The Relationship between Interpersonal Perception and Locus of Control

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THE RELATIONSHIP BETWEEN INTERPERSONAL PERCEPTION AND LOCUS OF CONTROL

by

Richard G. Smith

A Dissertation Submitted to the Faculty of The Graduate College in partial fulfillment of the requirements for the Degree of Doctor of Education Department of Counseling and Personnel

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THE RELATIONSHIP BETWEEN INTERPERSONAL PERCEPTION AND LOCUS OF CONTROL

Richard G. Smith, Ed.D.

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The purpose of this research was to clarify the relationship between interpersonal perception and locus of control. Interpersonal perception refers to the process of understanding internal states of other human beings. Locus of control refers to the belief in the nature of causality of reinforcement. Viewed theoretically as a continuum, individuals at one end, labeled internals, believe that the reinforcement they receive in life is the direct result of their own behavior. Conversely, individuals at the opposite end of the continuum, labeled externals, believe that the reinforcement they receive in life is the result of fate, luck, or powerful others. The literature suggests that internals should be more accurate at interpersonal perception than either moderates or externals on the locus of control continuum. In addition, externals who significantly increase accuracy of interpersonal perception should alter their locus of control in the direction of internality. This research directly examined the relationship between locus of control and accuracy of interpersonal perception as well as the effect of significantly increasing accuracy of interpersonal perception upon locus of control in subjects with an external locus of control.
Seventy-one volunteer subjects from the Department of Education and Professional Development, College of Education, Western Michigan University, were assigned to one treatment group and were required to study meaningfully *The Art of Empathy* (Bullmer, 1975) over a 2-week period as a means of significantly improving accuracy of interpersonal perception. Seventy-two additional subjects from the Department of Education and Professional Development and Communication Arts and Sciences were assigned to a second treatment group and received no active treatment over the course of 2 weeks. All subjects were administered the I-E Scale and the Affective Sensitivity Scale at the onset of the treatment condition and again 2 weeks subsequent. The experimental group consisted of 15 external subjects who demonstrated a 5-point improvement on their scores on the Affective Sensitivity Scale. The remaining 49 external subjects who failed to increase, by 5 points on the Affective Sensitivity Scale, served as controls.

Null hypotheses stated that there would be no significant correlation between locus of control measured by the I-E Scale and interpersonal perception as measured by the Affective Sensitivity Scale for all subjects; that there would be no significant difference in accuracy of interpersonal perception between all extreme internal, moderate, and extreme external subjects; and that all external subjects who significantly increased accuracy of interpersonal perception would not alter locus of control in the direction of internality.

Results obtained from correlating scores on the I-E Scale and the Affective Sensitivity Scale yielded an $r(141) = -.05$, $p > .05$, therefore no significant linear relationship was found. Results

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obtained measuring differences in accuracy of interpersonal perception produced an $F(2,140) = 2.05, \ p > .05$, therefore no significant differences were found between extreme internals, moderates, and extreme externals. Results obtained from measuring whether externals who improved accuracy of interpersonal perception would alter locus of control in the direction of internality produced a $T(14) = -.90, \ p > .05$, therefore no alteration in locus of control was found. Additional data analysis indicated that a significant shift in locus of control was found only in Treatment 1 subjects who were exposed to The Art of Empathy and occurred independent of any increase in accuracy of interpersonal perception.

It was concluded that the relationship between interpersonal perception and locus of control was not a linear function though the results were mildly supportive of a curvilinear relationship. Improving accuracy of interpersonal perception does not likely produce a shift in locus of control, though reading The Art of Empathy may produce a self-report of shift in locus of control.
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THE RELATIONSHIP BETWEEN INTERPERSONAL PERCEPTION AND LOCUS OF CONTROL

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DEDICATION

To my wife Rebecca and daughter Sarah
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I want to express my appreciation to my chairman, Dr. Robert Hopkins, for his able guidance and support during this research effort and to my committee members, Dr. Kenneth Bullmer, Dr. Robert Brashear, and Dr. Malcolm Robertson, for their willingness to provide time and direction to me when I most needed it.

I also want to express my appreciation to Dr. William Martinson whose firm yet gentle command to complete this dissertation lingers in my consciousness.

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Richard G. Smith
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CHAPTER I

The Problem and the Background

The Problem

This research investigation was undertaken to extend knowledge concerning the construct, locus of control of reinforcement (Rotter, 1954), and the process of interpersonal perception. Research findings to date have been unclear concerning the relationship between these two psychological phenomena (Deordoff, Kendall, Finch, & Sitarz, 1977; Ravello, 1977).

Locus of control refers to one's belief in the nature of reinforcement (Rotter, 1954, 1966). Individuals with an internal locus of control believe they personally control the reinforcement they receive in life and that reinforcement is contingent upon their behavior. Internals also believe there is a direct cause and effect relationship between their actions and rewards as well as punishment. In contrast, individuals with an external locus of control believe that the reinforcement they receive in life is the result of fate, luck, or powerful others, or in other ways is outside themselves and beyond their control.

Interpersonal perception is the process of understanding the internal state of another person (Bullmer, 1975) and has been demonstrated to be a critical variable in human relationships, both professional and personal (Allport, 1961; Bullmer, 1975; Clark, 1980; Maslow, 1962; Rogers, 1951; Warr & Knapper, 1968). Accurate
perceptions of the internal state of others for those engaged in the helping professions is, according to Bullmer (1975), "the sine qua non" of the psychotherapeutic process.

Research findings suggest that internals are psychologically better adjusted (Burnes, Brown, & Keating, 1971; Lefcourt, 1976; Scott & Severance, 1975), more efficient at visual attention (DiNardo & Raymond, 1979; Lefcourt & Wine, 1969), and learning both intentionally and incidentally (Wolk & DuCette, 1974). Internals as compared to externals acquire more relevant information about control aspects of their lives (Seeman, 1963, 1967; Seeman & Evans, 1962; Williams & Stack, 1972), more actively engage in information seeking behavior (Davis & Phares, 1967), and are more proficient at utilizing information (Phares, 1968). According to Lefcourt (1976), "Internals have been found to be more perceptive to and ready to learn about their surroundings. They [internals] are more inquisitive, curious, and efficient processors of information than are externals" (p. 65). Research evidence was not clear, however, whether internals were more accurate at interpersonal perception than externals since research directly measuring the relationship has been scant and limited by a lack of valid and reliable instruments to measure accuracy of interpersonal perception.

Internals should be more capable of inferring the internal state of others for several reasons. As stated previously, internals are psychologically better adjusted, more efficient at visual attending, acquiring information, as well as utilizing information. These qualities and abilities are likely to be an asset to inferring or judging
the internal state of others, which is a learned cognitive and perceptual task (Heider, 1958) that can be impaired by psychological maladjustment (Allport, 1961; Cambell, Kagen, & Krathwohl, 1971; Chordorkoff, 1954; Dambach, 1978; Hjelle, 1969; Maslow, 1962; Taft, 1955).

In addition, internals believe they control the reinforcement they receive in life. Since people are a frequent source of reinforcement, and interacting with others can satisfy a variety of needs, it follows that internals are more likely to be more aware of and knowledgeable about such a source of reinforcement than externals who believe reinforcement is independent of behavior. Internals are also more likely to have developed a greater sense of understanding of how others feel and think so that they might receive reinforcement from interacting with them.

Research designed to test whether internals are more accurate than externals has been hampered by a lack of instrumentation to measure accuracy of interpersonal perception. As an example, Deordoff et al. (1977) attempted to correlate empathy with locus of control using The Empathy Scale (Hogan, 1969) as a measure of interpersonal perception. The Empathy Scale measures personality traits of empathic perceivers, however, and is not an actual measure of interpersonal perception. The findings indicated no linear relationship existed between locus of control and The Empathy Scale. These findings of a lack of relationship may have been the result of the measure of interpersonal perception not being an actual interpersonal perceptual task.
The only study to date which has used an actual interpersonal perceptual task was done by Ravello (1977). The author tested the differences in accuracy of interpersonal perception of extreme internals, moderates, and extreme externals using the Affective Sensitivity Scale (Cambell et al., 1971). This scale consists of videotaped excerpts from actual counseling sessions. The subject is asked to determine the affective state of the client during the counseling session. Ravello (1977) found that within a sample of graduate students enrolled in a counseling practicum, that internals were significantly more accurate than moderates and externals at accuracy of interpersonal perception. Curiously, externals were superior to moderates who were more internal in locus of control. This finding suggests that individuals at both ends of the locus of control continuum, extreme internals and extreme externals, are superior in accuracy of interpersonal perception to individuals in the moderate range and that a curvilinear relationship, at least within a graduate student population, may exist.

These two studies have provided some answers to the nature of the relationship between locus of control and interpersonal perception. The problems which remain are that locus of control has not been correlated with an actual interpersonal perceptual task as a measure of interpersonal perception. Also, it would be helpful if Ravello's (1977) findings were replicated using a different population so that more credence could be placed in the findings.

Along a parallel line of research, evidence by Dambach (1978) suggested that training individuals to be more accurate at
interpersonal perception results in greater psychological adjustment. Dambach (1978) used the programmed text, The Art of Empathy (Bullmer, 1975), and a group discussion format over a 6-week course as a means of improving accuracy of interpersonal perception. Subjects who were judged to have significantly improved accuracy of interpersonal perception demonstrated movement in the direction of greater psychological adjustment on scales Responsibility (Re), Flexibility (Fx), and Femininity (Fe) on the California Personality Inventory (CPI). This pattern of change was concluded to be similar to a shift in locus of control from an external locus to an internal locus. Dambach's (1978) research led to the final research problem of whether improving accuracy of interpersonal perception in a group of external subjects would result in a shift of locus of control from external to internal.

In summary the problem addressed by this research was the lack of clarity involving the relationship between interpersonal perception and locus of control. Research evidence had suggested that a relationship existed and that improving accuracy of interpersonal perception would result in a shift in locus of control in external subjects in the direction of internality.

Review of Literature

The review of the literature will be organized in the following manner: (a) an overview of the theory of locus of control; (b) a review of personality characteristics associated with locus of control; (c) a review of research findings concerning the relationship between locus of control and cognition, learning, and perception; (d) the
relationship between locus of control and interpersonal perception; and (e) changes in locus of control.

Overview of locus of control. Locus of control refers to a construct within Social Learning Theory (Rotter, 1954, 1966) and was developed to provide another alternative theory to explain variations in human behavior. Rotter (1954) attempted to account for behavior as the result of both the internal disposition of the individual and also his meaningful environment. According to Lefcourt (1976), who summarized Social Learning Theory, "a person's actions are predicted on the basis of his values, his expectations and the situations in which he finds himself" (p. 26).

Locus of control refers to an expectancy for internal versus external control of reinforcement. Rotter (1966) maintained that "the effect of a reinforcement following some behavior on the part of a human subject, in other words, is not a simple stamping in process but depends upon whether or not the person perceives a causal relationship between his own behavior and the reward" (p. 1). Social Learning Theory attempted to account for variations in human behavior as not being solely the result of a pairing of behavior and reinforcement but also due to variations in the individual's perception of the reinforcement.

Rotter (1954) hypothesized that individuals will behave differently if they believe that they are in control of the reinforcement they receive than if they believe they are at the mercy of fate, luck, or powerful others. Individuals who hold the expectancy, or belief,
that they are in control are termed internals while those who believe they are not in control are termed externals. The belief in locus of control was hypothesized to be a generalized expectancy and operate in a global manner and not be situation specific.

