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Volunteer Experience Related Changes in College Students as Mental Health Volunteers

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VOLUNTEER EXPERIENCE RELATED CHANGES IN COLLEGE STUDENTS AS MENTAL HEALTH VOLUNTEERS

by

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VITA

The author, Jeanne Kerschner, is the daughter of André Joseph Sicher and Lois (Ross) Sicher. She was born April 29, 1945 in Geneva, Illinois.

Her elementary education was obtained in the public schools of Glen Ellyn, Illinois and secondary education at Glenbard West High School, Glen Ellyn, Illinois, where she graduated in 1963.

She went to the University of Denver for one year, then transferred to North Central College in Naperville, Illinois. She graduated magna cum laude with a B.A. in psychology on January 1, 1969. She also was a member of the NCC Honor Society and was nominated for a Danforth Fellowship.

In September, 1969, she began her graduate training in clinical psychology at Loyola University of Chicago. She received a U.S. Public Health Fellowship her first two years at Loyola University. She was the recipient of a Schmitt Doctoral Fellowship for the 1972-1973 school year. In 1970 she did a 500 hour clinical clerkship at the De Paul University Clinic. From October, 1971 to September, 1972 she was at the Neuropsychiatric Institute, University of Illinois at the Medical Center for a 2000 hour clinical internship. She received her Master's degree in Clinical Psychology from Loyola in June, 1973.

For the past two years Mrs. Kerschner has been employed at the Loyola University Guidance Center while completing the requirements for a doctorate degree in clinical psychology. She married Lawrence Kerschner in December, 1969. They currently have no children.

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I. INTRODUCTION

Traditionally, in America, older women have formed the main body of special service volunteers. More recently college students have been attracted to this type of activism, with the increasing awareness of social problems. In the mental health field all types of indigenous workers and non-professionals have been utilized to help bridge the gap between the number of workers available and the workers needed in mental health. There are other reasons for the use of non-professional volunteers. Credentialed mental health professionals have demonstrated repeated difficulty in relating to certain service consumer populations: the poor; alcoholics; drug abusers; and juvenile delinquents. On the other hand, Blau (1969) reported that non-professionals seem to have a great deal of success in working with these groups.

Many authors have postulated that college students, because of their unique situation and characteristics, are well suited as mental health volunteers. First, there is the enthusiasm and straight-forward approach college students bring to the situation. Greenblatt and Kantor (1952a) suggest that college students are more motivated for direct patient contact than adult volunteers. Reiff and Riesman

(1965), Rogers (1967), and Mitchell (1966) all postulate that college students have greater flexibility and spontaneity in trying new approaches which professionals might feel constrained to try because of their position. Umbarger, Dalsimer, Morrison, and Breggin (1962) point out that the students' success with mental patients stems primarily from three factors: first, an exhilaration at finding a worthwhile cause; second, they feel they are engaged in a struggle against mental illness whose toll can be seen in mental hospitals; finally, they feel they are involved in a novel attempt to help others.

However, there is a second aspect of college students as mental health volunteers which could be even more relevant. As Keniston (1957) points out, both college students and mental patients reside in what he calls "developmental institutions," which, by definition, means that the participants are formally engaged in furthering their personal growth. Certainly, the patient might expect more empathy from a college student who, like himself, is struggling with his identity, competing for financial and employment security, and who also sees his locus of control outside himself. The professional therapist, on the other hand, may appear as though he has his identity securely under his own control and thus cannot recall the intensity of his own struggle.

This very developmental situation which makes the

college student a promising mental health volunteer also makes him quite open for change himself. He is in a situation and age of Erikson's stage of identity formation, approaching and contending with adult status. Thus it is possible that volunteering could have some positive effect on his development.

The present study, then, deals with the relationship of mental health volunteering and the college student volunteer. The first issue is whether or not mental health volunteers are different in some way to begin with from non-volunteers. The second issue is to explore the effect the experience as a mental health volunteer has on college students. These two questions will be examined in terms of social perception skills and motivational orientation to learn.

Since the volunteer situation being examined in this study is one in which volunteers work directly and intensively with both children and peers, it was suggested that the quality and duration of this experience would effect growth in skills related to interpersonal competence. This growth, in turn, should reflect on measures assessing interpersonal perception skills.

Secondly, it might be assumed that college students who volunteer in mental health differ in their general motivational structure from non-volunteers. It is also possible that motivation underlying academic learning would mature as a result of the volunteer experience.

While interpersonal perception skills or social intelligence is an important psychological concept, it has never demonstrated empirical independence from abstract intelligence (cf. Walker & Foley, 1973; Nightingale, 1973). The present study will replicate some previous studies in examining the relation of selected social intelligence measures with several abstract intelligence measures.

II. REVIEW OF THE RELATED LITERATURE

The relevant literature will be reviewed in this section in three parts. In part one the author will review the literature dealing with the initial differences between volunteers and non-volunteers, to examine the basis for formulating hypotheses for this study. In part two the author will deal with potential changes in college student volunteers as a result of their volunteer experiences to further establish hypotheses for this study. In part three the author will review the relevant literature on social intelligence to establish the basis for these and other measures used to test the hypotheses in this study.

Volunteers Versus Non-Volunteers

The studies reviewed compare volunteers and non-volunteers in widely different situations including volunteering to reveal sex attitudes (Kinsey, Pomeroy & Martin, 1948; Martin & Marcuse, 1958; Maslow, 1940; Maslow & Sakoda, 1952), sensory deprivation (Dohrenwald, Feldstein, Plosky, & Schmeidler, 1967; Francis & Diespecker, 1973; Myers, 1964; Schultz, 1967), dangerous tasks (Bair & Gallagher, 1960; Howe, 1960; McLaughlin & Harrison, 1973), drug research (LaSagne & Von Felsinger, 1954; Overall, Goldstein, & Brauzer, 1971; Richards, 1960), group discussion (Efran &

Boylin, 1967; Frye & Adams, 1959), guidance or counseling (Kaess & Long, 1954; Mendelsohn & Kirk, 1962), hypnosis (Levitt, Lubin, & Zuckerman, 1959; Martin & Marcuse, 1958), sensitivity training (Guinan & Foulds, 1970; Sheridan & Shack, 1970), and mental health work (Fischer, 1971; Hersch, Kulik, & Scheibe, 1969; Holzberg, Knapp, & Turner, 1967; Knapp & Holzberg, 1964; Tapp & Spanier, 1973).

With four exceptions (Francis & Diespecker, 1973; Frye & Adams, 1959; Howe, 1960; Levitt, et al., 1959) volunteers differ from non-volunteers in psychological makeup, but the differences found seem to be specific to the situations into which they are volunteering. While some researchers have found volunteers to be psychologically normal, healthy and sounder than non-volunteers (Bair & Gallagher, 1960; Hersch et al., 1969; Knapp & Holzberg, 1964; MacDonald, 1972; Martin, 1972; Myers, 1964; Raymond & King, 1973; Richards, 1960; Schultz, 1967; Sheridan & Shack, 1970), others have found volunteers not as well-adjusted as those who did not volunteer (Corotto, 1963a, 1963b; Guinan & Foulds, 1970; LaSagne & Von Felsinger, 1954; McLaughlin & Harrison, 1973; Overall et al., 1971; Riggs & Kaess, 1955; Rosen, 1951). Rosenthal and Rosnow (1969) postulated that survey-type research volunteers tend to be better adjusted than non-volunteers, but in medical research volunteers tend to be more maladjusted than non-volunteers.

As expected, different studies used different tests

and methods to contrast volunteers and non-volunteers, often rendering results incomparable. Among the personality tests, the MMPI (Frye & Adams, 1959; Myers, 1964; Rosen, 1951), the CPI (Corotto, 1963a, 1963b; Hersch, et al., 1969), the EPPS (Frye & Adams, 1959; Newman, 1957), and the POI (Guinan & Foulds, 1970; Sheridan and Shack, 1970; Tapp & Spanier, 1973) have been used more than some other tests. Projective tests like the TAT have also been used on volunteer versus non-volunteer research (Levitt, et al., 1959; Richards, 1960; Riggs & Kaess, 1955). With some exceptions (Bair & Gallagher, 1960; Corotto, 1963a, 1963b; Myers, 1964; Wallin, 1949) most all the studies have used college students as subjects.

There has been no study examining volunteers who work with emotionally disturbed children. However, Hersch, et al. (1969) published a detailed study of personal characteristics of college volunteers in the Service Corps Program in Connecticut who lived for eight weeks in a state mental hospital and worked with chronic patients, receiving $200 for the two-month period. One hundred fifty-one of these student volunteers were given a battery of tests and questionnaires including the CPI, Gough Adjective Check List, the Strong Vocational Interest Blank, Rotter Internal-External Small Scale, Marlowe-Crowne Social Desirability Scale, and a biographical questionnaire. The striking personal characteristics of the college student volunteers

were maturity and control, drive for independent achievement, and sensitivity to distressed individuals. On the Strong their interests were similar to those in professions emphasizing social service. Autobiographical data further indicated that these subjects were highly service oriented and highly dedicated to mental health service. The authors concluded that "data reported here suggest that participation in volunteer work is not motivated by over concern with personal problems but rather is partly attributable to a controlled drive for independent achievement and sensitivity to human problems" (p. 34). This study did not employ a control group.

Knapp and Holzberg (1964) and Holzberg, et al. (1967) found student volunteers for mental health work are differentiated from non-volunteers. They compared a group of 85 college students volunteering for service as companions to chronically ill mental patients with a group of 85 control students on a number of psychological tests administered during the students' freshman year. The student volunteers were not greatly different from the non-volunteers in any significant clinical respect, but were shown to be slightly more religious, more morally concerned, more compassionate, and more introverted than the non-volunteers. They were also differentiated from non-volunteers on academic variables such as their major area of study, frequency of disciplinary action, and fraternity affiliations.

On the other hand, Tapp and Spanier (1973) found 26 volunteer phone counselors to be more altruistic, self-actualized, and have greater openness on the Tennessee Self Concept Scale, the POI, and a Self-Disclosure Questionnaire than 34 non-volunteer undergraduates. These studies would appear to suggest that mental health volunteers differ from non-volunteers, although previous studies also indicate that the direction and kind of differences seem to depend on the measures and situations involved.

Changes in College Student Mental Health Volunteers

While the literature reveals that there are several organized college student mental health volunteer programs, very few studies have been done on the effect on the volunteers themselves. Most studies are more concerned with positive changes in the patients the volunteers work with. Arthur, Donnan, and Lair (1973), Buckly, Muench, and Sjoberg (1970), Lawton and Lipton (1963), Mace (1970), Poser (1966), Pyle and Snyder (1971), Ramsey (1972), Rankin and Randall (1971), Rappaport (1969), Smiley and Craik (1972), and Spoerl (1948) all report that college student volunteers have had positive effects on adult mental health patients. There are also reports of positive change in child patients when college student volunteers were working with them (Brennan, 1967; Cowen, 1968; Department of Health, Education, and Welfare, 1966; Fellows & Wolpin, 1969; Kreitzer, 1969;

Martin & Pear, 1970; Mitchell, 1966; Zunker & Brown, 1966).

Companion Program is a term used to describe situations in which college students spend a certain amount of time each week as "companions" to patients in mental hospitals. Companion Programs may be structured or unstructured, provide training or no training, give monetary remuneration or no monetary remuneration, but they share the common feature that individuals from the community are brought into regular face-to-face contact with persons with behavior problems. The first Companion Program originated in 1954 at Harvard University and provided service to the Metropolitan State Hospital (Umbarger, et al., 1962). This program at Metropolitan State Hospital has been the model for subsequent Companion Programs including the Connecticut Valley Program, the Service Corps Program of the State of Connecticut, and several others.

Studies coming out of these programs have reported positive patient benefits (Beck, Kantor, & Gelineau, 1963; Holzberg, Whiting, & Lowy, 1964; Holzberg, Knapp, & Turner, 1967; Hunt, 1969) but these and other authors have also been concerned with volunteer change as a result of their experience.

Personality theorists who are particularly interested in college student development (Madison, 1969; Sanford, 1962) suggest that college students have a significant potential for change, and there is a continuing search for

ways in which their personality development can be facilitated. Evidence suggests that working part-time in a community mental health facility may serve as an instrument of personality change. College students who work in mental hospitals, psychological clinics, or other mental health settings manifest significantly more positive changes in self-acceptance and moral judgments in sexual and aggressive acts than do control groups (Holzberg, Gewirtz, & Ebner, 1964) and also greater self-understanding (Reinherz, 1962; Stollak, 1969; Umbarger, et al., 1962). Increased self-confidence and enhanced identity formation are further personality changes effected by working in a mental health installation (Scheibe, 1965; Umbarger, et al., 1962).

One recurring problem in these studies has been a lack of control groups to compare with the changes in the volunteers. While these studies are a promising indication of possible growth in college students as a result of volunteering, none of the following studies is characterized by the use of comparison groups or the application of standard measurement devices.

Turner (1972) studied volunteers for a campus hotline. After twelve weeks volunteers showed a more positive attitude toward the program and an increase in openness with peers.

The measures of success of the program at Metropolitan State include not only the effects on the patients

but also the effects on the student volunteers. All students in the program claimed "that they learned a great deal from the case-aide experience." Many felt that their relationship with a patient and the instruction of the group leader had taught them more about psychological theory and mental illness than had their courses at college. Some became interested in careers in mental health work. Moreover, "all claimed that they had gained insight into their own personalities and problems through their relationships with the patients and their own group" (Umbarger, et al., 1962, p. 54).

Erikson (1959) suggested that the crystallization of professional goals is a major phase of the identity formation process. If this is true, work in the case-aide section of the program can be said to have facilitated identity formation. Kantor (1959) and Greenblatt and Kantor (1962b) have shown that more than 70 per cent of the students who were indefinite or undecided about career choices before participating in the case-aide program made concrete choices in the direction of mental health work. In evaluating Kantor's findings, it should be noted that no control groups were used and also that students' career decisions during college tend to be unstable. However, Kantor's conclusion that the project influenced the career choice of participants in the direction of mental health is probably valid.

In another study at Connecticut Valley Hospital, a

questionnaire measure yielded data suggesting positive effects on both patients and students. Holzberg, Whiting, and Lowy (1964) found that 84 percent of the patients said they enjoyed the relationship with the students, while the students reported that 71 per cent of the patients showed improvement over the year. Of the students themselves, 91 per cent reported they became less anxious about working in a mental hospital, 90 per cent reported a greater understanding of mental illness, 84 per cent suggested feelings about mental hospital personnel had changed, and 97 per cent of the students considered that their experiences had contributed to their personal growth.

Levine (1966) reported an investigation of the changes in attitude and behavior produced in students by a nonacademic, off-campus program which he suggested appeals to and puts to work the unenacted idealism of today's college youth. Recreational and social activities with the mental patients fostered more positive attitudes toward and increased interest in social action.

Walker, Wolpin, and Fellows (1967) described a program which was a joint venture between Westmont College, Santa Barbara, and Camarillo State Hospital, Camarillo, California. Students received college credit for research and service activities involving direct contact with patients. Using a modified sentence-completion test for the students and subjective reports of the patients, the authors concluded that

"we may be able to foster better personal developments as well as enrich school and college curricula while developing potential interest and entrance into the mental health field" (p. 188).

Scheibe (1965) described a program which is similar to the Companion Program model except that the students were assigned to work for a continuous eight-week period rather than once a week for a year as required by the Companion Program. Students in the Service Corps Program of the State of Connecticut lived at the hospital and spent a normal working week with chronic patients for which they received $200 salary for the two month period. Students were not assigned to a specific patient but worked with all the patients on the ward in unstructured activities. Positive changes in the students' description of the typical patient were noted on an adjective check list given at the beginning and at the end of the work period. In describing themselves on the Gough Adjective Check List, students exhibited significant gains in Achievement, Dominance, Self-Confidence, and Nurturance. Further, Greenblatt and Kantor's (1962b) findings were substantiated in that a crystallization of vocational goals appeared in a direction favorable to mental health.

