance the body of knowledge in the areas of admissions policies for Counselor Education programs. A particular concern for Counselor Education programs represents the validity of the GRE in predicting acquisition of counseling skills. The GRE does not purport to measure abilities outside of its content areas; as a result, there has been research questioning the validity of the GRE for admissions policies in Counselor Education (Doris, 1990; McKee et al., 1999). Most of the research has not supported the utilization of the GRE as it applies to predictability of graduate school success (Doris, 1990; House & Johnson, 1998; Jackson-Cherry, 1998; Market & Monke, 1990; Morrison & Morrison, 1995). Additionally, there were no specific studies targeting the relationship between GRE and acquisition of clinical skills (Haverkamp, 1994; Jackson-Cherry, 1998).

Research that examines the selection of students with the best potential to acquire and implement counseling skills is needed. Consideration should be given to the applicants' background and interpersonal skills in addition to GRE and UGPA scores. There is prior research questioning the ability of the GRE to indicate implementation of effective interpersonal skills—an important element of counselor training (Baird, 1977; Haverkamp, 1994; Jackson-Cherry, 1998). Further research endeavors in this area should be conducted.

This study assessed Counselor Education students who completed an initial practicum course in the Counselor Education program at UCF. The results of this study may be of interest to the faculty of the Counselor Education program at UCF as well as faculty members of other CACREP accredited programs nationwide. Also, the results of this study may be of interest to potential graduate counseling students that are making decisions regarding how their ability level and potential skills can be best utilized. Finally, those developing and modifying standardized admissions tests may incorporate the findings of this study into the application of their instrument in order to enhance validity. This is especially needed due to the paucity of research in this area (Haverkamp, 1994; Jackson-Cherry, 1998).

It is assumed that the findings of this study hold implications for admissions criteria for master's level students in Counselor Education programs that hold CACREP accreditation, such as the Counselor Education program at UCF. Additionally, this study can add to the existing body of literature related to relevance of the GRE in the admissions process. Finally, the findings can enhance professional development through addressing the selection of students with the highest potential to learn and demonstrate clinical skills.

CHAPTER THREE: METHODOLOGY

The present study focused on demonstration of Counselor Education student clinical skills in relation to their GRE scores. This chapter is divided into the following sections: (1) statement of the problem, (2) sample selection, (3) data collection procedures, (4) instrumentation description, (5) statistical procedures, and (6) a summary section.

Statement of the Problem

The focus of this study was to examine the relationship between GRE scores and demonstration of clinical skills in practicum. The findings of this study are important for admissions policies in Counselor Education, for the clients that are served, and for the continued development of the profession.

Sample selection

The sample for the study included 47 Counselor Education students at UCF who were enrolled in their initial practicum course, MHS 6800, during the following semesters: summer, fall, and spring semesters of 2002 and summer, fall, and spring semesters of 2003. Each semester, four to five sections of the course are offered. The syllabi are standardized to adhere to CACREP requirements. All of the Counselor Education practicum students receive the same amount of supervision and have the opportunity for the same quantity of client contact.

The standardized CACREP requirements for the study included direct client contact in the CCC that is located on-campus. Students are scheduled for three clients per week and receive live supervision during their counseling sessions. The client population is comprised of

community members who are offered free services; the clients are screened for suicidal ideation, substance abuse, and active psychoses. If the student- counselor does not have a client for one of the session times, they are expected to observe a session in the control room by way of closed circuit television cameras. Each of the sessions are videotaped for student and instructor review. Both the practicum instructor and other practicum students provide feedback. Additionally, students are required to self-evaluate their videotaped sessions in order to identify areas of strength and areas of development.

As a prerequisite for enrolling in the course, students must have successfully completed the following: Introduction to the Counseling Profession (MHS 5005); Theories of Counseling and Psychotherapy (MHS 6400); Techniques of Counseling (MHS 6401); Group Procedures and Theories in Counseling (MHS 6500); and Legal and Ethical Issues in Counseling (MHS 6780). As a result, practicum students enter the course with a standardized core of coursework already complete.

The text for all of the prerequisite sections of Techniques of Counseling (MHS 6401) course was *Learning the Art of Helping: Building Blocks and Techniques* (Young, 2001). Due to CACREP requirements, the syllabi for this course also hold specific course requirements for all sections; this includes student submission of videotapes demonstrating acquired counseling skills. This allows for students standardized exposure to the microskills. There is also a videotape accompanying the text that has vignettes of specific counseling skills demonstrated in simulated counseling sessions with faculty members and doctoral students in the role of the counselor.

The CCC offers free services to community members. In order to meet the needs of the community: individual, couples, family, and group sessions are offered for children, adolescents,

and adults. The student-counselor and his/her instructor determine client length of treatment. Informed consents are completed by all CCC clients that includes consent to videotape sessions for educational and training purposes.

GRE scores for each of the participants were related to clinical skill demonstration. Due to the archival nature of the data, random selection of the sample population was not possible. However, each of the practicum courses has the same basic requirements for successful student completion of the course.

The initial practicum course, MHS 6800, is a requirement for all Counselor Education students in the Master of Arts in Mental Health Counseling track, the Master of Arts in School Counseling track, and the Master of Education track (See Appendix F). Those students in the mental health counseling track are required to complete two practicum courses; however, those students in the school counseling track are required to complete only one practicum course. In order to include all students as potential study participants, all of the study participants were enrolled in the initial practicum course.

MHS 6800 has specific requirements that, regardless of the instructor, all CACREP programs must meet. This includes 40 hours of direct client contact with a total of 100 hours of client and non-client contact. Non-client contact includes research, tape review, individual and group supervision, treatment planning, and paperwork. Practicum classes meet once per week and are held on Monday, Tuesday, Wednesday, and Thursday. Client evening sessions are scheduled at 5:30, 6:30, and 7:30 and run 50 minutes in length. The CCC also offers one practicum course during the day; this course holds client sessions at 12:30, 1:30, and 2:30 in the afternoon; they also run 50 minutes in length. All students are provided with live supervision

during their client contact as well as one and a half hours weekly of group supervision and one hour weekly of individual supervision.

All students are required to turn into the instructor a videotaped session from a client of their choice for the beginning (first or second week depending on the instructor) and end of the semester (second to last or last week of client contact). In this study, all of the sample participants' reviewed videotapes were from their end of the semester session.

Data Collection

The counseling clinic archives the practicum students' videotapes from their first and last counseling session of the semester. The videotapes represent archival data incorporating the entire population of available videotapes. Sample participants were identified by numeric code; the tape ratings were completed prior to obtainment of GRE scores in order to control for tape-rater bias. All study participants had completed a minimum of 15 hours of coursework before enrolling in the practicum course. Due to the completion of consent forms, inventories, and the psychosocial during the first part of the semester, the tape ratings encompassed only those sessions conducted at the end of the semester.

Instrumentation

The GRE (Appendix F) and the GSRR (Appendix A) represent the utilized instruments. The GRE is a nationally used aptitude test necessary for admission to a myriad of graduate programs nationwide as well as the one traditionally mandated for admissions into Counselor Education programs (Jackson-Cherry, 1998; McKee et al., 1999). Several research studies

suggest that there is little research into examining the relationship between GRE scores and counselor skills development (House & Johnson, 1998; Jackson-Cherry, 1998; Morrison & Morrison, 1995). Since the traditional selection of students in Counselor Education programs represents submission of the GRE score during the admissions process, it is important to assess its applicability to the acquirement of counseling skills. Morrison and Morrison (1995) completed a meta-analysis of the predictive abilities of the GRE as it relates to graduate grade point averages as a criterion for graduate student success and reported that the GRE held minimal predictability for graduate success. Other studies have supported these findings and have indicated the need for further examination of the GRE as a measure of ability to succeed in graduate school (House & Johnson, 1998; Market & Monke, 1990).

The purpose of using the GSRR in this study was to measure the level of counselor competency by the evaluation of the helper's individual responses. This principal investigator and another doctoral candidate individually rated each of the videotapes at the same randomly selected five-minute interval. In order to establish reliability in the rating process, both raters familiarized themselves with the scale by completing the practice exercises developed by Gazda et al. (1999) and located in *Human Relations Development: A Manual for Educators* (Appendix C). Additionally, prior to rating the videotapes from the sample participants, both raters completed four practice ratings from video vignettes accompanying *Learning the Art of Helping: Building Blocks and Techniques* (Young, 2001). As with the participants tape rating, five minutes of the simulated counseling session were reviewed and individual responses were averaged. In order to estimate the level of agreement between the raters, an inter-rater reliability coefficient was utilized and displayed a value of .701.