Since the advent of a scale to measure locus of control, the I-E Scale (Rotter, 1966), prolific research has demonstrated the validity of the construct and has produced results which demonstrate differences in human behavior as the result of this generalized expectancy of reinforcement (Joe, 1971; Lefcourt, 1966, 1976; Phares, 1976).

**Personality characteristics associated with locus of control.**

Research into personality differences between internals and externals began with the advent of the I-E Scale. Hersch and Scheibe (1967) measured internals and externals both on the Adjective Checklist (ACL) and California Personality Inventory (CPI). An internal was characterized on the ACL by high scores on Defensiveness, Achievement, Dominance, Endurance, and Order. Internals were also lower on Succorance and Abasement. On the CPI, internals were higher on Dominance, Tolerance, Good Impression, Sociability, Intellectual Efficiency, Achievement via Conformance, and Well-Being. Externals were characterized by a converse relationship on the same variables.

Burnes et al. (1971) found that internality correlated with a low F score and a high K score on the Minnesota Multiphasic Personality Inventory (MMPI). The authors concluded internality was associated with self-acceptance, self-reliance, and a lack of significant psychopathology. Burnes et al. (1971) suggested a linear relationship
between locus of control and pathology.

Scott and Severance (1975) correlated the I-E Scale, the California Personality Inventory (CPI), and the Minnesota Multiphasic Personality Inventory (MMPI). The authors concluded that internals are less pathological and more socially adequate.

Various symptoms of psychopathology have been attributed to an external locus of control. Lefcourt (1976) summarized the extensive literature correlating anxiety and locus of control and concluded a modest relationship existed. Internals do admit to feeling anxiety; however, it is considered to be of a facilitative, motivating nature while externals tend to admit to debilitating anxiety.

Research which has investigated the relationship between depression and locus of control has generally supported the notion that externality was associated with depression (Strickland, 1978). Abramowitz (1969) found that severity of depression in college students related in a linear manner with locus of control. Internals were significantly less depressed than externals. Calhoun, Cheney, and Dawes (1974) found that enduring symptoms of depression were related to externality in both males and females.

Alcoholism and excessive drinking has also been associated with an external locus of control. Naditch (1975) found that within a sample of males in Army basic training that higher levels of drinking was associated with an external locus of control. Nowicki and Hopper (1974) found that female alcoholics admitted for inpatient treatment were significantly more external than alcoholic male inpatients, alcoholic female outpatients, and alcoholic male outpatients. The
authors concluded that possible sex differences exist and that female alcoholics are a relatively more disturbed group comparable to hospitalized schizophrenics.

Harrow and Ferrante (1969) investigated locus of control in psychiatric patients and found that schizophrenics were significantly more external than non-schizophrenics. Shybut (1968) found that within an inpatient setting, severity of psychological disturbance and an external locus of control were positively related. Strickland (1978) reviewed the literature concerning psychological maladjustment and locus of control and concluded that reporting life contentment was related to internality while reporting psychological difficulties was associated with externality. Strickland (1978) cautioned that, while locus of control correlated with psychological maladjustment, it remains unknown whether the belief is a cause or product of maladjustment.

Self-concept and self-esteem also appear to be interwoven with the locus of control construct. Initial research by Platt, Eisenman, and Darbes (1970) failed to demonstrate an hypothesized relationship between self-esteem and locus of control. No significant correlation was found between the I-E Scale and Zeller Self-Esteem Scale. Fish and Karabenick (1971), however, reported that locus of control correlated with self-esteem using the I-E Scale and the Janis and Fields Feelings of Inadequacy Scale. Internality correlated positively with a greater sense of adequacy. Organ (1973) reported that locus of control correlated not only with clarity of self-concept but also with self-esteem. Internals had higher self-esteem and demonstrated
greater clarity of self-concept.

In the area of defensiveness, differences occur not only between internals and externals but also within the external group. Research by Lipp, Kolstoe, James, and Randall (1968) found unexpected results. In a group of disabled individuals, externals were less denying of the disability than the internals. The greater use of a defensive mechanism, such as denial, could be reflective of greater maladjustment, which was contrary to previous research on internals.

Phares, Ritchie, and Davis (1968) investigated how internals and externals would retain both negative and positive feedback about their personalities. Externals were able to recall more negative and positive feedback about themselves than the internals. The internals' lack of recall could also be viewed as the pathological use of the defense mechanism of repression or suppression and indicative of psychological maladjustment. However, it could also be viewed as necessary and healthy "forgetting," necessary for coping. Defense mechanisms can serve a healthy and necessary function in maintaining the integrity of the ego. According to Laughlin (1970), "It would appear that we can regard repression as indispensable to both mental health and mental illness" (p. 372). The research also indicated that internals were more willing to seek remedial help to eliminate negative features in their personalities. According to Phares et al. (1968), this openness to change represented a healthier attitude than its converse.

Phares, Wilson, and Klyver (1971) investigated differences in accepting responsibility for failure which is another index of
defensiveness and psychological maladjustment. In a task situation where there was a legitimate distraction, both internals and externals blamed the distraction as the cause of their failure on the task. However, when there was no legitimate distraction, internals accepted responsibility for failure to a greater degree than externals.

Kendall, Finch, and Montgomery (1978) investigated how internals and externals would respond to a vicarious threat to self-esteem. The experiment consisted of subjects listening to a speaker who was not prepared and performed poorly. An ancillary section of this research examined differences in the use of defense mechanisms. Using the Defense Mechanism Inventory (DMI), the researchers found internals were characteristic users of denial, reaction formation, and negation, while externals were found to rely more on hostility and displacement.

The research involving locus of control and defensiveness suggests that internals tend to prefer to use denial, repression, reaction formation, and negation more than externals who prefer hostility and displacement. germane to this thesis is whether internals are more maladjusted than externals because they prefer these defense mechanisms. According to Laughlin (1970, p. 10), defense mechanisms serve as a "safety valve" and can be of considerable benefit to stability and equilibrium. They become pathological only when they are over exaggerated and self-defeating. One indication of maladjustment resulting from over exaggerated or self-defeating use of defense mechanisms according to Laughlin (1970, p. 10) is a lack of insight and an inaccurate self-picture. Since internals have demonstrated
greater clarity of self-concept (Organ, 1973), higher levels of achievement (Finch & Pezzuti, 1975), and greater self-control (James, Woodruff, & Weiner, 1965; Naditch, 1975), it seems improbable that internals fit the criterion for pathological users of defense mechanisms.

To compound the complexity between locus of control, defensiveness, and maladjustment, Rotter (1966) hypothesized that some externals may espouse an external orientation solely as a rationalization for failure. Rotter (1975) reviewed the literature regarding defensiveness and externality and concluded that a significant portion of the external population may not be truly external in orientation but use the belief as a defense against failure. Rotter (1975) contrasted this defensive external with the true external who, because of a realistic appraisal of his life, concluded that it was indeed controlled by fate, luck, or powerful others. Rotter (1975) concluded that defensive externals are likely to be present in greater proportions in a college student population than a normal population and cautioned that results concerning locus of control, defensiveness, and maladjustment may be clouded due to the inclusion of this defensive external subgroup.

Lloyd and Chang (1979) reviewed the literature concerning defensiveness and locus of control and concluded that within the external group there is a significant percentage of externals who adhere to the external locus of control as a defense against failure. These defensive externals were established to accept more personal responsibility for success than failure in contrast to the non-defensive
external who firmly believes that he is not personally responsible for either success or failure. The defensive external uses the external belief to rationalize failure and reduce anxiety of a perceived difference in his self-concept and actual performance. Lloyd and Chang (1979) urged that future research examine behavioral correlates of not only internals and externals but also to cull out the defensive external from the external population for inspection and study.

The relationship between locus of control and personality correlates can be summed up as follows: Internals as compared with externals have generally been found to be more socially adequate, have less psychopathology, greater clarity of self-concept, higher self-esteem, and are more open to change. Internals, however, have been found to demonstrate a tendency to deny or repress some negative information about themselves or their personalities. Viewed in a global sense, this tendency to deny or repress is not necessarily an indictment of psychological maladjustment as it is unknown the degree to which internals engage in this type of behavior.

The difference between internals and externals may be distorted by the inclusion within the external group of a "defensive" subgroup. This defensive subgroup is believed to differ from the true external group because defensive externals have been shown to use the external orientation as a rationalization for failure while accepting responsibility for success. True externals deny responsibility for both failure as well as success. The effect of this defensive subgroup upon research relating locus of control and personality correlates is unknown at this time but may have contributed to externals' demonstration
of greater psychological maladjustment.

Locus of control and learning, cognition, and perception. The nature of this dissertation is to develop a clearer understanding of how locus of control relates to the process of interpersonal perception. An initial focus upon the global area of perception and locus of control will provide a structure with which to understand locus of control and interpersonal perception.

Warr and Knapper (1968) viewed perception as "an interaction or transaction between an individual and his environment; he receives information from the external world which in some way modifies his experience and behavior" (p. 2).

Bullmer (1975) concluded that a single, generally accepted definition of perception did not exist. Bullmer defined perception as a "dynamic process by which a human being assigns internal meaning to the external world around him" (p. 2).

Forgus (1966) defined perception as a "process of information extraction" (p. 1). He conceived of perception as a "super set" with learning and thinking subsets of this larger category. This critical relationship was further defined by Forgus (1966):

The relationship of learning and thinking is the complex process of perception. Stimuli possess information which is extracted by the organism as learning. This learning modifies the organism so that later perceptions of the same stimuli will be different. The process of thinking (resulting from previous learning) also modifies the organism because new learning occurs; thus the perception of stimuli is modified. (p. 4)

Inherent in this definition is the assumption that learning and current thinking modifies perception.
Given that prior learning and current thinking can affect perception, it seems plausible to assume that variations in the learned belief regarding the nature of reinforcement might also play a factor in the complex interrelationship between learning and thinking; perception. The following section will examine the effect locus of control has upon this relationship.

Seeman and Evans (1962) examined the effect of a sense of powerlessness upon the acquisition of knowledge. Though they did not use the I-E Scale (Rotter, 1966), the authors did use an alienation scale developed by Leverant (1962) which was unpublished but deemed to be equivalent to the I-E Scale. The authors measured objective knowledge about tuberculosis in a population of patients with tuberculosis. The authors concluded that a sense of alienation and powerlessness, which was roughly equivalent to an external locus of control was associated with a lower objective score on information about tuberculosis.

Seeman (1963) also examined the effect of acquisition of knowledge and a sense of alienation in a prison setting and concluded that alienation and powerlessness affected an incarcerated individual's knowledge about people. Alienation and powerlessness were associated with less relevant knowledge. Seeman (1967) also demonstrated that this effect occurs cross-culturally. In Sweden, those with a high sense of alienation and powerlessness had less relevant knowledge about nuclear knowledge.

Phares (1968) found that externals and internals did not differ in their ability to learn information about hypothetical adults whom
they were told they would later try to influence. In the second phase of the experiment, the internals were superior in their utilization of the material previously learned. In the third phase, internals did not differ from externals in the amount of information recalled; however, internals demonstrated more correct matchings of information. This was understood to be partially the result of the greater utilization capacity of the internal. Phares (1968) pointed out that motivation was not responsible for differences between internals and externals nor was it the ability to retain more information but rather that internals are simply better able to utilize information. This difference Phares (1968) attributed to the orientation of the external who believes that attempts to utilize information to solve problems is useless since luck or chance is responsible for success rather than skill.

