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A PRELIMINARY INVESTIGATION OF EXPECTANCY CHANGES IN LOCUS OF CONTROL AMONG AGED WHITE WOMEN AS RELATED TO SKILL AND CHANCE TASKS

by

Jannis B. Shea

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Approved by

Dissertation Advisor

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of the Graduate School at the University of North Carolina at Greensboro.

Dissertation Advisor J. Allen Watson

Oral Examination Committee Members Helen Canaday

Frances B. Buchanan

Gordon Smith

Rebecca M. Smith

March 19, 1973
Date of Examination

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It was the purpose of this study to investigate expectancy changes (whether one expected to succeed or fail on successive task trials) in skill- and chance-task situations as related to changes in locus of control among aged white women.

Recent research indicates that the aged possess the inferior socioeconomic characteristics of minority groups for whom external control is a characteristic. Further, societal forces tend to strengthen external control expectancies for the aged. A large number of studies with both children and adults have demonstrated that a belief in some minimal level of internal control is of fundamental importance in the development and maintenance of mental health.

The hypotheses investigated in this study dealt with the effects of skill- and chance-tasks on (a) changes in locus of control, and (2) changes in usual shifts in expectancies. Regarding changes in locus of control, the main hypothesis of this study was that there would be significant changes in locus of control under the experimental conditions of internal-skill and external-skill, but not under the experimental conditions of internal-chance and external-chance. Additionally, it was hypothesized that changes in locus of control toward

internality would be greater for subjects classified as internals and following skill tasks than for subjects classified as externals and following chance tasks. Finally, it was hypothesized that there would be no significant interaction between the independent variables--skill and chance tasks, and internal versus external status.

Regarding changes in usual shifts in expectancies, it was hypothesized that usual shifts would be greater for subjects classified as internals and following skill tasks than for subjects classified as externals and following chance tasks. Finally, it was hypothesized that there would be no significant interaction between the independent variables of tasks and locus of control status.

The Rotter Locus of Control Scale was administered to approximately 150 white women who were 60 years of age or older. Those scoring at least one standard deviation above and below the mean of the distribution of I-E scores for this group were selected and assigned to one of two treatment groups. One group was given a skill task, while the other was given a chance task. Each group consisted of 30 women, 15 assigned randomly from the lower range of scores (internals) and 15 assigned randomly from the upper range of scores (externals). The experiment lasted approximately six weeks. At the second and final meeting with subjects, the Rotter I-E scale was re-administered.

The 2 x 2 analysis of variance and the t test yielded results which only partially supported the main hypothesis

related to the prediction of significant changes in locus of control scores under four experimental conditions. Changes in I-E were significant under the conditions of internal-chance and external-skill. External subjects exposed to skill tasks experienced significantly greater changes (toward internality) in I-E. Regarding locus of control, there was no significant interaction between the independent variables. The hypotheses related to usual shifts were not supported.

From these findings, it was concluded that an individual's belief in locus of control can be changed toward the more internal direction through specific situations. The results suggested some pertinent directions for further research aimed at changing a person's belief in how much he feels he can control what happens to him.

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The kind cooperation of the senior adults who served as subjects in this research cannot be underestimated. Their dependability will always be remembered.

Finally, the persistent support of my husband, Philip, along with daughters Lark and Kristen must be acknowledged. Their encouragement was manifested in numerous ways during the entire pursuit of this advanced degree.

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CHAPTER I

INTRODUCTION

Nature of the Study

Today in the United States, life expectancy at birth is 74.2 years for females, and 67.0 years for males. In our population of over 200 million, 9.6 percent have reached age 65 (Statistical Abstract of the United States, 1970).

Extension of life beyond the completion of family and work responsibilities, in a culture marked by rising levels of living, presents unprecedented opportunity for continued personal growth, enjoyment, and service to society. Yet, evidence indicates that the aged as a collective group in this American industrial society are not finding these satisfactions (Busse & Pfeiffer, 1969; Riley & Foner, 1968; Tibbitts & Donahue, 1960). Further evidence in support of this conclusion was summarized by Palmore and Whittington (1971) in their assertion that the aged are on the average in an inferior economic position as measured by their income, amount of employment, occupation, etc; that there are large social discrepencies between the aged and non-aged as measured by education, sex ratios, and marital status; that there are differences in urban-rural residence, state of residence, and living arrangements; and that the aged have greater ratios of mortality and disability. Palmore (1969) argued that while the absolute level of satisfaction and security of the aged

has improved in modern society, the status and satisfaction of most aged relative to those of younger persons have tended to decline in industrial societies. The variables contributing to declining relative status of the aged were summarized in the study previously cited (Palmore, 1969). They included decreased importance of land and capital as a source of income and status, decreased importance of the extended family, high rates of geographical mobility, rapidly changing technology, and rapidly changing social structure and cultural values.

More recent research by Palmore and Whittington (1971) provided an affirmative answer to the question of whether or not the aged possess the inferior socioeconomic characteristics of minority groups. For example, "one-third to one-half of the aged are poorer, are employed less, work in lower-status occupations, have less education and poorer health than similar proportions of the nonaged (Palmore & Whittington, 1971, p. 89)." It is clear from this research in the crucial areas of income, employment, and education that the gaps are steadily and substantially increasing. The relatively minor advantages of medicare and other special programs for the aged do not change the overall picture. In summary, it appears that the relative status of the aged in our society will continue to decline and that they will become more and more like minority groups.

The later years of life become increasingly significant as man becomes more likely to reach the status of "old age."

Never before was being "old" so certain a prospect for so many. The growing awareness of how many people are affected and how little is known about the aging process has resulted in a proliferation of research, both in amount and scope (Riley & Foner, 1968).

Since old age encompases an estimated 25-30 percent of a lifetime--and as medical science expands the span of human life, it may grow even longer--close examination of the vital needs in the later years of human life is relevant. Society's focus on aging is still largely on the problems it has created, rather than on the satisfactions to be offered during this stage of the life cycle. Needs for personal recognition, social status, human companionship, and usefulness sought and achieved through parental and work roles are common to all ages, but especially to the aged.

As scientific advances continue to increase the span of life, the equally important task of improving the quality of life emerges into focus. Society, as well as the individual himself, should be dedicated to this achievement for the aged population in our society. One basic continuum, existing throughout the life cycle, which bears investigation, is the matter of man's ability to control his personal environment. The transition from the status of worker to that of retiree is often accompanied by external pressures forced upon the older person by societal advancement. These external pressures include, for example, unemployment of older people because their skills are no longer needed,

forced retirement regardless of health, increased costs of living accompanied by limited, fixed income, and stringent limitations regarding eligibility for retirement and old-age benefits. Such pressures emerge when certain aspects of our culture lag behind the revolutionary scientific and technological changes which force us to change many of our ways of living.

One source of bewilderment to many older people is that they tend to have less sense of mastery over the conditions of their lives than younger people do, and consider the world potentially less changeable (Riley & Foner, 1968). Social scientists have been concerned about the degree to which an individual is able to control the important events occurring in his life space. Concepts such as competence, helplessness, hopelessness, mastery, and alienation have all been utilized in one way or another to describe the degree to which an individual is able to control the important events in his life.

Background for the Study

Rotter (1954) conceptualized the problem of control orientation in terms of the construct "internal versus external control" of reinforcements (I-E). The I-E concept is derived from Rotter's social learning theory, in which human behavior is conceived as being a product of choices. The I-E construct has been conceptualized both as a personality variable and a situational variable. The former could be thought of as a stable characteristic of the individual, whereas the

latter is considered to be a set of cues in a given situation leading to certain kinds of behavior. This dual conceptualization stemmed from Rotter's use and definition of four variables of his social learning theory: behavior potential, expectancy, reinforcement value, and psychological situation. Rotter (1954) defined behavior potential as the potentiality for any behavior occurring in any given situation as calculated in relation to a single reinforcement or set of reinforcements. Expectancy was defined as the subjectively held probability by the individual that a given reinforcing event would occur in a specific situation contingent upon particular behavior. The reinforcement value was defined as the preference for any reinforcement to occur if the possibilities of their occurring were all equal. The psychological situation was the environment for any individual at any particular time.

In Rotter's learning theory, a reinforcement acts to strengthen an expectancy that a particular behavior or event will be followed by that reinforcement in the future. Once an expectancy for such a behavior-reinforcement sequence is built up, the failure of the reinforcement to occur will reduce or extinguish the expectancy. When the reinforcement is seen as not contingent upon the subject's behavior, its occurrence will not increase an expectancy as much as when it is seen as contingent.

Rotter (1954) stated that two conceptually separate types of experience are important in determining the value of

a given expectancy: the previous experience of reinforcement in the same situation and the history of reinforcement in other situations which are perceived as related or similar. The former produces a situationally specific expectancy, and the latter produces an expectancy referred to as generalized expectancy. Such generalized expectancies, in combination with specific expectancies, act to determine behavior. These generalized expectancies will result in characteristic differences in behavior in a situation culturally categorized as chance versus skill determined. Since I-E is determined by the two above-mentioned factors, any changes in a specific situation may well lead to changes in the generalized expectancy of I-E.

