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A Comparison Between Computer Assisted Group Therapy and Group Psychotherapy

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A COMPARISON BETWEEN COMPUTER ASSISTED GROUP THERAPY AND GROUP PSYCHOTHERAPY

by

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A COMPARISON BETWEEN COMPUTER ASSISTED GROUP THERAPY AND GROUP PSYCHOTHERAPY

Dennis A. Hunyadi, Ed.D.

Western Michigan University, 1994

The comparison of two forms of group psychotherapy, a computer assisted group therapy model, the Therapeutic Learning Program (TLP), and a conventional model, was the focus of this study. A control group of subjects on a waiting list to begin treatment in an outpatient psychiatric clinic was also used in the analyses. The participants were diagnosed according to DSM-IIIR criteria.

The groups were compared on gender, age, race, diagnosis, length of time in treatment, number of group sessions received, length of time on the waiting list, and pre and post test scores on Taylor's Manifest Anxiety Scale and Rotter's Locus of Control Scale. The two experimental groups were also compared on the Lieberman's Group Psychotherapy Questionnaire.

A total of 35 subjects participated in the study; 12 in the TLP experimental group, 12 in the conventional therapy experimental group and 11 in the control group. Analyses were conducted to investigate the relationship between type of treatment and subject ratings of group effectiveness.

Significant differences were found among all three groups on the measure for manifest anxiety, but subject ratings of their group experience showed no differences. Therapeutic gains made in treatment were accomplished in a

significantly shorter time period for subjects in the TLP group. Issues impacting

length of time in treatment and goal attainment were discussed for each treatment

group. Recommendations for further research were also identified.

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A comparison between computer-assisted group therapy and group psychotherapy

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Western Michigan University, 1994

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CHAPTER I

INTRODUCTION

The Problem

The Therapeutic Learning Program (TLP), developed by Roger Gould (1987), is a software program designed to assist individuals seeking psychotherapy. The program emphasizes symptom identification, action plans and related developmental difficulties. Reports of the benefits of this kind of "assisted" psychotherapy are routinely reported to the psychological community (Agras, 1987; Colby, 1976; Colby, 1981; Garrison, 1987). Meyers (1989) focuses attention on the use of a computer to assist psychologists in providing individual and group psychotherapy. Her research indicates that by having patients spend 10 hours of time (1 hour sessions) answering questions on a software program under the supervision of a licensed psychologist and participating in individual and group therapy (for an additional 15 hours) there is a significant effect on patients' disclosure, therapeutic focus, and willingness to invest in their own recovery. "Regan said the computer focuses patients and gives them specific issues to discuss at group and individual therapy sessions" (p. 4). Thomas Nagy, chairperson of the American Psychological Association Task Force on Ethical Issues, is currently revising the APA's code of ethics due to the increased use of

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telephones and computers in treatment. Meyers (1989) states, "Nagy agrees that computers can be beneficial but warns that human contact is essential to some patients-particularly those whose problems are based in faulty relationships with humans'" (p. 4). The TLP is an attempt to provide a multi-modal approach using current computer technology with the interaction of a trained, licensed professional psychologist.

While using the TLP in conjunction with group therapy, Garrison (1987) states, "...TLP uses computers in tandem with a therapist. The computer asks questions, assigns homework, and tries to uncover 'thinking errors' that trap patients in self-destructive behavior" (p. 1). This combined approach of therapist and branching logic software assists patients in identifying areas of conflict in daily living and developing an action plan to manage these conflicts. Garrison continues,

> Most people encounter a lot of stress in their day to day lives, but often they're not even sure what is bothering them. And the majority of these people resist any suggestion that they may have a mental-health problem. In other words, they won't see a "shrink" (p. 1).

The technique behind computer assisted therapy is that the clients soon understand that only they can solve their problems. The TLP program is self-directed; the patient is directed back to the computer for more information and self-process throughout therapy.

Patients felt that they could be more truthful, less embarrassed and more willing to probe into problem areas by working with a computer than a human

therapist. Additionally, patients exposed to computer interviews behaved with less inhibition than during therapist interviews (Joyce, 1988). In this era of computerization, software programs are being adapted to the human services field; more specifically to actually assist psychotherapists in the treatment of their patients in psychological testing, intake interviews, diagnostic assessment and in the delivery of direct therapeutic interventions.

How does the TLP compare and contrast with traditional group psychotherapy as defined by Yalom (1985)? Does computer-assisted group psychotherapy offer group members the same opportunity for cohesiveness, hope, universality and imitative behavior that has been well documented since group practice became a popular method of therapy in the 1930's? Traditional group therapists might view the intrusion of the computer as cold, methodological and analytically pure intervention that is devoid of human interaction which is at the core of our social structure and the core of psychotherapy. The involvement of patients/clients in this non-human intervention only distances individuals from facing the root of their problems, that is, problems in relating to other human beings not problems in using computer technology. The relative effect of computer assisted therapy, the TLP, will be the focus of this dissertation.

Background

For decades psychologists have been trained to provide therapeutic intervention to individuals diagnosed with psychological and psychiatric disorders.

These trained therapists have been coached, supervised, and critiqued in their individualized techniques to be non-judgmental, communicate positive regard and identify any countertransference issues that may be influencing the patient's therapy. Langs (1988), Stoltenberg and Delworth (1987), and Strupp and Binder (1984) discuss the effect of the therapist's conscious and unconscious behavior as influencing the therapeutic outcome of clients and patients both for positive change or negative contamination in each session with a patient. With the advent of powerful, sophisticated software and personal computers allowing people to interact with a computer program at their own pace and with complete control, the computer may aid in the focusing of issues for therapy, reduce the level and amount of countertransference, increase the level of personal disclosure with a therapist in group or in individual therapy, and aid in the therapeutic group process of cohesiveness, belonging, change, working in the present, and assist in the transition from an external locus of control to an internal locus of control. The current state of computer programming allows the individual to identify their own areas of stress or symptoms, develop their own action steps and directs the implementation of these action steps.

As a result of increased technology a new form of therapy has developed. "Techno-therapy" has been coined to identify those computer therapy and computer assisted therapy programs that have been developed during the past 20 years (Garrison, 1987). The popularity and efficacy of computer assisted therapy is growing in not only research studies but in published research journals.

Empirical studies have been published regarding the use of computers by psychologists (Colby, 1976; Griest, 1984; Myers, 1989; Uttal, 1972). "Expert systems" have been developed to analyze and treat sexual dysfunction (Binik, Freinwald, Hall, & Servan-Schreiber, 1988), that is the computer has been exclusively used as a method of psychotherapy without the assistance of a human therapist (Servan-Schreiber, 1986).

Murphy and Pardeck (1986) criticize the use of computer-mediated psychotherapy as a "dehumanizing quality of these new therapeutic methods by the removal of the human element, the therapist, from the delivery of clinical services" (p. 1099). In addition to the concern of dehumanizing the therapeutic process is the lack of significant research regarding the effect of having the patient confronted with a therapist who can act as a model for social behavior, intimacy, positive regard, cohesiveness and warmth. Can intelligent computer software simulate these human interactions? Is current technology capable of sustaining a relationship with a patient that goes beyond data-collection, print-outs and homework assignments that are re-entered into the computer? There is also a lack of empirical evidence from client/patient groups regarding who might be better served by computer assisted therapy and who might find computer assisted therapy counter productive as an intervention. Lack of familiarity with computers might also add stress to the individual's therapy and may result in the person avoiding or terminating therapy prematurely.

Although research has been accumulating over the past 20 years regarding

the use of computers in assessment, diagnosis and treatment of emotional dis-

orders, experimental studies of these forms of therapy have been limited. Con-

trolled research using outcome measures and follow-up designs has not been

done. An experimental approach will be utilized in this dissertation in order to

further assist in establishing the efficacy of one type of computer assisted therapy.

<div align="center">Statement of the Problem</div>

The popularity of computer assisted therapy is increasing during this era

of expanded, personalized and affordable computer technology. Currently,

recently developed computer programs are being marketed, sold and used in

homes of patients, their therapists' offices and on inpatient treatment units.

Journal and newspaper articles have been publishing patient accounts as well as

empirical research on the possible efficacy of these programs in the treatment of

mental disorders; however, controlled clinical research regarding the use of these

therapies is absent. It is the intent of this dissertation to evaluate a computer

assisted therapy program, the Therapeutic Learning Program (TLP), using an

experimental research design. Three outcome measures will be statistically ana-

lyzed for three groups of individuals who have participated in the TLP therapy

model, the conventional model of group psychotherapy and a control group.

Agras (1987) has stated,

> The percentage of controlled clinical studies published in Behavior
> Therapy has steadily increased over the years and studies now have a
> longer duration of follow-up. Despite this progress, a theme of discontent

has been sounded in the literature. One source of dissent has been sown by the claim that all therapies are equal. Such a claim leads to a theoretical and therapeutic dead end. Rather, it is necessary to identify the active ingredients of all therapies that have been demonstrated to work in particular conditions (p. 203).

Both TLP and group psychotherapy have laid claim to effective interventions in assisting individuals to identify sources of stress, develop plans to manage these stressful events and to change people's behavior, emotions and cognitions. Through the use of a controlled clinical design, empirical research regarding these two methods of therapy can be added to the existing body of psychological literature that has been primarily historical, descriptive and action methods of research (Isaac & Michael, 1987).

Research Questions

1. Are there differences between group therapy models?

2. Do differences in age, gender, treatment facilities, race and diagnosis effect treatment outcomes in both forms of group therapy?

3. Does Yalom's model of group therapy offer a valid comparison between conventional group therapy and computer assisted therapy?

Research Hypothesis

1. Significant differences will exist between participants in the TLP, conventional therapy and control groups on measures of anxiety and locus of control.

2. Participants in the TLP group will have significantly greater change on measures of anxiety and locus of control than participants in the conventional model of group psychotherapy.

3. Participants in the TLP group will rate their group therapy experience significantly higher (better) than participants in the conventional group.

Purpose

The purpose of this study is to compare and evaluate outcome measures for three groups of patients/clients that are participating in the TLP, group psychotherapy and clients on a waiting list for psychotherapy. One group (first experimental group) will be randomly assigned to the 10 session TLP format for group therapy. The second group (second experimental group) will be assigned to group therapy without TLP following group process procedures discussed by Yalom (1985 & 1983). This model of conventional group therapy is differentiated from other types of conventional therapies such as Psychoanalysis, Adlerian Psychotherapy, Person-Centered therapy, Rational Emotive therapy, Behavior therapy, Gestalt therapy, and Transactional Analysis that have been effective treatment interventions both in individual and group therapy for many years (Corey & Corey, 1982; Corsini, 1984; Levine, 1979; Lieberman, Yalom, & Miles, 1973). In Yalom's model of group psychotherapy emphasis is placed on existential theory and the here and now moment of human interaction. Immediacy, community, genuineness, and human emotions are highlighted and discussed in

a group therapy context. The group therapist acts as the initiator and facilitator for group discussions and patient disclosures of their intimate feelings, thoughts and behaviors. The group then becomes a powerful mechanism in assisting members in making healthy changes in their behaviors, beliefs and actions. The third group (control group) will be patients/clients on a waiting list to begin psychotherapy in an inpatient or an outpatient treatment program. Evaluation of the outcome measures will establish the relative merit of each of the groups as to change in patient/client locus of control, client satisfaction, and manifest anxiety (Ciarlo, Brown, Edwards, Kiresuk, & Newman, 1981).

Using specific measurable outcomes in a pretest/post-test format, additional empirical evidence will be developed to further the efficacy of each model of treatment as it applies to a clinical population and how it contrasts to the control group.