Davis and Phares (1967) added to the knowledge of the effect of locus of control on learning when they found that internals more actively seek out information when involved in a situation when they are trying to influence someone.

Gregory and Nelson (1978) concluded that externals require explicit notice of reward to perform at the same levels as internals. Externals can perform even a complex task as well as internals if the reward for performing the task is clearly spelled out.

Lefcourt (1967) investigated the effect of locus of control and learning an aspiration task. The experimentors varied the instructions on the task. The first instructions were that the task was simply for entertainment, the second instructions were that the task
was a motor task and required some skill, while the third condition stressed highly the importance of the task and how it strongly related to achievement. Internals learned the task at the same level regardless of the instructions while externals performed increasingly better when reinforcement for performance was made explicit. Externals were able to perform at the same levels as internals but only when reinforcement was clearly defined. Lefcourt (1967) concluded that externals do not search for possible reinforcement opportunities.

In the area of job performance, Tseng (1970) found that internals as a work force were rated, among other qualities, as having significantly more work tolerance and work knowledge.

Lundy (1972) found that in a sexually active population, internals had a greater knowledge of contraceptives.

From the research, then, it appears that internals actively seek out relevant information and acquire more relevant knowledge. There is no difference in ability to learn tasks between internals and externals given that the reward for the task is clearly spelled out. Internals clearly are more proficient at utilizing available information while externals simply do not search for potential reinforcement opportunities.

In the area of cognition, the locus of control construct also accounts for individual differences, though clarity is lacking.

The construct field dependence-independence has been used as one measure of cognition style. This construct, according to McIntire and Dreyer (1973) refers to the extent individuals rely on either internal or external cues. These researchers hypothesized a
relationship between locus of control and field dependence; however, no correlation was found within a sample of university students. McIntire and Dreyer concluded field dependence and locus of control were unrelated.

O'Leary, Donovan, and Hague (1974) pursued a similar line of research within an alcoholic population. Two measures of cognitive style were used, the Embedded Figures Test (EFT) and interpersonal differentiated test. Locus of control did not correlate with either measure of cognitive style. O'Leary et al. (1974) concluded that locus of control and field dependence independence are independent, unrelated concepts.

Tobouyk, Broughtan, and Vought (1975) also attempted to clarify the issue between the plausibility of the correlation between locus of control and cognitive style and the lack of research evidence for the hypothesis. They found that greater personal adjustment is found in individuals who are congruent in cognitive style and locus of control. For example, externals who are field dependent and internals who are field independent are better adjusted than their counterparts. The authors also found no correlation between cognitive style and locus of control.

Moving to the global area of perception, research findings have been more fruitful but again the reader should note the overlaps between perception, cognition, and learning.

Phares (1962), prior to the development of the I-E Scale, investigated perceptual differences under conditions of skill and chance. The researcher found that under skill conditions, which
roughly approximated an internal orientation, subjects are more vigi­lant. Phares (1962) concluded:

Ss who feel they have control of the situation are likely to exhibit perceptual behavior that will better enable them to cope with potentially threatening situations than Ss who feel chance or other noncontrollable forces determine whether their behavior will be successful. (p. 405)

Lefcourt and Wine (1969) researched the area of visual attention. They found that internals exhibited greater vigilance when observing a subject engaged in unusual behavior, and observed more behavior than externals. There was no noticeable difference between internals and externals when they observed a person during a normal attention sequence. The internal's mode of attention of others was characterized by shorter fixations and greater variations in scanning. The authors concluded that internals were also more efficient in their visual attention.

Ude and Vogler (1969) using a flashing light learning paradigm with a correct way to predict the sequence found that internals were more likely to perceive the situation as skill related while externals viewed it as chance.

Ducette and Wolk (1973) investigated both the cognitive and perceptual differences between internals and externals. They concluded that internals demonstrate different cognitive and perceptual abilities. The authors found that internals demonstrate a greater ability to extract relevant information from the environment and use information more efficiently.

In conclusion, internals demonstrate greater acquisition of relevant knowledge, higher levels of performance at a variety of
learning tasks, more efficient recall, and greater utilization of in-
formation. Locus of control was found to be unrelated to cognitive
style. Finally, internals demonstrate more efficient visual scanning
processes and perceive ambiguous learning situations as skill related
rather than chance. Externals clearly possess less efficient cogni-
tive and perceptual abilities.

Locus of control and interpersonal perception. This section will
examine theories of interpersonal perception, attributes of accurate
interpersonal perceivers, sources of error in accurately perceiving
others, and how locus of control is related to interpersonal percep-
tion.

Locus of control has been demonstrated to be a factor in individ-
ual personality differences, maladjustment, defensiveness, learning,
cognition, and perception in general (Joe, 1971; Lefcourt, 1976;
Phares, 1976; Rotter, 1966, 1975). Internals have been demonstrated
to be better adjusted and to have more efficient cognitive and per-
ceptual abilities (Burnes et al., 1971; DuCette & Wolk, 1973; Phares,
1962; Scott & Severance, 1975). Therefore, it is extremely plausible
that locus of control would be a factor in interpersonal perception.

Before moving any further into the area of interpersonal percep-
tion, a working framework with which to understand the process must
be established.

Allport (1961) proposed that it was impossible to completely
understand other people because one can never share directly the
motives, thoughts, and feelings of others. He reasoned, therefore,
that interpersonal perception is the process of judging how others feel and think from the external cues which the perceiver receives from the person being perceived. Allport (1961) emphasized that the focus of trying to understand others should be to clarify others' intentions, motives, goals, and values.

Warr and Knapper (1968) defined person perception as, "the process of knowing the external and internal state of other people" (p. 2). Warr and Knapper (1968) further stated that:

Person perception not only involves judgments we make about people as objects (tall, bald, wearing brown shoes, etc.) but is primarily concerned with the impressions we form of people as people (impulsive, religious, tired, happy, anxious, and so on). (p. 3)

Bullmer (1975) viewed interpersonal perception as a part of the total process of perception. Bullmer (1975) defined perception as a "dynamic process by which a human being assigns internal meaning to the external world" (p. 1). Bullmer (1975) viewed interpersonal perception as the process by which we "form an impression or develop an understanding of another person" (p. v). Bullmer (1975) construed interpersonal perception as a process of judging or inferring the internal state of others with a focus upon the emotions, intentions, attributes, traits, and other internal qualities of the perceived person.

Factors which affect accurate interpersonal perception are numerous. Allport (1961) pointed out superficial observation, faulty memory, erroneous premises, mistaken inferences, superstitions, prejudices, rationalization, and projections all contribute to misjudging people. Bullmer (1975) established three general categories of
potential sources of error in accurate perception of others. Inadequate intelligence, distortion, and the use of implicit personality theory all contribute to inaccurate inferences of others.

Perceptual distortion may occur, according to Bullmer (1975), "when a perceiver feels threatened and feels the need to defend his existing perceptual organizations" (p. 28). Bullmer (1975) further stated, "undue defensiveness impairs accuracy in perceiving others and increases the need for perceptual distortion" (p. 28). Distortion of reality, therefore, is viewed as a product of defensiveness.

According to Tucker (1970), over 30 types of mechanisms of defense have been listed in the literature. These mechanisms of defense, according to Tucker (1970), range from the Ego defense mechanism in psychoanalytic theory, to the use of fantasy, somatizing, and depression. Inherent in every mechanism of defense is that it is unconsciously motivated to reduce the experience of anxiety (Tucker, 1970).

Rogers (1951) viewed defensiveness and distortion of reality as features of psychological maladjustment. Rogers (1951) stated that:

Psychological maladjustment exists when the organism denies to awareness significant sensory and visual experiences which consequently are not symbolized and organized into the gestalt of the self-structure. (p. 510)

Rogers (1951) viewed the threatening stimuli as coming from both within the organism, as well as from the external world. Consequently, Rogers (1951) described psychological adjustment as existing "when the concept of self is such that all sensory and received experiences of the organism are or may be assimilated at a symbolic level.
into a consistent relationship of self" (p. 510). Rogers thus further illuminated the concept that perceptual distortion is linked to psychological maladjustment.

Maslow (1962) also believed the distortion of perceptions and psychological adjustment were related. Maslow (1962) listed the characteristics associated with a self-actualizing person. Maslow used the term self-actualizing to describe a psychologically healthy individual. These characteristics were:

1. Superior perception of reality.
2. Increased acceptance of self, others, of nature.
3. Increased spontaneity.
4. Increase in problem-solving.
5. Increased detachment and desire for privacy.
6. Increased autonomy and resistance to enculturation.
7. Greater freshness of appreciation and higher emotional reaction.
8. Higher frequency of peak experiences.
9. Increased identification with human species.
10. Changed (improved) interpersonal relations.
11. More democratic character structure.
12. Greatly increased creativeness.
13. Certain changes in value system.

Maslow thus believed superior or accurate perceptions of reality are essential characteristics of the psychologically healthy individual.

Chordorkoff (1954) investigated perceptual accuracy, perceptual defense, and psychological adjustment and concluded:
In a group of Ss who show varying degrees of adjustment and defensiveness, one finds the more inaccurate and faulty the individual's perception of his environment, the more inaccurate and faulty his perception of himself, the more inadequate perceptions of himself and his environment, the more inadequate is his personal adjustment. (p. 512)

Taft (1955) compiled a comprehensive review of the literature concerning the ability to judge others accurately. Taft (1955) concluded that one factor which impaired judgments of others was poor emotional adjustment. Taft (1955), therefore, also linked faulty perceptions and psychological maladjustment.

Dambach (1978) concluded following an exhaustive review of the literature concerning accurate perception of reality that individuals with greater psychological adjustment demonstrate more accurate perception of reality.

To summarize, healthier psychological adjustment exists when an organism is open to sensations from within and from external sources. Due to learning, some individuals develop perceptual organizations and a concept of self which is incompatible or at variance with reality. The individual is often in unconscious conflict as to whether to accurately perceive reality and experience anxiety or distort reality to fit the existing perceptual organization. Psychological maladjustment exists when the individual distorts or denies to awareness sensory information from both within himself or from the external world. Consequently, psychological maladjustment results in less accurate perceptions of reality which encompasses judgments of others.

Bullmer (1970) also concluded that the use of implicit personality theory can also contribute to errors in accurate perception of
others. According to Bullmer (1975), implicit personality theory refers to a subjective, unverifiable belief system regarding why others behave as they do. Stereotyping, trait attribution and assumed similarity are forms of implicit personality theory. Stereotyping refers to the inferring of identical characteristics to any member of a group regardless of variations within the group. Trait attribution refers to the inferring of one trait because of the presence of a second trait such as "Big men are brave." Assumed similarity is the attributing of traits to others simply because the perceiver himself also possesses these traits. The use of implicit personality theory can contribute to errors in perception because, according to Bullmer (1975), individuals can use implicit personality theory to fill in gaps in knowledge about other people not based on perceiving the other person, but primarily on their own internal beliefs about why others behave and feel as they do. Individuals, therefore, can make snap judgments about other people based on implicit personality theory which can be totally inaccurate.

Allport (1961) stressed being a good judge of others requires maturity and the wisdom which has resulted from learning from one's mistakes. Actual similarity to the person being perceived is an aid in judging the internal state of others as is a superior intellect and cognitive complexity. Good judges, in effect, have more categories in which to sort individuals into and this allows for a greater understanding of the uniqueness of individuals. Allport (1961) explained that accurate self-knowledge was also associated with being a good judge of people as well as being socially skillful and
emotionally stable. Allport (1961) also stated that detachment, the ability to withdraw and take a cold, objective view, was advantageous in being a good judge as well as having an aesthetic attitude toward life. Allport (1961, p. 510) concluded that "intraceptiveness," which he defined as "psychological mindedness" or a highly subjective ability to understand the harmony of motives, fantasies, and inner feelings in the balance of the personality, is also of benefit in being a good judge of others.