The internally oriented individual believes that reinforcements are contingent upon certain aspects of his own behavior, such as competence and skill; while conversely, the externally oriented individual believes that such reinforcements are determined by forces independent of his own behavior, such as fate, chance, luck, or other individuals. Populations like the culturally disadvantaged, the ill and disabled, the prisoner and juvenile delinquent often perceive their reinforcements as being controlled by external forces like fate, luck, and powerful others (Coven, 1970). The "external control" orientation has been deemed partly responsible for their lack of goal striving and apathy (MacDonald, 1971, p. 113).

If an external control orientation restricts the

adaptive activities of an individual, then it would seem highly desirable in our society to understand sources of control orientation and the operations for altering such orientations. Maintenance of stability in locus of control, as the older adult makes the transition from the status of worker to that of retiree in the later years of the life cycle, would appear to be beneficial.

Most of the research to date has been concerned with demonstrating the utility of the internal-external control construct. Investigators have focused on predicted group differences or responses to tasks described as more or less controllable. Few studies have focused on attempts to alter external control related behavior. While the literature offers much evidence regarding the effect of situational factors on one's expectancy of reinforcement, little emphasis has been placed on situational factors as they may affect the individual's expectancies regarding locus of control.

Research indicates that expectancy levels can be raised by providing success experiences. For instance, Reimanis and Schaefer (1970) found that after administration of a special program of student counseling and achievement motivation, scores obtained by students on the Rotter Locus of Control Scale changed significantly from external to internal control. In another study, White (1972) found that belief in locus of control could be altered in young boys by arrangement of appropriate environmental conditions.

Investigation aimed at identifying the kinds of

programs and techniques that are most efficient for raising expectancy levels are needed. Such efforts directed toward the aged segment of our society would seem to be pertinent.

Assumptions

The major assumption of this study is that middle age is a period when the individual normally reaches his peak of authority and prestige. With the onset of retirement, the aging adult experiences "loss of controls" (i.e., loss of autonomy) due not only to physiological decline, but also because of socioeconomic discrimination. Therefore, the transition from the status of autonomous adult worker, regardless of sex, to that of retiree is often characterized by changes in locus of control from an internal orientation to one of externality. Needs for personal recognition, social status, human companionship, and usefulness sought and achieved through parental and work roles are common to both sexes. There appears to be some evidence that the individual's concept of himself does change through the adult years (Meltzer, 1965; Shostrom, 1967). The individual feels himself to be oriented outward toward the environment during the first two thirds of the life span, but during the last third, turns more inward toward the self. Sometime during middle age the ego structures itself and becomes more concerned with mastering itself, rather than the outside world (Birren, 1964). Change in locus of control (in either direction along the continuum from internality to externality) negates a positive adjustment in

the retirement period, thus preventing maximum life satisfaction in the aging period of the life cycle.

Statement of the Problem

The problem involved in this research was to study the effect of situational factors (i.e., skill versus chance tasks) on one's expectancy of reinforcement (i.e., whether he expects to succeed or fail on successive trials) as related to changes in posttest locus of control scores. This research then explored the relationship between expectancy changes and situational variables, and in addition, using older adult white females as subjects, made a preliminary effort toward determining whether or not intervention can lead to the generalized expectancy that the older person controls his destiny and is responsible for reinforcements.

Hypotheses

The following hypotheses were tested in order to investigate the problem cited above concerning the situational determinants of expectancy changes among older adult white women.

Locus of Control

1. There will be a decrease in locus of control scores under the experimental conditions of internal-skill and external-skill. The experimental conditions of internal-chance and external-chance will not produce changes in locus of control scores.

2. Changes toward the internal direction of locus of control following a skill-task situation will be greater than changes following a chance-task situation under both conditions of internal and external locus of control.

3. Changes toward the internal direction of locus of control will be greater for subjects classified as having a high degree of internal control than for those classified as having a high degree of external control under the condition of skill and chance tasks.

4. The interaction between the independent variables--skill and chance tasks, and internal versus external status--will not be significant.

Usual Shifts

1. Usual shifts will be greater in a situation generally categorized by a subject as being a skill, rather than a chance, task condition.

2. Usual shifts will be greater among subjects classified as having a high degree of internal locus of control than in subjects having a high degree of external locus of control status.

3. Differences in usual-shift scores as a result of performance of a skill or a chance task will not be dependent upon the degree of internal or external control status of subjects.

Definitions

The internal versus external locus of control construct, originating from Rotter's (1954) social learning theory, refers to the degree to which an individual feels that he has control over the reinforcements that occur relative to his behavior. Those individuals who tend to feel that they control their own destiny and are effective agents in determining the occurrence of reinforcements are referred to as internals. Those individuals who tend to see forces beyond their control as being essential factors in determining the occurrence of

[1]Usual shifts refer to increments in expectancy after success, and decrements after failure (Phares, 1957, p. 339). Increments and decrements in expectancy were indicated by the subject's estimate, on the 0-10 scale, of his ability to succeed at future task-trials.

reinforcements (such as fate, chance, powerful others, the complexity or unpredictability of the world, etc.), are referred to as externals. Thus, the locus of control concept refers to a continuum of individual differences that presumably cuts across specific need areas and is regarded as a generalized expectancy.

A series of investigations (Holden & Rotter, 1962; James & Rotter, 1958; Phares, 1957, 1962; Rotter, Liverant, & Crowne, 1961) demonstrated that the perception of a situation as controlled by chance will lead to predictable differences in behavior, in comparison to situations where a person feels that reinforcement is controlled by his own behavior. In accordance with this premise, a skill task is characterized by the fact that correct or incorrect performance depends solely upon the subject's own ability. A chance task is one wherein the subject perceives the task as so difficult that being right or wrong is a matter of luck.

Limitations

The only significant limitation for this research was related to sampling. Only older white females, who had reached at least the age of 60, were selected as participants. Initial contact with individuals was made on the basis of their availability through affiliation with the Senior Citizens[1]

[1]The Senior Citizens Organization is a national organization composed of older adults, at least 60 years old, who share common interests and goals related to their achievement of personal fulfillment during this stage of the life cycle.

organization in Greenville, North Carolina. Friends and relatives who were not members of the organization were invited to participate in this research. Also, occupants of the Kinston Hotel--a housing complex for older adults--in Kinston, North Carolina, participated as subjects.

Generalizations from this research to larger populations should be possible for several reasons. Participants in this research included both members and non-members of the Senior Citizens group. The transition into retirement status demands adjustment by both sexes even though both may not have experienced employment outside of the home. Social forces, experienced particularly during retirement, exert an impact on both sexes.

CHAPTER II

REVIEW OF LITERATURE

In the first expository paper dealing with the control dimension (Rotter, Seeman, & Liverant, 1962), the locus of control construct was described as distributing individuals according to the degree to which they accept personal responsibility for what happens to them. Rotter (1966) further defined internal control as involving one's belief that rewards follow from or are contingent upon his own behavior while external control is the belief that rewards are not controlled by one's self, but by outside forces regardless of his own actions.

Phares (1957) first developed a test of internal-external control as a part of his doctoral dissertation, and James (1957) enlarged and improved it. More recently, Rotter, Seeman, and Liverant (1962) extended it into its present forced-choice scale. Rotter (1966) developed and published a final 29-item version of the I-E scale which is used in this research. Since 1966, there have been several different I-E scales developed including three children's scales.

A recent bibliography of studies of internal versus external control contained over 300 references (Throop & MacDonald, 1971). Since Rotter (1966) provided his discussion of the relevant literature, the number of articles on I-E has more than doubled. The types of research conducted

in this area are wide and varied, almost to the extent of making a coherent review of the literature seem impossible. Basically, two approaches have been followed in studying perceived locus of control. One emphasizes specific, situation-bound expectancies which are usually determined by instructions in a given situation or task. The second approach focuses on generalized expectancies as measured by scales or behaviors related to the control dimension (Lefcourt, 1966).

To facilitate clearer understanding, the literature reviewed will be subdivided into five categories according to the major areas of research related to (a) Task Structure, (b) Internal-External Control as an Interpersonal Variable, (c) Modification of Internal-External Control, (d) Age Correlates of Internal-External Control, and (e) Antecedents of Internal-External Control.

Task Structure

The earliest published report of task structuring of control from a social learning theory framework is that of Phares (1957). His research indicated that one's performance level is different when he believes skill controls the outcome than when he feels that chance controls the outcome. People who believe that skill controls outcome are likely to use past experiences in making decisions and changes, while those believing that chance determines outcomes are likely to make unusual random changes.