<center>Importance of This Study</center>

Given the cultural values of the therapist and how the therapist's values influence the delivery of psychotherapy as well as mandates on accountability, time, cost, effectiveness and efficiency of psychotherapy, this research is structured to identify how computer assisted therapy might begin to aid the therapist in identifying, focusing and empowering patients in their efforts to recover from emotional disturbances in a less value laden, effective and efficient treatment environment. Axelson (1985) discusses the issue of cultural influences of the

therapist in the delivery of counseling services. A controlled clinical investigation of the TLP as compared to traditional group psychotherapy was conducted in order to provide much needed experimental research in regard to their comparative merits. The literature has revealed that empirical research on computer assisted psychotherapy is limited with a current focus on marketing various software programs and lauding the merits of specific therapeutic programs. Establishing the merit of computer assisted psychotherapy will enhance the patient's therapy by increasing participation, reducing the effect of transference and countertransference, provide the therapist with information about the client that is aimed at the presenting problem and possibly differentiate a group of clients that can benefit from the assistance of computer enhanced psychotherapy.

Definition of Terms

Computer-assisted therapy (TLP) -- is the technique of psychotherapy where the patient/client spends time working on a computer software program designed to gather data on a presenting problem as well as individual or group therapy with a trained, licensed psychologist or counselor.

Conventional group psychotherapy -- The model used is consistent with Yalom's approach to group treatment as opposed to other orientations. The focus is on immediacy, community, genuineness, and group members' disclosures to one another (Yalom, 1983 & 1985).

Locus of control -- is the origin of one's decision making ability in that the

majority of decisions are derived from a self (internal locus) or by others (external locus) (Rotter, 1966).

Manifest anxiety -- is the state of worry or apprehension about what may happen (Webster 1968). It is measured by the Taylor Manifest Anxiety Scale (1953) which is a scale of 50 items drawn from the Minnesota Multiphasic Personality Inventory that measures a person's level of anxiety at the time of test taking.

Client Satisfaction -- is the positive or negative opinion of the individuals participating in the TLP group or the psychotherapy group. This will be measured by the Lieberman questionnaire on outcome measures and client satisfaction for group psychotherapy (Lieberman, Yalom & Miles, 1973).

Outline

The remainder of this study will first focus on a review of the related literature in Chapter II. Next, a description of the methodology used in this study appears in Chapter III. Chapter IV focuses on the findings of this study. Chapter V is a summary of the study, a discussion of the conclusions that can be drawn from the clinical research, and recommendations for future investigations.

CHAPTER II

REVIEW OF RELATED LITERATURE

Overview

In preparation for this study, scientific research was reviewed regarding the use of computers as they relate to the practice of psychology and group psychotherapy. During the past 20 years the use of computers and computer software has been expanding at a rapid rate. In fact, some researchers are suggesting that the current computer technology can aid or replace and in some cases is superior to human psychotherapeutic intervention (Talley, 1987). Although there is a growing body of literature to support this argument clinically controlled investigations are few (Utall, 1972). The present chapter will focus on the use of computer therapy in the current literature, computer-assisted therapy, or what has been labeled as "techno-therapy" (Garrison, 1987).

Computer Applications to Psychotherapy

Computer assisted therapy started in the 1960's with a software program titled ELIZA (Weizenbaum, 1966). This program attempted to simulate a model of client centered communication between the computer and the patient. Input sentences were used by the person that triggered responses by the computer. The

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user received general statements such as "Please Go On", or "MMMMM..." or the program referred the user back to earlier material. Servan-Schreiber provides an example from ELIZA:

> Computer: What is your problem?
> Patient: I am worried about the weather.
> Comp: How long have you been worried about the weather?
> Pt: Since my mother passed away.
> Comp: Tell me more about your family.
> Pt: They all like computers.
> Comp: Do machines frighten you?
> Pt: No.
> Comp: Please don't be short with me.
> Pt: I am sorry.
> Comp: Earlier you talked about your mother.
> Pt: Yes, she didn't like me very much.
> Comp: Please go on (p. 192).

This was the beginning of an attempt at using computers to interact with patients in the identification, data collection and discussion of a presenting problem.

Another software program developed by Colby (1976, 1981) titled PARRY attempted to simulate the verbal behavior of a paranoid client during an assessment interview. An example of an interaction between PARRY and a psychiatrist follows:

> Interviewer: Hello, my name is Dr. Jones.
> Patient (PARRY): Glad to meet you.
> Int: What's your name?
> Pt: Pat Smith.
> Int: Patrick or Patrica?
> Pt: I'm a man.
> Int: How old are you?
> Pt: Twenty-eight.
> Int: Why are you here?

Pt: I'm somewhat upset.
Int: Have you dreamt any strange dreams?
Pt: I don't remember dreams.
Int: Can strangers read your mind?
Pt: Naturally not.
Int: I see you're touchy about that.
Pt: Only when people annoy me.
Int: Do you like being here?
Pt: No.
Int: Being in the hospital might do you a lot of good.
Pt: It's not helping me much to be here.
Int: I was told you're on medication.
Pt: I take sort of sedatives.
Int: Were you ever on any kind of medication before?
Pt: No.
Int: Do you plan to continue taking it?
Pt: I don't really need help like they think.
Int: Do you have any hobbies?
Pt: I like horse racing.
Int: Go on.
Pt: There are a lot of tricky operators down there.
Int: Did you get gypped?
Pt: Yes, those guys are crooks.
Int: Are you distrustful of people?
Pt: Some people act kind of funny, like those immigrant types I work with.
Int: In what way?
Pt: Those foreigners are trying to run the country (p. 193).

These transcripts from both the ELIZA and PARRY programs have been reproduced to demonstrate the level of sophistication that has developed over the last two decades in artificial intelligence programming.

Shipley (1989) has defined artificial intelligence as, "The subfield of computer science that endeavors to develop machines capable of performing functions normally associated with human intelligence, such as reasoning, learning and understanding human language" (p. 66). It is through these artificially intelligent (AI) programs that computer software has become more compatible for use in

interactions with human patients and for assisting psychotherapists.

Nadelson (1978) discusses the current problems of computer assisted psychotherapy as artificial intelligence in the field of psychology that has been "quintissentially" human. He summarizes his article by stating that the profession of psychology namely psychotherapy and psychotherapists remain open to the idea and benefit of computer mediated psychotherapy (CMP) and computer assisted psychotherapy (CAP). Computers can improve the efficacy, efficiency and power of therapeutic interventions. He writes,

> We need means of introducing the broadest spectrum of information within our own 'data base'. Computers may help with such collations and we should not be resistant because of our own vulnerable humanity. As we recognize our own deficiency we can allow for the machine's obvious failings as well (p. 497).

Other examples of AI computer therapies have been described by Binik, Freinwald, Hall and Servan-Schreiber (1988). They discuss the ELIZA program, the Systems Interactive Guidance and Information (SIGI) program that matches computer assessed values of the user to a list of possible occupations. PLATO Dilemma Counseling System (DCS) is a program designed to assist users in the identification and solutions to areas of conflict. Finally, SEXPERT is an AI system used in assisting couples dealing with sexual dysfunctions where couples interact jointly and separately with the computer. The authors conclude their discussion of these AI expert computer systems with a statement affirming an overwhelming need to establish rules and regulations that will govern the use, distribution and marketing of these psychological software programs. They state,

"The development of responsible and enforceable standards concerning psychotherapeutic software will provide information to responsible psychologists concerning the use, standardization, validation, and testing of such programs" (p. 399).

Fine and McIntosh (1986) used a computer assisted interactive video system to train graduate students in different approaches to marital therapy. They demonstrated that by linking a video demonstration of couples involved in marital therapy with a computer they were able to enhance the students abilities to learn various and differential approaches to marital and family therapy and diminish student confusion to a growing number of diverse therapy interventions.

Considering this growing need for regulation, validation and testing of computer assisted therapy programs, Murphy and Pardeck (1986) conducted a review of current uses of computers which include client assessments, intake interviews, monitoring treatment plans, administering, scoring, and interpreting psychometric instruments and conducting therapy sessions. They discussed the relative merit of such computer use, provided available empirical evidence regarding these software programs and a critique of computer assisted psychotherapy. They caution therapists that if practitioners are not sensitive to the effect and changes that computers make on the therapeutic process an alteration will occur in the practice of psychotherapy where the dehumanizing effect would be detrimental. They conclude, "Therapy should not be justified by a value-free methodology, but one that probes the human condition to expose its secrets. For only

in this way can both strengths and weaknesses of a person be known, thereby allowing a therapist to be a true healer" (p. 1110).

Careful investigation and analysis of the interaction of the therapist and the computer with a patient/client maintains the quality of psychotherapy, ego development is improved and the problem solving process of the human individual is expanded. Greist (1984) wrote,

> The scientific method is somewhat antithetical to our more intuitive, dynamic, interpretive psychotherapeutic heritage, but there is no substitute for controlled research. If enough clinicians carefully pursue intervening problems in single areas, we can assemble and possibly integrate a large system of computer interviews in five, ten, twenty or more years that will do our profession proud (p. 193).

The purpose of this study is to provide an empirical investigation and analysis of individuals participating in a computer assisted group therapy program with a group of patients/clients participating in a conventional model of group psychotherapy and a control group of matched patients awaiting therapy. Through this study evidence is provided for the relative merit, efficacy and effectiveness of the Therapeutic Learning Program (TLP).

<div align="center">Therapeutic Learning Program</div>

Gould (1987), a psychiatrist and president of a software marketing company, has developed a 10 step software program that assists patients in clarifying problems, identifying areas of stress and gradually resolving conflicts by developing action plans aimed at reducing the identified sources of stress.

Between each of these 10 steps or sessions patients review their print-outs from the previous computer session in a group format with a trained licensed psychologist. The sessions are organized into three sections. Section I, which includes sessions one and two, addresses the issues of "what hurts, and what can you do about it that you are not presently doing". Section II, which includes sessions three through five, focuses the patient's attention on the evaluation of the action plan, i.e., would taking this action be a wise and safe thing to do? Section III, which includes sessions six through nine, focuses the user on the issue of what deeper fears stop him/her from implementing his/her action plan. Finally, session 10 is a review and assessment of the work done over the previous nine sessions along with the group interventions with the therapist and other patients using the TLP program design.

Talley (1987), in a survey of 399 clients who had used the TLP, showed significant reduction in levels of stress. Seventy-eight percent of the clients surveyed claimed reduction of stress as a result of participating in the TLP program. A high degree of satisfaction with the program was indicated by 96% of the participants. Eighty percent of the clients surveyed stated that the TLP helped them think more clearly, 60% were helped to overcome a reluctance to talk, 82% stated that working on the computer gave them more to talk about than expected and 78% stated that the computer program was more individualized and responsive to unique concerns than expected. What was of primary interest in this evaluation was the comparison of the group therapy sessions with the TLP's

sessions. One of the survey questions asked, "Which taught you most about yourself?" Sixteen percent responded that group therapy taught more, 8% stated that both group therapy and TLP were the same and 72% stated that the TLP was better. A follow-up question asked, "Which produced the most change?". Sixteen percent stated group therapy, 8% both the same and 72% the TLP. An opinion question considered, "Which would you choose in the future?" Sixteen percent would choose group therapy, 24% thought both were the same and 60% would choose the TLP. Overall, this evaluation indicated overwhelming client support, satisfaction and effectiveness of the TLP over both group and individual therapeutic components of this model.

Additional evaluative research has indicated that 65% of the sample studied one to three years after participation in the TLP program attribute participation in the TLP for their continued ability to solve problems. Also, 73% of the respondents stated that their stress level was lower one to three years after completing TLP. Finally, 81% of those surveyed reported increased ability to problem solve one to three years after completing the TLP program (Klein, 1988).

Impressive literature and outcome measures have been published regarding the effectiveness and strength of the TLP program over a period of time. Schwartz (1984) has added,

> Can a computer do therapy?...it is clear that the computer has a number of capabilities that can extend and enhance the therapist's impact. Examples of this are the use of the computer to help patients organize their thoughts and feelings about certain issues or to present simulations and games that can assist them in developing greater frustration-tolerance

or better long term planning abilities (p. 319).