The GSRR was developed on the theoretical foundations of the Human Relations Development Model (see Gazda et al, 1999). Hayes, Taub, Robinson, and Sivo (2003) posit that the content validity of the GSRR is “substantiated” by its development around the aforementioned model (p. 179). Reliability information was also examined, and the GSRR was found to evidence construct validity as well as content validity (Hayes, 1997; Hayes et al., 2003). Specifically, the GSRR measures: confrontation, reflection of feeling, reflection of meaning, encouragers, empathy, paraphrasing, summarization, immediacy, and concreteness (Gazda et al., 1999). These elements consistently represent a sample of the core skills needed to establish and develop a counseling relationship (Young, 2001).

The GSRR was the selected instrument for the study due to its theoretical underpinnings. Also, the skills that it assesses (confrontation, reflecting of feeling, reflecting of meaning, encouragers, empathy, paraphrasing, summarization, immediacy, and concreteness.) coincide with the microskills approach taught in the prerequisite course Techniques of Counseling, MHS 6401.

Momentary Time Sampling

The sample participants’ videotapes were rated utilizing a five-minute momentary time sample (MTS). The individual responses were rated during the randomly selected five-minute interval. Start times were picked from a table of random numbers between one and forty-five; this was due to the counseling session’s standard length of fifty minutes. The individual responses were rated and the ratings were then averaged for one overall number. In order to address inter-rater reliability, this principal investigator and another doctoral student with similar

qualifications rated the videotapes separately.

The two total ratings were then averaged for the final score used in the data analysis. Chapter Four presents the inter-rater reliability coefficients for the GSRR ratings.

Several research studies reported on and supported the utilization of the five-minute (MTS) in behavioral observation, such as that used for this study (Kearns, Edwards, & Tingstrom, 1990; Harrop & Daniels, 1986; Mansell, 1985). Kelly (1977) posited “76% of all research articles in the *Journal of Applied Behavior Analysis* from 1968 to 1975 presented data based on observation of human subjects’ behavior. More specifically, Kelly reported that 41% of these articles used some form of time sampling” (cited in Kearns et al., 1990, p.74).

Harrop and Daniels (1986) reported that (MTS) was found to provide accurate average estimates and that sensitivity was significantly, $p < .005$, greater with (MTS) than with Partial Interval Recording (PIR). Additionally, Mansell (1985) found that (MTS) was commonly used in data collection. Kearns et al. (1990) conducted a study of (MTS) interval lengths with 30 second, and 5, 10, and 20-minute intervals. They concluded that the shorter intervals held greater accuracy than the longer intervals. As a result of the research supporting the use of MTS, the videotapes were rated using randomly selected five-minute increments.

Statistical Procedures

After consultation with four faculty members, one a statistical specialist and three education and research specialists, the conclusion was drawn that an independent samples t-test would be the appropriate statistical procedure to answer the research question. This study examined the relationship between GRE scores and demonstration of clinical skills in the

counseling practicum. Several statistical procedures were implemented to assess for a relationship and differences between the variables. Specifically, bar graphs, means, and standard deviations were utilized on a descriptive level. The independent samples t-test was used to assess any differences between means due to the nominal nature of the independent variable (GRE scores over 1000 and GRE scores below 1000) and the interval nature of the dependent variable (GSRR rating). The independent variables represent the sample participants' GRE scores and the dependent variables represent the participants' GSRR ratings. Additionally, due to the contiguous nature of both the variables, a correlation was utilized to assess for a relationship between GRE scores and GSRR ratings. The sample participants' UGPA scores were also obtained and correlated with their GSRR ratings.

Summary

Sample participants were enrolled in MHS 6800 during the semester of the tape completion. All sample participants were enrolled in the course in the spring, summer, or fall semesters of 2002 and the spring, summer, and fall semesters of 2003. The students were required to complete five prerequisite courses prior to enrolling practicum (Appendix D).

Student videotapes were rated using randomly selected five-minute intervals. The sample participants' videotapes were assessed using the GSRR on a .5 to 4.0 point Likert scale. After the tape ratings were completed, the participants' GRE scores were obtained and correlated with the GSRR scores to examine the relationship between the independent and dependent variables. UGPA scores were also examined in relation to the demonstration of clinical skills as assessed by the GSRR.

This chapter presented a statement of the problem, sample demographics, data collection procedures, instrumentation description, and outlining of the statistical procedures. It also provided clarification of the sampling procedures and rating procedures. The data analyses and findings will be presented in Chapter Four.

CHAPTER FOUR: FINDINGS

This study examined the relationship between counselor education students' demonstration of clinical skills in their initial practicum course and their incoming GRE scores. The predominant rationale of the study was to assess the validity of the admissions process in the Counselor Education program at the UCF. Due to the standardization that CACREP accreditation requires, this study could be of benefit to CACREP accredited Counselor Education programs throughout the United States.

This chapter presents the statistical procedures utilized in the data analysis and includes a presentation and discussion of the results. The first section focuses on a demographic description of the study participants. The second section displays the statistical findings related to the research question and the presented hypotheses.

Sample Demographics

The sample population included a total of 47 students in the Counselor Education program at UCF. There were 42 females and 5 males in the sample population. Out of the 47 study participants, there were 25 students in the mental health counseling track and 22 students in the school counseling track. As previously discussed, each sample participant was enrolled in MHS 6800 during either the spring, summer, and fall semesters of 2002 or the spring, summer, and fall semesters of 2003. All of the sample participants had completed a minimum of 15 hours of graduate level coursework, with a five-course prerequisite mandated for all students prior to enrolling in the course (Appendix D).

In adherence to CACREP requirements, each practicum student submitted videotape of a

counseling session from the beginning and end of the semester. These videotapes are archived on-campus in the CCC at UCF. As previously stated, the students' videotapes were selected from the entire available archived library at the CCC. Each of the sample participants' last session videotapes were rated using the GSRR scale.

Descriptive Statistics

Table 1 presents the descriptive statistics of GRE scores and GSRR ratings for the sample participants.

Table 1

Descriptive Statistics for GRE and GSRR

	N	Minimum	Maximum	Mean	Std. Deviation
GRE	47	680	1280	957.02	143.783
GSRR	47	2.0	3.5	2.691	.4368

Table 1 displays the means, ranges, and standard deviations for GRE scores and GSRR ratings. There were 47 total sample participants (N=47) whose GRE and GSRR scores were statistically analyzed. The mean of GRE scores was M=957.02 with scores ranging from a low of 680 to a high of 1280. The sample participants' GRE scores displayed an SD=143.783. For GSRR ratings, the M=2.691 with a rating range of 2.0 to 3.5. The sample participants' GSRR scores showed an SD=.4368.

Table 2 depicts the descriptive statistics for GSRR ratings for the median split GRE grouping of those subjects with GRE scores over 1000 and those subjects with GRE scores below 1000.

Table 2

Descriptive Statistics for GRE Groupings

GRE	N	Minimum	Maximum	Mean	Standard Deviation
GSRR					
>1000	19	2.0	3.5	2.816	.5058
<1000	28	2.0	3.5	2.617	.3691

Table 2 shows an N=19 for the sample participants with GRE scores over 1000 and an N=28 for sample participants with GRE scores below 1000. The range of GSRR scores for both groups fell between 2.0 and 3.5. For those with GRE scores over 1000, M=2.816; for those with GRE scores below 1000, M=2.316. The higher GRE grouping displayed an SD=.5058, and the lower group displayed an SD=.3691.

In order to provide a thorough depiction of the study results from the descriptive analysis, a bar graph of the sample participants' GRE scores is presented in Figure 1. Additionally, a bar graph of the participants' GSRR distribution is displayed in Figure 2.