In another study of this nature, James and Rotter (1958)

investigated the effects of 100 percent reinforcement scheduling upon rate of extinction in skill versus chance task situations. They found that in cases where subjects were told that their performance was determined by skill, the usual superiority of partial reinforcement for resistance to extinction was not obtained. Indeed, in these skill situations, the 100 percent reinforcement schedule led to less rapid extinction than the partial reinforcement scheduling. In cases where subjects were told that their performances were determined by chance, the findings were typical of prior partial reinforcement studies. These findings are explained on the basis that in chance situations, the change from 100 percent to 1 percent reinforcement clearly denoted a change in the situation. Consequently, extinction or change in behavior is rapid. On the other hand, the partially reinforced chance condition does not allow for the perception that the situation has changed. Thus, extinction is more gradual until the change becomes apparent to the subject. Under skill conditions, subjects would be likely to explain the non-reinforcement extinction trials as a result of their own lack of skill and would thus continue to work--taking longer to extinguish. This study helps to demonstrate the importance of the subject's internal or external orientation in performing tasks.

The James and Rotter study was extended by Holden and Rotter (1962) to test whether previous findings on schedules of reinforcement would hold true if a motor response was required rather than a verbal statement. Following the same

format as James and Rotter, Holden and Rotter found that subjects who were told that skill controlled their performance took longer to extinguish than did chance subjects in the partial reinforcement situation even when they were required to make motor responses rather than verbal statements.

Rotter, Liverant, and Crowne (1961) sought to replicate the James and Rotter findings without using differentiated instructions as the experimental manipulation. The results strongly supported the hypothesis that greater increments and decrements in verbalized expectancies would be found under skill conditions and that extinction of expectancies under continuous negative reinforcement reverses under chance and skill conditions. They also found that if the subject regarded success in the particular task as determined by luck, chance, or external control, his expectancies for future positive reinforcement would (a) rise less after positive reinforcement, and (b) fall less after negative reinforcement.

Blackman (1962) studied the conditions affecting subjects' perceptions when he used the finding that under chance conditions extinction in a 50 percent reinforcement sequence is likely to be considerably longer than under skill conditions. He used numerous sequences of supposedly randomly appearing lights, controlling for reinforcement. His main hypothesis was that long or patterned sequences would lead a subject to believe that predictions of events could be made depending upon his skill to comprehend the pattern, whereas short sequences would lead the subject to perceive the pattern

as unpredictable. Results enabled Blackman to state that when a subject perceives that he is able, through some act of his own, to predict the events occurring in a given situation, he becomes more accurate in his perception of changes in that situation. In another experiment, Phares (1962) studied perceptual thresholds for shock-associated stimuli in chance and skill situations. He tested the hypothesis that when escape from a painful stimulus was possible only on a chance basis, the difference between pre- and post-experimental recognition thresholds for shock-associated stimuli would be smaller than where escape depended on the subject's ability to perceive the same stimuli. Phares found that subjects who felt that they had control of the situation were likely to exhibit perceptual behavior that would better enable them to cope with potentially threatening situations than subjects who felt chance or other noncontrollable forces determined whether or not their behavior would be successful.

Gold (1966) designed an experiment to check some of the findings of the aforementioned studies. An attempt was made to predict choice between a skill and a chance task on the basis of scores on the I-E scale. Ninety-nine students scoring in the extremes of the range of scores were placed in a choice situation for performing a task (skill or chance). Expectancy for success was the same in both the chance and the skill task; thus, no relationship was found to exist between I-E scores and choice of skill or chance tasks. In another study (Schneider, 1968) it was found that locus of control

does influence one's preference for skill or chance tasks, but only if the task to be performed is perceived by the subject as one properly performed by his sex (masculine or feminine task--male or female subject).

Watson and Baumal (1967) have stated that internals do less well on chance than skill tasks because they are motivated to do well on the latter. In the chance situation, where subjects cannot depend on themselves to do well, the resulting anxiety hinders their functioning. On the other hand, social learning theory states that these differences in choice of tasks have greater reinforcement value for internally and externally oriented persons respectively. Petzel and Gynther (1970) sought to clarify the issue by employing a problem-solving task rather than a paired-associate learning task, thereby reducing the performance deficit effect of "anxiety" on complex learning which may have operated in Watson and Baumal's study. Results contradict the explanation of social learning theory. Externals were found to solve more problems under skill than chance instructions. Perhaps these differences are a result of different experimental procedures used by various researchers. First, the I-E scores for Rotter and Mulry's (1965) internal-external samples were quite different from the scores used by Watson and Baumal (1967) or Petzel and Gynther (1970). Second, Rotter and Mulry's experiment used verbal feedback from the experimenter, but Petzel and Gynther required personal awareness from the subjects. It has been found that internals behave quite differently from

externals in interpersonal situations (Gore, 1962; Levy, 1967) requiring personal involvement than they do in situations not requiring personal involvement. Thus, much of the discord about the role of locus of control in chance and skill situations may be the result of divergent experimental procedure.

The importance of subjects' perception, attention, and awareness as a function of locus of control in performing tasks has generally been supported (Lefcourt, Lewis, & Silverman, 1968; Rothchild & Harowitz, 1970), with internally oriented subjects proving to be more perceptive (Lefcourt & Wine, 1969; Ude & Folger, 1969).

Other studies involving task functioning and performance indicate that in problematic situations, internally oriented subjects ask significantly more task-relevant questions and utilize the acquired information more effectively than those subjects who are externally oriented (Davis & Phares, 1967; Phares, 1968; Gale, 1970). In situations requiring decisions to be made, Julian and Katz (1968) reported that internal subjects show a distinct preference for self-reliance in both skill and chance defined conditions. This tendency was in marked contrast with externally controlled subjects who were more prone to rely on their supposedly more competent partners in both conditions. The finding that internal subjects tend to rely on themselves, while externals defer to others, supports earlier findings by Crowne and Liverant (1963), who found that external subjects bet less money (an expression of less confidence) on task trials when they had

to make independent decisions as compared with trials where they yielded to others' decisions.

The above studies indicate that internal subjects are more likely to be self-reliant and benefit from greater opportunity for control. Julian and Katz (1968) also reported that internal subjects take longer to make decisions as those decisions become more difficult to make. In contrast, external subjects exhibit little difference in time expended between easy and difficult choices. This report supports earlier findings of Rotter and Mulry (1965) who found that internally controlled subjects take a longer time to make decisions in tasks construed as skill-determined than in those viewed as chance-controlled.

Lefcourt, Lewis, and Silverman (1967) attempted to replicate and expand slightly upon the results reported by Rotter and Mulry (1965). They found that the subject's perception of the task, regarding its skill or chance determination, had to be taken into account in order to obtain previous predicted differences. Previous research indicated that internal and external subjects differed in the value placed on the same reward, depending upon whether it was perceived as contingent upon chance or skill. Internal subjects appeared biased toward accepting skill directions and rejected those of chance.

In summary, there have been a great many studies conducted in the area of I-E as related to task structure. Specific task expectancies have been created through the use of

two conditions. In the first condition, the same task has been described as requiring skill or as being chance determined, with the task set up in such a way that either interpretation would be possible. In the second condition, autonomous circumstances have been created which produce the illusion of possible control.

The results of these studies indicated that an individual's behavior varied depending on whether he perceived the task as skill- or as chance-determined. Subjects who felt they had control of the situation were likely to learn more and to exhibit behavior that would better enable them to cope with a particular situation than would subjects who felt chance or other non-controllable forces determined whether or not their behavior would be successful.

Internal-External Control as an Interpersonal Variable

As described in the preceding section, individual behavior varied considerably in different laboratory tasks depending upon whether the tasks were perceived by the subject as being controlled by skill or by chance. This characteristic behavior refers to whether individuals perceive reward in a large variety of situations to be the function of external forces or of their own behavior or attributes. As mentioned previously, Rotter's I-E scale (1966) was developed to measure such a generalized characteristic. Since the development of his scale, many researchers have attempted to show that the locus of control variable would be an effective

predictor for a wide variety of behaviors.

An external orientation might predispose one to be more sensitive to the reactions or demands of outside agents, especially those in status positions (MacDonald & Hall, 1969, 1971; Ritchie & Phares, 1969). MacDonald and Hall (1969) found that locus of control and rating of the seriousness of emotional disorders were significantly correlated; that is, emotional disorders were seen as more debilitating by internally oriented subjects. This notion was based upon the supposition that emotional disorders imply a loss of inner control. This loss of inner control should be more threatening to internals who believe they have such control to lose. MacDonald and Hall (1971) received support for a second hypothesis stating that among nondisabled college students, externals would rate physical disabilities as more debilitating to themselves personally and socially than would internals. Along the same lines, Ritchie and Phares (1969) found support for their notion that externals would yield more to the influence attempts of high-status individuals than they would to low-status individuals. In their experiment, communications which were identical, but which were attributed to either high- or low-prestige sources were presented to internal and to external subjects. The differential patterns of attitude change evidenced by internal and external subjects were attributed by the authors to differences in their expectations for reinforcement or to differences in reinforcement value. Hjelle and Clouster (1970) found that external subjects, as compared to internal subjects,

manifested greater attitude change when exposed to standard communications advocating positions contrary to their pre-established attitudes.