What remains to be investigated is the evaluation of the TLP with a well validated and well researched group psychotherapeutic process.

Summary

Research was reviewed that established the positive and critical aspects of computer mediated psychotherapy (CMP) and computer assisted psychotherapy (CAP). The Therapeutic Learning Program (TLP) was reviewed as one CAP and current evaluation studies were discussed. Finally, the source for the outcome measures for this study was cited. Participants in the TLP design responded to follow-up surveys indicating more positive changes by participating in a CAP model than a conventional psychotherapy model.

CHAPTER III

METHODOLOGY

Overview

An experimental design was developed to address the problem of the lack of controlled clinical investigations in the use of computer-assisted psychotherapy (CAP). Three outcome measures were used to identify changes in a pretest/post-test measurement of the individuals' scores who participated in two forms of group psychotherapy, one computer assisted experimental group, the second experimental group of conventional group psychotherapy and a control group of clients awaiting assignment to begin psychotherapy. Individuals were referred to three separate facilities. The first experimental group consisted of 12 subjects receiving computer assisted group therapy at a large community hospital inpatient psychiatric unit in a mid-western state. The second experimental group consisted of 12 subjects receiving conventional group psychotherapy at an adult psychiatric unit at a free standing psychiatric hospital in a large mid-western state. The control group consisted of 11 subjects on a waiting list at an outpatient clinic in a large mid-western state.

Three outcome measures were used to identify changes in a pretest/ post-test scores of individuals who participated in two forms of group therapy, one

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computer assisted experimental group and the second in a conventional group psychotherapy model. Subjects in these two groups were pre and post tested using the Taylor Manifest Anxiety Scale, Rotter's Locus of Control Scale and post tested using the Lieberman Group Psychotherapy Questionnaire. The control group, subjects on a waiting list to receive therapy, received both the pre and post test of the Manifest Anxiety Scale and Rotter's Locus of Control Scale but not the group therapy questionnaire.

The raw test scores were calculated and analyzed using an analysis of variance, analysis of co-variance, chi-square and Bonferroni tests to determine significance at the .05 level ($p \le .05$). The length of treatment was held constant by testing all participants prior to the beginning of their group therapy and at the time of discharge which was a 2 1/2 week process. The control group was likewise tested and re-tested using the equivalent amount of time between tests. Approval for the study was sought and granted by the Human Subjects Institutional Review Board at Western Michigan University, the Human Subjects Review committee at the inpatient psychiatric hospital and at the community mental health services board (see Appendix F).

Research Design

In this experimental approach to the comparison and analysis of two forms of group therapy and a control group, the independent variables were identified as the treatment programs of the experimental groups. The first independent

variable was the Therapeutic Learning Program model which was the computer assisted group therapy approach. The second independent variable was the conventional group psychotherapy approach to treating individuals with mental illness.

Three dependent variables were identified and evaluated using statistical analysis to measure significance in test scores. The first dependent variable was changes in pre and post test scores on the Taylor Manifest Anxiety Scale used to measure levels of anxiousness. This was a 50 item measurement asking subjects to compare themselves with true (like me) and false (not like me) choices. The second dependent variable, again used a pre and post test format, was the Rotter's Locus of Control Scale which is a 29 item forced choice questionnaire measuring subjects predisposition to be influenced by internal or self forces and external or outside of self forces. The third dependent variable investigated in this design was the subjects in the experimental groups' ratings of the key elements of their group therapy experience. This rating was the Lieberman Group Psychotherapy Questionnaire which was a 27 item form using a 7 point Likert scale to measure the degrees of satisfaction and dissatisfaction with their respective group involvement. Only the two experimental groups completed this survey.

A control variable was also used in this design. Subjects were identified and asked to participate who were waiting to begin treatment in an outpatient psychological/psychiatric clinic. The control variable was instituted to allow for measurement and analysis of significance of the independent variable on the out-

comes of pre and post test scores on changes in levels of anxiety and changes in locus of control.

The length of time between the pre and post tests was determined by the average length of stay for patients in both of the inpatient treatment facilities. The TLP program is approximately two weeks long in an inpatient facility and due to the present restrictions placed on inpatient facilities by third party payers, the average length of an allowable stay averages two to two and a half weeks in most psychiatric hospitals. This time frame was also applied to the control group subjects in order to maintain and hold constant the amount of time between the pre and post tests for all subjects participating in the study. Further, this time frame was used so as not to bias the data in favor of one treatment modality over the other. The average length of stay in the inpatient units for both experimental groups was between two and two and a half weeks.

Several hypothetical constructs were investigated in this experimental design. First, that the null hypothesis will be proved if there was no significant change in test scores among the two experimental groups and the control group. Second, that there will be no significant differences in the test scores in the two experimental groups when compared with each other but a significant difference between the experimental groups and the control group exists. Third, there will be no significant differences in the rating scales of the two experimental groups regarding member satisfaction with their respective group therapy experience. Finally, that any attributable changes in scores and ratings were under the influ-

ence of an intervening variable (e.g., age, facilities, gender) that was identified during the course of this study.

Subjects

Thirty five individuals participated in this research design. They were selected from three facilities and consented voluntarily to participate in the project. The first group consisted of 12 inpatient subjects from a community medical center's psychiatric unit. They were all diagnosed with a DSM III-R classification of mental illness and assessed in level of severity as needing inpatient psychiatric treatment. Seven subjects were diagnosed with Major Depression, 2 subjects with Bipolar Disorder, 2 subjects as Adjustment Disorder with mixed mood and 1 subject with Post Traumatic Stress Disorder (PTSD). There were 10 females and 2 males who participated in this design. Their ages ranged from 21 to 44 years old with 2 subjects choosing not to disclose their ages. Their ethnic backgrounds were 3 African-Americans and 9 Caucasians. All the subjects in this group were from a geographically large but rural county in a large midwestern state. Their length of total treatment at the facility ranged from 1 to 3 weeks with a range of group sessions in the TLP program from a low of 3 sessions to a high of 10 sessions. Each TLP session was led by a master's level occupational therapist trained in the TLP format under the supervision of a limited licensed psychologist.

The second experimental group consisted of 12 inpatient subjects at a large

free standing psychiatric hospital. All patients received a DSM III-R diagnosis and were assessed as requiring inpatient treatment. Nine subjects were diagnosed with Major Depression, 1 subject as Bipolar Disorder Mixed, 1 subject as Schizo-affective Disorder and 1 subject as Paranoid Disorder. During their length of stay at the psychiatric hospital each subject participated in conventional group psycho-therapy. There were 9 male and 3 female subjects participating in this experimental group. Their ages ranged from 27 to 69 years of age with all subjects' ages recorded. Their ethnic backgrounds were 3 African-Americans and 9 Caucasians. Five subjects were from a large rural county, 2 from a small rural county, 2 from a small rural farm county, 1 from a large metropolitan county, 1 from a small metropolitan county, and 1 from a small rural county with a small urban city. This group represented a more regional group of inpatients than both the first experimental group and the control group. The total length of treatment ranged from 1 to 3 weeks with a range of group sessions from a low of 5 sessions to a high of 15 sessions. Their group therapy sessions were led by a limited licensed psychologist.

The control group consisted of 11 subjects that were on the waiting list to receive individual and group psychotherapy from an outpatient psychiatric clinic under contract with a large community mental health services board. All subjects were diagnosed with a DSM III-R classification and assessed by the agency's intake worker as individuals requiring outpatient services. Nine subjects were diagnosed with Major Depression and 2 subjects with Post Traumatic Stress Dis-

order. One subject was omitted for failure to return their post test questionnaires. The genders of the control group subjects were 4 males and 7 females with an age range of 20 to 49 years of age with all ages recorded. Their ethnic background consisted of 1 African-American and 10 Caucasians. Ten subjects were from a large metropolitan county where the outpatient program is located and 1 subject was from a small rural county. The patients were from comparable geographic, demographic and diagnostic categories as the patients in the experimental groups. The length of time on the agencies waiting list was from 1 week to 3 weeks prior to contact by the investigator. Each participant was contacted by telephone to gain verbal permission to mail two copies of a written consent form and a copy of the pre-test questionnaires. They then signed both copies of the consent forms and mailed back one copy in a pre-addressed, stamped envelope and kept one copy for their own records. In this same mailing each subject mailed back the 2 pre-test questionnaires. Two weeks after the receipt of the pre-tests the two post test forms were mailed. They used the same procedure of mailing pre-addressed, stamped envelopes for returning the post tests. This procedure was done to insure control for the length of time to be consistent with the two experimental groups.

Unique identifier numbers were assigned to all research participants in order to insure anonymity and confidentiality of the subjects' respective responses. Names, addresses and telephone numbers were expunged from all questionnaire forms and subject data collection forms.

Instruments

An IBM Compatible Leading Edge Personal Computer with a 10 megabyte hard drive was used by subjects participating in the computer assisted group therapy experimental group. The software program was the 10 session Therapeutic Learning Program (TLP) developed by Gould (1987), president of a software marketing company in a large western state. A 13 inch color monitor was used for screen displays and a dot matrix printer was used for printing out session summaries for each patient and therapist. A space was provided for a chair and a desk for the computer, monitor and printer which was situated in front of the glass enclosed nurses' station. This desk was located in the main hallway of the psychiatric unit midway between the ends of the unit. Patients scheduled time to use the computer. Patients could be easily observed by staff as well as other patients during their computer sessions due to the public location of the desk and computer hardware.

A day room on the psychiatric unit was used to have the session follow-up discussions with the TLP trained therapist. This room consisted of several couches to provide comfortable seating for up to 10 patients at a time, an individual chair for the therapist and a coffee table that acted as a place for the therapist's summaries on each of the patients' TLP sessions.

The group format used in the TLP experimental group was open-ended. That is, members joined and exited the group according to their admission into

this form of therapy and their discharge from the hospital. The makeup of the group could change daily based on the admission and discharges from the psychiatric unit. In the same fashion, the diagnoses of members in the TLP group also changed daily during the course of their participation in the TLP group process. On one day the group could consist of four people with a diagnosis of Major Depression, one with a Bipolar disorder and one person with a diagnosis of Post Traumatic disorder. The next day, due to a new admission, the group could consist of four people with a Major Depression diagnosis, one person with a Bipolar disorder and one person diagnosed with a Schizoaffective disorder. The interaction among the members of the group consisted of a one on one dialogue with the patient and the TLP therapist with the other patients observing and listening for one and a half hours per day for five days each week that the patient was in treatment. There is some verbal interaction among group members but the main focus is the interaction of the group therapist and the individual group member regarding the TLP summaries and work done on the recommended homework assignments generated during the computer sessions. During the remainder of the time spent at the hospital the TLP patients participated in other therapies (which included chem, activity, recreational and milieu therapy) that were being offered to other non-TLP patients.

The group therapist leading the TLP group was an M.A. level Occupational Therapist who was trained in the TLP model and supervised by a licensed psychologist to assure compliance to the principals and procedures of the TLP

model. The group therapist also had a copy of the individual summaries and homework assignments that the group member completed at their individual computer sessions and the therapist's interactions with the patient was referenced by these printouts.

In the second experimental group, members used a converted, semi-private patient room for their group therapy sessions. This room was equipped with two end tables which held an incandescent lamp and a daily newspaper and magazines. There was a window, TV, VCR, and a book shelf in the group room, along with 15 fabric covered chairs with bare wood arms. These chairs were moved to form a circle during group time. This room functioned as a TV room and/or reading room during non-group times. The room was carpeted. Florescent lighting was available in the ceiling lights.