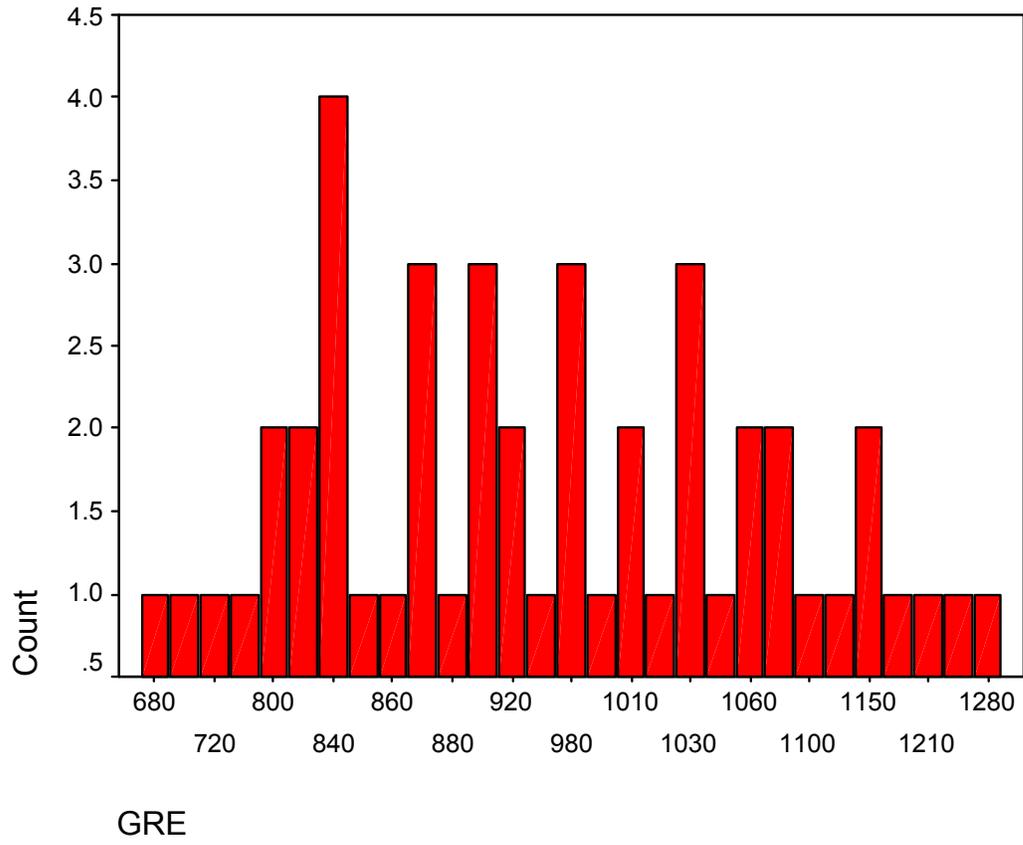


Figure 1: GRE Distribution

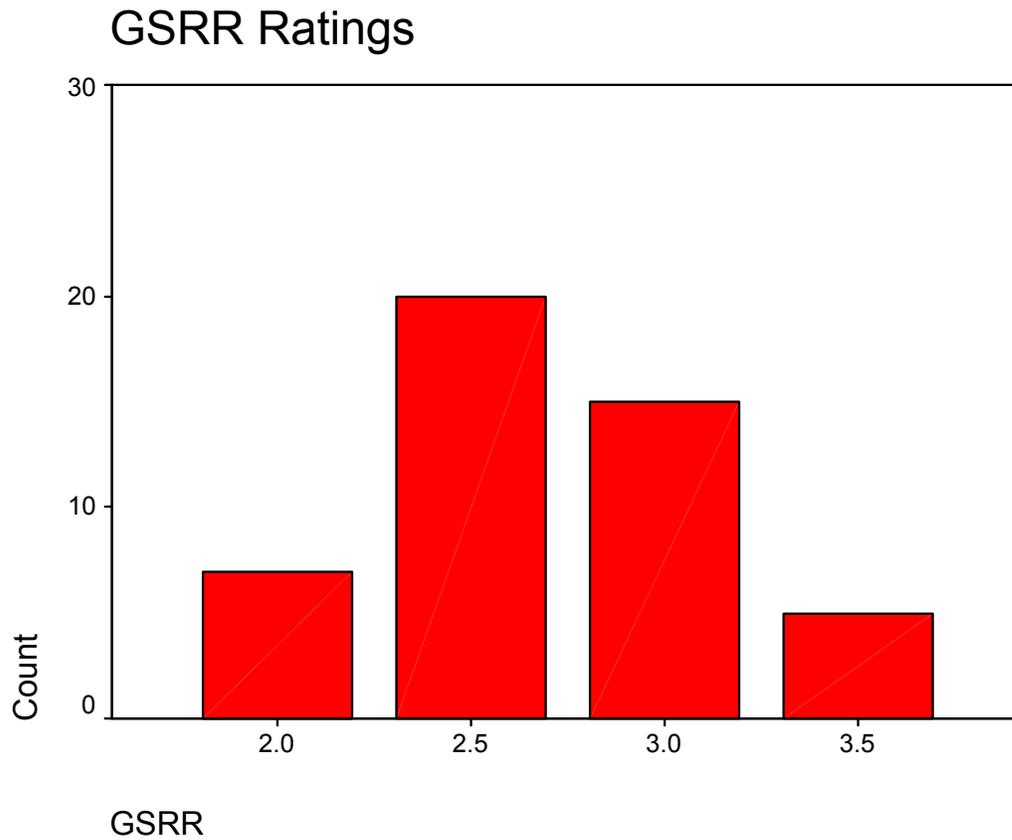


Figure 2: GSRR Ratings

Figure 1 provides a bar graph depicting the distribution of GRE scores among the sample participants, and Figure 2 presents a bar graph of the GSRR ratings.

Table 3 provides the correlation coefficients for the sample participants GRE scores and GSRR ratings.

Table 3

Pearson Correlation Coefficient

		GRE	GSRR
GRE	Pearson Correlation	1	.175
	Sig. (2-tailed)	.	.238
	N		47
GSRR	Pearson Correlation	.175	1
	Sig. (2-tailed)	.238	.
	N	47	47

Table 3 shows the correlation of GRE and GSRR scores for the sample participants. The results showed no significant relationship between the subject participants' GRE scores and their GSRR ratings ($r=.175$, $p=.238$).

Table 4 displays the results of the independent samples t-test for GRE scores and GSRR ratings.

Table 4

Independent Samples t-test

T	df	sig(2-tailed)	Mean difference	Std. Error
1.636	45	.109	.209	.1275

Table 4 presents the results of the independent samples t-test that examined possible differences between means between those study participants with GRE scores over 1000 (N=19) and those with GRE scores below 1000 (N=29). The results showed no significant differences ($p = .109$) between the two groups.

Table 5 shows the correlation between UGPA and GSRR ratings.

Table 5

Pearson Correlation Coefficient with UGPA and GSRR

		GSRR	GPA
GSRR	Pearson Correlation	1	.158
	Sig. (2-tailed)	.	.298
	N	45	45
GPA	Pearson Correlation	.158	1
	Sig. (2-tailed)	.298	.
	N	45	45

One additional analysis that was investigated was the relationship between UGPA and GSRR. There is an N=45 for this analysis due to two sample participants UGPA's not being on record with Graduate Admissions at UCF. The Pearson Correlation Coefficient $r=.158$ with a significance of $p=.298$. There is no significant relationship between GSRR ratings and UGPA.

Table 6 displays inter-rater reliability.

Table 6

Correlation of Inter-Rater Reliability

Rater 1	Pearson Correlation	1	.701(**)
	Sig. (2-tailed)	.	.000
	N	46	46
Rater	Pearson Correlation	1	.701(**)
	Sig. (2-tailed)	.	.000
	N	46	46

** Correlation is significant at the 0.01 level

The results of the inter-rater reliability correlation were ($r=.701$; $p=.000$) showed that there was inter-rater reliability significance between the two GSRR raters. There was an $N=46$ due to one of the sample participants' counseling tape being conducted in Spanish. This principal investigator was unable to complete the GSRR due to inability to understand the Spanish language. The second rater is fluent in Spanish and completed the GSRR rating.

Findings

Counselor Education students with GRE scores over 1000 do not demonstrate more effective clinical skills in their initial practicum course than Counselor Education students with

GRE scores below 1000. The statistical analysis displayed no significant results between those students with a GRE score over 1000 and those students with a GRE score below 1000. The results displayed N=19 for those students with GRE scores over 1000 and an N=28 for those students with GRE scores below 1000. The descriptive statistics outlined in Table 1 show a GSRR M=2.816 for those students with GRE scores over 1000 and M=2.607 for those students with GRE scores below 1000. The descriptive statistics also resulted in SD=.5058 for those in the higher GRE grouping and SD=.3691 for those students in the lower GRE grouping.