One set of research findings with the control dimension involves the predictions of externality in known ethnic groups (Lefcourt, 1966). From the assumption that social disadvantage and minority group membership offer obstacles to advancement, several studies have linked locus of control to race and socioeconomic status. Blacks have been found to hold more belief in external locus of control than whites (Lefcourt & Ladwig, 1965, 1966; Owens, 1969; Zytoskee, Strickland, & Watson, 1971).

In one study, Indians were found to be more external in their beliefs than whites (Graves, 1961). Lefcourt and Ladwig (1965, 1966) successfully predicted higher external-control expectancies among Negro than white prison inmates (most of whom were from low socioeconomic backgrounds). Graves (1961) studied ethnic differences in a tri-ethnic community of whites, Indians, and Spanish-Americans. Of the three groups, the whites were the least external and the Indians were the most external in attitudes. Furthermore, Battle and Rotter (1963) demonstrated that lower-class Negro children were significantly more external in attitudes than were lower-class whites or middle-class Negroes and whites. Shaw and Uhl (1969) found Negroes to be more external in attitudes than whites within an upper-middle-class sample of

elementary school children. Shaw and Uhl, however, found no differences between racial groups within the low socioeconomic level. Battle and Rotter found that racial differences in I-E were diminished when social class was controlled.

Apart from racial differences and interaction of race with social class, studies have demonstrated control orientation differences by social class alone. Several investigations have revealed that children from low socioeconomic levels have greater external scores than children from higher social class levels (Battle & Rotter, 1963; Crandall, Katkovsky, & Crandall, 1965; Shaw & Uhl, 1969). Minority group membership and low social-class level appear to be conducive to the development of a low expectancy for success. Although the writer is not aware of studies showing similar differences among adults using traditional locus of control measures, there is evidence that social scientists believe that feelings of powerlessness are characteristic of the poor (Chilman, 1966; Irelan, 1968).

There exists some evidence to support the suggestion that persons who are high in perceived internal control are also more likely to seek to act upon their environment. Gore and Rotter (1963) have demonstrated that those individuals who are inclined to see themselves as determiners of their own fate tend to commit themselves to personal and decisive social action. In their study, they found that southern Negro college students who scored highest on the internal dimension of the Rotter I-E scale were significantly higher in their response

to an appeal to participate in a civil rights demonstration than were those students scoring low on internal causality. Strickland (1965) also found that Negro participants in the civil rights movement scored significantly higher on the belief in internal causality measures than did a control group of Negro students.

Several studies have investigated the importance of locus of control and interpersonal behavior by attempting to find personality correlates of I-E. The relationship between personality adjustment and I-E appears to be curvilinear, with extreme "externals" appearing less adjusted (James, 1957). In a later study, Lefcourt (1966) reported a study by Butterfield (1964) in which external subjects were more anxious, more suffering, and more concerned about failure. Feather (1967), Platt and Eisenman (1968), and Ray and Katahn (1968) also found a tendency for external subjects to be relatively high in anxiety and neuroticism.

In his study correlating anxiety and neuroticism with externality, Feather (1967) noted that several sex differences were obtained in relationships between variables, particularily those involving social desirability. He found a negative correlation between belief in external control and social desirability (as measured on a "social desirability scale") for females as predicted. These findings were not found for males. Belief in external control was positively correlated to debilitating anxiety as predicted for males, but not for females. Eisenman and Platt (1968) and Platt and Eisenman

(1969) also found sex differences in working with I-E. These findings suggested that the sex of subjects might be an important variable in locus of control.

Locus of control with reference to pathological populations has also been investigated. In a study comparing schizophrenics and normals, Cromwell, Rosenthal, Shakow, and Kahn (1969) found schizophrenics to be significantly higher in externality than normals. This finding was also obtained by Shybut (1968) and Roseman (1969). Bialer (1961) found schizophrenics to be significantly higher in externality than normals. Williams and Nickels (1969) found support for their hypothesis that externally oriented subjects generally scored higher on the suicide potentiality scales than internally oriented subjects.

A final line of research relating pathology and I-E has been concerned with the manner in which a person approaches his problem in therapy. More specifically, it has been concerned with whether one sees his problems stemming from his own acts, feelings, and contributions to his problems--internalization--or whether he sees his problems as situational, and himself a victim of environment or circumstances--externalization (Pierce, Schauble, & Farkas, 1970). The research to date has indicated that clients who began therapy as internalizers were more likely to be judged as having a successful therapy experience than were externalizers (Farkas, 1969; Perry, 1969).

To summarize, I-E has shown relationships to a variety

of behaviors. External subjects have been shown to be more conforming and more sensitive to the reactions of others than internal subjects. Minority group membership and low social class level appear to be conducive to the development of external control. External subjects appear to be less politically or socially active. The mentally retarded, and the physically disabled are groups identified as possessing external control orientations.

Modification of Internal-External Locus of Control

Lefcourt (1966) concluded his review by indicating that research concerning sources of control orientations and the operations for altering such orientations was sorely lacking. Most of the research in this area has concentrated on establishing the appropriate environment or situational conditions to enable subjects to experience success through their own efforts or abilities.

Several studies which experimentally manipulated I-E have implications for enduring changes in control. In the context of a game against a white opponent, Lefcourt and Ladwig (1965) told highly external Negroes they were being studied as "jazz musicians." The Negroes persisted in competing despite continuous losses, while two control groups not given the same set failed to show the same persistence. The Negroes persisted because they had been previously successful in the area of jazz. Lefcourt and Ladwig believe that external control expectancies could be altered if new goals are

cognitively linked to the individual's prior successes. The study suggested that attempts at altering I-E should make use of an individual's history of reinforcements.

In a second study, Lefcourt (1967) gave directions which varied in number of cues utilized in defining the reinforcements which were available in a level of aspiration task (Rotter's Level of Aspiration Board). The external subjects increased in internal behavior as measured by appropriate patterns on the level of aspiration task. The internal subjects did not vary their aspiration behavior as a result of the different cue conditions. The increased availability of cues regarding reinforcement possibilities successfully altered external-control expectancies. This finding raised the possibility that a lack of goal-striving behavior might be more adequately predicted on the basis of cognitive and perceptual deficiencies than from a lack of motivation. Lefcourt concluded that external subjects were less aware of cues which could inform them of the probability for success experiences in different situations.

Feather (1968) demonstrated that task performance is related to locus of control but is more heavily influenced by a history of success and failure. He reported typical changes in confidence following success and failure for internally and externally oriented subjects under skill conditions. As a "test of their verbal intelligence," subjects who differed in locus of control were required to solve 5 easy anagrams

(success condition) or 5 very difficult anagrams (failure condition) before attempting to answer 10 common anagrams of moderate difficulty level. It was found that internal subjects made more typical changes in confidence than external subjects over the entire 15 trials. Typical changes were defined as upward shifts after success and downward after failure. Feather explained this finding in that internal subjects perceived themselves as having control over their reinforcement outcomes in the situations, and they could rely on their previous experiences in similar situations to anticipate outcomes on the presented task. Furthermore, internal subjects could also use their present task experiences on each trial as a means of anticipating outcomes on the next trial. On a strictly chance-determined task, reliance on previous experiences would presumably not be helpful in anticipating success or failure outcomes because these outcomes would occur randomly (Phares, 1957). Previous research (Feather, 1966; Feather & Seville, 1967) had also indicated that subjects who experienced initial success on a task involving the use of individual skill were more confident than subjects who experienced initial failure.

Results from two studies indicated that success in coping with difficulties would change one in the direction of more internal control orientation (Gottesfeld & Dozier, 1966; Levens, 1968; Bilker, 1970). In her study of welfare mothers who were members and nonmembers of a welfare client organization, Levens (1968) presented evidence which indicated that

affiliation with the organization greatly increased political activism on the part of the members and reduced their feelings of powerlessness. Another study (Gottesfeld & Dozier, 1966) observed indigenous people who were trained and returned to work in poverty areas as community organizers. Significant support was obtained for the hypothesis that community organizers who had been trained and had been working would feel less external than those who were still in training. Bilker (1970) found that participation in an educational program was effective in changing indigent mothers' locus of control expectancy in an internal direction. More recently, counseling sessions and special training programs have been successful in altering I-E (Coven, 1970; Masters, 1970). Coven (1970) was successful in increasing the internal control of subjects through verbal reinforcement counseling. Masters (1970) used counseling sessions and behavior assignments to alter an adolescent's locus of control.

A fortuitous finding by Gorman (1968), which did not stem from use of a design involving pre- and posttest measures, suggested that mean I-E scores for a group of 62 college men and women became significantly more external following their disappointment in selection of a presidential candidate in the National Democratic Convention. The major implication of research by Pierce and Schauble (1970) was that client behavior on the dimension of I-E can be positively changed with brief, straight-forward intervention.