The group format used during sessions was to facilitate and encourage interaction among group members with the focus of group therapy being a microcosm of real life outside of the hospital. Again, as in the TLP group, this was an open-ended group. Group membership and consistency changed as a result of new admissions and discharges from the hospital. Group member diagnoses that constituted the make up of this group also changed frequently as a result of this open-ended structure. Discussions on patient disclosures that indicated cohesiveness, interactions among group members and immediacy were encouraged and highlighted by the group leader. Also, an affective approach and focus had priority over a cognitive problem solving model or behavioral techniques. Group

treatment followed the existential principles established by the practice and theory developed by Yalom (1985).

The group leader conducting therapy in this second experimental group was a limited licensed psychologist who was supervised by a licensed psychologist to assure compliance and feedback about the practice of this theory of group psychotherapy. The supervising psychologists were in two separate facilities and neither had information or contact with each other or the therapists for either group. The group therapists working with the experimental group subjects were supervised by their respective supervisors independently at their individual inpatient facilities.

A telephone was used in contacting perspective participants in the control group as well as follow up calls in the process of mailing out and receiving both pre and post tests. Forms were developed to collect demographic data on all subjects. This data included age, race, county of residence, gender, length of treatment or time on the waiting list and a diagnosis. A post office box was also used to act as a collecting location for the mailed, completed pre and post tests. Contact by phone was maintained with the outpatient clinic, the agency that was to serve the waiting list subjects, and any questions or concerns expressed by the subjects were forwarded to the agency by the research investigator.

All three groups completed pre and post test evaluations designed to measure changes in their level of anxiety and changes in locus of control. Anxiety levels were evaluated by using the Taylor Manifest Anxiety Scale which is a 50

item MMPI subscale. A raw score was computed on both the pre and post tests and analyzed for significance of change during their course of treatment or period of time on the waiting list.

The Rotter's Locus of Control Scale was used as a pretest/post test measure to determine an individual norm for decision making. Again, raw scores were computed on this 29 item scale and differences in test scores were analyzed to establish any significant shift in locus during their treatment period or during their time on the waiting list.

The two experimental groups' subjects were given a third evaluation questionnaire developed by Lieberman, Yalom and Miles that was used to identify the mechanism for change in psychotherapy groups. A 7 point (Likert) scale was used to evaluate each response ranging from 0 (being low or no effect) to 6 (being high or maximum effect) on a 27 item questionnaire. Each item response was compared and analyzed to determine what were the major, minor and median mechanisms for each experimental group.

Three distinct consent forms were developed in order to comply with the human subject review boards for each of the facilities and regulating agencies. One form was approved by the Human Subjects Review Board at Western Michigan University and the subjects review board at the community medical center. A revised form was developed for the human subjects review board at the psychiatric hospital and a third revision was made by the human subjects review board at the community mental health services board. Two copies of each of the

approved consent forms were given to each subject. Both identical forms were signed by each subject. One form was kept by the subject and the second form was returned to the principal investigator and kept with the subject data sheet and the scored pre and post test and group therapy questionnaires (see Appendix D).

Data Collection

The data from the computer assisted experimental group was collected by the TLP therapist at the community medical center. The subject data forms, consent forms, the MAS and Locus of Control pre and post tests were presented and collected by the therapist. Upon each completion of a form, the therapist placed it in a manila envelope marked with a corresponding unique identifier number. The envelopes where then collected by the research investigator when 12 consent forms, complete sets of pre and post tests and group therapy questionnaires where completed.

The second experimental group completed their pre and post tests after a second review board met at the psychiatric hospital to revise and approve the study and the consent form. Twelve sets of completed questionnaires along with the consent forms where collected by the research investigator that was also conducting the conventional group therapy model. The data was again collected by the research investigator using the same procedure that was used by the computer assisted experimental group. Unique identifier numbers were used to maintain confidentiality and anonymity.

After the approval of the mental health services board, the intake specialist at the outpatient clinic began to collect the data. However, due to increases in work responsibility, the process of initiating contacts with waiting list subjects and mailing consent forms, pre and post test questionnaires and filling out subject data forms was returned to the principal investigator. All contact with the subjects regarding their participation in this research design was done by telephone and no face to face interaction occurred. All transmission of completed consent forms and pre and post tests occurred through the mail. Each subject in the control group was also given a unique identifier number on all their test scores. Names and addresses were only used to address envelopes so that the subjects could receive the consent forms and questionnaires. The length of time between mailings was matched to the experimental groups so that intervals between tests were held constant. The subjects in the control group were not given the Lieberman group therapy questionnaire because of their non-involvement in any treatment at the time of the study.

Demographic data was collected on all three groups. In both experimental groups, this information came from reviewing the respective hospital's face sheets. For the subjects in the control group demographic data was collected by reviewing the outpatient agency's intake data form. This data was used to compare each of the groups by gender, age, race, length of treatment, length of time on the waiting list and county of residence.

Data Analysis

Raw scores were calculated for each of the outcome measures and the means of each sample were analyzed per outcome variable. An Analysis of variance (Isaac & Michael, 1987) was used to analyze the variance of mean scores within and between groups for each of the three outcome dependent variables. The Null Hypothesis, that there is no difference in outcome measure scores for both the experimental and control groups was refuted by the level of significance at the .05 level of significance ($p \leq .05$). An Analysis of covariance (Huitema, 1980) was done to control for differences in pretest scores so that both groups were established as equivalent at the beginning of treatment for the TLP group, group psychotherapy participants and the control group of the study.

Chi-Square tests were used to analyze differences in rating levels on the 27 item group therapy questionnaires that subjects completed at the end of their treatment programs. A 2 by 2 factorial design was used to compensate for the number of subjects in the experimental groups ($\underline{N}$ = 24). The Bonferroni test was also used to analyze the multiple dependent variables including the demographic data of age, gender, race, length of treatment, number of group sessions, pre manifest anxiety test scores and pre locus of control test scores in order to determine if there were any significant differences in all three groups due to these dependent variables.

Summary

A research design was identified and discussed to add empirical literature to the growing number of investigations on the psychological use of computers in the treatment of mental illness. Subjects were assigned to three groups of participants in this design. The independent variables of the treatment programs, one being the computer assisted Therapeutic Learning Program and the second being a conventional treatment model of group psychotherapy were presented. A control group was also utilized to evaluate changes in test scores of the experimental groups.

Appropriate instrumentation and statistical analysis tests were selected to evaluate for significant changes in test scores as well as assigning and controlling for effects not attributable to the independent variables. Level of significance was also set at $p \leq .05$. Four hypothetical constructs were identified in a null hypothesis format.

CHAPTER IV

FINDINGS

Demographic Analysis

The frequency distribution of the demographic data was analyzed. As Table 1 indicates, each group deviates from the percentages of the total population. The control group is statistically closer to the total population norm in the gender category but the two experimental groups' racial representation is much closer to the total population percentages. A high percentage of both experimental groups were in therapy for 2 to 3 weeks (91.6% and 66.6%). The conventional therapy group attended more sessions than the computer assisted group. Both experimental groups had the same number of diagnosis (4) although the diagnosis varied within each group.

The variable that remained constant was that they were all diagnosed using the DSM III-R and were in need of psychiatric treatment. The mean age for all three groups was not significantly different. When this variable was analyzed, there was a p value of 0.786 which indicated that age was not a variable influencing differences between groups. Please see Tables 1 and 2 for the raw numbers and percentages of all subjects participating in the study.

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Table 1

Demographic Analysis in Raw Numbers of Individual Participants

Variables	Group I (computer-assisted)	Group II (conventional)	Group III (control)	Total (All groups)
Gender				
Male	2	9	4	15
Female	10	3	7	20
Race				
Caucasian	9	9	10	28
Afro-American	3	3	1	7
Weeks of treatment/weeks on waiting list				
1	1	4	2	7
2	7	4	1	12
3	4	4	8	16
Number of Therapy Sessions				
3	1	—	—	1
4	4	—	—	4
5	2	1	—	3
6	1	5	—	6
8	—	1	—	1
9	1	—	—	1
10	3	4	—	7
15	—	1	—	1
Diagnosis				
Depression	7	9	9	25
Bipolar	2	1	—	3
PTSD	1	—	2	3
Schizoaf.	—	1	—	1
Adjust. Dis.	2	—	—	2
Paranoid	—	1	—	1
Age				
Mean	37.3 yrs.	38.6 yrs.	35.5 yrs.	37.1 yrs.

Table 2

Demographic Analysis in Percentages of Individual Participants

Variables	Group I (computer-assisted)	Group II (conventional)	Group III (control)	Total (All groups)
Gender				
Male	16.7%	75.0%	36.4%	42.9%
Female	83.3%	25.0%	63.6%	57.1%
Race				
Caucasian	75.0%	75.0%	90.9%	80.0%
Afro-American	25.0%	25.0%	9.1%	20.0%
Weeks of treatment/weeks on waiting list				
1	8.3%	33.3%	18.2%	20.0%
2	58.3%	33.3%	9.1%	34.3%
3	33.3%	33.3%	72.7%	45.7%
Number of Therapy Sessions				
3	8.3%	-----	-----	4.2%
4	33.3%	-----	-----	16.7%
5	16.7%	8.3%	-----	12.5%
6	8.3%	41.7%	-----	25.0%
8	-----	8.3%	-----	4.2%
9	8.3%	-----	-----	4.2%
10	25.0%	33.3%	-----	29.2%
15	-----	8.3%	-----	4.2%
Diagnosis				
Depression	58.3%	75.0%	81.8%	71.4%
Bipolar	16.7%	8.3%	-----	8.6%
PTSD	8.3%	-----	18.2%	8.6%
Schizoaf.	-----	8.3%	-----	2.9%
Adjust. Dis.	16.7%	-----	-----	5.7%
Paranoid	-----	8.3%	-----	2.9%
Age				
Mean	37.3 yrs.	38.6 yrs.	35.5 yrs.	37.1 yrs.

Hypothesis I

The research hypothesis (Ha) being investigated is that as a function of treatment effect there will be significant differences between the experimental groups and control group in relation to the pre and post test scores on the Manifest Anxiety Scale (MAS) and the Locus of Control Scales (LOC) that all three groups received. In testing this hypothesis an analysis of variance and an analysis of covariance using the Bonferroni procedure was utilized to measure statistical differences at a $p \le .05$ level of significance. The results of this analysis demonstrate that there are differences among groups on the MAS and the LOC pre and post test scores.

First, considering the variable of the MAS there are significant differences among groups. Table 3 provides the summary table for the analysis of covariance using the pretest MAS as the covariate on the post test analysis. The results

Table 3

An Analysis of Covariance on Pretest MAS Scores

Variable	DF	Sum of Squares	Mean Square	F Value	Pr > F
Group	2	439.31	219.66	4.41	0.021
Gender	1	12.57	12.57	0.25	0.62
Pre MAS	1	2021.34	2021.34	40.58	0.001

indicate that when pre and post MAS scores are analyzed, differences exist among the group at $p = .021$.

The analysis of variance of pre MAS scores indicated that all three groups show no significant differences with a $p \leq .05$. Table 4 is the summary of the analysis of variance using the pretest MAS as the dependent variable.

Table 4

Analysis of Variance on Pretest MAS Scores
All Groups

Variable	DF	Sum of Squares	Mean Square	F Value	Pr > F
All Groups	2	131.95	65.97	0.49	0.62

Table 5 indicates that differences exist between the control group and both experimental groups at $p \leq .05$ on the pre and post tests on the MAS.

This statistic lends support to the conclusion that based on the pre and post test scores of all three groups, statistically significant differences exist between the control group and both experimental groups and that the null hypothesis can be rejected.

Second, considering the dependent variable of test scores on the pre and post test of the LOC scale, the analysis of mean test scores reveals that when the analysis of covariance is performed using the pretest LOC scores as a covariate

Table 5

Summary of MAS Scale for All Groups

Variable	Post-MAS LS Mean	Std. Err. LS Mean	1	2	3
Comp. As.	22.41	2.28	----	0.02	0.86
Control	29.87	2.17	0.02	-----	0.02
Conven.	21.78	2.33	0.86	0.02	----

no significant differences are noted with a $p \leq .05$ (see Table 6).