Standard measurement instruments were used by Keating, Brown and Standley (1973) who studied 33 male rescue squad volunteers using the MMPI, Rotters' Internal-External Control

Scale, the Interpersonal Checklist, and demographic and attitude questionnaires. In addition, five volunteers were studied in more depth using autobiographical and TAT data. They conclude that volunteering helps members master past traumas, become independent from their primary family, and develop self-control and competence. While this study was promising there was no control group. Only one-half of the subjects had some college. The rescue squad involves working with accident victims and is a different kind of work from mental health volunteering. But as the authors observe, these results point to further volunteer studies, especially because of the implications for various types of possible therapeutic changes in the volunteers.

College students often prefer to work with children for a number of reasons. First, improvements in the younger patients are more easily observed even by naive volunteers. Also, students discover that in just a short time the children begin to respond positively to college students. Umbarger, et al. (1962) reported that students working with the children felt less anxious about their own identity and more successful in their work than they did with the older patients. Students were apparently more effective because they could act in a more relaxed and normal manner. Further, socially validated roles of big brother and big sister worked extremely well with the child patients.

Reinherz (1964) reported a project in which students from Radcliffe and Harvard volunteered for work at Massa-

chusetts State Hospital working with children who were in-patients and who did not have severe behavioral problems. Volunteer college students spent one afternoon a week with the children after having met with a social work supervisor for fifteen minutes ahead of time to receive a progress report of the child. During the first year of the program, ward psychiatrists reported improved functioning in three out of the four children in the program. In the second year, physicians reported change and progress in all seven patients. In several cases psychological tests confirmed positive growth. At the end of the second year, two of the seven patients were ready for discharge and a third had gone home on extended leave.

Earlier, Reinherz (1962) had observed that some of the successes that college students have in working with emotionally disturbed children may be due to their having recently solved or left unsolved basic issues of maturation in their own lives. She noted that in late adolescence identity problems such as sex role and career choice are important developmental issues, and their successful resolution makes the difference between a productive and nonproductive adult role. Often it was observed that as the student aided the child in working out the problems of self-maturity, the student too appeared to be gaining a definitive solution for himself.

Cowen, Zax, and Laird (1966) selected seventeen undergraduate volunteers to provide emotionally disturbed children

with a meaningful relationship by pairing them with active, enthusiastic college students. Student volunteers had no training and were encouraged to foster a spontaneous, warm friendship with the child. There were no significant differences found between this group and a control group of emotionally disturbed children, probably because the program lasted only two months and the control group was simultaneously engaged in another program. There were, however, significant changes among the volunteers. Institutional concepts were no longer rated in a stereotypically positive way and on a semantic differential, volunteers rated youngsters with emotional problems in a more positive and accepting way.

Hunt (1969) discussed a model for psychology he called the Hall-Nebraska "Model" where students are involved in a "counselor-counselee" relationship with various kinds of people who exhibit a variety of problems of living in the community. Undergraduate students became pals to deprived children, teenagers, families, children in orthopedic hospitals, children in institutions for emotional disorders, high school dropouts, and juvenile delinquents. Undergraduate college pals established an ongoing relationship with an individual in one of these categories and continued contact throughout the school year. When the counselor left college, he introduced his counselee to a new counselor and encouraged the new relationship. This program had proved especially effective in the family project. This program dealt with twenty-one children. There were three families,

each with seven children and each child had a college pal. There was no control group other than the children of other families in the neighborhood. Children from the neighborhoods of these three families seldom complete high school, and one criterion of the success of the college pal project was the number of the children in the project who did complete high school. All children in the project who were old enough to have completed high school had done so. Furthermore, all had had at least a try at college. A second measure of success was the effect of the project on the counselors themselves. Hunt reported that not only did this type of project keep counselors from dropping out of college, but also they were learning about human relationships by dealing directly with people who are having problems in the community.

Stollak (1969) and Linden and Stollak (1969) have investigated the possibility of training college students as play therapists. In the former study the students' role was modeled as closely as possible to that of a client-centered play therapist. The basic task was to be emphathetic, understanding, non-directive, and to convey this understanding and acceptance to the child. Students were trained in ten sessions during which they observed play therapy techniques and played with normal children. At the end of the tenth session, each student was assigned a child between the ages of four and ten who were taken from the waiting list of the Lansing Child Guidance Clinic or the Psychology Clinic of

Michigan State University. Stollak (1969) noted that undergraduates do significantly change their behavior during the sessions by increasing their reflection of content and clarification of feeling statements. Linden and Stollak (1969) concluded that communicated empathy is not an innate ability but must be taught. This has an important implication for the utilization of college students in mental health settings. If one adheres to the client-centered tenet that communication of accurate empathy is a necessary prerequisite for therapeutic movement, the turning loose of naive, untrained college students on a mental hospital is not as effective in producing change as the same students might be if they were first taught to communicate empathy by making appropriate verbal statements.

There are a few studies using control groups which measure various changes in college student volunteers.

Relatively objective research, particularly concerning student development, has come out of the Connecticut Valley Companion Program which is modeled after the program at Metropolitan State. Holzberg and Gewirtz (1963) compared a group of students who volunteered for the companionship program with a control group of students who volunteered for other social service activities such as YMCA or the Big Brothers. On a questionnaire that was administered to both groups at the beginning of the academic year and again at the conclusion of that year, volunteers in the Companion Program shifted significantly in a positive direction in terms of their attitudes toward and knowledge of mental illness.

However, Sashin (1970) found no change and no group differences in mental health concepts between 35 female volunteers in the same program, 35 females interested but unable to participate, 29 volunteers in non-mental health programs, and 20 undergraduate controls.

But two earlier studies using much larger groups of mental health volunteers in the Connecticut Valley program (Kulik, Martin & Scheibe, 1969; Dowds, Kulik, & Scheibe, 1969) found significant increases in the volunteers planning careers in mental health over a control group. In addition volunteers also showed significant increases over college students on conceptions of mental hospitals and patients, and psychological knowledge.

In another study (Holzberg, et al., 1964) the effects of association with hospitalized mental patients on the personalities of 32 male college students were compared to a control group of 24 students who had not been involved with mental patients. Students in the Companion Program demonstrated significantly positive change in self-acceptance and in moral judgments concerning sexual and aggressive behaviors. Holzberg and Knapp (1965) have presented further evidence of positive effects upon Companions in their findings that after serving as Companions the volunteers are less frequently on academic probation and that they increase their introspective behavior.

Goodman (1967) has experimented with companionship therapy between college students and troubled boys. Male

college students were trained in a two and one-half day experimental workshop and were paid $1.40 per hour. After counselors were selected, they were divided into a "quiet" group and an "outgoing" group with half the quiet counselors being paired with boys evidencing social introversion. The other half of the quiet counselors were paired with boys having outgoing problems, and the same procedure was followed for the group of outgoing counselors. Although only tentative findings are available, results suggest that boys with social introversion problems gain most from participating in the program. Goodman noted that his students manifested personality changes not unlike those reported by Holzberg (1963). Goodman's counselors showed a dramatic increase of interest in the behavior of children and in working with troubled people. They also reported that improvement occurred in the way they interact with friends. Differences between counselors and matched controls who did not participate in the Companion Program were significant.

Few studies in which college students were used as therapeutic agents are similar enough to warrant conclusions in a given area. The populations of the studies were very diverse. Poser (1966) used chronic schizophrenics, Umbarger et al. (1962) used chronic "psychotics," Spoerl (1968) used hospitalized college students, Goodman (1967) worked with troubled boys, and Stollak (1969) worked with children of unstated diagnoses. There was also little consistency as to the kind or amount of training given the volunteers. Some

college students received no training (Spoerl, 1968) while others were given specific training (Linden and Stollak, 1969; Stollak, 1969; Zunker and Brown, 1966). There was also a great deal of difference in motivation among the students. Some received money (Goodman, 1967; Poser, 1966; Scheibe, 1965), others received college credit (Umbarger, et al., 1962), while still others received no extrinsic reward (Levine, 1966; Spoerl, 1968). There were also differences in the duration and frequency of time spent in the volunteer experience. Some students worked one day a week (Spoerl, 1968; Umbarger, et al., 1962) and others worked full-time (Lawton and Lipton, 1963; Poser, 1966).

Although there are not enough findings from well-controlled studies to warrant conclusions concerning the relative efficacy of college students as therapeutic agents to patients, there is sufficient evidence to conclude that the therapeutic relationship seems to have some effect upon the college student volunteer (Cowen, et al., 1966; Goodman, 1967; Hersch et al., 1969; Holzberg et al., 1964; Holzberg & Knapp, 1965; Hunt, 1969; Kantor, 1959; Levine, 1966; Linden & Stollak, 1969; Reinherz, 1962; Scheibe, 1965; Stollak, 1969; Umbarger et al., 1962; Walker et al., 1967).

Different methods have been used to measure the positive effects of the volunteer experience. Some studies have used subjective reports (Goodman, 1967; Greenblatt & Kantor, 1962b; Holzberg & Gewirtz, 1963; Holzberg et al.,

1964; Kantor, 1959; Umbarger et al., 1962), external measures, as volunteer functioning in school (Goodman, 1967; Holzberg & Knapp, 1965; J. McV. Hunt, 1969), Gough's Adjective Check List (Hersch et al., 1969, Scheibe, 1965), and other objective tests used only in single studies. Neither social intelligence or learning motivation orientation as growth measures have previously been used in regard to mental health volunteers.

However, Gruver (1971) says in his review of the literature,

> Personality changes such as positive changes in self-acceptance and moral judgments of a sexual and aggressive nature, greater self understanding, increased self-confidence, and enhanced identity formation have been noted. . . . working in mental health programs may foster personality development in students in college (p. 123).

The present study is concerned with changes in college student volunteers in a day school program for emotionally disturbed children.

The Volunteer Setting for the Present Study

The Loyola University Guidance Center Day School was founded in March, 1970, and serves a maximum of 24 severely disturbed children ages 3 to 9. All applicants must be legally excluded from public school attendance and eligible for tuition and transportation support. The School operates 6 hours a day, 5 days a week, 10-1/2 months a year. There are 4 rooms in the school ranging from a room of nonverbal, highly regressed children to the highest room, more like a

kindergarten or first grade class. The school is directed by Loyola University clinical psychologists and has one full time special education teacher. Graduate student trainees in clinical psychology working at the Loyola University Guidance Center devote 10 or more hours per week to the Day School and serve as room coordinators, 3 to 5 per room. The rest of the personnel is made up of volunteers, mostly college undergraduates, who spend their time working directly with the children.

These volunteers are usually recruited by word-of-mouth or through recruitment announcements at Loyola and nearby colleges. Volunteers are given several training sessions and exposed to all four classrooms. If they are still interested they choose the room in which they want to work. Volunteers in the Day School are given a good deal of autonomy and responsibility with the children. There is usually one graduate student coordinator present but even so, each volunteer always has major responsibility for one of the children, interacting with him/her either for school lessons or play. This means that the volunteer must be alert for signs of distraction, possible tantrums, withdrawal, and acting out. He must hold the child's interest and respond to and anticipate all types of behavior. Since each child represents particular problems, certain techniques are consistently used for each child, e.g., a tantrum might be ignored for X but Y is held when he tantrums. When a new problem is encountered, the volunteers who work with

this child are most often the ones to suggest the solutions tried. In other words, the volunteers are not just extensions of the senior staff, carrying out their instructions; the volunteers are creative, constructive participants in the Day School program.

Since there is always one or more other adults with the children, the volunteer is also constantly being observed by his peers. Volunteer meetings for each room are held once a week for discussion of lesson plans, techniques, and handling of different children. Volunteers are encouraged to offer opinions, suggestions, and their own good and bad experiences at these meetings. The atmosphere is one of sharing problems, ideas, and feelings. For the volunteer, then, the Day School is a place where he hopefully learns to be spontaneous, take responsibility, make mistakes, and share with peers. The senior staff tried to encourage this by being open about their feelings about working with the children themselves and being very open to suggestions for techniques.

The professional staff noticed that some of the volunteers seemed to have different developmental difficulties of their own, but volunteering often appeared linked to a definite lessening of these problems. It was this observation that prompted staff members to encourage some of their own clients to volunteer in the Day School, with gratifying results. The improvement in some of these

clients was indeed so positive that therapy was discontinued. These nonsystematic observations led to the formulation of first a pilot study and finally the present investigation.

The Pilot Study

Several months prior to the present investigation 32 volunteers and 66 controls were given a pretest consisting of 4 Guilford Social Intelligence subtests, the Personal Orientation Inventory (POI), which is a test of self-actualization, and the WAIS Vocabulary subtest. The subjects were retested after 9 weeks on the Guilford and the POI. Twenty-two volunteers and 38 controls returned for retesting. While this pilot study was initiated by staff observations of change in volunteers with some developmental difficulties, most volunteers do not exhibit obvious problems so that social intelligence and self-actualization measures seemed more in line with the other investigations reported. Stollak (1969) and Linden and Stollak (1969) especially are concerned with empathy and the idea that this is a learned ability. For this reason social intelligence was chosen as one variable to be examined. Other studies report increases in self-acceptance, self-understanding, self-confidence, and identity formation (Holzberg, et al., 1964; Reinherz, 1962; Scheibe, 1965; Umbarger, et al., 1962). The POI is based on the idea of the optimally functioning adult so that this measure was chosen to compare the volunteers as to self-actualization and to see if the volunteer experience increases self-actualiza-

tion. In fact there are many possible avenues of investigation open in this area, but the intense interaction with and responsibility for the children would seem theoretically to encourage social intelligence and self-actualization.

In the pilot study no differences on the Guilford composite scores were found between the groups on pretesting. At posttesting the experimental group had increased over the control group to the .10 level of significance, indicating a possible trend. On the two major POI ratio scores, outer-directedness and time competence, the volunteers showed significant higher pretest scores than the control group. At retesting the experimental scores had not increased but the control group had significantly increased and were no longer different than the experimental scores. This was explained as being due to the fact that the control group consisted of college freshmen while the volunteers were upperclassmen. It appeared that the POI control increases resulted from their new exposure to the university and beginning college while the volunteers had already experienced this and it could not be determined how the volunteer scores might compare to a better matched group.

It would seem that the Guilford is a promising tool for investigating volunteers while the POI remains an unknown measure for this purpose. The Guilford has not been shown to be sensitive to age differences for college students while evidently the POI is. However, this pilot study shows

that age is a variable which may be important and should be controlled when examining college student volunteers. The WAIS Vocabulary was given because the Guilford has been shown in some studies to be linked to abstract intelligence (AI) and comparability of groups needed to be insured. A Pearson product-moment correlation showed a significant relationship between vocabulary and the Guilford composite scores. While social intelligence (SI) is a valuable experimental measure, further research would seem to be indicated to investigate the AI-SI relationship.

Measurement Rationale

Social Intelligence: Definition and Measurement

There is currently no published research that has investigated mental health volunteers through the concept of SI. Until relatively recently there was a lack of systematic interest in, and no valid measures of SI. On the other hand, mental health volunteers' research focused principally on attitude change, although subjective reports from the volunteers seem to report an increase in interpersonal skills too. The search for an appropriate measure of social intelligence can be dated as early as 1920 when R. L. Thorndike first proposed that there is a social intelligence function different from the ordinary idea of intelligence. He spoke of it as an ability to act wisely in human relations. Thorndike specified two types of social

intelligence, namely understanding others and wise social actions. It must be understood that knowing and acting must be evaluated separately before their interaction can be assessed. Too frequently investigators equated the two aspects of social intelligence, or in dealing with one they have assumed the other to be present in the subjects. While it is undoubtedly true that acting socially wise presupposes social understanding, the understanding itself is necessary but not sufficient cause for wise social behavior. In the search for an appropriate measure, very few of the early social intelligence measurements were successful in measuring Thorndike's concept of social intelligence. His factor analysis indicated that none of the early tests contained unique variance that could be identified with intellectual ability (Thorndike, 1936; Woodrow, 1939).