Gillis (1970) investigated the hypothesis that

succesful psychotherapy should be characterized by a lessened sense of alienation; that is to say, an increased belief in internal control. The posttest mean I-E score for 13 patients who had received from 9 to 11 therapy sessions was significantly different from the pretest mean; scores changed in the direction of internality.

White (1972) designed a study to compare experimentally the effects of three sources of evaluation of the performance of school children upon the development and long-term maintenance of belief in internal control. Forty-five boys enrolled in the North Carolina Advancement School participated in this experiment for 16 weeks. The three sources of evaluation were self, peers, and adults. The overall results indicated that belief in internal control could be altered in young boys by arrangement of appropriate environmental conditions. Placement of young boys in a nonthreatening environment that permits them to practice self-evaluation of their own performance or to have adult evaluators who are positive and reassuring appeared to be a promising approach. However, the use of peer evaluation with young boys resulted in a lowering of the belief in internal control.

A study by Smith (1970) examined Rotter's I-E scale in relation to life crisis and crisis resolution. It was hypothesized that crisis patients, overwhelmed by external forces in their lives, would initially be more externally oriented than a similar group of non-crisis outpatients, but would show a significant shift toward the internal end of the

dimension following a six-week crisis resolution period. The non-crisis patients, it was predicted, would show no significant I-E shift. The results were consistent with this hypothesis.

To summarize, there has been very little research in the area of modification of I-E. The research that has been carried out suggests that I-E can be modified. This alteration can be accomplished through the appropriate environmental or situational conditions such as explicit cues for reinforcement opportunities and success experiences in a skill task.

Age Correlates of Locus of Control

Several studies have investigated the relationship between I-E and age. For the most part, these studies have utilized children for subjects, although a small number of more recent studies have included adolescents and adults as subjects in studying age correlates of locus of control.

Using children as subjects, in a study designed to set forth and test a formulation of success-failure conceptualization, Bialer (1961) hypothesized that with increasing age, there should be a significant trend in locus of control toward internality. His hypothesis was based on the theory that with development of mastery over his environment, the child should become more likely to view his experiences as internally controlled, that is, as consequences of his own behavior. In testing his hypothesis, Bialer administered the Bialer's Children's Locus of Control Scale (BCLC) to 44 children ranging

in age from 6 years, 3 months to 14 years, 3 months. The results of this study indicated that, indeed, with increasing age, there was a significant tendency among the subjects to perceive internal locus of control. In a later paper, Penk (1969) replicated Bialer's study. Using subjects from middle income families, Penk administered the BCLC to five groups of children, aged 7 to 11 years. The results of Penk's study are consistent with the developmental hypothesis proposed by Bialer. In other words, internality increases with age and environmental mastery.

In a study by Riedel and Milgram (1968) utilizing the Battle-Rotter Scale (1963), support was found for the developmental progression using 6 to 12 year old children as subjects. In a later study, Milgram (1971) administered the BCLC to 80 children, 20 each in grades 1,4,7, and 10, with mean ages of 6 years, 9 months; 9 years, 9 months; 13 years, 2 months; and 15 years, 7 months. The results of this study indicated a significant increase in internal locus of control from grade 1 to grade 4, and from grade 7 to grade 10. Milgram suggested that such age-related increments in internal locus of control were consistent with the formulation that children become increasingly cognizant of their own behavior as being instrumental in bringing about desired consequences. Bartel (1971) found similar results using the BCLC. In a study using 6 to 12 year old children from middle-class families, Bartel found a modest increment in internality from grades 1 to 6. These findings further support a developmental hypothesis.

In a study utilizing older subjects, Distefano, Pryer, and Smith (1971) administered Rotter's I-E scale to 240 randomly selected adolescents from grades 8 to 11 in a public school system. The mean ages for the four groups were 13 years, 9 months; 14 years, 6 months; 15 years, 5 months; and 16 years, 4 months. Analysis of the data revealed a significant linear relationship between age and I-E. Each higher grade was significantly more internal than the previous one, with the eighth graders being least internal and the eleventh graders scoring most internal of the four groups of children.

Although the relationship between age and I-E has been well documented with children, only two studies have investigated this relationship using adults as subjects. In a study utilizing 95 males and 118 females, with a mean age of 40 years, and a range of 19 to 59 years, Lichtenstein and Keutzer (1957) found a small but significant positive relationship between internality and age. However, the data were not analyzed to determine specific differences in age correlates. In another study utilizing adults as subjects, Distefano, Pryer, and Smith (1971) administered Rotter's I-E scale to 40 psychiatric attendants whose ages ranged from 18 to 51 years, with a mean age of 32 years, 1 month. The adult group was found to be significantly more internal than the oldest adolescent group of eleventh grade students.

The available literature on age correlates of locus of control gives evidence for a developmental hypothesis. The literature shows that internality increases with age for

children and adolescents, and that adults tend to be more internal than adolescents.

Antecedents of Internal-External Locus of Control

Limited research has been done to investigate the origins of I-E control orientations. Most of the investigations concerned with determining antecedents of locus of control have concentrated on the parent-child relationship, although one study (Bartel, 1970) examined the effects of a child's school experience on development of I-E.

Bartel (1970) designed a study to investigate children's beliefs about their ability to control their environment when they first entered school, and periodically thereafter. Bartel hypothesized that an interaction existed between locus of control and social class of the subjects, with differences in scores between lower- and middle-class subjects being insignificant in the early school grades, but becoming significant as the children progressed through school. The Bialer's Children's Locus of Control Scale was administered to grades 1,2, 4, and 6. Lower- and middle-class children did not differ significantly from one another on locus of control in grades 1 and 2, but by grades 4 and 6 the differences had reached significance. Bartel explained that the results stressed the importance of school experience in the development of I-E since there appeared to be no difference in I-E between social classes at the time of starting school. Bartel suggested that certain aspects of the school were contributors to this

difference. These factors included excessive teacher insistence on conformity, encouragement of dependence upon others, and teacher expectations for low achievement, if one happens to be perceived as lower class. Any one, or all, of these factors might put the lower-class child in a vortex of conflicting beliefs and expectations.

Research with children has indicated that beliefs in internal control are well established during childhood and change little from the third grade through the twelfth grade (Crandall, Katovsky, & Crandall, 1965). It might be expected, therefore, that some important antecedents of control orientations are to be found in parent-child relationships. This last statement seemingly is contrary to the findings of Bartel (1970) that school experience plays an important role in the development of I-E. Both parent-child relationships and school experience probably play significant roles in determining I-E.

Chance (1965) and Katkovsky, Crandall, and Good (1967) have investigated the relationship between I-E, as measured by the Intellectual Achievement Responsibility Questionnaires, and the data obtained through questioning and observing parents. Both studies produced similar findings. Chance (1965) reported that maternal permissiveness, early independence training, and mothers' flexibility of expectations for their children were related to increasing internal locus of control of sons, but not of daughters. Correspondingly, Katkovsky et al. (1967) reported that girls whose fathers were especially affectionate and nurturant were less inclined to believe that

they had caused their own failures; their findings generally indicated that parental behaviors characterized as warm, praising, protective, and supportive were positively associated with children's belief in internal control. Conversely, such parental behaviors as dominance, rejection, and criticism were negatively associated with beliefs in internal control.

In contrast with the findings cited above (i.e., that internal beliefs are associated with parental warmth, parental permissiveness, etc.). Cromwell (1963) reported that adult males who perceived their mothers as protective were externally controlled. MacDonald (1971) obtained results that supported the seemingly contradictory findings of Chance (1965), Katkovsky et al. (1967), and Cromwell (1963). In a study using male and female undergraduates, MacDonald found that internal subjects described their mothers as (a) more nurturant, (b) having more predictable standards for their children's behavior, and (c) using more achievement pressure. The external subjects reported that their mothers were (a) more protecting, (b) inclined to use deprivation of privileges, and (c) more inclined to use affective punishment. MacDonald reasoned that the external subjects, in contrast with internals, described their parents as using techniques which were likely to give an impression that one's reinforcements are externally controlled; namely, overprotection, deprivation of privileges, and affective punishment.

In summary, results indicate that parent-child relationships and school experiences are extremely important antecedents

of locus of control orientations. Maternal permissiveness, early independence training, and mothers' flexibility of expectations for their children are related to increasing internal control of male offspring. External subjects' parents use methods which give the impression that one's reinforcements are externally controlled. School experiences of a child may be great enough to diminish or negate this effect of parent-child relationships.

Summary

Research findings from experiments and other investigations using measures of locus of control to make differential predictions of control-related behaviors have been reported. It can be concluded that perceived control is a useful variable, and, in relation to the types of experiments noted, may be related to problems such as psychopathology, apathy, and withdrawal phenomena.

The I-E scales have been used with apparent success in predicting complex behaviors. The success of a variety of techniques in measuring the control dimension provides support for the construct validity of the dimension.