Additional Findings

Statistical analyses were also conducted on the variable of UGPA in order to examine a possible relationship between demonstration of counseling skills and undergraduate academic performance. A correlation between UGPA and GSRR ratings was analyzed; the results displayed no significance ($p=.298$) with an $r=.158$. This suggests that there is not a relationship between UGPA and GSRR.

Conclusion

This study examined the relationship between attainment demonstration of counseling skills and incoming GRE scores for Counselor Education students at UCF. According to the statistical analyses, the results showed that there were no significant differences between the sample participants median split GRE groupings (those with GRE scores over 1000 and those with GRE scores under 1000) related to their demonstration of clinical skills. Although the GRE purports to predict success in graduate school, the findings of this study do not show a

relationship between successful demonstration of clinical skills and admitting GRE scores.

CHAPTER FIVE: CONCLUSION

The following presents an overview of this research study, specifically addressing the statistical analyses presented in Chapter Four, and also presents a synopsis of the implications related to the utilization of the GRE as a predictor of clinical acquisition of counseling skills as demonstrated by Counselor Education practicum students at UCF. This chapter also addresses the limitations of this research study and includes recommendations for future research endeavors.

Counselor Education programs strive to admit those applicants who have the best potential to acquire and demonstrate clinical counseling skills. The applicants GRE score is one important element of the admissions process; those students with lower GRE scores are less likely to be selected for the interview process as well as for final admission. However, there is minimal research examining the relationship between student academic potential (measured by GRE scores) and the ability to learn and demonstrate counseling skills during the graduate course of study (Doris, 1990; House & Johnson, 1998; Jackson-Cherry, 1998, McKee et al., 1999). Add research from lit. review.

Studies of this nature examine the relationship between GRE scores upon admittance and demonstration of clinical skills in the counseling practicum. This is of importance for admissions policies in Counselor Education; it also provides the counseling profession with skilled clinicians. The impact of studies such as this extends past admissions policies and to the individuals, families, and communities that are assisted by mental health and school counselors. The necessity of providing mental health services that provide the dual goals of supervision of effective novitiate clinicians and providing a service to community members remains important

for mental health systems throughout the United States should not be ignores. From a sociological standpoint, these services enrich humanity.

Discussion of Results

The research question for this study examined the relationship between GRE scores upon admission and demonstration of clinical skills in the initial practicum course. The purpose of this study was to evaluate, in a specific fashion, the efficacy of the admissions process in the Counselor Education program at UCF. The results, with the ensuing limitations, hold generalization to CACREP accredited Counselor Education programs in the United States. The results of this study displayed no significant differences between Counselor Education student GRE scores (split at the median of 1000) and demonstration of clinical skills in the initial practicum course.

Limitations of Study

This study possessed several design limitations that could not be mitigated. This includes the inability to randomly select subject participants from the sample population. The threat to internal validity of convenience sampling is of concern due to possible extraneous variables that those students who submitted videotapes with appropriate identifying information may also possess. This could include unexamined personality factors that predispose him/her to display either more or less effective counseling skills.

A second limitation to the study represents a possible subject characteristics threat to internal validity due to the sample population representing only students at the UCF. The

possibility of specific variables of students applying and being accepted to the Counselor Education program at UCF that may impact clinical skills (either in a positive or negative direction) also cannot be mitigated. However, the standardization of CACREP requirements for both admissions and training minimizes the subject characteristics threat to internal validity.

An additional subject characteristics threat stems from the inability to randomly select the sample participants. The sample population was comprised of all Counselor Education students enrolled in their initial practicum course during the spring, summer and fall semesters of both 2002 and 2003. This study was initially designed to randomly select the study participants; however, due to discrepancies in tape labeling, random selection of videotapes was not feasible. As a result, the entire population of appropriately submitted and defined videotapes were utilized. The final sample population, N=47, were selected from the videotapes that were clearly identified with student name, semester, and year. Resulting from this, random selection of videotapes could not be achieved.

There were 42 females and 5 males in the sample population. The higher participation of females in the study could represent a mitigating variable related to the GSRR ratings. It was not able to be determined whether the gender of the sample participants affected the GSRR rating. Further research studies in this area are needed.

Although the CCC screens for high-risk clients--such as those presenting with suicidal ideation, substance abuse, and active psychoses--the clients of the student participants presented with an array of concerns that could have affected the study participants' performance during the counseling session. The utilization of the GSRR to assess the study participants' clinical skills diminished this threat to internal validity through the assessment of individual responses as

opposed to client perception of successful or unsuccessful outcome.

A final study limitation represents an inter-rater threat to internal reliability. The utilization of more than two raters would be optimal for increased validity of the present study. One method utilized to minimize this threat was the raters' training procedures prior to viewing the sample participants' videotapes that included: completion of sample exercises from Gazda et al. (1999) *Human Relations Development: A Manual for Educators* (Appendix B). Prior to rating the videotapes from the sample participants, both raters completed four practice ratings from video vignettes accompanying *Learning the Art of Helping: Building Blocks and Techniques* (Young, 2001). All of the videotapes were rated independently and without the knowledge of sample participant GRE scores until all of the ratings were completed.

Implications for Counselor Educators

This research project suggests some implications for admissions policies in the Counselor Education program at UCF. The findings of this study have value for the admissions committee in Counselor Education at UCF. The validity of using the GRE as a primary criterion for selection of applicants is questioned, both from the results of the literature review as well as the findings of the present study. Further research is needed to examine additional variables that impact development of clinical competence.

As discussed, the admissions policy at UCF is intended to admit those applicants with the best potential to acquire and demonstrate clinical counseling skills. The rationale of this study purported to examine the validity of the admissions process. As previously stated, the findings of this study hold implications for the admittance committee in the Counselor Education program at

UCF. Due to CACREP accreditation in Counselor Education at UCF, the findings will also hold value for Counselor Education admittance policies in other CACREP accredited programs throughout the United States. It is the recommendation of this author that admissions committees in Counselor Education programs throughout the United States examine the validity of their admissions process. Studies that address the acceptance of those students with optimal potential for the acquisition and demonstration of counseling skills increase the probability of successful program completion.

Summary and Suggestions for Future Researchers

This study holds several implications for future research that includes the need for additional research in the area of the validity of the admissions process for Counselor Education students. There is also a need for research that addresses the predictive ability of the GRE as a predominate criterion for selection of graduate students. The results of this research project showed no significant results related to demonstration and acquisition of clinical skills and incoming potential for success measured by GRE scores. This lends to the prior research positing the need for examination of admissions policies in CACREP accredited Counselor Education programs.

Suggestions for future research include obtaining information related to student counselor problem-solving ability. The ETS has negated the utilization of the analytical reasoning skill section of the GRE in the selection of graduate students in Counselor Education Programs in Counselor Education programs. The primary investigator for this study intends to conduct further research addressing analytical reasoning skills related to the acquisition and demonstration of

clinical skills in Counselor Education students at UCF. Additionally, this author endeavors to conduct concomitant research on personality characteristics that may factor into clinical efficacy. The Rogerian constructs of empathy, unconditional positive regard, congruence, genuineness, and acceptance

Additionally, this study specifically addressed the sample population of counseling students enrolled in their initial practicum course at UCF. It is possible that unforeseen characteristics of the student population at UCF could hold specific subject characteristics that impacted the results of the study. Other limitations previously discussed also induce the need for study replication.

The results of this study suggest that admissions committees in Counselor Education programs should evaluate the weight that is placed on GRE scores. It is important to keep in mind that the attainment of clinical skills is necessary for the development of effective mental health and school counselors. Further research studies are needed to assess the predictive ability of GRE scores in relation to admission into Counselor Education programs.