Actually there have been very few instruments designed to even attempt to measure the concept Thorndike spoke of in 1920. In 1937, Thorndike and Stein published an evaluation of the attempts to measure social intelligence to that time. These authors reported that the George Washington Test of Social Intelligence (Moss, Hunt, Olwig & Roney, 1927) was one test widely used in measuring social intelligence, and that it had not proved to measure the ability satisfactorily. They concluded that this proved only to be a rather poor measure of general intelligence. The Washington Subtests are highly verbal and Thorndike, 1940, stated

"this being the case, it is not surprising to find that the test as a whole shows substantial correlation with the test of abstract intelligence." Thorndike's 1936 factor analysis of this instrument involved a set of inter-correlations of the five subtests of the SI test itself and of the mental alertness test, a measure of verbal intelligence. Thorndike indicated that the comprehension and use of words accounts for most of what either test measures. The co-variance of this general factor was nine times that of a second factor which had a small predominantly positive variance overlap with the subtests of the mental alertness test and equally small variance with those of the SI test. Noting this, Cleaton and Taylor reached similar conclusions in mental measurement yearbook reviews (Buros, 1949). Neither external criterion studies nor internal validity studies on this test substantiates that it measures what it claims. Further attempts at external validation of the Washington test include Maclate's, 1929 work. The behavioral criterion employed in her research was adaptability of girls in their sorority. Scores on the test did not differentiate between a group of college girls selected as making the best social adaptation in their sorority, and an unselected group of college students. Strang (1930) found that the SI test scores were unrelated to participation in public activities in a group of graduate students at a teacher's college. Studies with reported external criteria correlating significantly with the SI test, did not control for the confound of AI which

seems a logical explanatory alternative. For example, Hunt (1928) shows positive correlations with occupational levels and with the amount of involvement of students in extra-curricular activities. Concerning this research Thorndike (1940) wrote "whether these discriminations would hold up in groups equated in abstract verbal ability seems questionable" (p. 92).

The few other published tests of SI or insight that have appeared since the Washington Test to the present decade appear to be equally ineffective. These include the Empathy test (Kerr & Speroff, 1947), the Empathy Scale (Hogan, 1969), and the Social Insight Test (Chapin, 1942). Thorndike's (1959) major objection to Kerr and Speroff's Empathy test was that it dealt with behavioral prediction of the generalized other, whereas the usual usage of empathy creates an ability to react in a differential way to the specific other. Kerr and Speroff call for the individual to rank (1) the popularity of fifteen types of music for a defined type of worker, (2) the circulation of fifteen magazines, and (3) the prevalence of ten types of annoyances. The scoring key was based on empirical facts. As Thorndike pointed out there appears to be no inherent validity in the operations required in this test so its validity must be established empirically for its ability to predict socially important criteria, but the few studies by persons independent of the test constructors have yielded predominantly negative results.

Of the five main paper and pencil SI intelligence tests, three of the measures seem to investigate factors related to the SI of the volunteers in this study. They are the Chapin Social Insight Test, the Six Factor Test of Social Intelligence, and the Hogan Empathy Test.

Although the Chapin Social Insight Test (CHSIT) was introduced in 1942, very little attention has been accorded it. Recently, Gough (1965) presented an extended series of investigations into the validity of this instrument. The test's purpose, as formulated by Chapin, is to measure the ability to recognize in any situation (1) the psychological dynamics underlying a particular behavior, and (2) the necessary stimulus, compromise or innovation to resolve the situation. The CHSIT consists of twenty-five statements of social situations that Chapin (1942) gleaned from sources such as case histories and novels. The subject is expected to study the vignettes presented and in each case choose from four possible alternatives that comment which is most relevant to the situation. For example, the sample given before the test involves an individual criticizing another for something he does himself very shortly afterwards. The subject is expected to make the following insightful choice, namely, "Criticism of his acquaintance got rid of an uneasy feeling about something he contemplated doing himself (Chapin, 1942, p. 220)." Both Chapin (1942) and Gough (1968) have reported acceptable reliabilities for the CHSIT, however Gough (1968) stresses the need for additional validity studies. Criteria

of social participation and supervisors' evaluation of subordinate's degree of social insight were used to establish norms. Although no factor analysis has been reported on this test, it appears that it falls prey to the same criticism as the other two SI tests. That is, there appears to be a logical confound with verbal AI which must be controlled before these criteria can be accepted as indicative of an ability, SI, distinct from verbal or AI. Gough (1965) found age and educational level positively correlated to scores on Chapin's test. He also reported data which indicated that this test distinguished between students who continued to obtain a Ph.D. and those who drop out of a graduate program. This instrument has been cited by Gough (1965, 1968) as relating significantly to several measurements of AI. Although the correlations reported range from a modest .24 and .40 and are generally lower than those found between the George Washington SIT and AI, still the validity of the instrument remains in question until more specific research is done on the CHSIT-AI relationship. The CHSIT then appears to be an interesting test for some purposes but not a highly validated measure of the hypothesized ability of SI.

It is evident from the endeavors cited that some interest has been generated in the SI factors since E. L. Thorndike's formulation, but that published tests attempting to measure it through the late 1950's proved futile. Cronbach (1960) commented on the general status of the measurement of SI, "No evidence of validity is yet available which

warrants confidence in any present technique for measuring a person's ability to judge others as individuals. After fifty years of intermittent investigation, social intelligence remains undefined and unmeasured" (pp. 319-320).

Still, from a pragmatic standpoint, the identification and measurement of a distinct social intellectual ability different for individuals would be invaluable in numerous everyday life contacts. Common experience seems to indicate that this is at least a feasible concept to attempt to measure. One approach to the measurement of individual differences in SI was suggested but not followed up by Weddick (1947). O'Sullivan, et al. (1965) subsequently developed a new SI measure which appears promising.

Weddick constructed a psychological ability test using auditory and pictorial stimuli. A factor analysis of these SI tests along with seven tests of verbal and spatial abilities resulted in three non-original clusters which Weddick labeled, G for general intelligence, V for verbal ability and PSI for psychological ability. The Guilford group of researchers reanalyzed Weddick's data and found again, factors distinct from general intelligence. They stated that

> Weddick's success in demonstrating social intelligence factors with these tests using visual stimuli should be noted. That is the kind of stimuli most often relied upon in constructing tests for the Guilford test of social intelligence (p. 4)."

In 1959, J. P. Guilford proposed his theoretical model of an intellectual ability where intelligence includes

ability specific to behavioral content. That is, abilities which function when the content to be acted on consists of "information, essentially nonverbal, involved in human interactions where awareness of attention, perceptions, thoughts, desires, feelings, moods, emotions, intentions, and actions of the other person is important" (Guilford, 1967, p. 77). The Guilford battery to measure SI consists of six subtests which rely heavily on cartoons and pictures rather than on verbal material to test social cognitive aptitude. The Guilford test manual states that four of the subtests, social translations, cartoon predictions, missing cartoons, and expression groupings comprise the best overall composite for measuring social aptitude. Therefore, the composite scores of these four subtests will be used in the present study. The test manual reports that the correlation of separately timed halves shows a reliability of .88 for the composite Guilford scores of the four subtests administered. Construct validity is based on the fact that factor analysis of this test along with 41 other aptitude measures has shown that the Guilford test tests abilities other than those usually measured by tests of intellectual qualities.

More recently, Hogan (1969) and Grief and Hogan (1973), noting the previous cited lack of measures of empathy or SI, has developed an empathy scale using items from the CPI and MMPI. The scale includes sixty-four statements answered true or false. While Hogan constructed his scale mainly to study moral development, he remarks that his measure seems valid as

an assessment of a broader concept, that of SI. Hogan reports test-retest reliabilities of .84 and .71. Validity, correlations using social acuity ratings, averaged .58 for the samples used to develop the scale. In addition when a group of junior high school students were rated by their teachers for social acuity, Hogan's empathy scale significantly differentiated the ten most "socially acute" students from the ten least "socially acute" students. This scale is of recent origin but seems promising in terms of SI. However, its relation to AI has not been established. In this study this empathy scale as well as the Chapin and Guilford will be used in investigating the AI-SI relationship.

Walker and Foley (1973) have pointed out that one problem has been rather persistent throughout all of the SI literature, that of the relationship between SI and AI. While some investigators in the past have overlooked the evaluation of this relation, now it is usually pointed out that the AI-SI correlation, even when significant does not account for a sufficient amount of variance to be meaningful. However, more sophisticated appraisals of the AI-SI correlation such as the multi-trait, multi-method analysis of Campbell and Fiske (1959) must replace the use of the simple, isolated correlations so that if SI and AI are distinct this fact can be recognized without ambiguity.

Epistemic Orientation Inventory

The EOI was developed by Shack (1967) using factor analysis to

measure the relative strength of two basic academic learning motivators considered to be based upon parallel but independent need systems; the extrinsic motivator (including grade dependency and future orientation) and the intrinsic motivator (including curiosity indulgence, self-exploration and self-direction). The measure was designed for a college population to help in both academic and vocational selection and counseling. The theoretical basis for the two factor motivation concept comes from Hergberg's two factor theory of job satisfaction as reported by the test author. Essentially the two factors reflect independent growth and adjustment need systems which should account for motivational orientations in a variety of settings including school. The author reports significant differences in learning motivational orientation between students attending different institutions of higher education reflecting a consistency between institutional expectation and structure with what the scales purport to measure (e.g., business schools versus liberal arts colleges). Correlations between scales within the intrinsic and extrinsic factor are consistently much higher than correlations between intrinsic and extrinsic scales. Correlations between each subscale and its respective total intrinsic or extrinsic factor score are also reported as consistently higher than intercorrelations between subscales within each factor. The test successfully discriminated between college students volunteering and not volunteering for a sensitivity training laboratory (Sheridan & Shack, 1970). The EOI showed the

volunteers were significantly less extrinsically motivated than non-volunteers. These results are promising for the EOI as a volunteer measure.

Summary of the Literature Reviewed

The review of the literature strongly suggests that there are personality differences between volunteers and non-volunteers, but that the differences vary with the situation in which volunteers are working. The dimension of personality on which they differ most depends upon the instruments used. As these are varied there is no consistent trend apparent. For the hypothesis of the present study the studies by Hersch, et al. (1969) and Knapp and Holzberg (1964) concerning students who volunteer as mental health workers are most relevant. Therefore, in this study it would be expected that differences between volunteers and non-volunteers would be found.

There are many studies indicating that college students are effective mental health volunteers, and that the volunteer experience has a positive effect of the student's personality. Increases in self-acceptance, self-confidence and personal identity have been found. Therefore, it would be expected that the volunteers would show more change than the non-volunteers during the course of this study.

Social intelligence has not previously been studied with regard to the volunteer, though it seems that the ability to understand and interact with others is one that is of

special importance to volunteers in the mental health field. Thus, social intelligence is a central variable that will be examined in this experiment. Since previous studies have found that the volunteers benefit from their experience, this study would be expected to show that social intelligence will be enhanced as a result of the volunteer experience.

The Epistemic Orientation Inventory is a measure of intrinsic and extrinsic motivation. One study using the EOI found a volunteer and non-volunteer difference. It would be expected then that this study will find some motivational differences in volunteers and non-volunteers. No investigation has measured change in EOI motivation, and there is no evidence of the constancy of this variable. However, it could be postulated that the volunteer experience does change other personality variables and, thus motivational orientation too might be changed.

This study will examine the difference between volunteers at the Loyola University Guidance Center Day School for emotionally disturbed children, contrasting volunteers with one month experience, volunteers with three months experience, and non-volunteers. The groups will be matched as closely as possible on age, sex, and major in school. The specific hypotheses to be tested are:

1) Volunteers in the Loyola University Guidance Center Day School perform better on the social intelligence measures on pretesting than the non-volunteers.

2) Volunteers at the Loyola University Guidance Center Day School show a different motivational pattern on the motivational measure than non-volunteers.

3) Volunteers at the Loyola University Guidance Center Day school show greater improvement on the SI measures than non-volunteers.

4) Volunteers at the Loyola University Guidance Center Day School show more changes in motivational pattern on the motivational measure than non-volunteers.

5) Volunteers who have been at the Loyola University Guidance Center Day School three months show greater changes on the SI and motivational measures than volunteers who have had only one month's experience.

6) Correlation of AI and SI measures show that SI, as defined by these tests, is an independent concept from AI.

III. METHOD

Subjects

The initial experimental subjects of this investigation were 50 volunteers working in various classrooms at the Loyola University Guidance Center Day School for emotionally disturbed children. While 50 subjects were pretested on all measures, attrition reduced the final total to 22 subjects who participated in both pre- and posttesting. Nine subjects were retested after one month while 13 were retested after three months. The average pre-post testing interval was 9.4 weeks.

The control subjects were recruited from members of an undergraduate abnormal psychology class at Loyola University who were comparable to the experimental subjects on sex, age, and chosen major. The students were offered partial credit in the course for participating in this experiment. Forty subjects were pretested while 20 subjects did not return for posttesting, leaving 20 subjects as the final total for the control group. The average test-retest interval for the controls was 8.5 weeks.

The prior pilot study included 32 experimental subjects and 66 control subjects. The experimental subjects were all volunteers at the Loyola University Guidance Center

Day School. Thirty-two were originally tested and 22 returned for the retest. The control subjects were undergraduates at Loyola University in introductory psychology classes. They participated in the study as part of their course requirements. Sixty-six were pretested and 38 completed the posttest. The test-retest interval for both these groups was 9 weeks.

Measures

Demographic and personal information for all subjects was gathered at the time of testing.

1) At the pretest each subject was asked to fill out a cover sheet including sex, age, year in school, major, and number of hours working per week. See Appendix A.

2) At the posttest each subject filled out a short questionnaire concerning either some qualitative questions regarding their volunteer experience for the experimental group or for the controls, any type of work with people in which they might be involved. See Appendix B.

All subjects were pre- and posttested on the following measures previously described at more length in the Measurement Rationale section of the Review of the Related Literature:

1) Chapin Social Insight Test (Chapin, 1942). The Chapin test is designed to tap understanding or judgment of social situations based on a choice of four possible alternatives following the presentation of a short vignette.

Because of the high amount of verbal comprehension necessary to respond to the items, this could be considered a highly verbally demanding test. Acceptable reliability is reported and studies have found significant relationships between scores on the Chapin and rankings of occupational groups thought to have more or less social insight and ratings on variables like leadership. See Review of the Related Literature, pp. 32-33.

2) Hogan Empathy Scale (Hogan, 1969). This test is designed to measure sensitivity to the needs and values of others. The scale is comprised of 64 items from the CPI and MMPI answered true or false. Since test response is subjective and not especially dependent upon accuracy of item comprehension, this could be considered a moderately verbally demanding test. Test-retest reliability of .84 is reported for a three month period and Hogan scores successfully discriminated high school students rated by their teachers as having high or low social acuity. See Review of the Related Literature, pp. 35-36.

3) The Six Factor Tests of Social Intelligence (O'Sullivan, et al., 1965) including only the four subtests Social Translations, Cartoon Predictions, Missing Cartoons, and Expression Groupings which are reported by the authors to comprise the best composite scores for the test. These tests are designed to measure different factors of the ability to understand others. All but Social Translations rely solely

on pictures or cartoons as test stimuli and answers. As such the other three subtests could be considered minimally verbally demanding. Acceptable reliability of .88 and construct validity based on factor loadings have been demonstrated. See Review of the Related Literature, pp. 34-35.

4) The Epistemic Orientation Inventory (Shack, 1967) is a Likert-type scale designed to measure academic learning motivational orientation in college students. Test-retest reliability ranged between .70 and .87 for its five subscales and two main factor scores. Validation, both factorial and construct, is respectable. See Review of the Related Literature, pp. 36-38.