Hjelle (1969) investigated personality characteristics associated with interpersonal perceptual accuracy which the author determined to be the ability to predict how others would score on the California Personality Inventory (CPI). Hjelle (1969) then compared the best judges against the poorest judges on six selected scales of the CPI. Good judges were significantly higher on the subscales of Psychological-Mindedness, Tolerance, and Well-Being. Hjelle (1969) concluded that "good judges are well adjusted, tolerant and free from complaints, worries and self-doubts" (p. 579).

The purpose of defining interpersonal perception, discussing how it can be effective and characteristics of accurate perceivers or judges of others was to clearly demonstrate that individuals with an internal locus of control generally possess characteristics associated with accurate perceivers of others while externals tend to possess characteristics associated with inaccurate perceptions and judgments of others. Internals demonstrate greater psychological adjustment on numerous indices and have more proficient perceptual and cognitive abilities. Externals generally demonstrate greater psychological
maladjustment and less efficient perceptual and cognitive abilities. Logically, internals should be more accurate at interpersonal perception than the remainder of the locus of control continuum.

In addition, the locus of control construct, according to Collins (1974), also acts as an implicit personality theory which can potentially affect perception of others. According to Collins (1974):

From a person perception perspective, the I-E Scale (locus of control) measures a response bias, stereotype or implicit theory. It reflects constant bias in the observer's judgments regarding causes of good and bad things that happen to him.

If the locus of control construct can be viewed as an implicit personality theory capable of affecting individual's perception of reality and internals possess characteristics associated with being a good judge of people, then it seems reasonable to conclude the internals should be more accurate at interpersonal perception than the remainder of the locus of control continuum. Research, however, has produced mixed results regarding the relationship between interpersonal perception and locus of control (Deordorff et al., 1977; Hannah, 1973; Hardy & Eliot, 1977; Hyland & Cooper, 1976; Phares & Lamiel, 1975; Phares & Wilson, 1971, 1973; Ravello, 1977).

Phares and Wilson (1972) investigated the difference between internals and externals in the degree of responsibility attributed to others' actions. The authors found that internals attribute more responsibility to those involved in car accidents than did externals. The authors concluded that internals project their belief in internal control of reinforcement onto others. Hyland and Cooper (1976) also found that internals project greater responsibility for positive
accidents as well as negative ones.

Phares and Lamiel (1975) found that internals are less sympathetic and are less likely to believe that others are deserving of compensation. Internals sanction less help, money, and understanding.

Hannah (1973) found that internals judge other people to be more external than themselves. The researcher concluded that internals have a strong need to manipulate others and choose friends whom they believe they can control.

Hardy and Eliot (1977) found that internals were superior to externals in their ability to perceive the perspective of another person in terms of object arrangements.

Deordorff et al. (1977) investigated the relationship between empathy, locus of control, and anxiety. Deordorff et al. (1977) had hypothesized that locus of control should correlate with empathy because they "have similar developmental antecedents and are related to self assurance, mental hygiene, hostility and anxiety" (p. 1236). Locus of control, however, failed to correlate with interpersonal perception as measured by The Empathy Scale (Hogan, 1969). This scale was not, however, a perceptual task but rather measures personality traits associated with highly empathic people.

Phares and Wilson (1971) investigated locus of control, interpersonal attraction, and empathy. They found that internals are more attracted to other internals and are slightly more understanding of other internals than externals. The authors did not, however, measure differences between internals and externals in their ability to understand others nor did the authors use an actual perceptual task to
measure empathy.

Ravello (1977) investigated the effect of a counseling practicum upon interpersonal perception as well as other personality characteristics. As part of the pretest measures, the students were divided into internals, moderates, and externals and were administered the Affective Sensitivity Scale (Campbell et al., 1971). This scale is an interpersonal perceptual task in which subjects view actual scenes from counseling sessions and are asked to determine the internal state of the client. Internals were found to be superior to moderates and externals. Curiously, extreme externals who should have been less accurate than moderates because moderates are more internal were more accurate than moderates.

In summary, interpersonal perception is a process which can be affected by the needs, beliefs, and psychological adjustment of the perceiver. Internals appear to possess characteristics associated with individuals who are more accurate at judging the internal state of others. However, only one research attempt which has used an actual interpersonal perceptual task as a measurement of interpersonal perception (Ravello, 1977) has borne out the internals' superiority at accuracy of interpersonal perception. Ravello's (1977) research also raised further questions as extreme externals were found to be more accurate than the middle range of the continuum which is more internal in locus of control. Internals also apparently project their belief in locus of control onto others (Hyland & Cooper, 1976; Phares & Lamiel, 1973; Phares & Wilson, 1972), which would more likely hinder rather than aid judging how others feel, particularly those with an
Changes in locus of control. Research involving the locus of control construct has produced considerable evidence regarding the superiority, or at least the greater desirability, of an internal locus of control versus an external one. Therefore, it is little wonder that considerable research has been directed toward examining conditions whereby locus of control is altered and why it is altered.

A portion of this research was designed to determine if increasing accuracy of interpersonal perception would result in a shift in locus of control from external to internal. This hypothesis was developed because of the research findings of Dambach (1978) and Scalese (1978).

Dambach (1978) reasoned that if accurate perception of objects and people was associated with greater psychological adjustment and inaccurate perception of reality was associated with psychological maladjustment, then perhaps increasing one's ability to accurately perceive others would result in greater psychological adjustment. Dambach (1978), therefore, viewed directly increasing accuracy of interpersonal perception as a treatment for reducing psychological maladjustment. Using a programmed text, The Art of Empathy, and a group discussion format as a treatment condition, Dambach (1978) determined that subjects who were judged to have significantly increased accuracy of interpersonal perception also demonstrated a trend toward greater psychological adjustment. Interestingly, part of the
type of improvement in psychological adjustment was in the area of
greater responsibility for self. Dambach (1978) concluded that the
improvement in psychological adjustment suggested a change from exter­
nality or lack of responsibility to internality or accepting greater
responsibility.

Scalese (1978) had also established a link between locus of con­
trol and interpersonal perception. Scalese (1978) treated external
subjects with biofeedback training designed to increase their ability
to relax. As a result of biofeedback training, locus of control
changed from external to internal. Curiously, the subjects' accuracy
of interpersonal perception also improved.

What was suggested from this line of research (Dambach, 1978;
Scalese, 1978) was that locus of control, psychological adjustment,
and interpersonal perception are interrelated. Improvement or altera­
tion in any one construct can potentially affect the other two.

There have been no research studies to date which have directly
attempted to alter locus of control by increasing accuracy of inter­
personal perception. There has been considerable research, however,
in evaluating the effect of a broad range of psychotherapies upon
locus of control. Though by no means equivalent to training to in­
crease accuracy of interpersonal perception, psychotherapy does offer
the opportunity for reduction in defenses and potential for increas­
ing accuracy of interpersonal perception. No concrete conclusions can
be drawn concerning whether locus of control is altered by an increase
in accuracy of interpersonal perception, however, the kinds of inter­
personal situations in which locus of control is altered provides a
broader understanding of at least the potential for a change in locus of control to occur if accuracy of interpersonal perception is improved.

Gillis and Jessor (1970) found that patients rated as "improved" following psychotherapy significantly altered their locus of control in the direction of internality. This research lacked appropriate controls, however, to make a definitive statement about the effect of psychotherapy upon the locus of control in a psychiatric population.

Dua (1970) explored the effects of a behaviorally oriented action treatment and a reeducative psychotherapy treatment upon changes in locus of control. Using college students who expressed concern about their ability to relate and interpersonal anxiety, the authors found that action-oriented strategies which focused upon improving relationships with significant others altered locus of control in the direction of internality. The reeducative psychotherapy treatment which focused upon the cognitive processes of improving interpersonal relationships but which did not include strategies for change produced a nonsignificant shift in locus of control in the direction of internality. The number, however, involved in each treatment condition was 10. A larger sample size might produce significant changes in the reeducative psychotherapy treatment group.

Diamond and Shapiro (1973) investigated the effect of involvement in encounter groups upon locus of control. The authors concluded that subjects exposed to professionally led encounter groups developed a more internal orientation. The authors added:
One implication of the present study is that environmental manipulations (e.g., encounter groups, psychotherapy, education programs) can be employed to modify generalized expectancies and thus allow individuals to perceive themselves to have greater control over their lives.

Foulds, Guinan, and Warehime (1974) investigated the effect of a 24-hour marathon group had on the locus of control of college students. The groups focused upon "expanded awareness, increased authenticity and more effective interpersonal communication." Subjects who participated in the marathon group significantly altered their locus of control in the direction of internality.

It can be concluded from the research on encounter groups, psychotherapy, and marathon groups that locus of control can be effectively altered by involvement in processes which focus on enhanced self-awareness and improved interpersonal relationships.

Along a slightly different line of research, Martin and Shepel (1974) investigated the effect upon locus of control of training lay personnel in the rudiments of counseling. This training consisted of learning how to develop effective helping relationships, identifying and exploring problems, as well as developing plans for resolution. The training resulted in a significant change in locus of control in the direction of internality.

The accumulation of information regarding locus of control changes suggests it can be effectively altered by a variety of modalities. Psychotherapies such as marathon groups, encounter groups, and individual psychotherapy produce changes in the direction of internality. These therapies can be described as attempting to enhance self-knowledge and improve one's ability to relate to others. Also,
training in strategies to reduce interpersonal anxiety and improve one's ability to relate also produce changes in the direction of internality. Training one in the basic rudiments of counseling also produces changes in locus of control as does biofeedback training.

General Research Hypothesis

The general hypothesis underlying this research was that a relationship between interpersonal perception and locus of control exists and that improving accuracy of interpersonal perception should result in a shift in locus of control from an external locus to a more internal one.

Limitations of the Study

This research may be hampered by at least two factors. Instrumentation, particularly in regard to the instrument measuring locus of control, may not accurately reflect true locus of control of subjects.

In addition, a portion of the research involves attempting to increase accuracy of interpersonal perception. Altering interpersonal perceptual accuracy, even over the course of an academic semester, is a significant task. Despite these potential hazards, it was deemed appropriate to investigate the relationship between these two psychological constructs.
Subjects

The subjects were undergraduates enrolled in the Spring and Winter terms of 1979 in the Department of Education and Professional Development and the Department of Communication Arts and Sciences, Western Michigan University. Western Michigan University is a moderate-sized state educational institution of approximately 18,000 students located in Kalamazoo, Michigan.

A total of 163 students participated in the research and were drawn from seven classes from the Department of Education and Professional Development and one class from the Department of Communication Arts and Sciences. The 163 students were divided into two treatment groups; the Treatment 1 group consisted of four classes from the Department of Education and Professional Development, while the Treatment 2 group consisted of three classes from the Department of Education and Professional Development and one class from the Department of Communication Arts and Sciences. The four Treatment 1 groups consisted of 71 students, 20 males and 51 females. The four Treatment 2 groups consisted initially of 92 subjects, 19 males and 73 females. It became necessary to remove one of the Treatment 2 groups consisting of 16 subjects, 6 males and 10 females, from the data analysis because it was discovered that this class was atypical in that it was
specifically designed for students with reading and language deficits. In addition, there were four cases of missing pretest data leaving a total of 143 subjects for the research. During the experimental phase of the research, a total of 22 Treatment 1 subjects were lost due to absenteeism leaving a total of 49 Treatment 1 subjects. Within the Treatment 2 condition, in addition to the group omitted due to language and reading difficulties, there were 32 additional subjects lost due to absenteeism, leaving a total of 44 Treatment 2 subjects.