While evidence is sparse, parent-child relationships and school experiences appear to be important antecedents of locus of control orientation. The literature on age correlates of locus of control shows that internality increases with age for children and adolescents, and that adults tend to be more internal than adolescents.

The origins and sources of control orientations and the operations for altering such orientations are two areas of interest related to locus of control which have not been investigated in depth.

CHAPTER III

THEORETICAL FORMULATION

The problem involved in this research, stated very simply, was to attempt to modify locus of control among older white women. For the purpose of this research, it was decided to use a specific, situational task in order to change locus of control. A game of skill was used as the task. The skill situation was characterized by the fact that the occurrence of a reinforcement was perceived as related to one's performance. Previous studies (Lasko, 1952; Phares, 1957) recognized a distinction between learning in situations where the effects following behavior were a function on one's own behavior and learning in situations where the reinforcement was controlled by someone else.

In a skill situation, the subject could see that, over trials, success and failure depended upon his ability to influence the outcome. Thus, it would seem reasonable to suggest that whether or not a situation was identified with internal control of outcomes would be an important factor governing the degree to which expectations could be modified by experience with a specific, situational task. Where success or failure could be attributed to skill rather than to chance, the subject's I-E score would change toward internality. As stated in the literature review, Feather (1966, 1967) cited data to support the above statement.

It was further proposed that the subject in the skill situation could perceive his performance as providing a basis for generalization to future performance. Since the subject was the effective agent in the situation, he could generalize from his experience to future experiences. Furthermore, his experience in a situation would give the subject successively more adequate conceptions of what to expect on subsequent trials. Phares (1957) documents this conclusion.

In addition to the game of skill, a game of chance was used as a specific, situational task, based on research by Rotter, Liverant, and Crowne (1961). For this research, the chance situation was characterized by the fact that the subject perceived his correct or incorrect response, not as a function of skill, but rather, as a function of luck. It was proposed by the experimenter that the subject's expectancies for future reinforcement were likely to change less when he regarded the occurrence of the reinforcement to be beyond his control. The experimenter predicted that under a skill condition, the subject would lower his expectancies more after failure and would raise them more after success than would subjects in the chance condition. This predicted difference between skill and chance situations would be the result of past reinforcement serving as a clear clue for future reinforcement when the subject believed that his own skill determined the outcome.

The purpose of the preceding paragraphs has been to demonstrate the validity of using a skill task in a specific

situational context to change one's locus of control towards internality. Up to this point, this study has considered only changes in I-E as a result of some specific situation. As stated previously, I-E has been conceptualized as both a situational variable and a personality variable. Since the literature has indicated clearly that internal and external subjects behave differently in identical situations, the personality variable was considered as another important factor. Because it appears that personality differences between internal and external subjects might be one factor in determining differences in expectancy changes following experience with skill or chance tasks--internal subjects making greater changes in expectancy than external subjects and likewise, external subjects making fewer changes in expectancy (Feather, 1966, 1968)--subjects were assigned to treatment groups on the basis of their pretest I-E scores.

This investigation was also based on the social learning theory (Rotter, 1954) that an external subject is externally oriented because he has more past experiences in which he has had little or no control and that an internal subject is internally oriented because he has had more past experiences where he felt he had control. The use of another specific situation--the skill task--even though it was one in which the subject was made to feel he had control, probably would not have the same effect on the external subject as on the internal subject. This experience would have less effect on the external subjects because it was not congruent with the external subject's past

experiences. Feather's studies (1966, 1968) support this point of view.

Additionally, if a person had a general belief that certain events and consequences would result regardless of his behavior, then he would be less aware and less ready to make use of any cues that might help him achieve his goal. The lack of effort in attempting to change an event would deprive one of the experiences which might be necessary for success in affecting that event. The external subjects should fail to maintain the kind of internal dialogue that would facilitate the categorizing of the situations so that the opportunities for reinforcements in different situations could be more self-evident. Lefcourt (1967) cited data to support the above reasoning. Furthermore, it was hypothesized that internal subjects would appear to be more ready to believe that task outcomes were controllable, while external subjects, on the other hand, would have a lesser tendency to actively consider themselves the possible cause of success in a given task. Lefcourt, Lewis, and Silverman (1967) obtained results to support the above proposition.

There should be no change in locus of control for either internal or external subjects in the chance task. As stated previously, expectancies for future reinforcements would be less likely to change when subjects regarded the occurrence of the reinforcement as beyond their control.

In summary, the purpose of this research was to test the hypothesis that a skill task would enable the subject to

view his own personal efforts rather than chance or luck as responsible for his success or failure. This awareness of personal control (internal control) should, in turn, be reflected in the changed posttest I-E scores (toward internality). Conversely, the subject exposed to a chance task would be less likely to view his efforts as responsible for his success and failure. This awareness of forces beyond his control (external control) should, in turn be reflected in non-significant variation in I-E scores from pre- to posttest measurement.

CHAPTER IV

PROCEDURE FOR THE STUDY

Subjects

The subjects who participated in this research were older white women who had reached at least the age of 60. They were selected from a Senior Citizen's group in Greenville, North Carolina, from friends and relatives of the group members, and from a housing complex for older adults in Kinston, North Carolina. Sixty subjects were selected on the basis of their performance on the I-E scale, so that there were 30 whose scores were low ("internals,") and 30 whose scores were high ("externals"). For this study, internals were selected from the available population who scored at least one standard deviation above the mean of the distribution of scores represented by this group of women, and externals, at least one standard deviation below the mean. Approximately 150 women were tested in order to secure the desired sample. Those scoring within the designated ranges were chosen and randomly assigned to one of two treatment groups. Group I consisted of 30 subjects (internals) who were randomly divided to participate in either the skill or the chance task sessions (Table 1, page 46).

Instruments

Rotter's I-E Locus of Control Scale (1966) was used for measurement of locus of control. This is a forced-choice

TABLE 1

Classification of Subjects in Each Experimetnal Group

I-E Group	Number of Subjects in Treatment I (skill-task)	Number of Subjects in Treatment II (chance-task)
External	15	15
Internal	15	15
Total	30	30

instrument which consists of 29 pairs of statements, 23 of which are scored, each alternative keyed to belief in either internal or external control of reinforcing events on the part of the subjects. A high score indicates a belief in external control (luck, chance, others, etc.). A low score, on the other hand, indicates a belief in internal control (events are viewed as products of one's own actions, capacities, or traits). Regarding reliability of the instrument (Rotter, 1966), internal consistency estimates are relatively high as indicated by Kuder-Richardson reliability estimates of .70 and Spearman-Brown estimates of .79. Test-retest reliability correlation coefficients for a one-month period are .72 and .78 for two different groups. The following questions serve as representative items from the Rotter I-E scale:

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.

The underlined item indicates that an answer of "yes" is scored as external control. An answer of "yes" to items not underlined is scored as internal control. (See Appendix A for the Rotter Locus of Control Scale.)

Tasks

A. Marble

Materials for this task consisted of a 6 x 12-inch wooden board in which rows of marble-sized holes were drilled (see Figure 1, page 49). Thirteen multi-colored designs to be replicated with marbles on the board were drawn on $8\frac{1}{2}$ x 11-inch graph paper (see Figure 3, page 50). For each separate pattern design, 10 marbles were required for completion; a container of the designated colors of marbles was provided.

B. Block

For this task a 6 x 12-inch board (the reverse side of the marble board described above) was used as a base for mounting 1-inch wooden cubes (see Figure 2, page 49). The six sides of each cube were painted different colors: black, white, red, blue, green, and yellow. Ten cubes were needed for this task. The same 13 multi-colored design patterns as described in the marble task were used in this task which required the use of wooden blocks instead of marbles. From the 13 design patterns, four were selected for use as "mistakes" when failure was to be controlled by the experimenter. (See Table 2 for the Sequence of Reinforcement, page 48.) For these four designs, there was an alternate design-pattern which had one alteration to be used

TABLE 2

Sequence of Reinforcement

Trials												
1	2	3	4	5	6	7	8	9	10	11	12	13
x[a]	x	-[b]	x	x	-	x	x	x	-	x	-	x

[a]x refers to a positive reinforcement (correct matching); success.
[b]- refers to a negative reinforcement (incorrect matching); failure.

to show the subject his "mistake" on forced failures (see Figure 4, page 50). Controlled "failures" were necessary in order to have the same reinforcement effect for future expectancies for both treatment groups. After each trial was completed, the subject was asked to check his board carefully while the examiner called out the correct color sequence for that pattern. With the subject's attention focused on the board, reversal of the alternate pattern (for mistake trials only) without detection by the subject, making visible his "error," was not difficult.