However, the analysis of variance test using the pretest LOC scores as the dependent variable indicates that there are significant differences among groups differences are between the control group and the conventional group

Table 6

Analysis of Covariance on Post Test LOC Scores
All Groups

Variable	DF	Sum of Squares	Mean Square	F Value	Pr > F
Group-All	2	20.20	10.10	0.87	0.43
Gender	1	0.91	0.91	0.08	0.78
Pre-LOC	1	280.49	280.49	24.19	0.001

psychotherapy model. There are no significant differences between the control

at the beginning of treatment and when applying the Bonferroni procedure these

group and the computer assisted experimental group. Further, using the analysis

of covariance with the pretest LOC mean scores as the covariate, there were no

significant differences among all groups on the post test scores. Tables 7 and 8

provide the graphic display that differences do exist among groups on the

pre-LOC scores.

These statistics support the conclusion that the groups started out

differently and over the course of treatment ended up with no statistically

significant changes in their LOC scores.

Based on the analysis of this dependent variable, statistical data is offered

to accept the hypothesis (Ho) that all groups are equivalent. However, an

alternative finding is that this variable is more resilient to any change occurring

during a brief period of time in a treatment program. Considering these two

variables and their statistical significance the hypothesis (Ho) is rejected in favor

Table 7

Analysis of Variance on the Pre LOC Scores
All Groups

Variable	DF	Sum of Squares	Mean Square	F Value	Pr > F
All-groups	2	146.09	73.04	3.65	0.037

Table 8

The Bonferroni Chart of the Pre LOC Scores
All Groups

Variable	Mean Score	Number in Group
Computer assisted	15.10	12
Conventional Gr.	17.50	12
Control Gr.	12.55	11

of the hypothesis (Ha) that differences do indeed exist among groups on the LOC

scores.

Hypothesis II

The second hypothesis being evaluated is that there are significant differ-

ences between the TLP and conventional therapy groups. An analysis of variance

was done on the dependent demographic variables of number of sessions attended

by subjects and number of subjects in the experimental groups with the diagnosis

of depression. Significant differences were found with $p \le .05$. This statistic was

calculated by dividing the probability values on the analysis of variance (which is

a two tailed test) by 2 (the number of groups being evaluated) to get a one sided

test of significance. Using this calculation significant differences were found in

both variables and the hypothesis (Ho) was rejected in favor of the hypothesis

(Ha) that there are significant differences between the two experimental groups. Table 9 is the summary table of the Analysis of Variance for the demographic variables of number of group sessions of the experimental groups and number of group sessions of subjects with a depression diagnosis.

This statistic is important with regard to the dependent variable of pretest MAS and pretest LOC. As was demonstrated in Table 4 and Table 8, both

Table 9

Analysis of Variance Using Number of Group Sessions
as the Dependent Variable

| Stat. | Exp. Groups | | Depression Diagnosis | |
Categ.	Computer	Conven.	Computer	Conven.
Num.	12.00	12.00	12.00	12.00
Mean	6.17	8.17	6.20	8.70
Std. Dev.	2.80	2.90	2.70	2.90
Std. Err.	0.80	0.84	0.91	0.92
Minimum	3.00	5.00	3.00	6.00
Maximum	10.00	15.00	10.00	15.00
T	-1.73	-1.73	-1.92	-1.91
DF	21.90	22.00	17.00	17.00
P > T	0.04*	0.04*	0.03*	0.03*

*Significance at the $p \leq .05$ level.

experimental groups showed no significant differences in mean pretest scores. The data indicates that the groups started out at relatively equivalent places but with regard to the amount of time spent in group sessions these two designs are unequal. The TLP group had almost 1 1/2 fewer sessions than subjects in the conventional group therapy model.

As with hypothesis one, there is statistical support for maintaining the hypothesis (Ho). However, when factoring in the dependent variable of number of group sessions the hypothesis (Ho) needs to be rejected. The research hypothesis (Ha), that there are statistical differences between the experimental groups based on the analysis of mean scores of number of treatment sessions received by experimental group subjects, is accepted.

Hypothesis III

The third hypothesis states that participants in the TLP group will rate their group therapy experiences significantly higher (better) than participants in the conventional group.

Subjects' satisfaction ratings on the Lieberman questionnaire were analyzed using a chi-square test for each of the 27 test items to determine if any significant differences were noted among the 24 subjects in the experimental groups. Only 2 questionnaire items showed any statistical differences. For the rating on questionnaire item 2: "I have expressed my feelings of irritation, annoyance, sorrow or warmth in the group", a significant difference of $p \leq .05$ was

demonstrated. Nine out of the 12 subjects in the conventional group rated this as either a great deal or very much compared to 4 out of 12 subjects in the TLP group.

The second response showing statistical significance was item 3: "When expressing feelings of irritation, annoyance, sorrow or warmth I feel...". This response item had a value of $p \leq .05$ with only 1 out of 12 subjects in the TLP group indicating a high response and 6 out of 12 subjects in the conventional group responding with a high self rating. Table 10 illustrates the chi-square matrix.

All of the other 25 response items did not show any statistical significance of a p value of .05 or less. There were however some unique statistical outcomes regarding several statements that matched exactly when analyzed by the chi-square test. Response item 5: "I like my group" had a p value of 1.000 indicating that both groups found their group experience valuable. Both groups had 11 out of 12 subjects rating this item as very or pretty much. Likewise, item 11: "To what degree do you feel that you are included by the group in its activities?" had a p value of 1.000. Eleven out of 12 subjects for each group rated this the same. In item 12: "How do you feel about the group leader?" a p value of 1.000 was again demonstrated. Both groups had 11 subjects rate this item high and 1 subject in each group rated this low. Finally, response item 27 (14 on page 4 of the questionnaire): "Understanding why I think and feel the way I do; discovering previously unknown or unacceptable parts of myself..." received a p value of 1.000.

Table 10

Chi-Square Test on Lieberman's Questionnaire
Questions 2 & 3

| | Question 2 | | Question 3 | |
	Low	High	Low	High
Computer-Assisted	66.6%	33.3%	91.7%	8.3%
Conventional	25.0%	75.0%	50.0%	50.0%
	p = .041*		p = .025*	

*Significance at the p ≤ .05 level

One subject in both groups rated this item did not apply, 2 subjects chose "applied somewhat" and 9 subjects chose "definitely important".

Based on these statistics and the review of each of the response items, the hypothesis (Ho) is not rejected. There is clear and convincing evidence that both the TLP group and the conventional therapy group responded in statistically equivalent manners. The only notable differences were on the variables measuring the frequency and comfort in expressing emotions in their respective groups.

Summary

The data collected from two experimental groups and one control group was analyzed using the analysis of variance, analysis of covariance, the Bonferroni procedure and chi-square tests. Subject's demographic data was reviewed and

evaluated. The three groups were equivalent in age, pretest MAS scores but differences existed in pretest LOC scores, number of treatment group sessions and two responses on the group therapy questionnaire.

Three hypothesis were tested to determine if any significant differences existed among the experimental groups and the control group. The first research hypothesis (Ha) stated that differences exist among groups was accepted by the analysis of variance of the dependent variables of scores on the MAS, LOC scale and number of group sessions that each of the experimental group subjects received. This statistical analysis confirmed the rejection of the null hypothesis (Ho) that no differences existed among groups. Significant differences existed in the analysis of mean scores among all groups showing that there was a reduction in MAS scores in the post test but no significant reduction of anxiety in the control group. The LOC scale analysis showed differences in scores on the pretest between the control group and the conventional treatment group but no significance on the post test scores. Leading to the conclusion that on this test, groups started out with statistically different values but ended up with no significant changes in post test scores at $p \leq .05$.

The second research hypothesis (Ha) stated that differences exist between the two experimental groups was also accepted due to differences among the number of sessions received by each of the group subjects. The TLP group had significantly less group sessions than the conventional therapy group subjects. This demonstrated that the mean scores of the post MAS test changed in less

time than did the post test scores of the conventional therapy group subjects. This outcome measure demonstrates that as it pertains to reduction of levels of anxiety, the TLP group treatment approach was a more effective and efficient model.

Finally, the third research hypothesis (Ha) that there are significant differences on subject ratings of their group therapy experience was analyzed on an item by item analysis using a chi-square test on each of the 27 items. The hypothesis (Ha) was rejected based on the statistical information that proves that 25 of the responses were above the p value of .05 and 4 items had a p value of 1.000 indicating the same ratings by subjects in both experimental groups. It was noted not for statistical purposes but for research interest that 2 items dealing with the frequency and comfort of expressing feelings showed statistical significance. The TLP group expressed less emotive comments in their group sessions and were less comfortable with expressing feelings. Chapter V will focus on the discussion of the conclusions that can be drawn from these finding and further recommendations.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The problem which is presented in this research is whether the new computer technology can be used effectively in the human services field, specifically in the area of therapeutic interventions.

The literature review discussed several different perspectives regarding the use of computer technology in relation to its growing uses in many areas of the human service professions. Software has been developed to aid in the assessment and measurement of mental illness, office management, data collection, psychological research and analysis of research data and finally, in the delivery of psychotherapeutic interventions to patients (both inpatients and outpatients) diagnosed with mental illness. Although many journal articles and books have been published regarding the use of computers and treatment few research articles exist that incorporated an experimental design to measure any changes in treatment effect when a computer assisted model of therapy is compared to a conventional model of therapy.

The independent variables for the study were a computer assisted group therapy program, the Therapeutic Learning Program (TLP) and a conventional

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group psychotherapy model. A control variable was used by testing outpatient clients on a waiting list to begin psychotherapeutic services in a psychiatric clinic. All three groups were measured by a pre and post test on two dependent variables, one was the Taylor's Manifest Anxiety Scale (MAS) and the second was Rotter's Locus of Control (LOC) scale. Both experimental groups were measured on a third dependent variable, the Lieberman's Group Psychotherapy Questionnaire, which isolated important mechanisms that may account for differences in the experimental groups. Demographic data was also analyzed including age, gender, length of time in treatment, number of group sessions and time on the waiting list in each of the group samples to establish any statistical differences on these variables. The outcome scores of the pre and post tests as well as the demographic variables were statistically analyzed using an Analysis of Variance, Analysis of Covariance, the Bonferroni Procedure and the Chi-Square tests.

Three hypothetical constructs were established and analyzed. The first was that there are statistical differences between the two experimental groups and the control group both on the MAS and on the LOC. The analysis of the research data provided statistical basis for rejecting the null hypothesis (Ho) in favor of the research hypothesis (Ha).

The second hypothesis stated that there are statistical differences between the two experimental groups and thus the (Ho) can be rejected. The analysis of variance among the mean scores on the pre and post test scores did not indicate any differences between groups. That is they both started and finished treatment

with no significant differences in test scores, although test scores changed during treatment. When factoring in the number of group treatment sessions for each experimental group, statistically significant differences existed. The conventional group received 1 1/2 more group therapy sessions per subject than did subjects in the TLP group. Using this variable, the hypothesis (Ho) was rejected in favor of the hypothesis (Ha) that statistical differences did indeed exist between the two experimental groups.

Finally, the third hypothesis stated that differences existed between the subjects' ratings of their group experience on the group therapy questionnaire. Only 2 of the 27 questionnaire items indicated any statistical differences between the TLP group and the conventional group. Four of the 27 items indicated exactly the same ratings by subjects in the experimental groups. The hypothesis (Ho) cannot be rejected based on the Chi-Square test used in analyzing the Lieberman questionnaire. The subjects showed no clear differences in their experiences in each of their treatment programs.