Previous studies of college student volunteers have found evidence of personality change after the volunteer experience. These measures of social intelligence and motivation were used in this study to investigate these variables and possible changes in Loyola University Guidance Center Day School volunteers.

All subjects were tested once, at the time of the posttest, on the following AI measures:

1) WAIS Vocabulary subtest was administered as a paper and pencil test. Instructions were given to write the definitions of the words in the space provided. Scoring followed WAIS standards. This is a most verbally demanding task since the subject must recall and write down the definitions of the words.

2) A Verbal Fluency test was also administered. This was a paper and pencil test in which the subject was asked to write as many words beginning with the letter P as he could in one minute. This is a moderate verbally demanding measure because the subject had only to write a list of words, not understand them.

3) WAIS Digit Symbol subtest was presented as a timed paper and pencil test. Ninety seconds was allowed to complete the test. Scoring was in accord with WAIS standards. This was a minimal verbally demanding task since no overt verbal cues are involved in the test stimuli or answers although verbal mediation is considered to play a key role in performance on this test.

These AI measures were used along with the SI measures to construct a multitrait-multimethod matrix to examine the AI-SI relationship. They were chosen to measure different AI factors corresponding to the different levels of verbal demand inherent in the three SI measures.

In addition each volunteer was rated by two of their supervisors at the Day School on a scale previously developed for the purpose of measuring several dimensions of volunteer effectiveness by the Day School staff. See Appendix C. Aspects of volunteer effectiveness assessed included reliability, work with the children, and ability to get along with supervisors and peers. Rating on this Likert-type scale was on a 1 to 5 basis for each item, five being the most desirable score.

The raw score for each subject was the total points received.

In the pilot study the subjects were given the four Guilford subtests, the WAIS Vocabulary, and the Personal Orientation Inventory, a test of self-actualization based on Maslow's theory. See Review of the Related Literature, pp. 26-28.

Procedure

All subjects were tested in small groups at the Loyola University Guidance Center. The testing was done by assistants according to written instructions to insure uniformity of administration. Testing was carried out between October, 1973 and March, 1974. For all subjects the first test session included only the SI and the EOI measures. At the posttest both the AI and the SI and EOI measures were administered. Because of the amount of test time involved, subjects were given the Guilford and AI tests, then were given the Chapin, Hogan, and EOI tests to take home to complete and return in 48 hours. Supervisors' ratings of the Day School volunteers were collected after the subjects had taken the posttest.

For the pilot study the subjects were tested at Loyola University. They were given the Vocabulary, the Guilford, and the POI at the first test session. At the retest they took the Guilford and the POI. Testing for this group occurred between November, 1971 and January, 1972.

Data Management

Demographic information was tallied by group for the

pre- and posttest sessions. The information was coded and analyzed using t tests.

There was one score for each of the three AI measures and two of the SI measures, the Chapin and the Hogan. The Guilford yielded five scores--one for each of the four subtests and a composite score. The EOI gave seven scores--five subscale factors and two total motivational scores.

For the hypotheses relating to volunteer and non-volunteer differences t tests were used to test mean differences between the experimental and control groups both for the present investigation and with the pilot study subjects' scores included. For the hypotheses relating to volunteer and non-volunteer changes, t tests were performed on pre- and posttest scores for each group both with and without the pilot study data. The students t rather than analysis of variance was the statistical test of choice because of the large number of different sized groups being contrasted. It was felt that since the study concerned itself only with main effects, was exploratory in nature and would gain little parsimony in using F tests, the more easily computer programmed t test was considered adequate.

For the hypothesis concerning the AI-SI interrelationship, Pearson correlations were computed between the three AI measures and the posttest scores from the Hogan, the Chapin, and the composite score from the three nonverbal Guilford subtests. Pilot study data were excluded since these subjects did not take all these measures.

To gain additional information about the subjects, Pearson correlations were also carried out for the control group and for the combined experimental and control groups between demographic data, the EOI, the SI, and the AI tests. For the experimental group the same correlations as above were calculated also including supervisors' ratings and Day School room as part of the demographic data. Again, these statistics did not include the pilot study data. Although sex,major, and social contact were coded as dichotomous variables, Pearson correlations rather than the more accurate point biserial correlations for dichotomous variables were used for these calculations since these analyzes were made only to gain additional information. Two experienced statisticians (Drs. A. Johnson and E. Posavac) were consulted and agreed that the Pearson correlation is a relatively close approximation of the point biserial correlation and might be used as appropriate in this instance.

IV. RESULTS

Demographic Data

The sex, age, year in school, major, and number of hours per week in paid employment of the subjects was examined to insure comparability of groups. The volunteer and non-volunteer groups from the present study, then the volunteer and non-volunteer groups including the pilot study, and, finally, the three month and one month volunteer groups were compared, both with all pretested subjects and then only with those subjects completing the experiment. The coding used for the demographic data is shown on Table 1 to explain numerical values of the following tables.

Table 2 shows there were no significant differences on demographic variables between the volunteer and non-volunteer groups from the present study. When the pilot study data was included on Table 3 the volunteers were significantly older and had more psychology majors, but these differences were eliminated when only subjects completing the experiment were compared. Table 4 illustrates that there were also significant more females in the one month volunteer group than in the three month volunteer group.

Experimental Hypothesis

1. Volunteers in the Loyola University Guidance

Table 1

Demographic Coding

Sex:

Male	= 0
Female	= 1

Age:

17 and younger	= 0
18	= 1
19	= 2
20	= 3
21	= 4
22	= 5
23	= 6
24+	= 7

Year in School:

High School	= 0
College Freshman	= 1
Sophomore	= 2
Junior	= 3
Senior	= 4
College Graduate	= 5

Major:

Psychology	= 0
Other	= 1

Hours Working/Week:

0-4	= 0
5-9	= 1
10-14	= 2
15+	= 3

Table 2

Comparison of Demographic Measures for Volunteer and Non-Volunteer Groups--Present Study

All Pretest Subjects	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Sex:						
Volunteer	50	0.66	0.48	0.58	88	0.56
Non-Volunteer	40	0.60	0.50			
Age:						
Volunteer	49	3.12	2.50	1.56	87	0.12
Non-Volunteer	40	3.88	1.95			
Year in School:						
Volunteer	49	2.57	1.35	0.96	87	0.34
Non-Volunteer	40	2.83	1.08			
Major:						
Volunteer	49	0.43	0.50	0.27	87	0.79
Non-Volunteer	40	0.40	0.50			
Hours Working:						
Volunteer	49	1.02	1.15	0.67	87	0.51
Non-Volunteer	40	1.20	1.40			
Subjects Taking Pre and Posttest						
Sex:						
Volunteer	22	0.77	0.43	1.20	40	0.24
Non-Volunteer	20	0.60	0.50			
Age:						
Volunteer	22	2.86	2.48	1.02	40	0.31
Non-Volunteer	20	3.60	2.16			
Year in School:						
Volunteer	22	2.36	1.26	0.37	40	0.72
Non-Volunteer	20	2.50	1.15			
Major:						
Volunteer	22	0.45	0.51	0.68	40	0.50
Non-Volunteer	20	0.35	0.49			
Hours Working:						
Volunteer	22	0.77	1.02	1.24	40	0.22
Non-Volunteer	20	1.25	1.45			

Table 3

Demographic Comparison of Volunteer and Non-Volunteer Groups--Including Pilot Study

All Pretest Subjects	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Sex:						
Volunteer	82	0.63	0.49	0.81	186	0.42
Non-Volunteer	106	0.56	0.50			
Age:						
Volunteer	81	2.90	2.10	2.11	185	0.04*
Non-Volunteer	106	2.28	1.90			
Year in School:						
Volunteer	49	2.57	1.35	0.96	87	0.34
Non-Volunteer	40	2.83	1.08			
Major:						
Volunteer	81	0.42	0.50	3.22	185	0.002**
Non-Volunteer	106	0.65	0.48			
Hours Working:						
Volunteer	81	0.99	1.17	0.34	185	0.73
Non-Volunteer	106	0.92	1.31			
Subjects Taking Pre and Posttest						
Sex:						
Volunteer	44	0.66	0.48	0.92	100	0.36
Non-Volunteer	58	0.57	0.50			
Age:						
Volunteer	44	2.70	1.96	1.51	100	0.14
Non-Volunteer	58	2.12	1.92			
Year in School:						
Volunteer	22	2.36	1.26	0.37	40	0.72
Non-Volunteer	20	2.50	1.15			
Major:						
Volunteer	44	0.45	0.50	1.86	100	0.07
Non-Volunteer	58	0.64	0.49			
Hours Working:						
Volunteer	44	0.75	1.10	1.45	100	0.15
Non-Volunteer	58	1.12	1.39			

* .05 level of significance
** .01 level of significance

Table 4

Demographic Comparison of 3 Month and 1 Month Volunteer Groups

All Pretest Subjects	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Sex:						
3 Month	38	0.61	0.50	1.46	48	0.15
1 Month	12	0.83	0.39			
Age:						
3 Month	37	3.11	2.48	0.07	47	0.95
1 Month	12	3.17	2.66			
Year in School:						
3 Month	37	2.62	1.42	0.45	47	0.65
1 Month	12	2.42	1.16			
Major:						
3 Month	37	0.43	0.50	0.09	47	0.93
1 Month	12	0.42	0.52			
Hours Working:						
3 Month	37	1.00	1.13	0.22	47	0.83
1 Month	12	1.08	1.24			
Subjects Taking Pre and Posttest						
Sex:						
3 Month	13	0.62	0.51	2.26	20	0.04*
1 Month	9	1.00	0.00			
Age:						
3 Month	13	2.85	2.38	0.04	20	0.97
1 Month	9	2.89	2.76			
Year in School:						
3 Month	13	2.46	1.33	0.43	20	0.67
1 Month	9	2.22	1.20			
Major:						
3 Month	13	0.46	0.52	0.08	20	0.94
1 Month	9	0.44	0.53			
Hours Working:						
3 Month	13	0.85	1.07	0.40	20	0.70
1 Month	9	0.67	1.00			

* .05 level of significance

Center Day School perform better on the social intelligence measures on pretesting than the non-volunteers.

Tables 5 and 6 illustrate the pretest comparison of the volunteer and non-volunteer groups from the present study on the SI measures, both with and without subjects dropping out of the experiment. Tables 7 and 8 show the pretest comparison of the volunteer and non-volunteer groups on the Guilford including the pilot study with and without subjects not completing the testing. There were no significant differences between any of these groups on the SI measures.

2) Volunteers at the Loyola University Guidance Center Day School show a different motivational pattern on the motivational measure than non-volunteers.

Table 9 illustrates the comparison of the volunteer and non-volunteer groups on the pretest EOI measure of motivation. Table 10 compares these same groups including only those subjects completing the experiment. In both cases the volunteer group is significantly higher than the non-volunteers on the Self-Exploratory subscale.

3) Volunteers at the Loyola University Guidance Center Day School show greater improvement on the SI measures than non-volunteers.

Tables 11 and 12 illustrate the posttest comparison of the volunteer and non-volunteer groups from the present study and then including the pilot study data. With the pilot study included, the volunteers were significantly

Table 5

SI Measure Pretest Comparison of Volunteers and Non-Volunteers--Present Study--All Subjects

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Guilford						
Social Translations:						
Volunteer	49	17.71	3.64	0.94	87	0.35
Non-Volunteer	40	18.43	3.42			
Cartoon Predictions:						
Volunteer	49	22.06	4.71	1.49	84	0.14
Non-Volunteer	37	23.46	3.74			
Missing Cartoons:						
Volunteer	49	18.76	5.78	0.96	87	0.34
Non-Volunteer	40	17.60	5.54			
Expression Groupings:						
Volunteer	49	19.41	3.16	0.50	84	0.62
Non-Volunteer	37	19.81	4.38			
Composite Score:						
Volunteer	49	77.94	13.17	.065	84	0.52
Non-Volunteer	37	79.73	11.76			
Hogan Empathy Scale						
Volunteer	35	41.14	6.97	0.62	66	0.54
Non-Volunteer	33	40.15	6.24			
Chapin Social Insight Test						
Volunteer	39	22.59	4.88	0.37	70	0.71
Non-Volunteer	33	23.03	5.08			

Table 6

SI Measure Pretest Comparison of Volunteer and Non-Volunteer Groups--Present Study--Subjects Completing Experiment Only

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Guilford						
Social Translations:						
Volunteer	22	18.95	2.28	1.13	40	0.27
Non-Volunteer	20	17.75	4.41			
Cartoon Predictions:						
Volunteer	22	22.45	5.06	0.74	40	0.46
Non-Volunteer	20	23.55	4.47			
Missing Cartoons:						
Volunteer	22	19.82	5.82	0.73	40	0.47
Non-Volunteer	20	18.60	4.94			
Expression Groupings:						
Volunteer	22	19.45	3.76	1.65	40	0.11
Non-Volunteer	20	21.20	2.98			
Composite Score:						
Volunteer	22	80.68	13.84	0.11	40	0.92
Non-Volunteer	20	81.10	11.51			
Hogan Empathy Scale						
Volunteer	21	41.05	8.22	0.52	38	0.60
Non-Volunteer	19	39.84	6.02			
Chapin Social Insight Test						
Volunteer	22	21.95	5.38	1.23	39	0.23
Non-Volunteer	19	24.11	5.79			

Table 7

Pretest Guilford Comparison of Volunteer and Non-Volunteer Groups--Including Pilot Study--All Subjects

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Social Translations:						
Volunteer	81	18.00	3.37	0.53	185	0.60
Non-Volunteer	106	17.66	4.93			
Cartoon Predictions:						
Volunteer	81	22.40	4.13	1.85	182	0.07
Non-Volunteer	103	23.42	3.38			
Missing Cartoons:						
Volunteer	81	18.86	5.25	0.71	185	0.48
Non-Volunteer	106	19.63	8.59			
Expression Groupings:						
Volunteer	81	19.36	3.46	0.57	182	0.57
Non-Volunteer	103	19.68	4.05			
Composite Score:						
Volunteer	81	78.62	12.09	0.57	182	0.57
Non-Volunteer	103	79.62	11.66			

Table 8

Pretest Guilford Comparison of Volunteer and Non-Volunteer Groups--Including Pilot Study--Subjects Completing Experiment Only

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Social Translations:						
Volunteer	44	18.59	2.74	1.33	100	0.19
Non-Volunteer	58	17.62	4.23			
Cartoon Predictions:						
Volunteer	44	22.95	4.11	0.94	100	0.35
Non-Volunteer	58	23.67	3.58			
Missing Cartoons:						
Volunteer	44	19.59	5.12	0.12	100	0.83
Non-Volunteer	58	19.79	4.38			
Expression Groupings:						
Volunteer	44	19.14	3.99	1.34	100	0.19
Non-Volunteer	58	20.14	3.56			
Composite Score:						
Volunteer	44	80.27	12.37	0.41	100	0.68
Non-Volunteer	58	81.22	10.85			

Table 9

EOI Pretest Comparison of Volunteer and Non-Volunteer Groups--Present Study--All Subjects

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Grade Dependence:						
Volunteer	34	59.24	14.43	0.72	65	0.48
Non-Volunteer	33	61.64	12.92			
Future Orientation:						
Volunteer	34	31.65	5.49	1.05	65	0.30
Non-Volunteer	33	30.24	5.47			
Total Extrinsic:						
Volunteer	34	90.88	18.40	0.23	65	0.82
Non-Volunteer	33	91.88	16.23			
Curiosity:						
Volunteer	34	59.12	7.13	0.82	65	0.42
Non-Volunteer	33	57.27	10.96			
Self Definition:						
Volunteer	34	24.53	4.73	1.92	65	0.06
Non-Volunteer	33	22.30	4.76			
Self Exploratory:						
Volunteer	34	30.91	3.51	2.26	65	0.03*
Non-Volunteer	33	28.55	4.94			
Total Intrinsic:						
Volunteer	34	114.56	12.70	1.60	65	0.11
Non-Volunteer	33	108.18	19.33			