Procedure

Directions

Two experimental groups were used for treatment sessions. Following a pre-arranged schedule, women were administered the Rotter (1966) Locus of Control Scale. Instructions were brief; the subjects were told to select the one

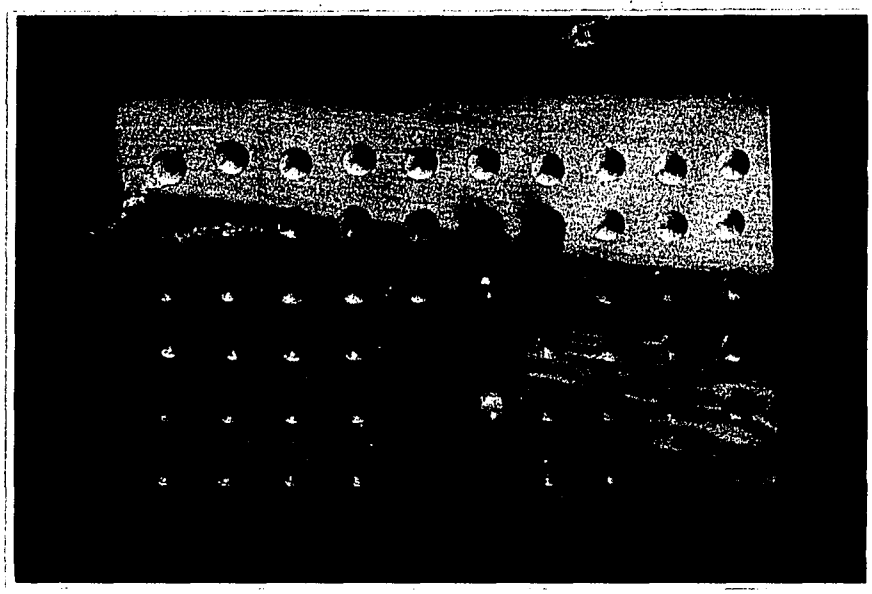

Figure 1. Marble Board

Figure 2. Block Board

Figure 3. Design Pattern

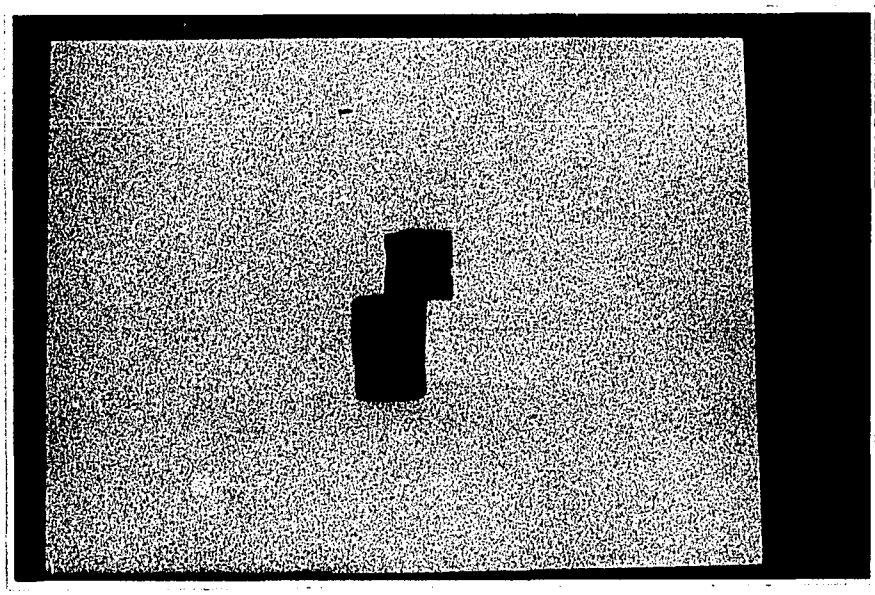

Figure 4. "Mistake" Design Pattern

statement of each pair which they more strongly believed to be the best one as far as they were concerned. The experimenter administered the test orally (encouraging the subject to "follow along" on his copy of the questionnaire) to individual subjects in their homes. The subjects were seen by the experimenter twice during a six-week period. During the initial visit, the experimenter explained to the subject the general purpose of the research. At that time, the pretest of the I-E scale was administered. After obtaining results of the pretest, subjects were selected on the basis of their scores and assigned to treatment groups.

Those subjects were visited the second time about one month to six weeks after the initial visit, following a prearranged appointment schedule. Subjects in Treatment I followed a procedure based on skill-task instructions (see Appendix B). They were asked to select the game (either marble or block) for which they felt they would have the most skill. Subjects in Treatment II, on the other hand, followed chance-task instructions. They were asked to select the game (either marble or block) for which they felt they would have the most luck. After selecting the game, subjects were told to copy the series of designs provided for them; they were asked to duplicate the designs as accurately as possible. It was explained that the experimenter would be keeping score and would inform them how well they did at the end of each trial when they had used all of the marbles or blocks provided for them.

Before each trial, the subject was asked to estimate

how well he felt he would do on each successive trial by selecting a number from 0 to 10; a lower number would indicate little confidence in successful completion of the next trial; a middle number indicated medium confidence; and a higher number indicated that the subject felt confident of successful completion of the next trial. After completion of all task trials, and after administration of the posttest I-E scale, subjects were told that the experimenter had manipulated the experimental situation in order to maintain the 70 percent rate of reinforcement (see Table 2, page 48) in both skill and chance tasks. This explanation was given in order to prevent the subject from being concerned about her "failure" trials. The second and final visit was approximately a one-hour session.

Analysis of Data

The data were collected by means of pretest and posttest scores for the I-E parameter. A *t* test for correlated scores was used to determine the significance of the changes in locus of control under each of the four experimental conditions (internal-chance, internal-skill, external-skill, external-chance).

An analysis of variance utilizing a 2 x 2 factorial design was employed to determine the relationship between the independent variables (internal versus external subjects and skill versus chance treatments) and the dependent variable of change in locus of control scores. The same design was used to determine the relationship between the independent variables

(internal versus external subjects and skill versus chance treatment) and the dependent variable of "usual" shifts.

To determine usual shift scores, a score was computed for each subject, in each type of experimental situation, by taking the absolute amount of all usual increments and decrements in expectancy and dividing by the number of usual shifts.

CHAPTER V

RESULTS

Four basic hypotheses were tested with reference to changes in locus of control of the subjects. In addition, three hypotheses were tested regarding usual shifts among subjects. For purposes of statistical analysis, all hypotheses will now be stated in the null form.

Locus of Control

The first hypothesis postulated that there would be no changes in locus of control from pre- to posttest experimental conditions of internal-skill, internal-chance, external-skill, and external-chance. The results of the *t* test for correlated measures used to test this hypothesis are shown in Table 3, page 55.

The mean difference of -.67 for the internal-skill condition had a *t* ratio of 1.92. This ratio did not meet the test of significance at the $p<.05$ level of confidence, therefore, the null hypothesis was supported. Subjects having high internal locus of control status, performing tasks under a skill condition, did not significantly change their locus of control scores from pre- to posttest measures.

The mean difference of 1.87 for the internal-chance condition had a *t* ratio of 5.55 which met the test of significance at the $p<.01$ level of confidence. The null hypothesis was rejected. Subjects having high

TABLE 3

Changes in Locus of Control Scores for 60 Female Subjects Under Four Experimental Conditions

Conditions	Pre Means	Post Means	Mean Diff.	N	SD	*t*	*p*
Internal-skill	4.60	3.93	-.67	15	.35	1.92	NS
Internal-chance	4.33	6.20	+1.87	15	.34	5.55	.01
External-skill	10.93	9.07	-1.87	15	.66	.66	.05
External-chance	10.60	10.33	-.27	15	.73	.37	NS

Note.--*t* needed for significance at the .05 level of confidence is 2.145; at the .01 level of confidence, 2.977.

internal locus of control status, performing tasks under a chance condition made significant increases in their locus of control scores; thus, moving toward an external status.

The mean difference of -1.87 for the external-skill condition had a *t* ratio of 2.82 which was significant at the $p<.05$ level of confidence. The null hypothesis was rejected for this condition. Subjects having a high external locus of control status, performing tasks under a skill condition significantly decreased their locus of control scores, thus moving toward an internal status.

The mean difference of -.27 for the external-chance condition with a *t* ratio of .37 did not meet the test of

significance at the $p<.05$ level of confidence; therefore, the null hypothesis could not be rejected. Subjects having a high external locus of control status, performing tasks under a chance condition, did not significantly change their locus of control scores.

The second hypothesis postulated that there would be no changes in locus of control following either a skill-task or a chance-task situation. The results of the analysis of variance with a 2 x 2 factorial design are shown in Table 4, page 57.

The F ratio of 14.27 for the skill versus chance condition was significant at the $p<.01$ level of confidence. The mean locus of control score change for the skill condition was -1.27, while the mean change for the chance condition was +.80. The total point difference of the two means of 2.07 for the skill versus chance condition was significant. The two conditions caused significantly different changes in locus of control scores. The null hypothesis was rejected. Changes in locus of control scores following a skill-task situation were significantly greater than changes following a chance-task situation.