**Criteria Instruments**

The two measures used in this research were the Internal-External Locus of Control Scale developed by Rotter (1966) and the Affective Sensitivity Scale developed by Cambell et al. (1971). The Internal-External Locus of Control Scale referred to as the I-E Scale measures locus of control of reinforcement. The Affective Sensitivity Scale was designed as a measure of interpersonal perceptual accuracy.

**Internal-External Locus of Control Scale (I-E Scale).** The Internal-External Locus of Control Scale was developed to assess one's belief in the nature of control reinforcement. The instrument was based upon the theoretical framework of Social Learning Theory (Rotter, 1954). Social Learning Theory maintains that behavior will vary depending upon whether an individual believes the reinforcement he receives in life is contingent upon his behavior.

The I-E Scale contains 29 items, six of which are filler items. The 23 actual scale items consist of two alternatives, A and B, from
which subjects are asked to select the one which reflects their actual belief. One alternative expresses a belief in internal control of reinforcement and the second expresses a belief in external control of reinforcement. The order of presentation is varied and filler items mask the overt intentions of the scale and provide a more ambiguous task (Rotter, 1966). The I-E Score is the absolute number of external responses selected.

Internal consistency reported by Rotter (1966) using split half reliability was a correlation coefficient of .65; using the Spearman Brown method the correlation was .79; using the Kuder-Richardson method the correlations ranged from .49 to .83. Rotter (1966) concluded the scale had reasonable homogeneity and internal consistency.

Evidence reported by Rotter (1966) of construct validity came from studies by Seeman (1963), Gore and Rotter (1963), Strickland (1965), Straits and Sechrest (1963), and James et al. (1965). Seeman (1963) found that in a reformatory setting, internal locus of control was associated with greater relevant knowledge about the reformatory, parole, and economic factors involved after release. Gore and Rotter (1963) found that within a population of black college students that those who were more willing to take part in a civil rights march or join a civil rights group were significantly more internal than those less willing to participate in these activities. Strickland (1965) also investigated willingness to participate in the civil rights movement and locus of control and concluded that activists were more internal than those less willing to take part. Straits and Sechrest (1963) and James et al. (1965) found nonsmokers more internal than
smokers. In addition, James et al. (1965) found that male subjects who believed the Surgeon General's Report and quit smoking were more internal than subjects who believed the Surgeon General's Report but who did not stop smoking.

Item validity according to Rotter (1966) was drawn from the Seeman and Evans (1962) research involving tuberculosis patients. Rotter's original monograph (1966) reported low correlation ranging from .03 to .22 between the I-E Scale and intelligence and correlations ranging from -.07 to -.35 with social desirability.

Joe (1971) reviewed the literature regarding the I-E Scale and concluded that the scale was valid but that the scale does not measure one pure factor of locus of control. Mirels (1970) found that two clearly distinct factors, one related to a belief in personal control and the second factor related to the amount of control a person believes he exerts over world affairs, exist. The net effect is that prediction of behavior may be hampered by multidimensionality of the scale. Phares (1976) reviewed the literature regarding multidimensionality and concluded that utility for separating the scale into various factors has yet to be determined.

**Affective Sensitivity Scale.** Development of the Affective Sensitivity Scale (ASS) began according to Kagen, Weiner, and Snieder (1977) in 1962. The scale was devised in an attempt to measure one's ability to perceive and understand the feeling state of others. The scale was devised as an actual interpersonal perceptual task to measure this significant aspect of the therapeutic relationship.
The scale consists of 66 multiple choice items. The subjects view videotaped excerpts from actual counseling sessions and are instructed to choose the item which best reflects the affective state of the client in the scene. The items generally consist of one correct answer and two distractors. The scale is administered either individually or as a group and takes approximately 1 hour.

Cambell et al. (1971) report reliability using Kuder-Richardson formula as .70-.80 using Form B. Internal consistency reliability according to Kagen et al. (1977) ranges from .58-.77. Test-retest reliability was found to be .75 over a 2-week period.

Concurrent validity was reported by Cambell et al. (1971) who found a .53 correlation between therapist ratings of affective sensitivity in group members and their scaled scores on the ASS. Cambell et al. (1971) also reported additional studies in which significant correlations were found between supervisors' rankings of counseling effectiveness and scaled scores on the ASS. Cambell et al. (1971) concluded that "a low positive relationship between scaled scores and judgments of counselor effectiveness."

Construct validity was reported by Cambell et al. (1971) when a statistically significant improvement of Affective Sensitivity (+3) in graduate students occurred following 6 months of training in counselor education.

Materials Used Within Experimental Conditions

The Art of Empathy. The Art of Empathy (Bullmer, 1975) is a programmed text designed to increase accuracy of interpersonal perception.
Bullmer (1971) demonstrated that accuracy of interpersonal perception can be improved following meaningful learning of the material.

The text consists of six chapters which provide a framework for understanding others. The text focuses upon the process of interpersonal perception, sources of error in understanding others, and practice in identifying the meaning of verbal statements of others. The material is presented in a programmed sequence which provides immediate feedback.

Proficiency tests at the end of each chapter as well as a final proficiency test insure a measure of acquisition of the material. According to Bullmer (1975) subjects who learned an average of 85% of the material demonstrated a significant improvement in their ability to understand others.

Procedure

The subjects in both Treatment 1 and Treatment 2 conditions were initially asked to volunteer to participate in a research experiment. The Treatment 1 subjects were instructed that they could receive approximately 15% of their grade for the course on a pass-fail basis if they satisfied the following conditions. One, they would be required to take two tests, the I-E Scale and the Affective Sensitivity Scale on the initial day of the research and 2 weeks subsequent. Second, they would be required to meaningfully read the programmed text, The Art of Empathy (Bullmer, 1975), and pass a proficiency test at the 85% level. They were instructed that The Art of Empathy was a manual for improving one's ability to understand the internal state of
other people and that meaningful reading of the text would likely be of benefit to them both professionally and personally. Less than 10 individuals declined to participate and they received an alternative means of receiving the 15% course credit. All Treatment 1 subjects were instructed that at any time they could drop out of the research without consequence and that they would be debriefed as to the total nature of the research on the final day of the experiment. The subjects were further instructed that the research would be conducted during three successive course meetings spanning a 2-week period of time. All Treatment 1 subjects who agreed to participate signed an informed consent form approved by the Human Subjects Research Committee (Appendix A).

The initial course period was reserved for administering the I-E Scale, Affective Sensitivity Scale, and the assigning of programmed texts. The subjects were instructed that meaningful study of the material was necessary for acquisition of the material. They were cautioned to thoroughly examine the concepts presented within the text and to test their acquisition of the material by taking the proficiency examinations at the end of each chapter for practice. The subjects were also cautioned that the final proficiency examination 2 weeks subsequent would be equivalent to but not the same as the one provided in the text.

The second class period was reserved for answering questions about the schedule of the research and replacing lost texts. No additional information was provided and the students were again strongly urged to study the text in earnest and to check their acquisition of
the material by taking the proficiency tests at the end of each chapter as well as the final proficiency test.

The third class period was reserved for administering the post-test measures, the I-E Scale and the Affective Sensitivity Scale, the final proficiency examination, and debriefing. The students were in fact tested on the final proficiency examination offered in the book contrary to instruction. Any student who attempted to read the text and who completed the pre- and posttest measures received credit regardless of whether they reached the criterion level of 85%. The subjects were then debriefed as to the total nature of the research.

Treatment 2 subjects were treated in approximately the same manner. The initial class meeting was reserved for asking the entire class to volunteer to participate in a research which would involve being measured on two different scales. They were further instructed that they would be required to take the same two scales 2 weeks subsequent. All subjects agreed to participate and signed the informed consent forms in agreement with the Human Subjects Research Committee. Two weeks subsequent they were again administered the I-E Scale and the Affective Sensitivity Scale and debriefed as to the total nature of the research.

Research Design

The research was conducted in the quasi-experimental design, the nonequivalent control group design (Campbell & Stanley, 1963). The design consists of assignment of intact groups of subjects, such as intact classrooms, to either experimental or control conditions with
pretest measures to insure similarity between groups. According to Campbell and Stanley (1963), if the manner of selection is similar and pretest measures are equivalent, the design controls for all threats to internal validity except for the possibility of an interaction between selection and maturation. This hypothesis is most tenable only when experimental and control groups come from significantly different populations and the experimental group conceivably changes on the dependent variable not because of the experimental treatment but due to some idiosyncratic variable present only in the experimental group. Selection of both experimental and control groups from roughly the same population generally controls for this potential threat to internal validity. Threats to external validity are generally not controlled by this design and results cannot be justifiably generalized beyond the sample under scrutiny, however, the lack of true external validity is a feature of many true experimental designs (Campbell & Stanley, 1968).

The actual design of this experiment deviated from the non-equivalent control group design in two respects. Initially, instead of having a series of experimental groups and a series of control groups, this design consisted of a series of groups designated as Treatment 1 and a second series of groups designated as Treatment 2. Treatment 1 groups received the training to directly increase accuracy of interpersonal perception using The Art of Empathy. Treatment 2 received no treatment (see Appendix E). It was assumed that not only would some of the Treatment 1 subjects significantly improve accuracy of interpersonal perception but also that for unknown reasons
that some Treatment 2 subjects would also significantly improve accuracy of interpersonal perception over the course of the 2-week treatment period. Only external subjects who significantly improved accuracy of interpersonal perception were culled from Treatment 1 and Treatment 2 conditions and identified as the experimental group. Those remaining externals from both conditions were identified as a control group. This pooling of all treatment subjects was necessary in order to capture those external subjects who, for a variety of reasons, significantly improved accuracy of interpersonal perception.

Second, the assignment of classes to Treatment 1 and Treatment 2 conditions was done with regard to the willingness of the instructors to have the experimental condition in their course and not on a random basis. The faculty of the Teacher Education and Professional Development was surveyed during the latter portion of the Winter term 1979 as to their willingness to allow the Treatment 1 condition in their course. One instructor agreed to allow the experimentation while a second agreed to allow the Treatment 2 condition. During the subsequent semester break the entire faculty was again surveyed as to their willingness to allow the Treatment 1 condition within their upcoming courses. Three instructors agreed to allow the Treatment 1 condition while two agreed to have their courses participate under Treatment 2 conditions. In order to balance the design, one undergraduate course from the Department of Communication Arts and Sciences served as the fourth Treatment 2 group. Though falling short on experimental elegance, the design did consist of eight classes from roughly the same population. The assignment of groups to treatment
conditions on the basis of the instructor's willingness to allow the treatment was viewed as a shortcoming to be considered in the interpretation and discussion of the results.

Research Hypotheses

The following hypotheses presented in the null form represented the research focus:

**Hypothesis 1**: There will be no significant correlation between locus of control measured by the I-E Scale and accuracy of interpersonal perception as measured by the Affective Sensitivity Scale for all subjects.

**Hypothesis 2**: There will be no difference in accuracy of interpersonal perception as measured by the Affective Sensitivity Scale between all extreme internal, moderate, and extreme external subjects.