APPENDIX A
GLOBAL SCALE FOR RATING HELPER RESPONSES

Global Scale For Rating Helper Responses

Level 0.5 to 1.5 Not Helpful: Hurtful

A response in which the helper:

Ignores what the helpee is saying

Ridicules the helpee's feelings

Seeks to impose his or her beliefs and values on the helpee

Dominates the conversation

Challenges the accuracy of the helpee's perceptions

Uses problem-solving dimensions in a way that damages the relationship

Level 2.0 to 2.5 Not Helpful: Ineffective

A response in which the helper:

Communicates a partial awareness of the helpee's surface feelings

Gives premature or superficial advice

Responds in a casual or mechanical way

Reflects total content but ignores the feelings of the helpee

Uses problem-solving dimensions in a way that impedes the relationship

Offers rational excuses for withholding involvement

Level 3.0 to 3.5 Helpful: Facilitative

A response in which the helper:

Reflects accurately and completely the helpee's surface feelings and communicates acceptance of the helpee as a person of worth

Level 4.0 Helpful: Additive

A response in which the helper:

Demonstrates willingness to be a helper and accurately perceives and responds to the helpee's underlying feelings (empathy)

Appropriately uses one or more of the problem-solving dimensions to:

Assist the helpee move from vagueness to clarity (concreteness)

Reveal perceptions of the helpee in their entirety (genuineness)

Share similar experiences (self-disclosure)

Suggest things the helpee might do (expertise)

Point out discrepancies in the helpee's words and/or actions (confrontation)

Talk about present feelings between the helpee and helper (immediacy)

Global Scale Summarized

Level	Key word	Results	Helper actions	Helper's goal
1.0	Harmful	Not helpful	Criticism or inaccuracy	Inappropriate; to gratify self by dominating the helpee
2.0	Ineffective	Not helpful	Unsuitable advice	Inappropriate; stated goal to help; real goal is to be important in the eyes of the helpee
3.0	Facilitative	Helpful	Relationship building	To earn the right to help
4.0	Additive	Helpful	Problem solving	To help

Source: Gazda, G., Asbury, F. R., Balzer, F. J., Childers, W. C., & Phelps, R. E. (1999).
Human relations development model: A manual for educators. Boston, MA: Allyn &
Bacon

APPENDIX B
RATING TRAINING SAMPLE

Rating Training Sample

Rating Helper Responses on the Global Scale: Sample Exercise

After carefully studying the levels of the Global Scale, rate the helper responses in Helpee Situation k1. Write the rating number in the blank to the left of the response number. If you rate any response at 3.5 or 4.0, underline the portion that is additive, that is, goes beyond facilitative responding.

Behavioral objective: The trainee will be able to rate 75 percent of the responses correctly (within 0.5 of the rating shown in the Answer Key is considered accurate).

Teacher to teacher: "Talk about censorship! That memo we got yesterday from the superintendent's office about topics to avoid in class really angered me. We're trying to get these kids to *think* (emphasis included), and the best way to do that is to have them explore all aspects of an issue, whether it's controversial or not."

Helper Responses

- _____ 1. "You resent being told what to discuss in class."
- _____ 2. "When you aren't given credit for knowing right from wrong, and you're the teacher, it's a real put-down".
- _____ 3. "Just get some of the parents to talk to the superintendent."
- _____ 4. "I didn't see the memo. What did it say?"
- _____ 5. "You think that one was bad. You should have been here last year."
- _____ 6. Speaking of censorship, did you see that article in the paper last night about ...?"

_____ 7. “It really angered you that you’re not treated as a professional.”

Helpee Situation 2

New student to teacher: “This school seems to be almost a grade ahead of my old school. I don’t know if I’ll be able to keep up.”

Helper Responses

_____ 8. “Where did you go to school last year?”

_____ 9. “You really think that we’re that far ahead of your old school?”

_____ 10. You’re concerned about being able to keep up just because we’re ahead of where you left off at your old school.”

_____ 11. “If you work hard, I’m sure you’ll be able to keep up.”

Helpee Situation 3

Teacher to teacher: “With my mother sick in Florida, I’m just on pins and needles all the time. I wish I were closer so I could do more.”

Helper Responses

_____ 12. “I can tell you’re really concerned both about your mother’s health and the fact that you weren’t able to be there.”

_____ 13. “My mother’s health has been bad, too. Fortunately, though, she lives here in town.”

_____ 14. “You seem upset about that.”

_____ 15. “Maybe you could get one of those discount airfares and go down there over

the weekend.”

_____ 16. “I know how you must be feeling. My mother passed away last year.”

_____ 17. “I guess it can make you feel a little guilty about not being there when she needs you.”

Helpee Situation 4

Student to student: “I had three things happen to me this year that took me out of class. That knee injury in football, my grandmother’s funeral, and the flu. It’s no wonder I made so many C’s!”

Helper Responses

_____ 18. “When I had to miss two weeks of class last year with mono the school cut me some slack with homework. Plus they sent a tutor to my house so I wouldn’t get so far behind.”

_____ 19. “That’s rough.”

_____ 20. “That’s discouraging to have so many things happen in the same year, particularly when your grades were affected.”

_____ 21. “All three of those things happened this year?”

_____ 22. “I know it must be upsetting to realize that things beyond your control affected your grades like that.”

Source: Gazda, G., Asbury, F. R., Balzer, F. J., Childers, W. C., & Phelps, R. E. (1999). Human relations development model: A manual for educators. Boston, MA: Allyn & Bacon

APPENDIX C
RATING TRAINING SAMPLE ANSWER KEY

Situation	1	2	3	4	5	6	7
1	3.0	3.5	2.0	1.5	1.0	1.0	3.0
Situation	8	9	10	11			
2	1.0	2.0	3.5	2.0			
Situation	12	13	14	15	16	17	
3	3.0	1.0	2.5	2.0	2.0	3.5	
Situation	18	19	20	21	22		
4	1.0	1.5	3.0	2.0	3.0		

APPENDIX D
RECOMMENDED PREREQUISITE COURSE ROTATION

Counselor Education Recommended Prerequisite Course Rotation including:

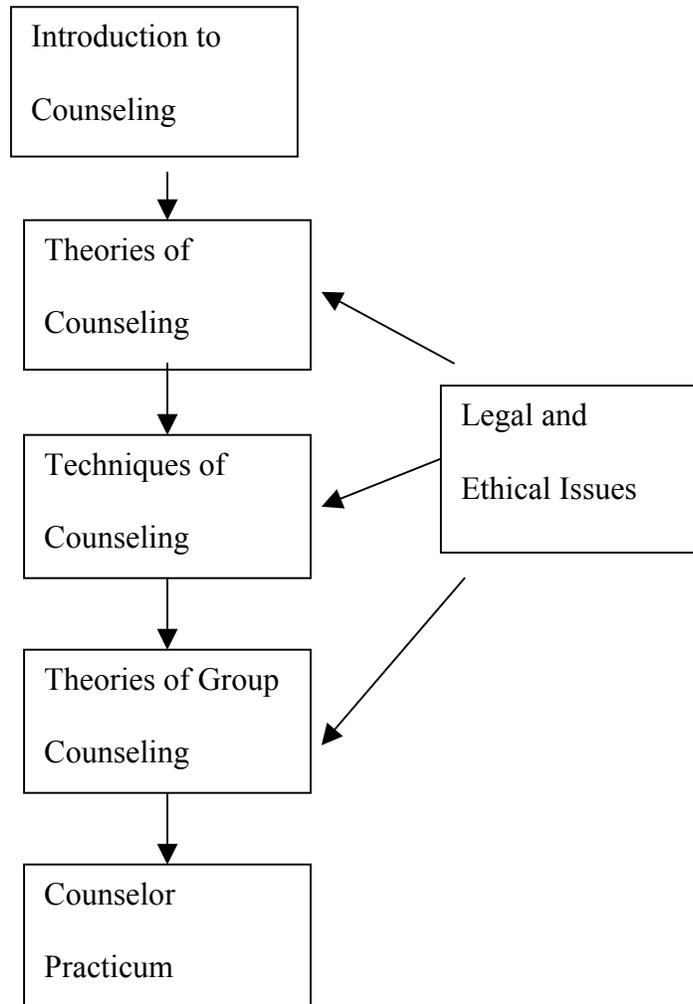


Figure 3: Course Rotation

APPENDIX E
PRACTICUM SYLLABUS

UNIVERSITY OF CENTRAL FLORIDA
COLLEGE of EDUCATION
Counselor Education Program
MHS 6800: Practicum I and Practicum II
Fall 2003

Instructor: Shannon Ray M.A.

Office Hours: Friday 10:00 a.m. – 12:00 p.m.

Appointments available per request

Office: ED 322H

Phone: (407) 823-1356

E-Mail: smr30383@yahoo.com

Class:

The class is held on Tuesdays from 4:00 p.m. to 9:00 p.m. Students are expected to arrive on time and to actively participate in this experience. This is a very important part of the practicum class in which we can all learn as a group. Please be prompt. Be prepared to present a case with the goal of receiving feedback, not just from the instructor but also from your peers. Bring up topics for discussion relevant to the counseling process.