Conclusions

What does this then mean to the body of literature concerning computer assisted group therapy? The statistical analysis of the dependent variables show that treatment effects occurred in both experimental groups. Subjects in both groups clearly rated their experiences as valuable, worthwhile and helped in reducing their levels of anxiety but had only minimal influences on any shifts in

LOC to a more internal, autonomous and self oriented direction. Subjects each rated their group experience as productive, effective and allowed them to gain an understanding into what was influencing them negatively prior to treatment and they were feeling better about themselves and the problems they were facing. What separates these two groups from each other is the analysis that with fewer treatment sessions the TLP group had quicker therapeutic gains than did the conventional group subjects. In a comparison between the experimental groups and the control group the data demonstrated minimal change in the control groups during the time on the waiting list. The post test results indicated that the control group subjects remained in need of psychological intervention where the experimental groups showed gains in the reduction of anxiety as a function of treatment.

However, this one and a half session difference needs to be further discussed to provide for a more comprehensive understanding. Further investigations need to be done before any conclusions or solid inferences can be made that establishes this type of computer assisted therapy is more efficient, expeditious or more cost effective than Yalom's model of group psychotherapy. Data on recidivism rates to the facilities or to other hospitals by participants in the study need to be collected to see if the gains over time are lasting. Time spent in other treatment programs by subjects also needs to be assessed to determine if therapy costs are spread over multiple treatment programs or if the TLP program alone was sufficient to address the patients' therapeutic issues. The additional costs of

computers, the software and the homework must be added into the cost formula when reviewing the significance of the 1 1/2 session difference. Because some data had statistical significance, this may not mean that it is significant in the broader perspective of practical usage, implementation and replication in other treatment facilities. This quest to find alternative psychotherapeutic techniques must be conducted in a manner that is comprehensive, thorough and looks at the realistic nature and practices of providing mental health services. This study is one of many that are needed to address the broader concern of the most effective and efficient treatment program for individuals experiencing severe and significant emotional pain and not solely what is dictated by external forces.

A second notable difference also exists among subjects in the experimental groups and that is the two responses on the Lieberman questionnaire that are statistically significant regarding the expression and comfort with the emotional component of human personality. The TLP group clearly demonstrated that in their experience the frequency of expressing feelings remained low and the discomfort with emotional content remained high. The conventional group not only expressed feelings more frequently but they gained a level of comfort with this aspect of their personalities. This finding addressed the fact that there were differences between the experimental groups and highlights a basic theoretical divergence in both approaches. The TLP program is directed to a more cognitive approach with its use of a computer logic program, printed out homework assignments and a step by step procedure to assist patients in looking at problems in

their lives. The group experiences for these subjects is again cognitively oriented with group discussions focused on talking about the progress made and barriers to completing the action steps addressed in their printouts of their individual computer sessions with the group therapist.

This format contrasts significantly with the conventional therapy model which operated out of a theoretical approach that facilitates the verbalization of intimate thoughts, feelings and discussion of behavior in a group context. The conventional model also contrasts the role of the therapist. The function of the group therapist in this model is to facilitate frank, spontaneous inner disclosures of self while the TLP therapist is aided by the printed outcomes of the group members and discussion is centered around this computer generated product. The therapists' foci are different, one being the verbal and physical behavior in the immediate group session in the conventional model and the TLP therapists' focus on what the patient has responded to or not responded to during their session with the TLP computer program. The major difference is between a cognitive theoretical approach in contrast to an approach that facilitates the expression, experience and discussion of human emotion. Although there is no overwhelming statistical significance to this variable, a practical and theoretical difference does exist and separates these two treatment approaches.

Third, considering the dependent variable of LOC none of the groups both experimental or control show any changes over time. The conclusion to be drawn here is in the nature of what this scale is measuring in contrast to anxiety which

is often a transient, time limited experience and is influenced by brief treatment approaches. The LOC scale is more resilient to change and not as easily influenced by brief treatment approaches aimed at reducing acute disturbances in thought and mood. This scale is aimed at measuring a more pervasive personality characteristic and belief system than an affective and experiential discomfort such as anxiety. Slight changes did occur however, in the direction of a higher degree of internal locus of control but were not sufficient enough to meet statistical criteria. The practical significance of this information may be lost using a statistical evaluation of outcome measures alone. Although analytically low, post test scores on the LOC scale increased to indicate movement toward an internally directed focus of autonomy and self reliance as a result of treatment.

Finally, it can be concluded that the subjects in the experimental groups actively sought and benefited from treatment as compared to subjects in the control group who where demonstrating that their levels of anxiety and LOC remained the same during the time between the pre and post testing. This is interpreted to mean that waiting list subjects' pre and post test scores on these scales indicated that they were in need of treatment prior to the testing period as well as at the time when the experimental group subjects' would have completed their therapy. A common notion that is often expressed by professionals in the human services field is that people get better on the waiting list. This does not seem to apply to this sample group. There was virtually no change in the mean scores on the MAS and only a one point change on the LOC scores (MAS means

- pre = 28.82, post = 28.91, LOC means - pre = 12.45, post = 13.91). This demonstrates that the control subjects had no reduction but a slight increase in levels of anxiety and a slight change in their LOC scores. The statistical analysis of these variables provides for the conclusion that both treatment groups experienced changes in a positive direction with reduction in scores on the MAS and increases in scores on the LOC scale. Both experimental groups showed positive changes in relationship to the control group which received no treatment during the data collection phase of this study.

Both experimental groups rated their treatment experiences positively and felt that it aided them in their attempts at managing mental illness. The pronounced significant difference was that the TLP group was able to achieve these positive treatment results in less time than the conventional treatment group. This statistically significant evidence led to the conclusion that the TLP program expedited the therapeutic process of reducing levels of anxiety in patients with four different diagnoses.

Limitations

Several limitations exist in this study that can be corrected in future attempts at establishing the efficacy of computer assisted psychotherapy.

The first limitation is the subject pool needed to be collected from three separate facilities. Attempts were made to include subjects that were diagnosed with a mental illness and needing inpatient and outpatient psychotherapy but no

single facility was found that had all three groups. That is none of the participant's treatment programs offered inpatient CAP, inpatient non CAP groups and a waiting list of patients. Subjects in the experimental groups were selected from two inpatient treatment programs at an inpatient unit in a medical facility in a large midwestern state and at a large free standing psychiatric hospital's inpatient treatment program. Subjects for the control group were selected from the waiting list at a large community oriented health outpatient program.

The second limitation is the inability to control for a single therapist providing clinical interventions in both experimental groups. Two different therapists were used in the provision of therapeutic input to the TLP group and the non-computer assisted group. Follow-up studies may be enhanced by training a single psychotherapist in both models to allow for controlling the variable of the service provider.

A third limitation is that an experimenter bias may be of concern to some readers since the author also acted as the therapist for the conventional group psychotherapy model. Due to staffing cuts at the inpatient treatment program another therapist was not available to conduct group psychotherapy in the adult psychiatric unit so that subjects were pre and post tested and received treatment in the group led by the principal researcher. However, since the researcher had no contact with the other clinician conducting the TLP group or the supervisor, there is no reason to believe the results were significantly influenced by this circumstance.

A fourth limitation is the current focus on shorter and shorter inpatient stays. Due to the influence of third party payers to drastically limit the length of treatment in costly inpatient programs, each of the subjects did not receive all of the sessions in the TLP format nor did all of the subjects in the conventional group treatment program participate in all of the groups projected by their treatment teams. However, total lengths of stay for both experimental groups were equivalent and caused a readjustment of the time of pre and post test for the control group. This limitation may also have effected the potential benefit to patients had they been allowed to complete their course of treatment as designed by each of the respective treatment teams.

The fifth limitation to this study is the length of time it took to complete the data collection phase of the design. Due to repeated delays in maintaining compliance with respective human subject review boards in each of the participating facilities and revisions of subject consent forms, subject selection, participation and data collection occurred over an 18 month period and may have influenced the significance of the data collected in each of the experimental groups in relation to each other and in relation to the control group. Future research would need to accommodate for this process in order to allow for expeditious and efficient data collection.

A sixth limitation is the low number of subjects used in each group. Sample sizes of larger numbers of subjects would have allowed for more comprehensive statistical analysis and aided in evaluation of the frequency distribution of

each group. Future research will benefit from using larger sample sizes.

Finally, the premature termination of subjects caused a delay in data collection, identifying additional subjects and a slight variance in group size that could alter the statistical analysis of groups of unequal size. Future research may yield more powerful statistical evaluations if group sizes are equivalent.

Recommendations

Several practical recommendations are being offered to address the limitations noted in the previous section. First, it is recommended that future research add an additional control variable to have subjects participate in a study from a single facility. Although initial attempts were made to locate a program offering both types of treatment approaches in a single facility, such a program could not be located. That is all facilities contacted had either the TLP group model or conventional group therapy. The agencies that were using the TLP program discontinued the use of conventional group therapy in favor of the computer assisted model. However, a simple and easy way exists to implement this design change. Any agency that is currently providing group psychotherapy to its patients and is moving into a computer assisted group therapy program allow for some transition time before deciding to discontinue the previous group treatment format. Both program options would be provided for a brief period of time thus eliminating an intervening variable of multiple facilities. The second possibility would be that psychiatric facilities may discover through more research that each type of therapy

provides the best treatment for certain types of diagnosis or personality types and a facility may offer several approaches based on diagnosis.

The second recommendation would be that all appropriate human subjects review boards be contacted and appropriate approvals to test human subjects be granted prior to the beginning of the data collection phase. Following this procedure would eliminate the lengthy delays in gaining appropriate approvals, time spent in preparing documentation for the respective committees and time spent in editing and meeting each review board's criterion for consent forms and procedures for testing human subjects. This would also facilitate the timely collection of data and reduce the time spent between data collection and data analysis. As computers continue to become a part of everyday life, computer-assisted therapy may also become a norm rather than a new technology. It would be interesting to test subjects today versus subjects using computer-assisted therapy in 20 years.

A third recommendation for future research would be to increase the number of subjects participating in the design. This would enhance the statistical analysis of mean group scores and further add power to the statistical outcomes. High numbers of participants would also address the problem of sample size reflecting the true population mean of individuals receiving psychiatric treatment. This would increase the power and validity of the statistical analysis on the dependent variables.

Finally, this design has demonstrated that both forms of group treatment are effective in reducing levels of anxiety in subjects diagnosed with mental illness.

The TLP program established treatment gains using fewer group sessions. The quest for identifying efficient and effective means of providing psychological and psychiatric treatment is both necessary and laudable. However, it is the hope of this author that this quest leads to new treatment methods that enhance the quality of life and does not become so specific, reductionistic and mechanized that we loose touch with the totality of human life, those components that add zeal, enthusiasm and motivation to grow, understand and feel. Future research that expands on this design is needed and welcomed as we continue to press on in advancing the field of "techno-psychotherapy" and adding effective treatment models for practitioners who will be touching the lives of many vulnerable people seeking counseling, psychotherapy, empathy and understanding from these trained and licensed professionals. We are a human services profession and we need to focus our services on the best ways we can provide these services.

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Appendix A

Internal-External Locus of Control Scale

67

Directions

This is a questionnaire to find out the way in which certain important events in our society affect people. Each item consists of a pair of alternatives lettered A or B. Please circle the one statement of each pair (and only ONE) which you more strongly believe to be the case as far as you are concerned. Be sure to circle the one you actually believe to be more true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief and obviously there are no right or wrong answers.

Please answer these items carefully but do not spend too much time on any one item. Be sure to circle an answer for every choice. In some instances, you may discover that you believe both statements or neither one. In such cases be sure to select the one that you more strongly believe to be the case as far as you are concerned. Also try to respond to each item independently when you are making your choice; do not be influenced by your previous choice.

REMEMBER!!

There are no right or wrong answers. Make the choice you believe to be more true.