**Hypothesis 3**: All external subjects who significantly increase accuracy of interpersonal perception as measured by the Affective Sensitivity Scale will not alter locus of control as measured by the I-E Scale in the direction of internality.

Statistical Analysis

The statistical analysis used to test Hypothesis 1 was the Pearson Product-Moment Correlation Coefficient. This statistical analysis was used to determine the relationship between locus of control and interpersonal perception in the pretest measures.

The statistical analysis used to test Hypothesis 2 was a one-way analysis of variance to determine if there was a significant
difference in accuracy of interpersonal perception in those who score in the extreme internal range, moderate range, and extreme external range.

The statistical analysis used to test Hypothesis 3 was the correlated or dependent t-test to determine if locus of control is significantly altered in external subjects who significantly increase accuracy of interpersonal perception. The .05 level of significance was established for statistical measures.
CHAPTER III

Results and Discussion

This research attempted to clarify the relationship between accuracy of interpersonal perception and locus of control of reinforcement. The general research hypothesis was that a relationship existed and that improving accuracy of interpersonal perception would result in a shift in locus of control in the direction of internality. Data collected to support this general hypothesis are presented in this chapter.

Analysis of Population Data

Initially 163 subjects from eight intact classes comprised the sample. A one factor analysis of variance was computed initially to determine if significant differences existed in accuracy of interpersonal perception between the eight groups. One control group of 16 subjects was discovered to be significantly less accurate at interpersonal perceptual accuracy and was omitted from the data analysis. This control group was discovered to have consisted primarily of students with language and reading difficulties. In addition, there were four cases of missing pretest data leaving a total of 143 subjects.

The remaining seven classes had a mean score of 31.68 and standard deviation of 5.9 on the Affective Sensitivity Scale and a mean score of 10.88 with a standard deviation of 3.9 on the I-E Scale.
Hypothesis 1. There will be no significant correlation between locus of control as measured by the I-E Scale and accuracy of interpersonal perception as measured by the Affective Sensitivity Scale for all subjects.

In order to test Hypothesis 1 a Pearson Product-Moment Correlation Coefficient was computed between the pretest I-E Scale scores and Affective Sensitivity Scale scores. The resulting correlation was $r(143) = -.05$, $p > .05$. The lack of a significant correlation indicated that a linear relationship did not exist between the two variables within the samples measured. Hypothesis 1 therefore could not be rejected.

Hypothesis 2. There will be no difference in accuracy of interpersonal perception as measured by the Affective Sensitivity Scale between all extreme internal, moderate, and extreme external subjects as measured by the I-E Scale.

In order to test Hypothesis 2 the entire sample was divided into roughly three equivalent ranges on the I-E scale. Subjects who scored between 0 and 8 were designated extreme internals, subjects who scored between 9 and 12 were designated moderates, and subjects who scored between 13 and 23 were designated extreme externals. Means and standard deviations for the groups are presented in Table 1.

A one-factor analysis of variance was computed to determine if significant differences existed between the groups (Table 2). The analysis of variance revealed no significant difference between the groups, $F(2,140) = 2.052$, $p = .132$. The null hypothesis therefore
could not be rejected though the level of probability approached significance.

Table 1  
Means and Standard Deviations of Affective Sensitivity Scale for Three Ranges of Locus of Control

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Extreme Internals</th>
<th>Moderates</th>
<th>Extreme Externals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Affective Sensitivity Scale</td>
<td>32.90</td>
<td>6.2</td>
<td>30.42</td>
</tr>
</tbody>
</table>

Note. N = 42 for extreme internals, N = 48 for moderates, and N = 53 for extreme externals.

Table 2  
Analysis of Variance for Three Ranges of Locus of Control

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>141.1250</td>
<td>2</td>
<td>70.56</td>
<td>2.052</td>
</tr>
<tr>
<td>Within</td>
<td>4814.078</td>
<td>140</td>
<td>34.39</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4995.203</td>
<td>142</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hypothesis 3. All external subjects who significantly increase accuracy of interpersonal perception as measured by the Affective Sensitivity Scale will not alter locus of control as measured by the I-E Scale.
In order to test Hypothesis 3 the entire external segment of the sample, which was comprised of both Treatment 1 and Treatment 2 subjects, was pooled and the standard deviation obtained on the pretest Affective Sensitivity Scale. The standard deviation obtained was 5.8 for 64 external subjects. This value was designated as the necessary criteria for demonstration of a significant increase in accuracy of interpersonal perception.

Fifteen external subjects were culled from both Treatment 1 and Treatment 2 conditions and designated as the experimental group. The remaining 49 external subjects from both Treatment 1 and Treatment 2 conditions were designated as a control group. Means and standard deviations are provided in Table 3.

Correlated t-tests were computed between the pretest and posttest I-E Scale scores for both the experimental and control subjects. The experimental group failed to demonstrate a significant shift in locus of control, $t(14) = -.90, p > .05$. The control group did demonstrate a significant shift in locus of control, $t(48) = -1.824, p < .05$. Hypothesis 3 therefore could not be rejected. The correlated t-test results for the experimental and control subjects are presented in Table 4.

**Additional statistical analysis.** The failure of the experimental group to shift locus of control coupled with the apparent shift in locus of control for control subjects lead to additional data designed to clarify this unexpected finding. The possible effect of the treatment, *The Art of Empathy*, upon altering locus of control regardless
Table 3

Means and Standard Deviations for Experimental and Control External Subjects

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Experimental externals</th>
<th>Control Externals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>I-E Scale</td>
<td>12.13</td>
<td>2.77</td>
</tr>
<tr>
<td>Affective Sensitivity Scale</td>
<td>29.73</td>
<td>4.00</td>
</tr>
</tbody>
</table>

Note. N = 15 for experimental subjects; N = 49 for control subjects.
of improving accuracy of interpersonal perception provided the initial direction for the additional data analysis.

Table 4
Correlated t-Test Between Pretest and Posttest I-E Scale Scores for Experimental and Control Subjects

<table>
<thead>
<tr>
<th>Group</th>
<th>Pretest</th>
<th>Posttest</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>12.13</td>
<td>11.26</td>
<td>- .902</td>
</tr>
<tr>
<td>Control</td>
<td>12.73</td>
<td>11.90</td>
<td>-1.82*</td>
</tr>
</tbody>
</table>

Note. N = 15 for experimental group; N = 49 for control group.

*p < .05, one tail.

In order to determine if The Art of Empathy may have been exclusively responsible for the shift in locus of control, the Treatment 1 external group was pooled then divided into two groups, Treatment 1A and Treatment 1B. Treatment 1A consisted of 13 external subjects who increased accuracy of interpersonal perception by one-half standard deviation on the Affective Sensitivity Scale. Treatment 1B consisted of 15 external subjects who did not increase accuracy of interpersonal perception. This breakdown was an attempt to divide the Treatment 1 external subjects into those who likely increased accuracy of interpersonal perception with those external subjects who did not increase accuracy of interpersonal perception. Means and standard deviations are provided in Table 5.

In addition, the Treatment 2 subjects were divided into two groups. Treatment 2A, as depicted in Table 6, consisted of 14
Table 5
Means and Standard Deviations for Pretest and Posttest Measures for Treatment 1A and Treatment 1B

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Treatment 1A</th>
<th></th>
<th>Treatment 1B</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>I-E Scale</td>
<td>13.46</td>
<td>5.3</td>
<td>11.615</td>
<td>2.9</td>
</tr>
<tr>
<td>Affective Sensitivity</td>
<td>31.76</td>
<td>5.5</td>
<td>36.84</td>
<td>4.5</td>
</tr>
<tr>
<td>Sensitivity Scale</td>
<td>35.53</td>
<td>6.62</td>
<td>31.26</td>
<td>7.56</td>
</tr>
</tbody>
</table>

Note. N = 13 for Treatment 1A; N = 15 for Treatment 1B.
Table 6
Means and Standard Deviations for Pretest and Posttest Measures for Treatment 2A and Treatment 2B

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Treatment 2A</th>
<th></th>
<th>Treatment 2B</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>I-E Scale</td>
<td>12.28</td>
<td>2.7</td>
<td>12.50</td>
<td>2.84</td>
</tr>
<tr>
<td>Affective Sensitivity Scale</td>
<td>30.5</td>
<td>5.17</td>
<td>35.785</td>
<td>4.97</td>
</tr>
<tr>
<td></td>
<td>31.33</td>
<td>5.97</td>
<td>28.73</td>
<td>6.9</td>
</tr>
</tbody>
</table>

Note. N = 14 for Treatment 2A; N = 15 for Treatment 2B.
external subjects who increased accuracy of interpersonal perception by at least one-half standard deviation on the Affective Sensitivity Scale. Treatment 2B, appearing in Table 6, consisted of 15 external subjects who failed to increase accuracy of interpersonal perception. Means and standard deviations are provided.

Correlated $t$-tests were computed between the pretest I-E Scale scores for all four groups. Treatment 1A yielded a $t(12) = -1.86, p < .05$. Treatment 1B yielded a $t(14) = -2.73, p < .05$. Treatment 2A yielded a $t(13) = .21, p > .05$. Treatment 2B yielded a $t(14) = .20, p > .05$. Table 7 provides means of the four groups as well as $t$ values.

The results indicated that both Treatments 1A and 1B significantly shifted locus of control while both Treatments 2A and 2B did not shift locus of control. These findings clarified at least which subjects within the population altered locus of control. The implications of these findings are examined in the discussion section.

Table 7
Correlated $t$-Test Between Pretest and Posttest I-E Scale Scores

<table>
<thead>
<tr>
<th>Group</th>
<th>Pretest</th>
<th>Posttest</th>
<th>$t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment 1A</td>
<td>13.46</td>
<td>11.61</td>
<td>-1.86*</td>
</tr>
<tr>
<td>Treatment 1B</td>
<td>13.13</td>
<td>11.06</td>
<td>-2.72*</td>
</tr>
<tr>
<td>Treatment 2A</td>
<td>12.28</td>
<td>12.50</td>
<td>.21</td>
</tr>
<tr>
<td>Treatment 2B</td>
<td>12.06</td>
<td>12.26</td>
<td>.20</td>
</tr>
</tbody>
</table>

*$p < .05$, one tail.
Discussion

The results obtained from testing Hypothesis 1 indicated that no significant linear relationship exists between locus of control and interpersonal perception. This finding when weighed with the findings of Deordoff et al., (1977) add additional credence to the hypothesis of no linear relationship.

The results obtained from testing Hypothesis 2 indicated that no significant difference in accuracy of interpersonal perception exists between extreme internals, moderates, and extreme externals. The exact level of probability, however, was .13. Before dismissing the possibility that a curvilinear pattern exists, an occular inspection of the mean scores on the Affective Sensitivity Scale revealed the same curvilinear pattern found by Ravello (1977). Internals' mean score was 32.9, moderates' was 30.42, and extreme externals' was 31.85. Failure to find significance between these three groups cannot be totally dismissed and may border on providing additional support for the curvilinear relationship.

If one accepts that a curvilinear relationship does exist, it becomes necessary to explain why externals who theoretically should be less accurate than moderates were found to be superior. Theoretical evidence indicates that internals are most accurate at interpersonal perception because of their greater cognitive and perceptual skills, and because they are psychologically better adjusted and hence make more accurate inferences about the internal state of others. If one accepts this line of reasoning, then moderates who occupy the
range between internals and externals theoretically should be more accurate than externals.