Clients:

Practicum 1 students will see 3 clients per week during class time and will run a group outside of class time for a minimum of 10 hours.

Practicum 2 students will see 2 clients per week; practicum 2 students are expected to be present the entire class time.

Attendance:

Attendance is expected for ALL CLASSES since this is a field experience. Demonstrating commitment to your clients is expected as part of being a professional. A student may only miss a class because of illness or unexpected emergency. No rearrangement of scheduling times with clients will be allowed.

Recommended Textbooks:

King, A. (2001). *Demystifying the counseling process: A self help handbook for counselors*. Needham Heights, MA: Allyn & Bacon.

American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders, 4th ed., text revision*. Washington, DC: American Psychiatric Association.

Supervision:

Clinical supervision is defined as “an intervention that is provided by a senior member of a profession to a junior member or members of the same profession. This relationship is evaluative, extends over time, and has the simultaneous purposes of enhancing the professional functioning of the junior member(s), monitoring the quality of professional services offered to clients he/she sees, and serving as a gatekeeper for those who are to enter the particular profession.” In the content of this course, the supervision, which students shall receive, is evaluative in nature.

All students are required to meet with their assigned supervisor in a team of two for supervision. During this time, you must (1) bring a videotape; (2) choose the part of the session you would like your supervisor to watch; and (3) have already reviewed the whole tape on your own and completed the review form. I will watch the part of the tape you selected with you and give you feedback on your skills. Students are encouraged to take notes, and to be open to receive feedback. Supervision is a time for growth in which the student demonstrates the ability to self-evaluate and implement change.

Forms & Videotapes:

Video Review Forms: You are expected to review all three of your videotaped sessions each week and complete the video review form for each session. You must turn in those three forms weekly.

In order to meet CACREP requirements, all practicum 1 students are mandated to turn in a videotape from their first and last sessions of the semester. Both sessions should be completed on the same VHS tape; the tape should be clearly labeled with semester, student name, and instructors. If possible, please complete both tapings with the SAME client.

Grading:

All grades in practicum are subjective. In addition to all the course requirements stated in the Clinical Experience Handbook, I will review the forms you turn in and my supervision notes in determining a grade, as well as your participation in the class and your attendance during the semester. Your midterm and final evaluations will also contribute to your grade.

Practicum is a time for students to practice and build on their counseling skills. If by the end of the semester, the student has not demonstrated proficiency in the use of the basic counseling

skills, the student will receive an appropriate grade reduction.

My style of Supervision:

During practicum, the instructors will make every attempt to observe each student for a significant amount of time for live supervision. We will give as much feedback as we can and will answer any questions you may have. Please feel free to consult with us at any time, in class and outside class. If during a counseling session you feel stuck, it is okay to excuse yourself and consult with the supervision team.

Assignments:

1. Personal Theory Paper: An informal paper that states your guiding theory. Discuss from your theory:
 - a. Personality Development
 - i. Nature of people
 - ii. How experience in the environment contributes to the development of personality
 - iii. What characterizes the mentally healthy and unhealthy
 - b. The Counseling Process
 - i. What motivates people to seek counseling
 - ii. How people change
 - iii. The role of the counselor, counseling relationship, and counseling strategies in fostering client change
 - iv. The role of client resistance and how the counselor most effectively respond to it

2. Contact hour log
 - a. You will accumulate 150 total hours in practicum
 - b. 40 hours must be direct client contact

Class Schedule:

August 26	First day of class Course requirements Turn in copy of liability insurance
September 2	First day to see clients
September 9	Case conceptualization
September 16	Continue with clients Turn in video review forms as needed
September 16 & September 23	Continue with clients

Personal theory paper due by November 4th

September 30

Continue with clients
Meet with instructor to discuss progress
*Bring hour log and all client files to meeting

October 7, October 14, October 21

Continue with clients
Turn in video review forms as needed

October 28, November 11,
November 18

“Working Section” Middle of the Bell curve

November 25

Address Termination Issues with Clients

December 2- December 9

Turn in final self evaluation
Meet with professor for final feedback
*Turn in hour log and completed client files at meeting

APPENDIX F
GRE CONTENT INFORMATION

Verbal Section

The following contains information regarding the four types of questions included in the verbal section of the GRE: analogies. Each of the different types of questions are explained and an example is provided.

The explanation of the Analogy question type follows. If you prefer skipping this explanation, scroll down to the Directions immediately before the Sample Questions button.

Analogy questions test your ability to recognize the relationship between the words in a word pair and to recognize when two word pairs display parallel relationships. To answer an analogy question, you must formulate the relationship between the words in the given word pair and then select the answer containing words related to one another in most nearly the same way. Some examples are relationships of kind, size, spatial contiguity, or degree.

Here are some approaches that may be helpful in answering analogy questions:

- Before looking at the answer choices, try to establish a precise relationship between the words in the given pair. It is usually helpful to express that relationship in a phrase or sentence. Then look for the answer choice containing the word pair whose relationship is closest to that of the given pair and can be expressed in a similar fashion.
- Occasionally, more than one of the answer choices may seem at first to express a relationship similar to that of the given pair. Try to state the relationship more precisely, or identify some aspect of the relationship that is paralleled in only one choice pair.
- Remember that a single word can have several different meanings. Check to be sure you

have not overlooked a possible second meaning for one of the words.

- Never decide on the best answer without reading all the answer choices.
- Practice recognizing and formulating relationships between word pairs.

Antonyms

The explanation of the Antonym question type follows. If you prefer skipping this explanation, scroll down to the Directions immediately before the Sample Questions button.

Although antonym questions test knowledge of vocabulary more directly than do any of the other verbal question types, antonym questions measure not merely the strength of your vocabulary but also your ability to reason from a given concept to its opposite. Antonyms may require only rather general knowledge of a word, or they may require that you make fine distinctions among answer choices. Antonyms are generally confined to nouns, verbs, and adjectives; answer choices may be single words or phrases.

Here are some approaches that may be helpful in answering antonym questions:

- Remember that you are looking for the word that is the most nearly opposite to the given word; you are not looking for a synonym. Many words do not have a precise opposite, so you must look for the answer choice that expresses a concept most nearly opposite to that of the given word.
- In some cases more than one of the answer choices may appear at first to be opposite to the given word. When this happens, try to define more precisely or in greater detail the

meaning of the given word.

- In weighing answer choices, it is often useful to make up a sentence using the given word or words. Substitute the answer choices in the phrase or sentence and see which best "fits". The best answer will be the one that reverses the meaning or tone of the sentence or phrase.
- Remember that a particular word may have more than one meaning.
- Use your knowledge of root, prefix, and suffix meanings to help you determine the meanings of unfamiliar words.

Sentence Completion

The explanation of the Sentence Completion question type follows. If you prefer skipping this explanation, scroll down to the Directions immediately before the Sample Questions button.

Sentence completion questions measure your ability to use the various kinds of cues provided by syntax and grammar to recognize the overall meaning of a sentence. In deciding which of five words or sets of words can best be substituted for blank spaces in an incomplete sentence, you must analyze the relationships among the component parts of the sentence. You must consider each answer choice and decide which completes the sentence in a way that gives the sentence a logically satisfying meaning and allows it to be read as a stylistically integrated whole.

Sentence completion questions provide a context within which to analyze how words

relate to and combine with one another to form a meaningful unit of discourse.

Here are some approaches that may be helpful in answering sentence completion questions:

- Read the entire incomplete sentence carefully before you consider the answer choices. Be sure you understand the ideas expressed and examine the sentence for possible indications of tone (irony, humor, and the like).
- Before reading the answer choices, you may find it helpful to fill in the blanks with a word or words of your own that complete the meaning of the sentence. Then examine the answer choices to see if one of them parallels your own completion of the sentence.
- Pay attention to structural clues in the sentence. For example, words like although and nevertheless indicate that some qualification or opposition is taking place in the sentence, whereas moreover implies an intensification or support of some idea.
- If a sentence has two blanks, be sure that both parts of your answer choice fit logically and stylistically into the sentence.
- When you have chosen an answer, read the complete sentence through to check that it has acquired a logically and stylistically satisfying meaning.

Reading Comprehension

Reading comprehension questions measure your ability to read with understanding, insight, and discrimination. This type of question explores your ability to analyze a written passage from several perspectives, including your ability to recognize both explicitly stated elements in the passage and assumptions underlying statements or arguments in the passage as well as the implications of those statements or arguments. Because the written passage upon which the questions are based presents a sustained discussion of a particular topic, there is ample context for analyzing a variety of relationships. Pay attention to the function of a word in relation to a larger segment of the passage, the relationships among the various ideas in the passage, or the relation of the author to the topic or to the audience.