* .05 level of significance

Table 10

EOI Pretest Comparison of Volunteer and Non-Volunteer Groups--Present Study--Subjects Completing Experiment Only

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Grade Dependence:						
Volunteer	20	60.65	13.36	1.67	37	0.10
Non-Volunteer	19	67.42	11.95			
Future Orientation:						
Volunteer	20	32.25	5.62	0.56	37	0.58
Non-Volunteer	19	31.21	5.88			
Total Extrinsic:						
Volunteer	20	92.90	17.09	1.07	37	0.29
Non-Volunteer	19	98.63	16.41			
Curiosity:						
Volunteer	20	61.30	6.13	1.06	37	0.30
Non-Volunteer	19	58.37	10.41			
Self Definition:						
Volunteer	20	24.95	5.04	1.80	37	0.08
Non-Volunteer	19	21.89	5.55			
Self Exploratory:						
Volunteer	20	31.60	3.49	2.15	37	0.04*
Non-Volunteer	19	28.79	4.64			
Total Intrinsic:						
Volunteer	20	117.85	11.19	1.71	37	0.10
Non-Volunteer	19	109.05	19.94			

* .05 level of significance

Table 11

SI Measure Posttest Comparison of Volunteer and Non-Volunteer Groups--Present Study

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Guilford						
Social Translations:						
Volunteer	22	16.82	6.59	1.27	40	0.21
Non-Volunteer	20	13.80	8.79			
Cartoon Predictions:						
Volunteer	22	24.00	2.73	1.59	40	0.12
Non-Volunteer	20	25.35	2.76			
Missing Cartoons:						
Volunteer	22	21.91	4.99	0.75	40	0.46
Non-Volunteer	20	20.90	3.48			
Expression Groupings:						
Volunteer	22	20.55	3.02	0.95	40	0.35
Non-Volunteer	20	21.40	2.78			
Composite Score:						
Volunteer	22	83.27	11.77	0.59	40	0.56
Non-Volunteer	20	81.45	7.55			
Hogan Empathy Scale						
Volunteer	20	41.35	8.57	0.32	36	0.75
Non-Volunteer	18	40.56	6.42			
Chapin Social Insight Test						
Volunteer	20	22.40	5.08	0.86	36	0.40
Non-Volunteer	18	24.06	6.73			

Table 12

Posttest Guilford Comparison of Volunteer and Non-Volunteer Groups--Including Pilot Study

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Social Translations:						
Volunteer	43	17.60	5.67	2.23	98	0.03*
Non-Volunteer	57	14.39	8.06			
Cartoon Predictions:						
Volunteer	43	24.49	2.46	0.00	98	0.99
Non-Volunteer	57	24.49	3.67			
Missing Cartoons:						
Volunteer	43	21.51	4.61	0.22	98	0.83
Non-Volunteer	57	21.33	3.57			
Expression Groupings:						
Volunteer	43	20.51	3.26	0.78	98	0.44
Non-Volunteer	57	21.04	3.34			
Composite Score:						
Volunteer	43	84.12	10.79	1.43	98	0.16
Non-Volunteer	57	81.25	9.27			

* .05 level of significance

higher on the Social Translations subtest of the Guilford than were the non-volunteers.

Table 13 shows the pre- to posttest change scores for the volunteer group from the present study on the SI measures. Both the Cartoon Predictions and Missing Cartoons subtest scores on the Guilford significantly increased. When the volunteers from the pilot study were included on Table 14 the Guilford Cartoon Predictions, Missing Cartoons, and Expression Groupings subtest scores and the composite score all significantly increased.

Table 15 illustrates the pre- to posttest change scores for the non-volunteer group from the present study on the SI measures. The Guilford Cartoon Predictions and Missing Cartoons subtest scores significantly increased. When the non-volunteers from the pilot study were included on Table 16, Missing Cartoons and Expression Groupings subtest scores significantly increased and the Social Translations scores significantly decreased.

4) Volunteers at the Loyola University Guidance Center Day School show more changes in motivational patterns on the motivational measures than non-volunteers.

Table 17 shows the posttest comparison of the volunteer and non-volunteer groups on the EOI. There were no significant differences between the groups.

The EOI pre- to posttest change scores for the volunteer group is shown on Table 18. There were no significant increases. Table 19 illustrates the pre- to posttest EOI

Table 13

SI Measures Change Scores for the Volunteer Group--Present Study

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Guilford:						
Social	22	18.95	2.28	1.48	21	0.16
Translations		16.82	6.59			
Cartoon	22	22.45	5.06	2.22	21	0.04
Predictions		24.00	2.73			
Missing	22	19.82	5.82	3.00	21	0.01**
Cartoons		21.91	4.99			
Expression	22	19.45	3.76	1.82	21	0.08
Groupings		20.55	3.02			
Composite	22	80.68	13.84	1.89	21	0.07
Scores		83.27	11.77			
Hogan	19	40.68	8.30	0.84	18	0.41
Empathy		41.21	8.79			
Chapin Social	20	22.35	5.45	0.06	19	0.95
Insight		22.40	5.08			

** .01 level of significance

Table 14

Guilford Change Scores for the Volunteer Group--Including Pilot Study

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Social	43	18.84	2.23	1.40	42	0.17
Translations		17.60	5.67			
Cartoon	43	22.93	4.15	3.37	42	0.002**
Predictions		24.49	2.46			
Missing	43	19.65	5.17	3.92	42	0.001**
Cartoons		21.51	4.61			
Expression	43	19.47	3.38	2.31	42	0.03*
Groupings		20.51	3.26			
Composite	43	80.88	11.83	2.71	42	0.01**
Score		84.12	10.79			

* .05 level of significance

** .01 level of significance

Table 15

SI Measures Change Scores for the Non-Volunteer Group--Present Study

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Guilford: Social Translations	20	17.75 13.80	4.41 8.79	1.70	19	0.11
Cartoon Predictions	20	23.55 25.35	4.47 2.76	2.91	19	0.01**
Missing Cartoons	20	18.60 20.90	4.94 3.48	2.79	19	0.01**
Expression Groupings	20	21.20 21.40	2.98 2.78	0.35	19	0.73
Composite Scores	20	81.10 81.45	11.51 7.55	0.15	19	0.89
Hogan Empathy	19	39.63 40.53	5.79 6.24	1.03	18	0.32
Chapin Social Insight Test	19	23.79 23.89	6.02 6.57	0.09	18	0.93

** .01 level of significance

Table 16

Guilford Change Scores for the Non-Volunteer Group--Including Pilot Study

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Social	57	17.61	4.26	2.72	56	0.009**
Translations		14.37	8.06			
Cartoon	57	23.63	3.59	1.73	56	0.09
Predictions		24.49	3.67			
Missing	57	19.75	4.41	4.09	56	0.001**
Cartoons		21.33	3.57			
Expression	57	20.09	3.57	2.48	56	0.02*
Groupings		21.04	3.34			
Composite	57	81.09	10.89	0.12	56	0.91
Score		81.25	9.27			

* .05 level of significance

** .01 level of significance

Table 17

EOI Posttest Comparison of Volunteer and Non-Volunteer Groups--Present Study

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Grade Dependence:						
Volunteer	20	57.95	11.59	1.58	35	0.12
Non-Volunteer	17	64.18	12.33			
Future Orientation:						
Volunteer	20	31.35	6.07	0.26	35	0.80
Non-Volunteer	17	31.94	7.80			
Total Extrinsic:						
Volunteer	20	89.10	14.80	1.33	35	0.19
Non-Volunteer	17	96.06	16.95			
Curiosity:						
Volunteer	20	58.20	11.04	0.24	35	0.81
Non-Volunteer	17	59.00	9.19			
Self Definition:						
Volunteer	20	24.30	5.57	0.53	35	0.60
Non-Volunteer	17	23.41	4.43			
Self Exploratory:						
Volunteer	20	31.15	4.45	1.12	35	0.27
Non-Volunteer	17	29.59	3.92			
Total Intrinsic:						
Volunteer	20	113.65	18.44	0.29	35	0.77
Non-Volunteer	17	112.00	15.08			

Table 18

EOI Change Scores for the Volunteer Group--Present Study

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Grade	18	60.06	13.97	0.87	17	0.40
Dependence		58.22	12.16			
Future	18	32.22	5.74	1.20	17	0.25
Orientation		31.06	6.26			
Total	18	92.28	17.81	1.37	17	0.19
Extrinsic		89.06	15.64			
Curiosity	18	61.50	6.26	0.68	17	0.50
		59.83	9.87			
Self	18	25.78	4.60	0.64	17	0.53
Definition		25.22	4.77			
Self	18	31.78	3.57	0.00	17	1.00
Exploratory		31.78	4.21			
Total	18	119.06	10.97	0.72	17	0.48
Intrinsic		116.83	15.58			

Table 19

EOI Change Scores for the Non-Volunteer Group--Present Study

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Grade Dependence	18	66.17 62.94	13.79 13.05	1.40	17	0.18
Future Orientation	18	31.56 31.56	5.91 7.74	0.00	17	1.00
Total Extrinsic	18	97.72 94.44	18.03 17.81	1.32	17	0.21
Curiosity	18	57.44 60.17	10.42 10.19	1.46	17	0.16
Self Definition	18	21.22 23.56	5.02 4.34	1.88	17	0.08
Self Exploratory	18	28.39 29.67	4.46 3.82	2.15	17	0.05*
Total Intrinsic	18	107.06 113.39	18.89 15.77	2.23	17	0.04

* .05 level of significance

change scores for the non-volunteers. The Self-Exploratory and Total Intrinsic subscale scores both significantly increased for the non-volunteer group.

5) Volunteers who have been at the Loyola University Guidance Center Day School three months show greater changes on the SI and motivational measures than volunteers who have had only one month's experience.

On Table 20 the three month and one month volunteer groups are compared on the EOI and the SI measures including all subjects who took the pretest. There were no significant differences between the groups. Table 21 illustrates the pretest comparison of the groups only including subjects completing the experiment. There were also no significant differences between the groups in this comparison. Table 22 shows the posttest comparison of the three month and one month volunteer groups.

Tables 23 and 24 show the pre- to posttest change scores for the three month and one month volunteer groups on the SI measures. The three month volunteers significantly increased on the Expression Groupings subtest of the Guilford. Tables 25 and 26 illustrate the EOI change scores for the two groups. Neither the three month nor the one month volunteer groups significantly increased on any of the EOI subscales.

6) Correlations of AI and SI measures show that SI, as defined by these tests, is an independent concept from AI.

Table 20

Pretest Comparison of 3 Month and 1 Month

Volunteer Groups--All Subjects

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Epistemic Orientation Inventory						
Grade Dependence:						
3 Month	23	59.87	13.65	0.37	32	0.72
1 Month	11	57.91	16.59			
Future Orientation:						
3 Month	23	31.26	5.20	0.59	32	0.56
1 Month	11	32.45	6.25			
Total Extrinsic:						
3 Month	23	91.13	17.63	0.11	32	0.91
1 Month	11	90.36	20.82			
Curiosity:						
3 Month	23	59.39	7.32	0.32	32	0.75
1 Month	11	58.55	7.03			
Self Definition:						
3 Month	23	25.26	4.03	1.32	32	0.20
1 Month	11	23.00	5.87			
Self Exploratory:						
3 Month	23	31.00	3.74	0.21	32	0.84
1 Month	11	30.73	3.13			
Total Intrinsic:						
3 Month	23	115.65	12.01	0.72	32	0.48
1 Month	11	112.27	14.36			
Guilford:						
Social Translations:						
3 Month	37	17.46	3.99	0.86	47	0.40
1 Month	12	18.50	2.20			
Cartoon Predictions:						
3 Month	37	22.41	4.00	0.90	47	0.37
1 Month	12	21.00	6.52			

Table 20.--Continued

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Missing Cartoons:						
3 Month	37	18.92	6.06	0.35	47	0.73
1 Month	12	18.25	5.01			
Expression Groupings:						
3 Month	37	19.05	2.62	1.39	47	0.17
1 Month	12	20.50	4.38			
Composite Score:						
3 Month	37	77.84	12.36	0.09	47	0.93
1 Month	12	78.25	16.04			
Hogan Empathy Scale						
3 Month	24	41.04	5.87	0.12	33	0.90
1 Month	11	41.36	9.27			
Chapin Social Insight Test						
3 Month	28	23.00	4.80	0.83	37	0.41
1 Month	11	21.55	5.17			

Table 21

Pretest Comparison of 3 Month and 1 Month Volunteer Groups--Subjects Completing Experiment Only

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Epistemic Orientation Inventory						
Grade Dependence:						
3 Month	11	60.64	10.27	0.00	18	0.99
1 Month	9	60.67	17.08			
Future Orientation:						
3 Month	11	30.82	5.38	1.28	18	0.21
1 Month	9	34.00	5.70			
Total Extrinsic:						
3 Month	11	91.45	14.75	0.41	18	0.69
1 Month	9	94.67	20.37			
Curiosity:						
3 Month	11	62.18	6.84	0.70	18	0.49
1 Month	9	60.22	5.33			
Self Definition:						
3 Month	11	26.45	4.11	1.53	18	0.14
1 Month	9	23.11	5.69			
Self Exploratory:						
3 Month	11	32.00	3.80	0.56	18	0.58
1 Month	9	31.11	3.22			
Total Intrinsic:						
3 Month	11	120.64	9.52	1.25	18	0.23
1 Month	9	114.44	12.67			
Guilford						
Social Translations:						
3 Month	13	19.08	2.36	0.30	20	0.77
1 Month	9	18.78	2.28			

Table 21.--Continued

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Cartoon Predictions:						
3 Month	13	24.00	1.29	1.81	20	0.09
1 Month	9	20.22	7.43			
Missing Cartoons:						
3 Month	13	21.38	5.65	1.57	20	0.13
1 Month	9	17.56	5.59			
Expression Groupings:						
3 Month	13	19.15	2.91	0.44	20	0.66
1 Month	9	19.89	4.91			
Composite Score:						
3 Month	13	83.62	9.31	1.21	20	0.24
1 Month	9	76.44	18.40			
Hogan Empathy Scale						
3 Month	12	41.33	6.87	0.18	19	0.86
1 Month	9	40.67	10.19			
Chapin Social Insight Test						
3 Month	13	22.77	5.63	0.85	20	0.41
1 Month	9	20.78	5.07			

Table 22

Posttest Comparison of 3 Month and 1 Month Volunteer Groups

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Epistemic Orientation Inventory						
Grade Dependence:						
3 Month	13	57.15	11.06	0.41	18	0.69
1 Month	7	59.43	13.30			
Future Orientation:						
3 Month	13	30.46	6.44	0.89	18	0.39
1 Month	7	33.00	5.39			
Total Extrinsic:						
3 Month	13	87.62	14.55	0.60	18	0.56
1 Month	7	91.86	16.00			
Curiosity:						
3 Month	13	59.69	9.96	0.82	18	0.42
1 Month	7	55.43	13.19			
Self Definition:						
3 Month	13	24.31	5.41	0.01	18	0.99
1 Month	7	24.29	6.32			
Self Exploratory:						
3 Month	13	31.54	4.52	0.52	18	0.61
1 Month	7	30.43	4.58			
Total Intrinsic:						
3 Month	13	115.54	17.83	0.61	18	0.55
1 Month	7	110.14	20.47			
Guilford						
Social Translations:						
3 Month	13	17.00	6.94	0.15	20	0.88
1 Month	9	16.56	6.44			
Cartoon Predictions:						
3 Month	13	24.54	1.39	1.12	20	0.28
1 Month	9	23.22	3.93			

Table 22.--Continued

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Missing Cartoons:						
3 Month	13	23.54	3.02	1.96	20	0.06
1 Month	9	19.56	6.42			
Expression Groupings:						
3 Month	13	21.15	2.61	1.14	20	0.27
1 Month	9	19.67	3.50			
Composite Score:						
3 Month	13	86.23	8.80	1.45	20	0.16
1 Month	9	79.00	14.59			
Hogan Empathy Scale						
3 Month	13	41.62	6.76	0.18	18	0.86
1 Month	7	40.86	11.87			
Chapin Social Insight Test						
3 Month	13	22.62	5.35	0.25	18	0.80
1 Month	7	22.00	4.93			