I MORE STRONGLY BELIEVE THAT:

1. A. Children get into trouble because their parents punish them too much.

   B. The trouble with most children nowadays is that their parents are too easy with them.

2. A. Many of the unhappy things in people's lives are partly due to bad luck.

   B. People's misfortunes result from the mistakes they make.

3. A. One of the major reasons why we have wars is because people don't take enough interest in politics.

   B. There will always be wars, no matter how hard people try to prevent them.

4. A. In the long run, people get the respect they deserve in this world.

   B. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

5. A. The idea that teachers are unfair to students is nonsense.

   B. Most students don't realize the extent to which their grades are influenced by accidental happenings.

6. A. Without the right breaks, one cannot be an effective leader.

   B. Capable people who fail to become leaders have not taken advantage of their opportunities.

7. A. No matter how hard you try, some people just don't like you.

   B. People who can't get others to like them don't understand how to get along with others.

8. A. Heredity plays the major role in determining one's personality.

    B. It is one's experiences in life which determine what they are like.

9. A. I have often found what is going to happen will happen.

    B. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

10. A. In the case of the well prepared student, there is rarely if ever such a thing as an unfair test.

    B. Many times exam questions tend to be so unrelated to course work that studying is really useless.

11. A. Becoming a success is a matter of hard work; luck has little or nothing to do with it.

    B. Getting a good job depends mainly on being in the right place at the right time.

12. A. The average citizen can have influence in government decisions.

    B. This world is run by the few people in power, and there is not much the little guy can do about it.

13. A. When I make plans, I am almost certain I can make them work.

    B. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

14. A. There are certain people who are just no good.

    B. There is some good in everybody.

15. A. In my case, getting what I want has little or nothing to do with luck.

    B. Many times, we might just as well decide what to do by flipping a coin.

16. A. Who gets to be the boss often depends on who was lucky enough to be in the right place first.

    B. Getting people to do the right thing depends upon ability; luck has

little or nothing to do with it.

17. A. As far as world affairs are concerned, most of us are the victims of forces we can neither understand or control.

    B. By taking an active part in political and social affairs, the people can control the world events.

18. A. Most people don't realize the extent to which their lives are controlled by accidental happenings

    B. There is really no such thing as "luck."

19. A. One should always be willing to admit mistakes.

    B. It is usually best to cover up one's mistakes.

20. A. It is hard to know whether or not a person really likes you.

    B. How many friends you have depends upon how nice a person you are.

21. A. In the long run, the bad things that happen to us are balanced by the good ones.

    B. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22. A. With enough effort we can wipe out political corruption.

    B. It is difficult for people to have much control over the things politicians do in office.

23. A. Sometimes I can't understand how teachers arrive at the grades they give.

    B. There is a direct connection between how hard I study and the grades I get.

24. A. A good leader expects people to decide for themselves what they should do.

    B. A good leader makes it clear to everybody what their jobs are.

25. A. Many times, I feel that I have little influence over the things that happen to me.

    B. It is impossible for me to believe that chance or luck plays an important role in my life.

26. A. People are lonely because they don't try to be friendly.

    B. There's not much use in trying too hard to please people, if they like you, they like you.

27. A. There is too much emphasis on athletics in high school.

    B. Team sports are an excellent way to build character.

28. A. What happens to me is my doing.

    B. Sometimes I feel that I don't have enough control over the direction my life is taking.

29. A. Most of the time I can't understand why politicians behave the way they do.

    B. In the long run, the people are responsible for bad government on a national as well as on a local level.

Appendix B

Lieberman's Questionnaire on Mechanisms
of Change in Group Therapy*

Group Therapy Questionnaire

Answer the following questions in terms of your feelings at the present time. Check the best answer.

1. In the group I have talked about intimate details of my life.
A great deal___ Very much___ Much___ Some___ A little___ Very little___ Not at all___.

2. I have expressed my feelings of irritation, annoyance, sorrow or warmth in the group.
A great deal___ Very much___ Much___ Some___ A little___ Very little___ Not at all___.

3. When expressing feelings of irritation, annoyance, sorrow, or warmth, I feel:
Extremely comfortable___ Very comfortable___ Comfortable___Slightly uneasy___ Uneasy___ Very uneasy___ Extremely uneasy ___.

4. Since the last session I have thought about the group:
All of the time___ Most of the time___ Much of the time___ Some of the time___ A couple of times___ Once___ Not at all___.

5. I like my group:
Very much___ Pretty much___ It's all right___ Don't much care___ Dislike it a little___ Dislike it very much___.

6. I feel that working with this particular group will enable me to attain my personal goals for which I sought a therapy group.
Definitely___Very likely___Likely___Uncertain___Unlikely___Very unlikely___ Definitely not___.

7. How often do you think your group should meet?
Much more often than at present___ More often than at present___No more often than at present___ Less often than at present___Much less often than at present___.

8. How well do you like the group you are in?
I like it very much___ I like it pretty well___ It's all right___ Don't like it too much___ Dislike it very much___.

9. If most of the members in your group decided to dissolve the group by leaving, would you try to dissuade them?

I would try very hard to persuade them to stay___ I would try to persuade them to stay___ I would make a slight attempt to persuade them to stay___ It would make no difference if they left or stayed__ I would definitely not try to persuade them__.

10. If you could replace members of your group with other "ideal" group members, how many would you exchange? (Excluding the leader.)

None___ One___ Two___ Three___ Four___ Five___ More than five___

11. To what degree do you feel that you are included by the group in its activities?

I am included in all the group's activities___ I am included in almost all the group's activities___ I am included in most of the group's activities___ I am included in some of the activities, but not in others__ I don't feel that the group includes me in many of its activities___ I don't feel that the group includes me in most of its activities___ I don't feel that the group includes me in any of its activities___.

12. How do you feel about the group leader?

S/He couldn't be better___ I am extremely satisfied___ I am satisfied___ I guess s/he's OK___ I have many doubts___ I am dissatisfied___ I am extremely dissatisfies___.

13. Compared to other groups that you were in, how well would you imagine your group works together?

Probably the best___ Much better than most___ Above average___ Average___ Not quite as well___ Not nearly as well___ Probably the worst___.

The following are some aspects of the therapy group experience which others in the past have found useful in helping them grow and learn. Please review in your mind the course of your group therapy; read all these items; then make a decision, using the scale below, and indicate for each item whether it was an aspect of your group that was important for your learning.

Scale:
A) "Did not apply to my learning in the group". B) "Applied some what". C) "Definitely an important part of my experience leading to my learning". D) "The two most important experiences".

Use these Letters A through D to indicate your decision in the space provided by

the numbers of each of the statements. Thank you.

___ 1. The group members and/or leader gave me some direct advice or suggestions about how to deal with some life problems or with some important relationships.

___ 2. Helping others, being important to others, giving part of myself to others has been an important experience for me and has resulted in a change in my attitude toward myself.

A) "Did not apply to my learning in the group". B) "Applied somewhat". C) "Definitely an important part of my experience leading to learning". D) "The two most important experiences".

___ 3. The important issue was that I was an involved member of a group; I felt close to the other members.

___ 4. I was able to express feelings very fully; I was able to say what I felt rather than holding it in; I was able to express negative and/or positive feelings toward others.

___ 5. I was able to use others as models, to pattern myself after another member and/or leader. Seeing how others approach problems gave me ideas of how I could; seeing others take risks in the group enabled me to do the same.

___ 6. The group was, in a sense, like my family. Rather than pass through blindly however, I was able to understand old hang-ups with parents, brothers, sisters. It was like reliving, only in a more aware manner, my early family experience.

___ 7. The group helped me understand the type of impact I have on others; they told me honestly what they thought of me and how I came across.

___ 8. I learned that "we're all in the same boat." My problems, feelings, fears, are not unique and I share much with others in the group.

___ 9. Getting insight into the causes and sources of my hang-ups; learning that some of the things I am are related to earlier periods of my life.

___10. The group gave me hope; I saw that others with similar problems and experiences were able to grow and overcome their hang-ups.

___11. The experience that despite the availability of others, I must still face life alone and take ultimate responsibility for the way I live; learned to face the basic issues of life and death, thus living a life less cluttered with trivialities.

A) "Did not apply to my learning in the group". B) "Applied somewhat". C) "Definitely an important part of my experience leading to learning." D) "The two most important experiences".

___12. The group helped me by encouraging me to experiment with new forms of behavior, by working out difficulties with some other member(s), by doing and saying things that I have not previously done with others.

___13. Revealing embarrassing things about myself and still being accepted by others.

___14. Understanding why I think and feel the way I do; discovering previously unknown or unacceptable parts of myself.

Appendix C

Manifest Anxiety Scale*

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Please answer the following statements honestly by circling true or false (like me or not like me).

1. I do not tire quickly.   T F.

2. I am often sick to my stomach.   T F.

3. I am about as nervous as other people.   T F

4. I have very few headaches.   T F

5. I work under a great deal of strain.   T F

6. I cannot keep my mind on one thing.   T F

7. I worry over money and business.   T F

8. I frequently notice my hand shakes when I try to do something.   T F

9. I blush as often as others.   T F

10. I have diarrhea ("the runs") once a month or more.   T F

11. I worry quite a bit over possible troubles.   T F

12. I practically never blush.   T F

13. I am often afraid that I am going to blush.   T F

14. I have nightmares every few nights.   T F

15. My hands and feet are usually warm enough.   T F

16. I sweat very easily even on cool days.   T F

17. When embarrassed I often break out in a sweat which is very annoying.
    T F

18. I do not often notice my heart pounding and I am seldom short of breath.
    T F

19. I feel hungry almost all the time.   T F

20. Often my bowels don't move for several days at a time. T F

21. I have a great deal of stomach trouble.   T   F

22. At times I lose sleep over worry.   T   F

23. My sleep is restless and disturbed.   T   F

24. I often dream about things I don't like to tell other people.   T   F

25. I am easily embarrassed.   T   F

26. My feelings are hurt easier than most people.   T   F

27. I often find myself worrying about something.   T   F

28. I wish I could be as happy as others.   T   F

29. I am usually calm and not easily upset.   T   F

30. I cry easily.   T   F

31. I feel anxious about something or someone almost all of the time.   T   F

32. I am happy most of the time.   T   F

33. It makes me nervous to have to wait.   T   F

34. At times I am so restless that I cannot sit in a chair for very long.   T   F

35. Sometimes I become so excited that I find it hard to get to sleep.   T   F

36. I have often felt that I faced so many difficulties I could not overcome them.
T   F

37. At times I have been worried beyond reason about something that really did not matter.   T   F

38. I do not have as many fears as my friends.   T   F

39. I have been afraid of things or people that I know could not hurt me.
T   F

40. I certainly feel useless at times.   T   F

41. I find it hard to keep my mind on a task or job.   T   F

42. I am more self-conscious than most people.   T   F

43. I am the kind of person who takes things hard.   T   F

44. I am a very nervous person.   T   F

45. Life is often a strain for me.   T   F

46. At times I think I am no good at all.   T   F

47. I am not at all confident of myself.   T   F

48. At times I feel I am going to crack up.   T   F

49. I don't like to face a difficulty or make an important decision.   T   F

50. I am very confident of myself.   T   F

Appendix D

Informed Consent Forms

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CONSENT FORM A

I am conducting a doctoral study in the Department of Counselor Education and Counseling Psychology at Western Michigan University on group psychotherapy. I want to see if a new method of group therapy using a computer is more effective than regular group therapy. This will involve your participation in 10 group therapy sessions for about 1 to 1 1/2 hrs. a session. Some of you have been assigned to the TLP program and others of you have been assigned to regular group therapy. The data from this project will be used to evaluate each form of group therapy and will be used to improve therapy services for future clients.