There are six types of reading comprehension questions. These types focus on (1) the main idea or primary purpose of the passage; (2) information explicitly stated in the passage; (3) information or ideas implied or suggested by the author; (4) possible applications of the author's ideas to other situations, including the identification of situations or processes analogous to those described in the passage; (5) the author's logic, reasoning, or persuasive techniques; and (6) the tone of the passage or the author's attitude as it is revealed in the language used.

In each edition of the General Test, there are three or more reading comprehension passages, each providing the basis for answering two or more questions. The passages are drawn from different subject matter areas, including the humanities, the social sciences, the biological sciences, and the physical sciences.

Here are some approaches that may be helpful in answering reading comprehension questions.

- Since reading passages are drawn from many different disciplines and sources, you may not be familiar with the material in every passage. Do not be discouraged, however, if you encounter material with which you are not familiar. Questions are to be answered on the basis of the information provided in the passage, and you are not expected to rely on outside knowledge of a particular topic.
- Whatever strategy you choose, you should analyze the passage carefully before answering the questions. As with any kind of close and thoughtful reading, look for clues that will help you understand less explicit aspects of the passage. Try to separate main ideas from supporting ideas or evidence; try also to separate the author's own ideas or attitudes from information he or she is presenting. Note transitions from one idea to the next, and examine the relationships among the different ideas or parts of the passage. For example, are they contrasting? Are they complementary? Consider the points the author makes, the conclusions drawn, and how and why those points are made or conclusions drawn.
- Read each question carefully and be certain that you understand exactly what is being asked.
- Always read all the answer choices before selecting the best answer.
- The best answer is the one that most accurately and most completely answers the

questions being posed. Be careful not to pick an answer choice simply because it is a true statement. Be careful also not to be misled by answer choices that are only partially true or only partially satisfy the problem posed in the question.

- Answer the questions on the basis of the information provided in the passage. Do not rely on outside knowledge. Your own views or opinions may sometimes conflict with the views expressed or the information provided in the passage; be sure that you work within the context of the passage. You should not expect to agree with everything you encounter in reading passages.

Quantitative Section

The quantitative section of the General Test is designed to measure basic mathematical skills and understanding of elementary mathematical concepts, as well as the ability to reason quantitatively and to solve problems in a quantitative setting.

In general, the mathematics required does not extend beyond that usually covered in high school. It is expected that examinees are familiar with conventional symbolism, such as $x < y$ (x is less than y), $x \neq y$ (x is not equal to y), $\underline{m} \parallel \underline{n}$ (line \underline{m} is parallel to line \underline{n}), $\underline{m} \perp \underline{n}$ (line \underline{m} is perpendicular to line \underline{n}), and the symbol for a right angle in a figure:



($\angle ABC$ is a right angle.)

Also, standard mathematical conventions are used in the test questions unless otherwise indicated. For example, numbers are in base 10, the positive direction of a number line is to the

right, and distances are nonnegative. Whenever nonstandard notation or conventions are used in a question, they are explicitly introduced in the question.

Many of the questions are posed as word problems in a real-life setting, with quantitative information given in the text of a question or in a table or graph of data. Other questions are posed in a pure-math setting that may include a geometric figure, a graph, or a coordinate system. The following conventions about numbers and figures are used in the quantitative section.

Numbers and Units of Measurement

All numbers used are real numbers.

Numbers are to be used as exact numbers, even though in some contexts they are likely to have been rounded. For example, if a question states that "30 percent of the company's profit was from health products," then 30% is to be used as an exact percent; it is not to be used as a rounded number obtained from, say, 29% or 30.1%.

An integer that is given as the number of objects in a real-life or pure-math setting is to be taken as the total number of these objects. For example, if a question states that "a bag contains 50 marbles, and 23 of the marbles are red," then 50 is to be taken as the total number of marbles in the bag and 23 is to be taken as the total number of red marbles in the bag, so that the other 27 marbles are not red.

Questions may involve units of measurement such as English units or metric units. If an answer to a question requires converting one unit of measurement to another, then the relationship between the units is provided, unless the relationship is a common one, such as minutes to hours, or centimeters to meters.

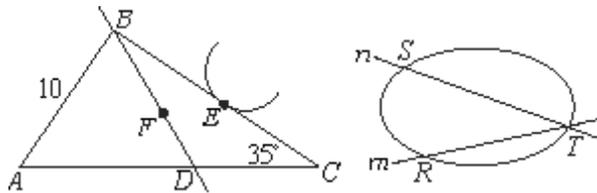
Figures

Geometric figures that accompany questions provide information useful in answering the questions. However, unless a note states that a geometric figure is drawn to scale, you should solve these problems not by estimating sizes by sight or by measurement, but by reasoning about geometry.

Geometric figures consist of points, lines (or line segments), curves (such as circles), angles, regions, etc., and labels that identify these objects or their sizes. Geometric figures are assumed to lie in a plane unless otherwise indicated.

Points are indicated by a dot, a label, or the intersection of two or more lines or curves. Points on a line or curve are assumed to be in the order shown; points that are on opposite sides of a line or curve are assumed to be oriented as shown. Lines shown as straight are assumed to be straight (though they may look jagged on a computer screen). When curves are shown, they are assumed to be not straight. Angle measures are assumed to be positive and less than or equal to 360 degrees.

To illustrate some of these conventions, consider the following geometric figures.



From the figures, it can be determined that

- $\triangle ABD$ and $\triangle DBC$ are triangles.
- Points A , D , and C lie on a straight line, so $\triangle ABC$ is also a triangle.

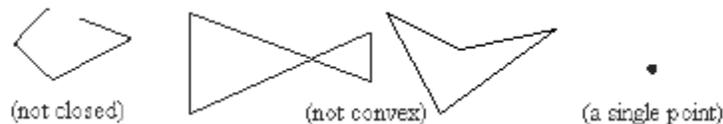
- Point D is a distinct point between points A and C.
- Point E is the only intersection point of line segment BC and the small curve shown.
- Points A and E are on opposite sides of line BD.
- Point F is on line segment BD.
- The length of line segment AD is less than the length of line segment AC.
- The length of line segment AB is 10.
- The measure of angle ABD is less than the measure of angle ABC.
- The measure of angle ACB is 35 degrees.
- Lines m and n intersect the closed curve at three points: R, S, and T.

From the figures, it cannot be determined whether

- The length of line segment AD is greater than the length of line segment DC.
- The measures of angles BAD and BDA are equal.
- The measure of angle ABD is greater than the measure of angle DBC.
- Angle ABC is a right angle.

When a square, circle, polygon, or other closed geometric figure is described in words

with no picture, the figure is assumed to enclose a convex region. It is also assumed that such a closed geometric figure is not just a single point. For example, a quadrilateral cannot be any of the following:



When graphs of real-life data accompany questions, they are drawn as accurately as possible so you can read or estimate data values from the graphs (whether or not there is a note that the graphs are drawn to scale).

Standard conventions apply to graphs of data unless otherwise indicated. For example, a circle graph represents 100 percent of the data indicated in the graph's title, and the areas of the individual sectors are proportional to the percents they represent. Scales, gridlines, dots, bars, shadings, solid and dashed lines, legends, etc., are used on graphs to indicate the data. Sometimes, scales that do not begin at zero are used, as well as broken scales. Coordinate systems such as number lines and xy -planes are generally drawn to scale.

Arithmetic

Questions that test arithmetic include those involving the following topics: arithmetic operations (addition, subtraction, multiplication, division, and powers) on real numbers, operations on radical expressions, the number line, estimation, percent, absolute value, properties of integers (for example, divisibility, factoring, prime numbers, and odd and even integers).

Some facts about arithmetic that may be helpful:

- For any two numbers on the number line, the number on the left is less than the number on the right; for example, -4 is to the left of -3 , which is to the left of 0 .

- The sum and product of signed numbers will be positive or negative depending on the operation and the signs of the numbers; for example, the product of a negative number and a positive number is negative.

- Division by zero is undefined; that is, $\frac{x}{0}$ is not a real number for any x .

- If n is a positive integer, then x^n denotes the product of n factors of x ; for example, 3^4 means $(3)(3)(3)(3) = 81$. If $x \neq 0$, then $x^0 = 1$.