Table 23

SI Measures Change Scores for the

3 Month Volunteer Group

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Guilford: Social Translations	13	19.08 17.00	2.36 6.94	1.01	12	0.33
Cartoon Predictions	13	24.00 24.54	1.29 1.39	1.34	12	0.21
Missing Cartoons	13	21.38 23.54	5.65 3.02	2.13	12	0.06
Expression Groupings	13	19.15 21.15	2.91 2.61	2.47	12	0.03*
Composite Score	13	83.62 86.23	9.31 8.80	1.85	12	0.09
Hogan Empathy	12	41.33 41.42	6.87 7.03	0.11	11	0.92
Chapin Social Insight	13	22.77 22.62	5.63 5.35	0.12	12	0.91

* .05 level of significance

Table 24

SI Measures Change Scores for the

1 Month Volunteer Group

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Guilford: Social Translations	9	18.78 16.56	2.28 6.44	1.07	8	0.32
Cartoon Predictions	9	20.22 23.22	7.43 3.93	1.98	8	0.08
Missing Cartoons	9	17.56 19.56	5.59 6.43	2.12	8	0.07
Expression Groupings	9	19.89 19.67	4.91 3.50	0.31	8	0.77
Composite Score	9	76.44 79.00	18.40 14.59	0.92	8	0.39
Hogan Empathy	7	39.57 40.86	10.86 11.87	1.21	6	0.27
Chapin Social Insight	7	21.57 22.00	5.44 4.93	0.66	6	0.53

Table 25

EOI Change Scores for the 3 Month

Volunteer Group

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Grade	11	60.64	10.27	1.33	10	0.21
Dependence		57.45	11.99			
Future	11	30.82	5.38	0.73	10	0.48
Orientation		29.82	6.71			
Total	11	91.45	14.75	1.62	10	0.14
Extrinsic		87.27	15.91			
Curiosity	11	62.18	6.84	0.17	10	0.87
		62.64	6.25			
Self	11	26.45	4.11	0.47	10	0.65
Definition		25.82	3.71			
Self	11	32.00	3.80	0.58	10	0.58
Exploration		32.64	3.93			
Total	11	120.64	9.52	0.12	10	0.91
Intrinsic		121.09	10.47			

Table 26

EOI Change Scores for the 1 Month

Volunteer Group

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Grade	7	59.14	19.38	0.07	6	0.95
Dependence		59.43	13.30			
Future	7	34.43	5.97	1.01	6	0.35
Orientation		33.00	5.39			
Total	7	93.57	23.09	0.36	6	0.73
Extrinsic		91.86	16.00			
Curiosity	7	60.43	5.56	1.08	6	0.32
		55.43	13.19			
Self	7	24.71	5.44	0.55	6	0.60
Definition		24.29	6.32			
Self	7	31.43	3.46	1.02	6	0.35
Exploration		30.43	4.58			
Total	7	116.57	13.35	1.32	6	0.23
Intrinsic		110.14	20.47			

For purposes of constructing a multitrait-multimethod matrix, the SI and AI tests were divided into three categories depending on the amount of verbal skill demand inherent in the method used. Thus the Chapin Social Insight Test and the WAIS Vocabulary subtest were assessed as most verbally demanding, the Hogan Empathy Test and the Verbal Fluency Test as moderately verbally demanding, and a composite score for the three nonverbal Guilford subtests and the WAIS Digit Symbol subtest as having no expressive verbal demands. In other words, there were two traits, SI and AI, measured by three methods, three levels of verbal skill demand. Since the AI measures were administered at the posttest session, the SI posttest scores were used for the matrix. These correlations were then organized into a multitrait-multimethod matrix. Values entered in the reliability diagonal for the SI tests were based on the test-retest correlations from this study. Reliability for the WAIS Vocabulary was calculated by the Spearman-Brown method on scores of an odd-even split of the test items. Since there was no way to calculate reliability from a single administration the WAIS Digit Symbol and Verbal Fluency reliabilities, these values were taken respectively from the WAIS manual and a study involving two similar tests of ideational fluency (Wallach & Wing, 1969). Three matrices were constructed using correlations from the volunteer group, the non-volunteer group, and the combined groups.

The matrix for the volunteer group appears on Table 28; the means and standard deviations for these measures are on Table 27. The matrix and descriptive statistics for the non-volunteer group appear on Tables 29 and 27, and for the combined groups on Tables 30 and 27. The volunteer and combined matrices but not the non-volunteer matrix show significant correlations in the validity diagonals supporting convergent validity for the SI trait (.41, .52, .51 for the volunteer and .33, .40, .46 for the combined groups). The comparable non-volunteer validity correlations (.22, .26, .36) are all in the same direction but are not significant. Convergent validity for the AI trait is supported only for Verbal Fluency and Digit Symbol in the non-volunteer and combined matrices' validity diagonals (.41, .32). Thus the AI trait as measured by these tests excludes what would generally be regarded as the strongest AI measure, WAIS Vocabulary, and garners little support for convergent validity. Evaluation of discriminant validity shows that the Vocabulary measure is significantly correlated with all the SI measures except the Hogan Empathy Scale and the Guilford measures in the control matrix. These correlations are as high and sometimes higher than the convergent measures and lend no support to any notion that abstract intelligence as measured by highly verbal tasks is different from social intelligence as measured in this study.

Table 27

Descriptive Statistics for Multitrait-Multimethod Matrices

	Volunteer		Non-Volunteer		Combined	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Chapin Social Insight Test	22.40	5.08	23.89	6.57	23.13	5.83
WAIS Vocabulary	63.05	10.48	61.32	9.55	62.24	9.97
Hogan Empathy Scale	41.35	8.57	40.53	6.24	40.95	7.44
Verbal Fluency	17.22	4.50	18.00	4.36	17.58	4.40
Guilford	66.45	9.02	67.65	6.61	67.02	7.89
WAIS Digit Symbol	82.22	10.40	78.35	12.24	80.42	11.32

Table 28

Multitrait-Multimethod Matrix for Volunteer Group (N=22)

	Chapin Social Insight Test	WAIS Vocabulary	Hogan Empathy Scale	Verbal Fluency	Guilford	WAIS Digit Symbol
Chapin Social Insight Test	(.74*)					
WAIS Vocabulary	.41*	(.70*)				
Hogan Empathy Scale	.47*	.50*	(.95*)			
Verbal Fluency	.31	.25	.15	(.71*)		
Guilford	.52*	.85*	.51*	.32	(.89*)	
WAIS Digit Symbol	.38*	.13	.25	.28	.17	(.92*)

* .05 level of significance

Table 29

Multitrait-Multimethod Matrix for Non-Volunteer Group (N=20)

	Chapin Social Insight Test	WAIS Vocabulary	Hogan Empathy Scale	Verbal Fluency	Guilford	WAIS Digit Symbol
Chapin Social Insight Test	(.69*)					
WAIS Vocabulary	.42*	(.80*)				
Hogan Empathy Scale	.22	.16	(.81*)			
Verbal Fluency	-.10	-.01	.02	(.71*)		
Guilford	.26	.01	.36	-.14	(.79*)	
WAIS Digit Symbol	-.20	-.09	.21	.41*	.17	(.92*)

* .05 level of significance

Table 30

Multitrait-Multimethod Matrix for Combined Experiment and Control Subjects (N=42)

	Chapin Social Insight Test	WAIS Vocabulary	Hogan Empathy Scale	Verbal Fluency	Guilford	WAIS Digit Symbol
Chapin Social Insight Test	(.72*)					
WAIS Vocabulary	.39*	(.76*)				
Hogan Empathy Scale	.33*	.38*	(.90*)			
Verbal Fluency	.09	.11	.10	(.71*)		
Guilford	.40*	.52*	.46*	.14	(.85*)	
WAIS Digit Symbol	.02	.04	.24	.32*	.15	(.92*)

* .05 level of significance

Other Results

Subject Attrition

When volunteer subjects who dropped out were compared with subjects who completed both parts of the testing on pretest scores on Table 31, the drop-outs had significantly lower scores on the EOI Curiosity subscale and the Guilford Social Translations subtest. In the non-volunteer group, drop-outs had significantly lower scores on the EOI Grade-Dependence and Total Extrinsic subscales and on the Guilford Expression Groupings subtest (see Table 32).

Pearson Correlations of Demographic Data

Correlations among all of the demographic measures were computed for the volunteer and non-volunteer groups separately and then for the subjects as a whole. Descriptive statistics for demographic measures appear on Table 2. The matrices of correlations of demographic measures appear on Tables 33, 34, and 35.

POI Pre- to Posttest Comparisons

The one month volunteer group from the present study significantly increased on the POI Existentiality, Spontaneity, and Capacity for Intimate Contact subscales. The pilot study non-volunteer group significantly increased on Existentiality and Capacity for Intimate Contact (see Table 36).

Table 31

Pretest Comparison of Volunteer Group Subjects

Who Completed Testing vs. Those Who Dropped Out

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Epistemic Orientation Inventory						
Grade Dependence:						
Volunteers	20	60.65	13.36	0.68	32	0.50
Drop-Outs	14	57.21	16.15			
Future Orientation:						
Volunteers	20	32.25	5.62	0.76	32	0.45
Drop-Outs	14	30.79	5.40			
Total Extrinsic:						
Volunteers	20	92.90	17.09	0.76	32	0.45
Drop-Outs	14	88.00	20.44			
Curiosity:						
Volunteers	20	61.30	6.13	2.26	32	0.03*
Drop-Outs	14	56.00	7.51			
Self Definition:						
Volunteers	20	24.95	5.04	0.61	32	0.54
Drop-Outs	14	23.93	4.36			
Self Exploratory:						
Volunteers	20	31.60	3.49	1.39	32	0.18
Drop-Outs	14	29.93	3.43			
Total Intrinsic:						
Volunteers	20	117.85	11.19	1.87	32	0.07
Drop-Outs	14	109.86	13.63			
Guilford						
Social Translations:						
Volunteers	22	18.95	2.28	2.24	47	0.03*
Drop-Outs	27	16.70	4.23			
Cartoon Predictions:						
Volunteers	22	22.45	5.06	0.52	47	0.60
Drop-Outs	27	21.74	4.47			

Table 31.--Continued

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Missing Cartoons:						
Volunteers	22	19.82	5.82	1.17	47	0.25
Drop-Outs	27	17.89	5.70			
Expression Groupings:						
Volunteers	22	19.45	3.76	0.09	47	0.93
Drop-Outs	27	19.37	2.63			
Composite Score:						
Volunteers	22	80.68	13.84	1.33	47	0.19
Drop-Outs	27	75.70	12.41			
Hogan Empathy Scale						
Volunteers	21	41.05	8.22	0.10	33	0.92
Drop-Outs	14	41.29	4.81			
Chapin Social Insight Test						
Volunteers	22	21.95	5.38	0.92	37	0.36
Drop-Outs	17	23.41	4.17			

* .05 level of significance

Table 32

Pretest Comparison of Non-Volunteer Subjects Who Completed Testing vs. Those Who Dropped Out

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Epistemic Orientation Inventory						
Grade Dependence:						
Non-Volunteers	19	67.42	11.95	3.48	31	0.002**
Drop-Outs	14	53.79	9.89			
Future Orientation:						
Non-Volunteers	19	31.21	5.88	1.19	31	0.24
Drop-Outs	14	28.93	4.73			
Total Extrinsic:						
Non-Volunteers	19	98.63	16.41	3.15	31	0.004**
Drop-Outs	14	82.71	10.88			
Curiosity:						
Non-Volunteers	19	58.37	10.72	0.66	31	0.51
Drop-Outs	14	55.79	11.51			
Self Definition:						
Non-Volunteers	19	21.89	5.55	0.57	31	0.57
Drop-Outs	14	22.86	3.55			
Self Exploratory:						
Non-Volunteers	19	28.79	4.64	0.33	31	0.75
Drop-Outs	14	28.21	5.49			
Total Intrinsic:						
Non-Volunteers	19	109.05	19.94	0.30	31	0.77
Drop-Outs	14	107.00	19.14			
Guilford						
Social Translations:						
Non-Volunteers	20	17.75	4.41	1.26	38	0.22
Drop-Outs	20	19.10	1.89			
Cartoon Predictions:						
Non-Volunteers	20	23.55	4.47	0.16	35	0.88
Drop-Outs	17	23.35	2.78			

Table 32.--Continued

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
Missing Cartoons:						
Non-Volunteers	20	18.60	4.94	1.15	38	0.26
Drop-Outs	20	16.60	6.05			
Expression Groupings:						
Non-Volunteers	20	21.20	2.98	2.20	35	0.03*
Drop-Outs	17	18.18	5.22			
Composite Score:						
Non-Volunteers	20	81.10	11.51	0.76	35	0.45
Drop-Outs	17	78.12	12.20			
Hogan Empathy Scale						
Non-Volunteers	19	39.84	6.02	0.33	31	0.75
Drop-Outs	14	40.57	6.73			
Chapin Social Insight Test						
Non-Volunteers	19	24.11	5.79	1.44	31	0.16
Drop-Outs	14	21.57	3.61			

* .05 level of significance

** .01 level of significance

Table 33

Demographic Correlations for Volunteer Group (N=22[a])

	Sex	Age	Year School	Major	Hours Working	Room	Hours Volunteering	Supervisors' Ratings
Sex								
Age	-.19							
Years School	-.26*	.76**						
Major	-.01	-.13	-.12					
Hours Working	-.30*	-.02	.06	-.16				
Room	-.14	.14	-.04	.35*	.24			
Hours Volunteering	-.39*	.00	.28	.29	.37*	.24		
Supervisors' Ratings	.08	-.06	.39	-.39	.14	-.54*	-.03	
EOI Pretest:								
Grade Dependence	-.21	-.25	-.05	.29*	-.14	-.05	-.09	.36
Future Orientation	-.19	.06	.15	-.12	-.26	.02	-.28	.05
Total Extrinsic	-.22	-.18	.01	.19	-.19	-.03	-.16	.30
Curiosity	-.04	.00	.13	.05	.00	.04	.40*	.07
Self Definition	-.38**	.06	.09	.25	.02	.22	.37	-.13
Self Exploratory	-.09	.06	.13	.00	-.11	-.12	.18	.07
Total Intrinsic	-.19	.04	.14	.13	-.02	.09	.42*	.00
EOI Posttest:								
Grade Dependence	-.06	-.08	.08	.13	.09	.00	-.18	.52*
Future Orientation	-.04	-.04	-.01	-.22	.20	.16	-.07	-.05
Total Extrinsic	-.08	-.10	.06	.02	.16	.04	-.14	.39
Curiosity	.31	.05	.19	-.05	-.14	.14	-.01	.35
Self Definition	.31	.15	.38*	.10	-.29	-.06	.13	.48
Self Exploratory	.18	.20	.49**	-.03	-.20	-.17	.19	.36
Total Intrinsic	.32	.12	.35	-.01	-.22	.02	.08	.47

Guilford Pretest:								
Social Translations	.32**	-.16	-.11	-.17	.01	-.60**	-.21	.23
Cartoon Predictions	-.05	-.13	-.07	-.18	.11	-.21	.23	.31
Missing Cartoons	-.08	.01	.07	-.40**	.11	-.07	.05	.18
Expression Groupings	-.02	-.11	-.18	-.49**	.21	-.24	-.20	.15
Composite Score	.03	-.12	-.06	-.41**	.14	-.30	.02	.28
Guilford Posttest:								
Social Translations	-.32	.00	-.08	-.56**	.33	-.14	-.33	.30
Cartoon Predictions	-.08	-.06	.07	-.14	.10	.05	.21	.15
Missing Cartoons	-.39*	.09	.05	-.34	.13	.00	.00	.07
Expression Groupings	-.23	-.06	-.16	-.23	-.14	-.28	-.05	.10
Composite Score	-.41*	.01	-.05	-.55**	.23	-.13	-.13	.28
Hogan Empathy Scale Pretest	.26	-.12	.09	-.33*	-.06	-.46*	.03	.32
Hogan Empathy Scale Posttest	.26	-.20	-.01	-.38	-.22	-.22	.06	.11
Chapin Social Insight Pretest	.06	.17	.17	-.21	-.25	-.09	-.14	.00
Chapin Social Insight Posttest	.07	-.01	.22	-.18	.01	-.17	-.07	.21

* .05 level of significance

** .01 level of significance

[a]Numbers may be different and therefore there is no single value for significance.