One possible explanation for externals' apparent superiority over moderates in accuracy of interpersonal perception was provided by the recent research of Lloyd and Chang (1979). Lloyd and Chang (1979) hypothesized that within the external group there is a subgroup of "defensive externals," who behave differently than the "true external." This defensive external ascribes to an external locus of control as a defense against failure and not as a realistic appraisal of how they have perceived the nature of reinforcement which they have received in their life. Prior research by Hersch and Shreibe (1967) had demonstrated that externals as a group are far more heterogeneous than internals and the conclusions of Lloyd and Chang (1979) are much more tenable bearing in mind the variability within the external group. It may well be then that research regarding externals has been influenced by the presence of defensive externals and that "true externals" may behave and respond to tests of cognition, learning, perception, and personality in a significantly different manner than defensive externals.

Along the same line of reasoning, Messer and Mienster (1980) reviewed the literature in regard to locus of control and psychotherapy and concluded that future research with the I-E Scale be aimed at differentiating between the true external and defensive external as it is plausible that defensive externals demonstrate more perceptual distortion and maladjustment than a "true external" and subsequently produce less accurate percepts. This mixture of true externals
capable of accurate perceptions and defensive externals with impaired perceptions could have produced the group mean score on the Affective Sensitivity Scale significantly higher than the moderate range though less than the internal range.

In summary the results obtained from testing both Hypothesis 1 and Hypothesis 2 indicated that the relationship between the two variables, locus of control and interpersonal perception, is clearly not linear though it may be curvilinear. The results are likely distorted by the fact that the I-E Scale does not discriminate between subjects who espouse an external locus of control as a defense against failure in contrast to subjects who espouse an external locus of control because of a history of chance reinforcement or being actually controlled by sources outside of themselves. The defensive externals are likely to be significantly less accurate at interpersonal perception than the true external.

The results obtained from testing Hypothesis 3 suggested that directly increasing accuracy of interpersonal perception does not produce any change in locus of control. The failure to find a link between locus of control and interpersonal perception may have been the result of several factors.

One critical factor may be that Hypothesis 3 was based upon a faulty premise. It was assumed that as a group externals would be less accurate at interpersonal perception than internals primarily because they generally have been found to be more psychologically maladjusted than internals and therefore would likely have a greater degree of perceptual distortion. Logically then reducing the
perceptual distortion via interpersonal perceptual training might aid in ameliorating the psychological maladjustment and shift the locus of control from the maladjusted external locus to a more psychologically healthy internal locus. The results obtained from testing Hypothesis 2 indicated that there was no significant difference in accuracy of interpersonal perception between internals and externals and that externals likely do not suffer from perceptual distortion to any significant degree more than the internal. This finding then at least casts some doubt as to the validity of the premise underlying Hypothesis 3.

The fact that the I-E Scale cannot discriminate between "defensive" externals and true externals clearly clouds the issue also because it may be that only "defensive" externals are psychologically maladjusted and suffer from perceptual distortion. True externals may be as psychologically healthy as internals and not suffer from perceptual distortion. Improving accuracy of interpersonal perception may only result in a shift in locus of control for defensive externals and not for true externals.

A second factor which may have been responsible was that a one standard deviation improvement on the Affective Sensitivity Scale may simply have been too little of improvement to make any significant shift in locus of control. This factor in addition to the small sample number may have contributed to the lack of a significant shift. It should be noted that the experimental group did shift locus of control slightly less than 1 point on the I-E Scale in the predicted direction of internality which suggests that the issue merits
additional investigation. A definitive answer to the question of whether improving accuracy of interpersonal perception results in a shift in locus of control essentially remains unanswered.

The one intriguing finding noted in the data analysis was that contrary to expectation the control subjects significantly shifted locus of control. Additional data analysis found that only the Treatment 1 subjects from the control group shifted locus of control and not control subjects from the Treatment 2 condition. This shift was noted both in Treatment 1A subjects who increased accuracy of interpersonal perception by 3 points as well as Treatment 1B subjects who failed to increase accuracy of interpersonal perception.

The reason for the significant alteration in locus of control may have occurred for several reasons. For the example, the selection of Treatment 1 groups and Treatment 2 groups was not a random assignment and this could have effected the experimental results. Some part of the environment produced by the Treatment 1 instructors may have been conducive for locus of control changes. Perhaps the personalities of the Treatment 1 instructors in some manner fostered a more internal belief in reinforcement in comparison to the control instructors who may have had no particular impact. This explanation remains tenable though unlikely.

Another possible explanation for the shift was stated by Campbell and Stanley (1963) who cautioned that whenever extreme scores are used in pretest measures, a statistical regression to the mean can occur with predictable frequency. This regression, however, was not noted in the Treatment 2 subjects and again while this hypothesis
remains possible, it seems not to be the most reasonable.

The third possible alternative explanation and what seems the most tenable was that the experimental treatment, *The Art of Empathy* (Bullmer, 1975), was responsible for the shift in locus of control scores within the Treatment 1 external subjects. Some aspect of the training test, acting either in concert with or independent of teaching how to accurately perceive others, likely produced at least a self-report shift in locus of control. This feature of the text was unknown at the beginning of the research and was discovered only by analysis of the data produced by Treatment 1 subjects who definitely failed to demonstrate any increase in accuracy of interpersonal perception, but yet altered locus of control.

A closer scrutiny of *The Art of Empathy* (Bullmer, 1975) suggests a possible explanation for the change in locus of control noted in the Treatment 1 external subjects. *The Art of Empathy* (Bullmer, 1975) explains in depth the process of how people infer the actual meaning of verbal statements made by others. A major portion of the text focuses upon understanding defense mechanisms. The text provides illustrations of and practice at identifying written defensive statements as well as providing the actual true meaning represented by the defensive statement. For example, subjects are required to identify the defense mechanisms of rationalization, compensation, identification, projection, and reaction formation and are taught the actual meaning behind the defensive statements. In addition, subjects are cautioned to examine and analyze their own verbal statements in order to eliminate or at least identify when one is making defensive
One therapeutic effect of this process of learning to identify defense mechanisms is that subjects hopefully use defensive statements less, relate to others in a more honest, open manner, and have less distorted perceptions of themselves and others. Another possible effect is that subjects are sensitized to identifying oral and written defensive statements. It is possible that on the posttest administration of the I-E Scale and all Treatment 1 subjects identified some external statements as being more defensive in nature than internal counterpart. As a result of the training the Treatment 1 subjects, due to the forced choice format of the I-E Scale, chose internal statements as more representative of their ideal self-image. This would have resulted in an alteration in both experimental group mean I-E Scale scores in the direction of internality. Treatment 2 subjects not exposed to the training logically would have no reason to change their responses on the I-E Scale on the posttest which was exactly what was found.

In addition, statements reflective of an external locus of control generally deny personal responsibility for one's own behavior and easily lend themselves to defensive usage (Lloyd & Chang, 1979). For example, on the I-E Scale, the external statement (18a), "Most people don't realize the extent to which their lives are controlled by accidental happenings," is far more likely to be identified as defensive than the internal response (18b), "There really is no such thing as luck."

Another factor which may have contributed to the Treatment 1 externals shifting their belief in locus of control is that as a group,
externals have been found to be more easily persuaded to change their opinions that internals (Biondo & MacDonald, 1971; Ritchie & Phares, 1969; Ryckman, Rodda, & Sherman, 1972). This quality of being easily swayed could produce greater change on the part of externals at least in terms of their self-report; however, whether externals who report they are now more internal, actually believe this or are simply saying it because they believe they should, is unknown. Unfortunately a follow-up testing to examine this point was not done.

In addition, this line of reasoning would dovetail with the hypothesis that a defensive subgroup may exist within the population of externals. The emphasis on understanding defensive mechanisms and self-analysis may have produced a lessening of defensiveness more within this group than with the true externals. The net result would be the same; overall movement for the Treatment 1 group of externals in the direction of internality regardless of an increase in accuracy of interpersonal perception.

The results obtained from testing Hypothesis 3 also point out a potential weakness in the I-E Scale in that verbal reports of changes may not be reflective of any inherent personality change but rather an attempt to appear psychologically healthy. If used as the sole measurement of psychological change it may only reflect a "flight into internality."
CHAPTER IV

Summary, Conclusions, and Recommendations

Summary

This research was undertaken in order to clarify the relationship between two psychological constructs, locus of control and interpersonal perception. Independently each construct has been the focus of voluminous research and theoretical formulations. Locus of control has been considered by many theorists to be an innovative concept which has greatly furthered understanding variations in human behavior. The process of interpersonal perception has been viewed by many theorists as a critical, or core, ingredient in human relationships. The relationship between these two key psychological constructs had received only minimal research attention and the results obtained were ambiguous.

Theoretically individuals with an internal locus of control, those who believe they personally control the reinforcement they receive in life, should be more accurate at interpersonal perception than individuals who believe they personally have less control over the reinforcement they receive in life. The relationship between the two constructs should be a relatively straight linear function with accuracy of interpersonal perception decreasing as one moves down the locus of control continuum in the direction of externality. This theoretical formulation was based upon considerable research evidence which has suggested that internals as compared to externals are
psychologically better adjusted and have more efficient cognitive and perceptual capabilities.

Research evidence directly measuring the relationship between the two constructs has been unclear and limited by a lack of adequate instrumentation to measure interpersonal perceptual accuracy. The limited research which had been completed using an actual perceptual task as a measure of accuracy of interpersonal perception (Ravello, 1975) found that extreme internals were superior to moderates and extreme externals in accuracy of interpersonal perception. Curiously, extreme externals who theoretically should have been less accurate at interpersonal perception than moderates, who are more internal in locus of control, were more accurate at interpersonal perception. A curvilinear relationship was suggested by the findings.

To compound the problem concerning how the two constructs relate, recent research (Dambach, 1978) has suggested, but did not actually demonstrate, that subjects with an external locus of control may become more internal in locus of control if they significantly increase accuracy of interpersonal perception. The psychological changes noted following a significant increase in accuracy of interpersonal perception were hypothesized to be equivalent to a shift in locus of control from an external locus to a more internal one. Presumably improving accuracy of interpersonal perception acts as a treatment for resolving perceptual distortion which contributes to psychological maladjustment. Since externals have been generally found to be more maladjusted than internals, the alleviation of perceptual distortion was believed to enhance psychological adjustment and result in a shift in locus of
control in the direction of internality.

The general research hypothesis derived from a review of the literature was that a relationship between the two constructs does exist. The purpose of this research, therefore, was to clarify the relationship and to determine whether significantly improving accuracy of interpersonal perception actually results in a significant shift in locus of control from externality to internality.

The sample for this research consisted initially of 163 undergraduate students from seven classes from the Department of Education and Professional Development and one class from the Department of Communications, Arts and Science. Four classes consisting of 71 students were designated as Treatment 1 and received a 2-week training program consisting of reading the programmed text, The Art of Empathy (Bullmer, 1975), in order to significantly increase accuracy of interpersonal perception. Four classes consisting of 92 subjects were designated as Treatment 2 and received no treatment. All subjects received pre and post measures of locus of control, the I-E Scale (Rotter, 1966), and interpersonal perception, The Affective Sensitivity Scale (Cambell et al, 1971).

The following three null hypotheses were tested:

$H_1$: There will be no significant correlation between locus of control, measured by the I-E Scale, and interpersonal perception, measured by the Affective Sensitivity Scale on all subjects.

$H_2$: There will be no difference in accuracy of interpersonal perception between all extreme internal, moderate, and extreme external subjects as measured by the Affective Sensitivity Scale.
H₃: All external subjects who significantly increase accuracy of interpersonal perception as measured by the Affective Sensitivity Scale will not alter locus of control as measured by the I-E Scale.