Before you begin these 10 sessions you will be asked to complete two (2) paper and pencil evaluations about how you are feeling. At the end of your 10 sessions you will be asked to complete three (3) evaluations about how you are feeling then and what you feel and think about your group experience. Your job will be to answer the questions on these forms truthfully and honestly. I think this study will be of great help in evaluating the benefits of these methods. If you decide not to be a part of this study, however, you will still have access to all of the therapy services offered at the center. You can stop your participation in this study at anytime you want without any problems or interference with your therapy.

All information will be kept confidential and will not be shared with your therapist. When I write the results of this study, your name will never be used. If you have any additional questions after today, please feel free to call Dennis Hunyadi at 1 (800) 582-1900, ext. 245 or Dr. Joseph Morris, Doctoral Chairman, at the Department of Counselor Education and Counseling Psychology, Western Michigan University phone # (616) 387-5100.

I, _____ have read this statement and have had all my
       (please print)
questions answered.

Date:_____

Signature:_____

DH/dh

CONSENT FORM B

I am a therapist here a Battle Creek Adventist Hospital and I am doing a doctoral study in the Department of Counselor Education and Counseling Psychology at Western Michigan University on group therapy. I want to see if a new method of group therapy using a computer is as effective as or more effective than using regular group therapy. If you agree to participate in this study you will need to attend about 10 group therapy sessions for about 1 to 1 1/2 hours a session. You will be randomly selected to participate in either (1) the regular group therapy program or (2) the computer group therapy program. The data from this project will be used to compare both forms of group therapy and will be used to improve therapy services for future clients

Before you begin these 10 sessions you will be asked to answer questions about how you are feeling. At the end of your 10 sessions you will be asked again to answer questions about how you are feeling than and what you think about your group experience. Your job will be to answer the questions on these forms as truthfully and honestly as possible. I think this study will be of great help in measuring the benefits of these groups to our clients.

If you elect not to be a part of this study you will still receive full therapy services offered at the hospital. Your decision to participate or not participate will in no way effect the treatment you receive from the staff at Battle Creek Adventist Hospital.

  a. All your answers will be kept confidential and will not be shared with your therapist.
  b. When I write the results of this study, your name will never be used.
  c. You can stop your participation at any time you want without any problems.

If you have any additional questions after today, please feel free to call Dennis Hunyadi at 1 (800) 582-1900, ext. 245 or Dr. Joseph Morris, Doctoral Chairman, Department of Counselor Education and Counseling Psychology, Western Michigan University phone # (616) 387-5100.

I,_____ have read this statement and have had all my
   (please print)
questions answered.

Date:_____

Signature:_____ Witness:_____

CONSENT FOR PARTICIPATION IN RESEARCH

DATE: September 4, 1993

Authorization is hereby given for the undersigned client to participate in the following research project:

A COMPARISON BETWEEN COMPUTER ASSISTED GROUP THERAPY AND GROUP PSYCHOTHERAPY
(Title of Project)

(Client)

The purpose of the project/study is

To see if a new method of group therapy is as effective or more effective than regular group therapy.

A description of the study, types of data collected, and the basic procedure(s) for implementation is as follows:

The study is comparing three groups of people. One group is using a computer in their group. The second group is participating in regular group therapy. The third group is waiting to begin therapy. All groups are answering question about how they are feeling. After two weeks they are asked again how they are feeling, using two questionnaires. They mark either True or False on one form and A or B on the other.

The study will commence on September 1993

And be completed by April 1994

The study, in this agency, is under the supervision of Mr. John Mellein and Ms. Sue Keith.

The principal investigators are: Mr. Dennis Hunyadi

Benefits you should expect to receive are: Information gained by your

participation would add valuable research literature concerning the most

effective form of group therapy.

You also may be exposed to the following* risks/losses The risks

are limited to the possibility of negative thoughts or feelings that may arise

when answering the questions on the two surveys and level of anxiety during the

pre and post tests.

All information/data will be safeguarded and stored in the
following manner all identifiable information will remain with the Kalamazoo Consultati
No identifiable information will be released about you. Data   Center.
collected will be in aggregate from and will be reported
to Dennis A. Hunyadi, principal investigator   .

You may withdraw from the study at anytime. You may invalidate
your consent at any time.

Your decision of whether or not to participate or continue in
this study will in no way influence services that you are
currently receiving from this agency.

No identifiable information about you will be published without
obtaining your written permission.

I agree to participate in this study. I have been given the
opportunity to ask questions. All of my questions have been
answered to my satisfaction.

_____   _____
(Client-Guardian-Parent)   (Date)

* If guardian, then indicated type of guardianship_____.

_____   _____
(Witness)   (Date)

* Witness is responsible to ensure that the party authorized to
grant consent has done so willingly, with full knowledge and is
able to grant such consent.

* Listed in order from the greatest to the least

Appendix E

Subject Data Forms

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Subject Data Sheet A

Experimental Groups

Date:___/___/___   ID #_____

Gender: __M __F

Age:

Ethnic Group: __Black, __Hispanic, __Caucasian, __Amer. Indian, __Asian

Diagnosis:
     Axis I:
     Axis II:

Number of group sessions completed: __1, __2, __3, __4, __5, __6, __7, __8, __9, __10.

County of residence:

Length of treatment: __less than 1wk., __1wk., __2wks., __more than 2 wks.

Subject Data Sheet B

Control Group

Date: ___/___/___   ID #_____

Gender: __M __F

Age:

Ethnic group: __Black, __Hispanic, __Caucasian, __Amer. Indian, __Asian

Diagnosis:
   Axis I:
   Axis II:

County of residence:

Length of time on the waiting list: __less than 1wk., __1wk., __2wks., __more than 2wks.

Appendix F

Approval Letters From the Human Subjects
Institutional Review Boards

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WESTERN MICHIGAN UNIVERSITY

Date: June 19, 1992

To: Dennis A. Hunydi

From: Mary Anne Bunda, Chair   *Mary Anne Bunda*

Re: HSIRB Project Number 92-03-10

This letter will serve as confirmation that your research protocol, "A Comparison between Computer Assisted Group Therapy and Group Psychotherapy" has been approved after full review by the HSIRB. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the approval application.

You must seek reapproval for any change in this design. You must also seek reapproval if the project extends beyond the termination date.

The Board wishes you success in the pursuit of your research goals.

xc: Morris, CECP

Approval Termination: June 19, 1993

BATTLE CREEK ADVENTIST HOSPITAL

/AH 92

November 25, 1992

Dennis Hunyadi
610 Coolidge Avenue
Kalamazoo, Michigan 49007

Dear Dennis:

This letter is a follow up to our meeting on November 16, 1992, regarding your request to do your dissertation research at Battle Creek Adventist Hospital. The hospital's Research Committee has reviewed and approved your proposal, "A Comparison Between Computer Assisted Group Therapy and Group Psycho Therapy", with the following stipulations:

1. Your letter of informed consent be simplified to facilitate client understanding.
2. You add a statement, followed by a signature and date line, that allows the client to validate that s/he understands the consent form and process (i.e. I have read/discussed the above and understand the process and my right to accept or reject participation, etc.
3. You resubmit the consent form as discussed in 1 & 2 for approval prior to implementing your research project.

The Committee members want to emphasize that not only may the client refuse to participate at any time without repercussion, but as a responsible clinician, you will discontinue client participation if your clinical judgment denotes any adverse effects from participation in the study.

Dennis, we look forward to the outcomes of your study and implications for providing computer assisted group therapy.

Sincerely,

Judi Odiorne
Interim Administrative Director
for Clinical Services
Chairperson, Ad Hoc Research Committee

JO.TTR.1130.KLM

TO: A. Roger Vander Schie

FROM: Patricia Davis Baker *Patricia*

DATE: June 8, 1993

RE: Research Review Report

Title: "A Comparison Between Computer Assisted Group Therapy and Group Psychotherapy"

The Research Review Committee met to review a research proposal titled "A Comparison Between Computer Assisted Group Therapy and Group Psychotherapy".

Present:	Representing:
Dr. David Sluyter	Psychologists
Ron Gruizinga	Facilities (KRPH-Social Workers)
Steve Burness	Attorneys
Dr. Thomas Van Doren	Physicians/Psychiatrists
Staff:	Others Present:
Patricia Davis Baker	Sue Keith, Kalamazoo Consultation Center
	Dennis Hunyadi, Principal Investigator

PRINCIPAL INVESTIGATOR

The principal investigator is Mr. Dennis Hunyadi. Mr. Hunyadi is a Limited Licensed Psychologist, M.A. in Clinical Psychology, graduating with honors. Mr. Hunyadi is a past provider of Kalamazoo mental health services as a CPP case manager and an Agency Director. This study completes a doctoral dissertation.

Mr. Hunyadi's faculty project director is Dr. Joseph Morris with the Counseling Education and Counseling Psychology Department of Western Michigan University.

HOST AGENCY

The host agency is the Kalamazoo Consultation Center.

SUPERVISION

Supervision at the Kalamazoo Consultation Center will be provided by Ms. Sue Keith.

ADDITIONAL RESEARCH REVIEW

This proposal has been approved by the Western Michigan University's Human Subjects Institutional Review Board.

DESCRIPTION OF STUDY

This study is designed to collect pre and post test data on two measures for three subject groups. The first group are inpatients at Mercy Memorial Hospital in St. Joseph, Michigan. This group is participating in a computer assisted model of therapy.

The second group are inpatients at the Battle Creek Adventist Hospital in Battle Creek, Michigan. They are receiving traditional group psychotherapy.

The third group are proposed to be individuals waiting to receive services at the Kalamazoo Consultation Center. They are on a waiting list to receive therapy. They will receive a pre and post test.

COMMENCEMENT AND TERMINATION DATE

This project will commence upon approval and should continue approximately three months.

SUBJECT SELECTION

Individuals will be asked by the Kalamazoo Consultation Center if they are willing to participate in the research project. A minimum of ten people will be selected to complete pre and post data for the control group. The characteristics of the subjects are adult men and women who are currently on a waiting list. Specific diagnostic categories are major depression single episode, sever-recurrent major depression, schizo-affective disorder, schizophrenia, paranoia and bipolar depression.

BENEFITS OF THE RESEARCH

The researcher reports that information gained would add to research literature concerning the use of computer assisted therapy.

RISKS TO SUBJECTS

The risk to subjects is limited to the possibility of negative thoughts or feelings that may arise when answering questions on their locus of control and level of anxiety during the pre and post tests.

SAFEGUARDS

Informed consent will be obtained.

No identifiable information will be used in this study. Identifier numbers will be used in place of names and all material will be viewed only by the principal investigator.

RECOMMENDATIONS:

1. It is recommended that the principal investigator modify his proposal to indicate that names and identifiable information will remain in the agency.

2. It is recommended that the researcher review the proposed consent form and insure that the following is included:

    a. the title of the project;
    b. the purpose of the project;
    c. a clear description of the study in simple language that indicates the type of data collected, the basic procedure and implementation;
    d. the commencement and termination date;
    e. who in the Consultation Center is in charge of the project (Sue Keith);
    f. the name of the principal investigator;
    g. the benefits and risks incurred by participation;
    h. information concerning the safeguarding of data and where information will be stored and in what manner;
    i. a statement that no identifiable information will be released about the subject without their informed consent;
    h. a statement indicating that the subject may withdraw from the study at any time without jeopardizing their current services;
    j. a statement that the participant agrees to participate in the study and has been given the opportunity to ask questions and that questions have been answered to their satisfaction;
    k. signature line and date;
    l. a statement that if a guardian is signing that the type of guardianship is indicated;
    m. a witness line and statement;
    n. a statement should indicate that the witness is responsible to insure that the party authorizing the consent has done so willingly, with full knowledge and is able to grant the consent.

CONCLUSION

The committee has determined that the project appears to contain very minimal risks. However, the committee could find no direct benefit to the individual subject.

Due to the very minimal risks factors, the committee recommends approval of commencement of this study contingent on recommendations made.

PDB/cd

cc: John Mellein
     Sue Keith
     Dennis Hunyadi
     Research Review Committee

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