Table 34

Demographic Correlations for the Non-Volunteer Group (N=20[a])

	Sex	Age	Years in School	Major	Hours Working	Social Contact
Sex						
Age	.24					
Years in School	.20	.56**				
Major	.04	.03	.18			
Hours Working	.19	.19	-.11	.07		
	.00	.00	.00	-.32	.04	
EOI Pretest:						
Grade Dependence	-.06	-.42**	-.26	.26	-.16	-.17
Future Orientation	.05	-.09	.02	.35*	-.08	-.13
Total Extrinsic	-.03	-.36*	-.20	.33*	-.15	-.17
Curiosity	-.08	-.08	.19	-.06	-.17	-.31
Self Definition	-.28	-.02	.10	-.02	-.11	-.45*
Self Exploratory	-.06	-.09	.08	-.09	-.27	-.21
Total Intrinsic	-.13	-.07	.15	-.06	-.19	-.34
EOI Posttest:						
Grade Dependence	-.13	-.44*	-.29	.13	-.40*	-.08
Future Orientation	-.07	-.27	-.10	.37	-.01	-.21
Total Extrinsic	-.13	-.44*	-.25	.26	-.29	-.16
Curiosity	.15	.02	.33	.32	-.07	-.26
Self Definition	.15	.09	.20	.19	.24	-.12
Self Exploratory	.00	-.08	.24	.04	-.18	-.06
Total Intrinsic	.14	.02	.33	.27	-.02	-.21

Guilford Pretest:						
Social Translations	.09	.14	.00	-.16	-.03	.38*
Cartoon Predictions	.12	.05	-.09	-.15	.22	.15
Missing Cartoons	.00	.17	-.15	-.12	.26	.21
Expression Groupings	.25	.09	.00	.06	.08	-.03
Composite Score	.12	.17	-.05	-.12	.18	.29
Guilford Posttest:						
Social Translations	.14	.04	.19	-.20	-.24	-.18
Cartoon Predictions	-.05	.06	-.28	-.41*	.07	.24
Missing Cartoons	-.21	.18	-.25	-.41*	.39*	.41*
Expression Groupings	.20	.05	-.23	-.34	.18	.07
Composite Score	.12	.17	-.08	-.23	-.01	.10
Hogan Empathy Scale Pretest	-.04	.12	.17	-.13	.18	-.12
Hogan Empathy Scale Posttest	-.02	.21	.08	-.08	.25	.01
Chapin Social Insight Pretest	-.07	.07	.00	-.33*	.12	.15
Chapin Social Insight Posttest	.18	.30	.32	-.12	.20	.11

* .05 level of significance

** .01 level of significance

[a]Numbers may be different and therefore there is no single value for significance.

Table 35

Demographic Correlations for Combined Experiment and Control Groups (N=42[a])

	Sex	Age	Years in School	Major	Hours Working	Social Contact
Sex						
Age	-.03					
Years in School	-.08	.70**				
Major	.01	-.07	-.01			
Hours Working	-.05	.08	-.01	-.05		
	.01	.07	-.03	-.21	.06	
EOI Pretest:						
Grade Dependence	-.14	-.30**	-.13	.27**	-.13	.08
Future Orientation	-.05	-.03	.08	.11	-.17	-.13
Total Extrinsic	-.13	-.25*	-.07	.25*	-.16	.02
Curiosity	-.06	-.06	.15	-.01	-.12	-.25*
Self Definition	-.29**	-.02	.08	.13	-.09	-.40**
Self Exploratory	-.04	-.07	.08	-.03	-.24*	-.32**
Total Intrinsic	-.13	-.05	.13	.02	-.15	-.34**
EOI Posttest:						
Grade Dependence	-.12	-.21	-.05	.11	-.16	.13
Future Orientation	-.06	-.15	-.05	.09	.07	-.09
Total Extrinsic	-.12	-.23	-.05	.13	-.08	.06
Curiosity	.23	.05	.25	.11	-.07	-.06
Self Definition	.24	.12	.31*	.14	-.03	-.09
Self Exploratory	.11	.06	.37**	.01	-.22	-.14
Total Intrinsic	.24	.08	.34*	.11	-.11	-.10

Guilford Pretest:						
Social Translations	.21	-.03	-.06	-.17	.00	.19
Cartoon Predictions	.00	-.05	-.06	-.17	.17	.15
Missing Cartoons	-.04	.05	-.02	-.23	.17	.01
Expression Groupings	.11	-.01	-.09	-.20	.14	.11
Composite Score	.06	-.01	-.05	-.29**	.16	.15
Guilford Posttest:						
Social Translations	-.01	-.01	.05	-.12	-.06	-.26
Cartoon Predictions	-.11	.03	-.07	-.28*	.13	.28*
Missing Cartoons	-.27*	.10	-.07	-.34**	.21	.11
Expression Groupings	-.05	.01	-.18	-.29*	.06	.12
Composite Score	-.17	.05	-.06	-.42**	.09	-.03
Hogan Empathy Scale Pretest	.12	-.03	.11	-.23*	.05	-.08
Hogan Empathy Scale Posttest	.14	-.05	.02	-.25	.01	-.02
Chapin Social Insight Pretest	.00	.07	.10	-.27**	-.17	.20
Chapin Social Insight Posttest	.11	.16	.27*	-.16	.16	.14

* .05 level of significance
** .01 level of significance

[a]Numbers may be different and therefore there is no single value for significance.

Table 36

Significant POI Change Scores for 1 Month Volunteers, with Comparable Pilot Study Scores

	N	Mean	Standard Deviation	t	D.F.	2-Tail Probability
1 Month Volunteers:						
Existentiality	7	19.14 21.86	2.67 2.80	3.49	6	0.01**
Spontaneity	7	12.14 13.29	3.02 3.20	4.38	6	0.01**
Capacity for Intimate Contact	7	16.71 19.29	2.36 3.86	3.29	6	0.02*
Pilot Study Non-Volunteers:						
Existentiality	38	19.37 22.05	3.96 4.05	6.12	37	0.001**
Spontaneity	38	12.29 13.13	2.87 2.44	1.75	37	0.09
Capacity for Intimate Contact	38	17.53 18.63	3.11 2.69	2.78	37	0.01**

* .05 level of significance
** .01 level of significance

V. DISCUSSION

The discussion of the results of this study is divided into two sections: first, the discussion will deal with results bearing on the specific hypotheses; and then will deal with the implications of other related findings.

Experimental Hypotheses

First it was hypothesized that volunteers in the Loyola University Guidance Center Day School would perform better on SI measures initially than the non-volunteers. This hypothesis was not supported by the data from this study or when this data was combined with the scores from the pilot study. Thus volunteers at the Loyola University Guidance Center Day School at the time they volunteered could not be distinguished from non-volunteers as measured by the Guilford, Chapin, and Hogan SI tests.

The second hypothesis posed that volunteers in the Loyola University Guidance Center Day School would show a different motivational pattern as measured on the EOI than the non-volunteers. This hypothesis was supported. The Self-Exploratory subscale scores were significantly higher for the volunteers. This is an intrinsic scale showing that volunteers in this study had a greater degree of curiosity about themselves and were oriented to know more about how

they operate in new circumstances than did the non-volunteer subjects.

The third hypothesis stated volunteers in the Loyola University Guidance Center Day School would show greater improvement on SI measures than non-volunteers. Both the Chapin and the Hogan SI measures did not show any significant improvement from pre- to posttest for either group. The subtests of the Guilford did show changes for both groups, however.

Using only the subjects from the present investigation both volunteers and non-volunteers increased significantly on Cartoon Predictions and Missing Cartoons. When the pilot study data was included, the volunteer group significantly increased on Cartoon Predictions, Missing Cartoons, Expression Groupings, and the composite score. The non-volunteer group significantly increased on Missing Cartoons and Expression Groupings and significantly decreased on Social Translations.

Because of the variety of results it would seem wise to consider the five Guilford scores separately. Since the combined groups have the larger number it would also seem that these are the more valid results. First, Missing Cartoons--this subtest increased for all groups from pre- to posttest. Since both groups improved it would appear that this consistent increase might be explained as a result of practice effects rather than a true increase in SI. While

the posttesting did occur at various times for different subjects, these retest interval differences varied for all the subjects in the present study and were uniform for the pilot study subjects. The increase in Missing Cartoons scores was present in all groups for all retest intervals and could thus be explained as a result of practice from taking the test again. The Expression Groupings subtest, while not significantly increasing for the subjects from the present study, does show a significant increase for both groups when all the subjects are combined. Again, it would seem wise to suggest that the cause of this increase may have been due to practice effects rather than greater SI. Performance on both these subtests seems to improve significantly on retesting.

Results on the Social Translations subtest appear more complex. The combined groups show the non-volunteer group significantly decreased in their scores from pre- to posttest while the volunteer group did not change. In the non-volunteer group of the present study their scores also decreased on this subtest, while not to a significant level, to the .10 level of significance, a definite trend. Of the four Guilford subtests, Social Translations is unique in using all verbal rather than visual cues. Another possible vital factor is that it was always the first subtest presented to the subjects. It would appear that because Social Translations is a relatively uninteresting test to the test taker and consistently administrated in a time position where it would be maximally sensitive to lowered motivational levels, that rather then reflecting a diminished SI in the non-volunteer group, the lower

scores show less interest in the test situation on the part of the less motivated non-volunteers. The means of the volunteer group show that they too received lower posttest scores on Social Translations but not to such a great extent, possibly showing they too were not as interested in taking the tests the second time but had somewhat greater motivation than the non-volunteers. Probably the best manner of handling this problem would be to systematically alter the order of presentation of all the subtests at both pre- and posttest so that this motivational effect would be evenly divided among the subtests. As it is, little can be concluded from this subtest in terms of SI except that the volunteers seemed to show a greater investment and interest in the experiment than the non-volunteers. Since the volunteers knew they were being studied as a group, this cannot be construed as a true experimental finding and says more about the order of presentation of the subtests.

Cartoon Predictions, on the other hand, shows more promising results. While both the present study's volunteer and non-volunteer groups showed significant increases on this subtest, in the combined groups with the pilot study data, only the volunteer group showed a significant increase. In fact, a closer examination of the non-volunteer group of the current investigation shows that it is made up of two groups, one-half with some kind of volunteer or paid employment involving contact with other people and one-half without this. Cartoon Predictions also showed a significant increase for the half of the non-volunteer group with "social contact." Thus the fact that the present study's non-volunteer group significantly

increased on Cartoon Predictions really seems to reflect these scores rather than practice effects. In addition, since the combined groups with a larger control number wipes out the significant increase of this subgroup, it would appear that experience as a Day School volunteer or some kind of similar work involving social contact increases the SI factor measured by Cartoon Predictions. This subtest has a .55 loading on Guilford's factor of the SI ability to draw implications or make predictions about what will happen following a given social situation. From these results it would seem to follow that working with others increases the ability to analyze and predict the behavior of others. At the Day School the volunteers must constantly watch the children and anticipate their next moves. So, "practice makes perfect," or increased exposure to situations calling for SI does, in fact, seem to improve that ability.

The composite scores for the combined groups showed the volunteer group significantly increased and the non-volunteers did not. Reviewing the previous discussion, however, makes these results clearer. Both groups increased on Missing Cartoons and Expression Groupings but the non-volunteer group decreased on Social Translations while the volunteer group increased on Cartoon Predictions. These combinations add up to two previously mentioned facts: first, the non-volunteer group had a lower motivational level on taking the posttest than the volunteer group and this decrease in Social Translations evidently offset their gains in the other two subtests; and, second, in real terms of SI the volunteer group did, in

fact, increase on their ability to make implications from social situations, Cartoon Predictions, but really not on all the SI factors measured by the Guilford.

The fourth hypotheses stated that volunteers at the Loyola University Guidance Center Day School would show more changes in motivational pattern as measured by the EOI than the non-volunteers. This hypothesis was not supported by the data. In fact, while the volunteer group did not significantly increase on the EOI, the non-volunteer group significantly increased on the Self-Exploratory subscale and the Total Intrinsic motivation scores. It should be recalled that initially the volunteer group was significantly higher than the controls on the Self-Exploratory subscale, but the volunteers did not change on this factor. Thus volunteering does not seem to increase intrinsic motivation but it is already present to a greater extent in the volunteers.

On the other hand, there could be three possible explanations for the non-volunteers' increase in intrinsic motivation. First it could be explained as a purely chance finding, a statistical artifact. A second explanation could be that some of the non-volunteer group did experience some change in motivation because of some unknown outside factor. There is no way of predicting what that outside influence could have been.

There is a third consideration which might be responsible for the non-volunteer increase in intrinsic motivation. The entire non-volunteer group did have one experience in

common. They were all members of an abnormal psychology course. It is possible that exposure to this psychological material increased their self-exploratory motivation. As medical students beginning to study in detail a variety of diseases often fear they themselves have some of the symptoms they are studying, they become highly aware of each ache and pain. Psychologists have noted a similar phenomenum in students studying abnormal psychology. They become more introspective, examining their own behavior and trying to diagnose themselves. It might be that this could be the explanation for the increase in self-exploratory motivation in the non-volunteer group in this study.

The fifth experimental hypothesis stated that the three month volunteer group would show greater changes on the measures than the one month volunteer group. This hypothesis was supported to some extent by the data. While there was no difference when these two groups were compared to each other, the change scores for each group taken separately do show some differences on the Guilford SI measures. None of the one month volunteer change scores reached significance; but two subtests on the Guilford, Cartoon Predictions and Missing Cartoons approached significance (.08 and .07 level of significance respectively). On the other hand, the three month volunteer group did have one significant subtest increase on Expression Groupings and the Missing Cartoons score increase

was to the .06 level of significance. In addition, looking at the composite score change for each group, the one month group increase was only .39 level of significance while the three month volunteers increased to the .09 level. While neither of these are statistically significant, the three month group seems to show a definite trend toward greater improvement on the Guilford measures than the one month group. This is not conclusive, especially because of the small number of subjects involved, but it would seem to encourage the idea that the length of exposure as a volunteer is related to some improvement in SI skills.

The final hypothesis posed that a correlation of AI and SI measures would show that SI, as defined by these tests, is empirically independent of AI. As described in the Results section, three multitrait-multimethod matrices were constructed from the data, one for the volunteer group, one for the non-volunteer group, and one for both the volunteer and non-volunteer groups combined. There is evidence in the validity diagonals for convergent validity for the SI trait in all but the non-volunteer group matrix. That is to say, these three SI tests intercorrelate with each other and seem to show that they measure a similar trait. However, there is little evidence of convergent validity of the AI trait except between Digit Symbol and Verbal Fluency. Since the third measure, Vocabulary, is most highly correlated with total AI, according to the WAIS manual, this lack of convergence with the other measures seriously compromises the interpreta-

tion of the matrix, especially in terms of discriminant validity of the traits. As might be expected from this, only the heterotrait-heteromethod blocks involving the Digit Symbol and Verbal Fluency show the proper values for discriminant validity for the control and combined matrices. Again, this is not so meaningful since Vocabulary has the highest correlation with total AI.