The statistical analysis used to test Hypothesis 1 consisted of a Pearson Product-Moment Correlation Coefficient between the pretest measures for all subjects. The statistical analysis used to test Hypothesis 2 consisted of a one-way analysis of variance between three ranges of locus of control as measured by scores on the pretest I-E Scale: extreme internals (0-8), moderates (9-12), and extreme externals (13-23). The statistical analysis to test both Hypotheses 1 and 2 was computed on only seven of the eight groups. One Treatment 2 group consisting of 16 students was dropped from the data analysis when it was discovered to be atypical and designed primarily for students with language and reading deficits. In addition, there were four cases of missing data, leaving a total subject pool of 143 subjects.

In order to test Hypothesis 3, a group of 15 external subjects who significantly increased accuracy of interpersonal perception (approximately one standard deviation on the Affective Sensitivity Scale improvement) was culled from both treatment groups and designated the experimental group. A correlated t-test was computed between the pretest and posttest I-E Scale scores to determine if this group significantly altered locus of control. The remaining 49 external subjects from both Treatment 1 and Treatment 2 served as a control. A correlated t-test was computed also between the pretest and posttest I-E Scale scores for this group.
The results obtained for the experimental group was a $t(14) = -0.902, p > .05$. The results obtained for the control group was $t(48) = -0.182, p < .05$. There was no significant shift in locus of control for the experimental group, therefore, Hypothesis 3 could not be rejected. Contrary to expectation the control group did shift locus of control.

An additional data analysis was computed in order to clarify why the control subjects, which included externals from both Treatment 1 and Treatment 2 conditions, altered locus of control. External subjects from Treatment 1 were divided into two groups, Treatment 1A and Treatment 1B. Treatment 1A consisted of 13 external subjects who increased by at least three points on the Affective Sensitivity Scale from pretest to posttest. Treatment 1B consisted of 15 external Treatment 1 subjects who failed to increase accuracy of interpersonal perception. Treatment 2 external subjects were divided using the same criteria into Treatment 2A and Treatment 2B. Correlated $t$-tests were then computed between the pretest and posttest I-E Scale scores for all four groups.

The results obtained for treatment 1A was $t(12) = -1.86, p < .05$. The results obtained for Treatment 1B was $t(14) = -2.72, p < .05$. The results obtained for Treatment 2A was $t(13) = .20, p > .05$. The results obtained for Treatment 2B was $t(14) = .21, p > .05$. The data analysis indicated that the significant shift in locus of control occurred only in the Treatment 1 external subjects and not in the Treatment 2 subjects and occurred regardless of any improvement in accuracy of interpersonal perception. The inclusion of Treatment 1

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subjects within the control group as well as the larger number of these subjects likely produced the significant shift in locus of control for the control group.

Conclusions

Locus of control and interpersonal perception are not related in a linear manner, at least within the population sampled and using the I-E Scale as a measure of locus of control and the Affective Sensitivity Scale as a measure of interpersonal perceptual accuracy.

The relationship between the two constructs assessed by the I-E Scale and the Affective Sensitivity Scale is likely to be curvilinear though the results from this experiment could only be considered mildly supportive of this hypothesis. The fact that the mean scores for extreme internals, moderates, and extreme externals developed the same curvilinear pattern noted by an earlier researcher and the difference between the groups approached significance ($p = .132$), cannot be ignored. The inability of the I-E Scale to distinguish between true external subjects and defensive external subjects very likely contributed to this apparent curvilinear relationship in that true externals may be significantly more accurate at interpersonal perception than defensive externals thus raising the external group mean score.

In addition it was concluded that increasing accuracy of interpersonal perception does not produce a shift in locus of control in external subjects in the direction of internality. This tentative conclusion, however, was based only upon results obtained from a
relatively small sample and involved only a one standard deviation improvement on the Affective Sensitivity Scale as a criterion of a significant increase in accuracy of interpersonal perception. The premise that externals as a group are psychologically maladjusted and perceptually impaired may only be applicable to a segment of the external population. Possibly only "defensive" external subjects are perceptually impaired and therefore only this subgroup may alter locus of control if interpersonal perceptual accuracy is increased.

Finally it was concluded that reading *The Art of Empathy* (Bullmer, 1975) produced at least a self-report of a change in locus of control from an external locus to a more internal one. The critical ingredient for this self-report of change was hypothesized to be an increased awareness of defensive statements and their negative consequences. This increased awareness of defensive statements following the reading of the text may decrease the likelihood that a subject will espouse external statements on the I-E Scale because external statements have generally been considered to be defensive in nature. The I-E Scale, therefore, if used as a measure of personality change following any psychological treatment, may simply be an expression of an ideal self-image and not indicative of any true personality change.

**Recommendations**

The relationship between locus of control and interpersonal perception requires additional research. This research attempt though it has answered some questions concerning the relationship, it has
raised additional questions requiring research verification.

Initially a more representative sample of the normal population should be employed in further investigation concerning the relationship between the two constructs. It has been suggested by several researchers that defensive externals exist in greater proportions within the college population which likely has affected research findings. The inclusion of a measure of defensiveness therefore should be employed with any research involving the I-E Scale so that the behavior and characteristics of "defensive" externals and "true" externals can be separately examined.

In regard to future research concerning the issue of whether improving accuracy of interpersonal perception alters locus of control several recommendations are in order. Initially a larger and more representative sample of the normal population should be employed. Second, the sample selected should receive in addition to the I-E Scale a scale to measure their degree of defensiveness so that defensive externals can be examined separately. Third, another method of improving accuracy of interpersonal perception should be developed and employed in addition to The Art of Empathy, and subjects should be randomly assigned to treatment conditions in addition to a control condition. Fourth, a greater increase than one standard deviation on the Affective Sensitivity Scale should be employed as a demonstration of increased accuracy of interpersonal perception. Finally, follow-up testing 6-8 weeks after the experimental treatments should be obtained on the I-E Scale in order to determine if the alteration in locus of control has a lasting effect.
As a final note, any research involving subjects reading *The Art of Empathy* or similar experimental treatment should bear in mind the difficulty in trying to motivate subjects to meaningfully learn the material so that they can significantly increase accuracy of interpersonal perception. This research employed partial course credit for demonstrating an acquisition of the material, however, this motivation was not enticing enough. Future research with this training manual must employ higher levels of incentive in order to motivate subjects to learn and integrate the material so that meaningful change can occur.
Appendix A

Informed Consent
INFORMED CONSENT:

I agree to have this data used for research purposes only, knowing that my responses will be used anonymously and my identity will not be revealed. I understand that at any time I may stop the test or refuse to have the test results used. If I have any questions, I have been notified that my questions will be answered.

Initials: ____________________

Please list only the following:

Male ____  Female ____ (check)

Birthdate: ____________________

Class:  Freshman ____  Sophomore ____  Junior ____  Senior ____  Graduate ____ (check)
Appendix B

Experimental Group Instructions
Instructions

The text which you are about to study involves learning how to understand the feelings and thoughts of others. The material is fairly technical and likely to be unfamiliar to you. A thorough reading is necessary to grasp the concepts and to be able to improve your ability to understand others.

The assignment the first week is Chapters 1, 2, and 3. No examination will be given, however, you are strongly encouraged to take the proficiency examinations at the end of each chapter to test your mastery of the material. Please use a spare sheet of paper and do not write in the texts as they are to be reused.

The assignment in the second week is Chapters 4, 5, and 6 and an examination similar to the final proficiency VI will be given. An 85% grade will be necessary to achieve credit for the total assignment.

I urge you to begin reading the text this initial week. Mastery of the concepts requires a concerted effort. I will be available to answer questions regarding the material each week as well as to provide feedback to you on your performance on the final proficiency examination.

Please return the text on the day of final testing. These texts are to be reused and necessary for the completion of my research. Also, your presence is absolutely essential on the final examination day. Thank you for your cooperation.
Appendix C

I-E Scale
Directions

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

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

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

I MORE STRONGLY BELIEVE THAT:

1. a. Children get into trouble because their parents punish them too much.
   b. The trouble with most children nowadays is that their parents are too easy with them.

2. a. Many of the unhappy things in people's lives are partly due to bad luck.
   b. People's misfortunes result from the mistakes they make.

3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.
   b. There will always be wars, no matter how hard people try to prevent them.

4. a. In the long run, people get the respect they deserve in this world.
   b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

5. a. The idea that teachers are unfair to students is nonsense.
   b. Most students don't realize the extent to which their grades are influenced by accidental happenings.

6. a. Without the right breaks, one cannot be an effective leader.
   b. Capable people who fail to become leaders have not taken advantage of their opportunities.

7. a. No matter how hard you try, some people just don't like you.
   b. People who can't get others to like them don't understand how to get along with others.

8. a. Heredity plays the major role in determining one's personality.
   b. It is one's experiences in life which determine what they are like.
9. a. I have often found what is going to happen will happen.
   b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

10. a. In the case of the well prepared student, there is rarely if ever such a thing as an unfair test.
    b. Many times exam questions tend to be so unrelated to course work that studying is really useless.

11. a. Becoming a success is a matter of hard work; luck has little or nothing to do with it.
    b. Getting a good job depends mainly on being in the right place at the right time.

12. a. The average citizen can have influence in government decisions.
    b. This world is run by the few people in power, and there is not much the little guy can do about it.

13. a. When I make plans, I am almost certain I can make them work.
    b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

14. a. There are certain people who are just no good.
    b. There is some good in everybody.

15. a. In my case, getting what I want has little or nothing to do with luck.
    b. Many times, we might just as well decide what to do by flipping a coin.

16. a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
    b. Getting people to do the right thing depends upon ability; luck has little or nothing to do with it.

17. a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand nor control.
    b. By taking an active part in political and social affairs, the people can control the world events.
18. a. Most people don't realize the extent to which their lives are controlled by accidental happenings.
   
   b. There is really no such thing as "luck."

19. a. One should always be willing to admit mistakes.
   
   b. It is usually best to cover up one's mistakes.

20. a. It is hard to know whether or not a person really likes you.
   
   b. How many friends you have depends upon how nice a person you are.

21. a. In the long run, the bad things that happen to us are balanced by the good ones.
   
   b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22. a. With enough effort, we can wipe out political corruption.
   
   b. It is difficult for people to have much control over the things politicians do in office.

23. a. Sometimes I can't understand how teachers arrive at the grades they give.
   
   b. There is a direct connection between how hard I study and the grades I get.

24. a. A good leader expects people to decide for themselves what they should do.
   
   b. A good leader makes it clear to everybody what their jobs are.

25. a. Many times, I feel that I have little influence over the things that happen to me.
   
   b. It is impossible for me to believe that chance or luck plays an important role in my life.

26. a. People are lonely because they don't try to be friendly.
   
   b. There's not much use in trying too hard to please people, if they like you, they like you.

27. a. There is too much emphasis on athletics in high school.
   
   b. Team sports are an excellent way to build character.
28. a. What happens to me is my own doing.
   
   b. Sometimes I feel that I don't have enough control over the direction my life is taking.

29. a. Most of the time I can't understand why politicians behave the way they do.
   
   b. In the long run, the people are responsible for bad government on a national as well as on a local level.
Appendix D

Research Data
## Research Data

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| 530     | 07        | 03                       | 29   | 39   |
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Appendix E

Experimental Conditions
### Experimental Conditions

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where $T1 = I-E$ Scale, $T2 = Affective Sensitivity Scale$, $X1 = interpersonal perception training$, and $X2 = no treatment$. 

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