- Squaring a number between 0 and 1 (or raising it to a higher power) results in a smaller number; for example,

$$\left(\frac{1}{3}\right)^2 = \frac{1}{9} \text{ and } (0.5)^3 = 0.125.$$

- An odd integer power of a negative number is negative, and an even integer power is positive; for example,

$$(-2)^3 = -8 \text{ and } (-2)^2 = 4.$$

- The radical sign $\sqrt{\quad}$ means "the nonnegative square root of;" for example, $\sqrt{0} = 0$ and $\sqrt{4} = 2$. The negative square root of 4 is denoted by $-\sqrt{4} = -2$. If $x < 0$, then \sqrt{x} is not a real number, for example, $\sqrt{-4}$ is not a real number.

- The absolute value of x , denoted by $|x|$, is equal to x if $x \geq 0$ and equal to $-x$ if $x < 0$; for example, $|8| = 8$ and $|-8| = -(-8) = 8$.

- If n is a positive integer, then $n!$ denotes the product of all positive integers less than or equal to n ; for example, $4! = (4)(3)(2)(1) = 24$.

- The sum and product of even and odd integers will be even or odd depending on the operation and the kinds of integers; for example, the sum of an odd integer and an even

integer is odd.

- If an integer P is a divisor (also called a factor) of another integer N , then N is the product of P and another integer, and N is said to be a multiple of P ; for example, 3 is a divisor, or a factor, of 6, and 6 is a multiple of 3.
- A prime number is a positive integer that has only two distinct positive divisors: 1 and itself. For example, 2, 3, 5, 7, and 11 are prime numbers, but 9 is not a prime number because it has three positive divisors: 1, 3, and 9.

Algebra

Questions that test *algebra* include those involving the following topics: rules of exponents, factoring and simplifying algebraic expressions, concepts of relations and functions, equations and inequalities, and coordinate geometry (including slope, intercepts, and graphs of equations and inequalities). The skills required include the ability to solve linear and quadratic equations and inequalities, and simultaneous equations; the ability to read a word problem and set up the necessary equations or inequalities to solve it; and the ability to apply basic algebraic skills to solve problems.

Some facts about algebra that may be helpful:

- If $ab = 0$, then $a = 0$ or $b = 0$; for example, if $(x - 1)(x + 2) = 0$, it follows that either $x - 1 = 0$ or $x + 2 = 0$; therefore, $x = 1$ or $x = -2$.
- Adding a number to or subtracting a number from both sides of an equation preserves the equality. Similarly, multiplying or dividing both sides of an equation by a nonzero number preserves the equality. Similar rules apply to inequalities, except that multiplying or dividing both sides of an inequality by a negative number reverses the inequality. For

example, multiplying the inequality $3x - 4 > 5$ by 4 yields the inequality $12x - 16 > 20$;
 however, multiplying that same inequality by -4 yields $-12x + 16 < -20$.

- The following rules for exponents may be useful. If r , s , x , and y are positive numbers, then

(a) $x^{-r} = \frac{1}{x^r}$; for example, $5^{-3} = \frac{1}{5^3} = \frac{1}{125}$

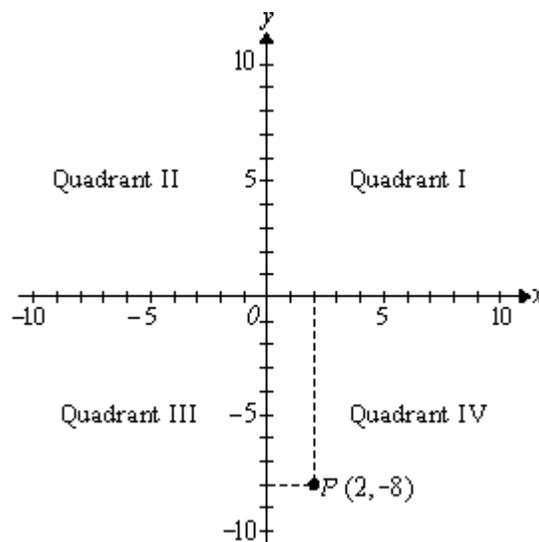
(b) $(x^r)(x^s) = x^{r+s}$; for example, $(3^2)(3^4) = 3^6 = 729$

(c) $(x^r)(y^r) = (xy)^r$; for example, $(3^4)(2^4) = 6^4 = 1,296$

(d) $(x^r)^s = x^{rs}$; for example, $(2^3)^4 = 2^{12} = 4,096$

(e) $\frac{x^r}{x^s} = x^{r-s}$; for example, $\frac{4^2}{4^5} = 4^{2-5} = 4^{-3} = \frac{1}{4^3} = \frac{1}{64}$

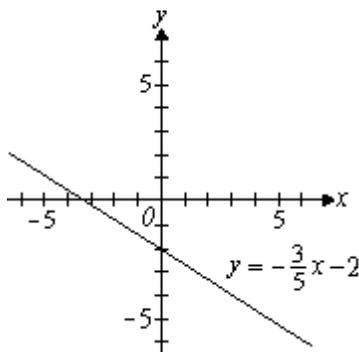
- The rectangular coordinate plane, or xy -plane, is shown below.



The x -axis and y -axis intersect at the origin O , and they partition the plane into four quadrants, as shown. Each point in the plane has coordinates (x, y) that give its location with respect to the axes; for example, the point $P(2, -8)$ is located 2 units to the right of the y -axis and

8 units below the x-axis. The units on the x-axis are the same length as the units on the y-axis, unless otherwise noted.

Equations involving the variables x and y can be graphed in the xy -plane. For example, the graph of the linear equation $y = -\frac{3}{5}x - 2$ is a line with a slope of $-\frac{3}{5}$ and a y -intercept of -2 , as shown below.



Geometry

Questions that test *geometry* include those involving the following topics: properties associated with parallel lines, circles, triangles (including isosceles, equilateral, and $30^\circ - 60^\circ - 90^\circ$ triangles), rectangles, other polygons, area, perimeter, volume, the Pythagorean Theorem, and angle measure in degrees. The ability to construct proofs is not measured.

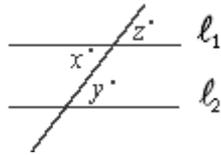
Some facts about geometry that may be helpful

If two lines intersect, then the opposite angles (called vertical angles) are equal; for example, in the figure below, $x = y$.



If two parallel lines are intersected by a third line, certain angles that are formed are

equal. As shown in the figure below, if $l_1 \parallel l_2$, then $x = y = z$.

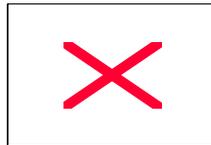


The sum of the degree measures of the angles of a triangle is 180.

The square of the length of the hypotenuse of a right triangle is equal to the sum of the squares of the lengths of the two legs (Pythagorean Theorem).

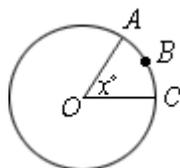
The sides of a $45^\circ - 45^\circ - 90^\circ$ triangle are in the ratio $1 : 1 : \sqrt{2}$, and the sides of a $30^\circ - 60^\circ - 90^\circ$ triangle are in the ratio $1 : \sqrt{3} : 2$.

Drawing in lines that are not shown in a figure can sometimes be helpful in solving a geometry problem; for example, by drawing the dashed lines in the pentagon below, the total number of degrees in the angles of the pentagon can be found by adding the number of degrees in each of the three triangles: $180 + 180 + 180 = 540$.



The number of degrees of arc in a circle is 360.

If O is the center of the circle in the figure below, then the length of arc \underline{ABC} is $\frac{x}{360}$ times the circumference of the circle.



The volume of a rectangular solid or a right circular cylinder is the product of the area of the base and the height; for example, the volume of a cylinder with a base of radius 2 and a height of 5 is $\pi(2^2)(5) = 20\pi$.

Data Analysis

Questions that test data analysis include those involving the following topics: basic descriptive statistics (such as mean, median, mode, range, standard deviation, and percentiles), interpretation of data given in graphs and tables (such as bar and circle graphs, and frequency distributions), and elementary probability. The questions assess the ability to synthesize information, to select appropriate data for answering a question, and to determine whether or not the data provided are sufficient to answer a given question. The emphasis in these questions is on the understanding of basic principles (for example, basic properties of a normal distribution) and reasoning within the context of given information.

The previous material provided online by the Educational Testing Service and can be retrieved at www.ets.org.

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