In addition, all three matrices have significant correlations in the heterotrait-monomethod values involving Vocabulary and the Chapin Social Insight Test. This high trend with Vocabulary and the SI measures continues in the volunteer and combined matrices. It would seem that, as other studies have found, that there is a definite relationship between SI and AI, especially the verbal factors in AI as represented by Vocabulary.

However, there are definite differences between the three matrices. The non-volunteer matrix even includes negative correlations involving Digit Symbol and Verbal Fluency. Perhaps the best hypothesis for this finding is the small number involved, causing these unusual correlations which disappear when the groups are combined. This seems to indicate the importance of a larger sample being used along with better AI measures that show convergent validity. In connection with this, another problem might be the relative homogeniety of the groups. There is relatively little variance on either the AI or the SI scores. The matrices do seem to show evidence supporting the validity of the SI trait, however.

Other Related Findings

Subject attrition--Because of the high attrition rate, it seemed wise to examine the pretest scores of both volunteer and non-volunteer groups of the present study comparing those who completed the testing with those who did not.

Both volunteer and non-volunteer drop-outs were significantly lower on one Guilford subtest each (Social Translations and Expression Groupings respectively) than their counterparts. That Social Translations was the one subtest on which volunteer drop-outs scored less well is not surprising. As previously noted, Social Translations appeared in this study to be sensitive to lowered motivation of the Subjects. This would seem to show that the volunteer drop-outs were less motivated to begin with, either in terms of volunteering or the experiment itself. Why Expression Groupings scores were lower for non-volunteer drop-outs is less clear. There seems to be no reason why this particular Guilford subtest should distinguish non-volunteer drop-outs from non-drop-outs.

On the EOI volunteer drop-outs from the volunteer group were significantly lower than the volunteers who remained on the Curiosity Indulgence subscale, one measure of intrinsic motivation. This subscale specifically purports to measure the desire to seek new and varied learning experiences. Most of the drop-outs from the experiment also

did not continue volunteering, so this finding seems consistent with the definition of this scale. The drop-outs either were not as interested in the experiment or in volunteering as those volunteers who remained and did take the retest.

For the non-volunteer group EOI scores, subjects who dropped out of the study had significantly lower scores on both the Grade-Dependence subscale and Total Extrinsic scores. Both of these scores measure dependence on external factors of learning motivation. Since the non-volunteers were participating in this study for partial course credit and had to complete both test sessions to receive credit, it is not surprising that the non-volunteer subjects who did complete the experiment were more concerned with grades than those who did not.

One important aspect of this study was the high attrition rate, 50 per cent for both volunteer and non-volunteer groups. Examination of the drop-outs shows that there are indeed some differences between these subjects and those who completed the experiment, especially in terms of motivation. It seems that a test-retest design is optimal for examining volunteer change, but it also presents a contaminating factor because of attrition and might be, in itself, an interesting area of research.

Demographic correlations--Correlations between the demographic variables and the various tests were investigated for the subjects in the present study in three ways: the

volunteers, the non-volunteers, and the entire group combined. The results will be discussed in two parts--correlations with the EOI, and correlations with the SI measures, each according to the various demographics.

The EOI measures intrinsic and extrinsic learning motivational orientation and was designed for college students. The author of the EOI postulates certain motivational characteristics for different groups of college students, and the correlations based on the findings of this study support these hypotheses.

First, it is hypothesized that because of cultural standards, females tend to be more socialized, in the sense of being more dependent on extrinsic motivation. For the combined groups and the volunteer group it was found that males had higher scores on one of the Intrinsic subscales, Self-Determination, the desire to have more freedom in a learning situation and less structure.

Second, age and year in school should be negatively correlated with extrinsic motivation since, as students mature and progress through college they should become more dependent on internal motivation in learning and find external motivators less important. This was true of the age correlations with Grade-Dependence and Total Extrinsic subscales in both the non-volunteer and combined groups. Year in school correlated positively for the volunteers with two Intrinsic subscales and negatively for the non-volunteers with Grade-Dependence. Year in school correlated positively with three of the four

Intrinsic scales for the combined groups.

A third EOI premise is that students with different majors in school have differing motivational orientations, depending on their majors. While the data in this study was only divided into psychology majors and other majors, in all three subject groups, majors in school other than psychology correlated positively with the Extrinsic subscales, showing differential motivation in choice of major.

The other EOI findings are not directly related to the underlying premises proposed directly by the test author, but can be extrapolated thereof. Number of hours working in the non-volunteer group is negatively correlated with Grade Dependence, an extrinsic motivational subscale. In the combined group it is negatively correlated with the Self-Exploratory subscale, one measure of intrinsic motivation. Perhaps these results are more chance findings since having a job could be more easily related to financial necessity for a subject rather than motivational orientation.

In both the non-volunteer and combined groups "social contact," whether the subject volunteers or has a job working with the public, is positively correlated with the Intrinsic scales. In other words, subjects with greater intrinsic motivation tend to seek greater contact with others. In addition, the number of hours the volunteer group volunteered per week was also positively correlated with two Intrinsic subscales. Again, there seems to be a connection between intrinsic motivation and amount of contact with others sought.

One final volunteer group correlation was found. Supervisors' ratings were positively correlated with Grade-Dependence, an extrinsic motivator showing more concern with grades and the ability to pattern behavior strictly towards getting good grades rather than learn some subject. For example, a student might find that a particular teacher tests strictly on facts or another uses essay-type questions on tests and therefore patterns their study to prepare exclusively for this kind of test rather than concentrating on learning all aspects of a subject.

That volunteers with high Grade-Dependence also were rated higher by supervisors is an interesting finding. It seems to say that volunteers extend their interest to pleasing authority figures, whether teachers or supervisors, to even a more unstructured setting and, what's more, that their ability to find ways to please authority figures works. They get higher "grades" or ratings, even though it might be hoped that at the Day School, the supervisors would be judging the volunteers on more than their ability to please them. One needn't really take such a pessimistic view, of course. It might be that the volunteers with higher Grade-Dependence also were the better volunteers. However, this subscale was the only one of all the test scores, including the SI measures, to have a significant correlation with supervisors' ratings.

For the three SI measures there were no significant correlations with sex, age, and year in school for any of the three groups. However, major in school was found to

correlate with all the SI measures except the Social Translations subtest. Psychology majors seem to have generally better SI scores than subjects with other majors.

Social contact, i.e., either volunteering or having a job involving work with the public, also positively correlated with a major in psychology and with the Guilford subtest, Cartoon Predictions, on the posttest. This was the measure of SI which previously was shown to increase as a result of some kind of social contact. The volunteer group correlations do show some interesting additional findings about the Day School volunteers. Male volunteers are more likely to be upperclassmen, to work at outside jobs and to volunteer more hours. Psychology majors and those high on the Hogan Empathy test tended to select the more primitive classrooms. Also number of hours volunteering is negatively correlated with the posttest Social Translations scores. This supports the motivational hypothesis concerning this subtest. Less volunteer hours could be seen as an indicator of lower motivation and is connected with a lowered posttest Social Translations score.

Unfortunately, ratings of the volunteers by their supervisors did not provide any support for the SI hypothesis. Since each Day School room has different supervisors, there were four sets of raters and the correlations show that volunteers in the more advanced rooms received lower ratings. This would appear to be rater bias rather than a true distinction since raters in the most advanced room later told

the author they thought they generally had rated their volunteers low.

And so, the picture of the Day School volunteer is filled out. Female volunteers are in the majority but tend to be younger than males who tend to volunteer more hours. Psychology majors who also have better SI scores, seem to choose more regressed rooms.

In sum, males and upperclassmen are more intrinsically motivated than female and lowerclassmen; psychology majors have higher SI scores, lower extrinsic motivation, more social contact, and, as volunteers, chose more regressed Day School rooms than non-majors; subjects with social contact are more intrinsically motivated and improve on SI than those low on social contact.

Personal Orientation Inventory--Because of the difficulties in the pilot study, the POI was not generally administered in this study. However, as a matter of interest, it was given to the one month volunteer group and the results compared with the pilot non-volunteer group. On one POI subscale, Spontaneity, the non-volunteers did not increase from pre- to posttest while this volunteer group significantly increased. The volunteer group only had an N of 9 but these results are highly interesting, suggesting the volunteer experience influences volunteer behavior in areas other than those measured by the SI tests. Certainly spontaneity in reacting to the children is inherent in the situation and seems to be increased by this contact. Further

studies of volunteers involving other methods, especially those tapping similar kinds of behavior as spontaneity could be fruitful. The POI, using a proper control group could be one measure used.

Summary and Overview

This study found that while there was no initial difference between volunteers and non-volunteers on the SI measures, the volunteers were more intrinsically motivated. Volunteers also increased their SI as a result of the volunteer experience, and this increase tended to be a function of length of time volunteering. Motivation did not seem to be affected by the volunteer experience.

As mentioned in the Review of the Related Literature, the staff at the Day School noticed that some volunteers seemed to improve in their interactions with others. The results of this study support this and pose interesting further implications. It might be possible to use Social Service volunteering in a mental health setting similar to the Day School as a therapeutic adjunct for college students with social skill development needs.

This might also pose a problem in terms of motivation. The volunteers in this study were shown to have initially greater intrinsic motivation but were no different than non-volunteers on SI. Therefore, using volunteering as a therapeutic device to increase SI might not be as effective if the volunteer did not have the motivation to begin with. Remember,

too, that the Day School volunteer is given a great deal of responsibility for the children and intense peer interaction so that it is a unique experience which might not be duplicated in another social service setting. But it certainly seem promising and worth a try to use college students more frequently as mental health volunteers. SI does seem to improve given relevant experience, including social contact of some kind.

There are many populations that might be better served by the addition of volunteers and, at the same time, benefiting the volunteer himself. Further research might prove that the positive effects on the volunteer population and those they serve could be greatly expanded to encompass all ages of volunteers and kinds of volunteering.

The two prerequisites for volunteering to be beneficial as indicated by this study seem to be: (1) volunteers are in life role transitions, and (2) the volunteer experience mainly involves interacting with other people. Thus therapeutic volunteering might involve young adolescents, college students, people having lost a spouse, or retirees and senior citizens working with children, juvenile delinquents, or any number of other possible groups needing to experience volunteer service. While the idea of volunteers as mental health manpower is not particularly original, the proposal of using volunteering as a therapeutic tool for the volunteers themselves is more novel.

Concerning the secondary findings, other results of the study showed that while the SI measures had convergent validity, they did not have discriminant validity from verbal factors of intelligence. However, because the groups studied were fairly well matched, they also had homogeneous AI scores. While this matching seemed necessary to compare other test scores, it presented a small range of values for the AI-SI matrix.

The main problem in the present study was the small number of final subjects involved due to attrition. While ninety subjects were originally tested, the attrition rate for both groups was about 50 per cent for the posttest, and both groups showed motivation scores differentiated those dropping out from those completing the experiment. In addition, the correlational results showed that psychology majors differ in several ways from those with other majors in school, including higher SI scores and more intrinsic motivation.

The Personal Orientation Inventory showed indications that volunteers increase on spontaneity as a result of volunteering. Despite its poor showing in the pilot study, the POI shows promise as a test for future volunteer studies. The Epistemic Orientation Inventory was also edifying in terms of volunteer motivation and the Guilford seems the most promising SI measure to test short term SI changes.

Overall, the effect of the volunteer experience on the volunteer is an exciting field of research, both in terms

of being a relatively unexplored field of study and in terms of the implications of volunteer change as a possible therapeutic tool.

VI. SUMMARY

This investigation studied social perception skills and learning motivation orientation of twenty-two college student volunteers at the Loyola University Guidance Center Day School for emotionally disturbed children and twenty matched non-volunteers. It was hypothesized that college students, because they are in a transitional life phase, would be positively affected by their experience in a volunteer situation calling for demanding interpersonal interaction, resulting in an increase in social skills.

It was found that while initially the volunteers were no different than the non-volunteers on the social intelligence measures, the volunteers significantly increased in some aspects of SI after volunteering and the non-volunteers did not in the same period of time. Furthermore, the volunteers had greater dependence on internal rather than external motivators and seemed to increase in spontaneity. There was a 50 per cent attrition rate for all subjects and motivational measures differentiated those who dropped out from subjects completing the experiment. Because of this increase in social perception skills as a result of the volunteer experience, the suggestion was made that volunteering might be used as a therapeutic adjunct for college students for the purpose of enhancing personal development.

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APPENDIX A

Name:

Sex:

Age:

Major in school: _____

Number of hours working per week:

Are you a member of V.I.P.?

Year in school:

APPENDIX B

POSTTEST QUESTIONNAIRE

Groups 1 and 2: Day School Volunteers

Number of hours per week volunteering _____

Day School you volunteer in _____

1. Do you work with one child fairly consistently or with all the children in your room?
2. How do you feel about your volunteer work?
3. Do you have any problems connected with your volunteer work?

Group 3: Other volunteers

Number of hours per week volunteering _____

1. How do you feel about your volunteer work?
2. Do you have any problems connected with your volunteer work?

Group 4: Non-volunteers

Are you involved in any projects or work that includes direct contact with people? _____

If so, number of hours per week _____

1. If yes, how do you feel about this work?
2. Do you have any problems connected with this type of work?

All groups: Use the back of this sheet to complete the questions if needed.

APPENDIX C

Volunteer: _____ Rater: _____

We would like to ask you to rate the above volunteer on several statements. Read each statement on the following page and decide how much the statement is characteristic of the volunteer. Please give your general, subjective impression of the volunteer regarding each statement. Indicate your impression by placing an X on a five point scale ranging from LEAST LIKE the volunteer to MOST LIKE the volunteer.

For example:	LEAST LIKE				MOST LIKE
a. Tolerant of abnormal behavior	__	X	__	__	__

The above check would indicate a judgment that the statement is somewhat unlike the volunteer.

How well do you know this volunteer: (check one)

__a. Extremely well

__b. Very well

__c. Somewhat well

__d. Casually

__e. Not very well

__f. Hardly at all

		LEAST LIKE				MOST LIKE
1.	Punctual for appointments.	__	__	__	__	__
2.	Tended to miss scheduled duties.	__	__	__	__	__
3.	Volunteered to do extra work or put in extra time.	__	__	__	__	__
4.	Asked questions and sought guidance.	__	__	__	__	__
5.	Challenged or questioned behavior guidelines.	__	__	__	__	__
6.	Demonstrated curiosity and independent learning to improve skills.	__	__	__	__	__
7.	Accepted directions and instructions from authority with difficulty.	__	__	__	__	__
8.	Open to constructive criticism from authorities.	__	__	__	__	__
9.	Worked and related well with supervisors.	__	__	__	__	__
10.	Worked and related well with other volunteers.	__	__	__	__	__
11.	Interested in child's background and environment outside of school setting.	__	__	__	__	__
12.	Sensitive to the needs of the children.	__	__	__	__	__
13.	Demonstrated poor tolerance of the aberrant behavior of the children.	__	__	__	__	__
14.	Genuinely concerned for the children.	__	__	__	__	__
15.	Became overly emotionally involved with the children.	__	__	__	__	__

How would you rate the overall effectiveness of this person as a volunteer in comparison with other volunteers you have known?

BOTTOM 20%	MIDDLE 20%	TOP 20%
___	___	___

APPROVAL SHEET

The dissertation submitted by Jeanne Kerschner has been read and approved by the following Committee:

Dr. John Shack, Chairman
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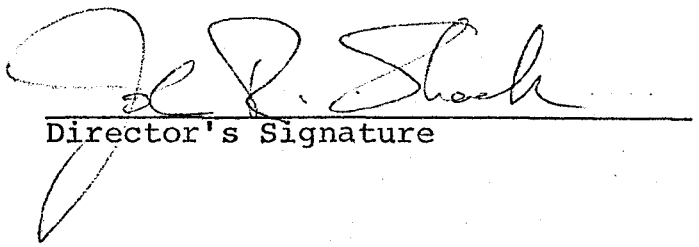
The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

12-11-74
Date


Director's Signature