The third hypothesis postulated that there would be no changes in locus of control scores for subjects classified as having a high degree of internal control than for those classified as having a high degree of external control. The results of the analysis of variance are shown in Table 4, page 57.

The F ratio of 9.28 for the internal-external status was significant at the $p<.01$ level of confidence. The mean

TABLE 4

Analysis of Variance: Changes in Locus of Control Scores for 60 Female Subjects Following a Performance of a Task (Skill or Chance) Under the Conditions of A High Internal or External Control Status

Source	SS	df	MS	F	p
A (sk-ch)	64.07	1	64.07	14.27	.01
b (int-ext)	41.67	1	41.67	9.28	.01
A x B	3.26	1	3.26	.73	NS
Within	251. 73	56	4.49		
Total	360.73	59			

Note.--F needed for significance at the .05 level of confidence, 4.02; at the .01 level of confidence, 7.12.

locus of control score change for internal control subjects was +.60, while the mean change for external control subjects was -1.07. The total point difference of the two means of 1.67 for the internal versus external status of subjects was significant. External subjects had a significantly greater decrease in locus of control scores than was the increase experienced by internal subjects. This change was, however, in the opposite direction from that hypothesized in Chapter I. The null hypothesis was thus rejected.

The final hypothesis related to changes in locus of control among subjects postulated that there would be no differences in changes in locus of control scores as a result of

performance of a skill or a chance task, or as a result of the degree of internal or external control of the subjects. The results of the test of this hypothesis are found in Table 4, page 57.

The F ratio of .73 for interaction effects was not significant at the $p<.05$ level of confidence. Changes in locus of control scores as a result of performance of a skill or a chance task were not dependent upon the degree of internal or external control of the subjects. Significant interaction did not occur.

The mean changes in locus of control scores for the skill-chance task situation under the conditions of internal versus external subjects are shown in Figure 5, page 59. The mean changes in locus of control scores for the internal versus external subjects' status under the conditions of skill-chance tasks are shown in Figure 6, page 60.

Usual Shifts

Three null hypotheses were tested with reference to usual shifts that developed during a task situation. Usual shifts refer to increments in expectancy after success, and decrements after failure. Increments and decrements in expectancy were indicated by the subject's estimate, on the 0-10 scale, of his ability to succeed at future task trials. An analysis of variance utilizing a 2 x 2 factorial design was employed to determine the relationship between the independent variables (internal versus external subjects and skill versus

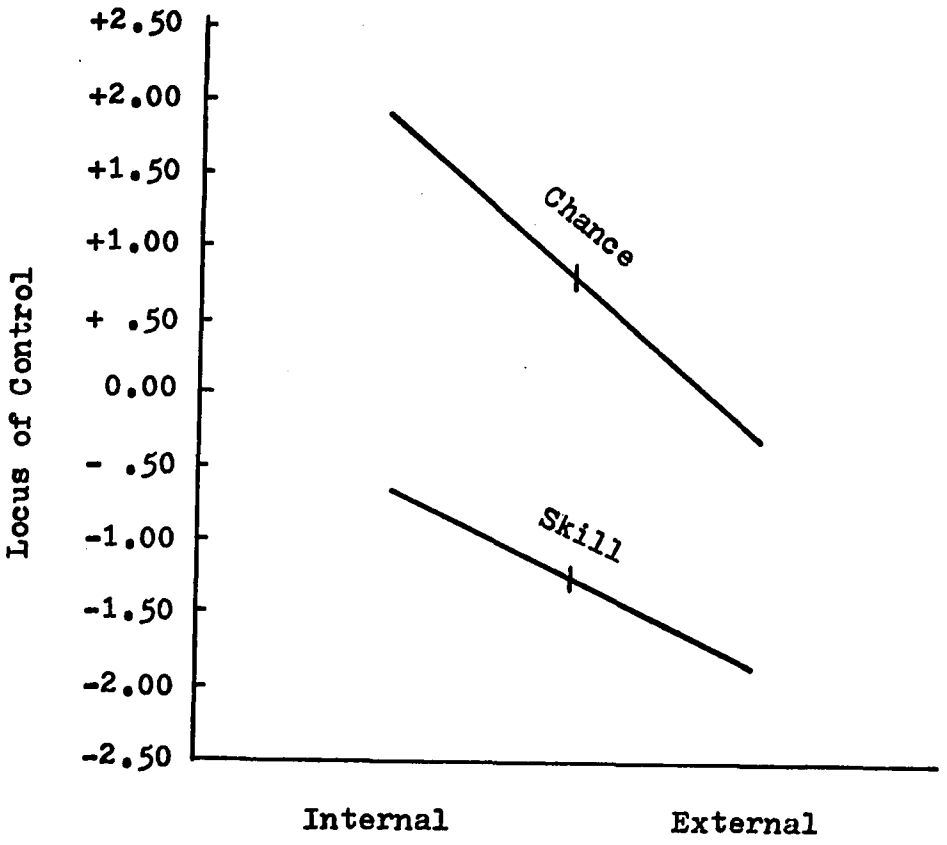

Fig. 5. Mean Difference Locus of Control Scores for Skill-Chance Task Situation Under the Conditions of Internal-External Status.

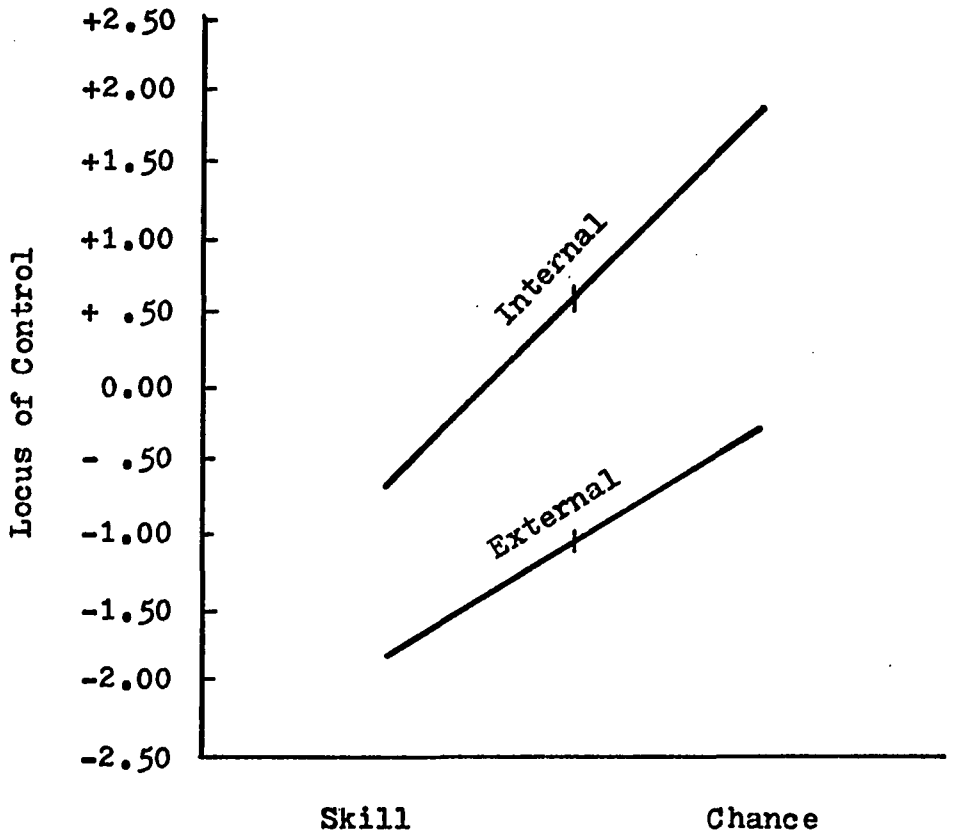

Fig. 6. Mean Difference Locus of Control Scores for Internal-External Subject Status Under the Conditions of Skill-Chance Tasks.

chance treatments) and the dependent variable of usual shifts. The results are shown in Table 5.

TABLE 5

Analysis of Variance: Usual Shifts for 60 Female Subjects During Performance in a Task Situation (Skill or Chance) Under the Conditions of a High Internal or External Control Status

Source	SS	df	MS	F	p
A (Sk-ch)	12.60	1	12.60	2.84	NS
B (int-ext)	.30	1	.30	.07	NS
A x B	4.16	1	4.16	.95	NS
Within	248.68	56	4.44		
Total	265.74	59			

Note.--F needed for significance at the .05 level of confidence, 4.02; at the .01 level of confidence, 7.12.

The first hypothesis related to usual shifts, stated in the null form, postulated that there would be no difference in shifts among subjects in situations categorized as either skill or chance. The F ratio of 2.84 for the skill or chance condition did not meet the test of significance at the $p<.05$ level of confidence. The mean usual shift score for the chance condition was +.75, while the mean shift score for the skill condition was +1.69. The total point difference for the two means of .94 was not significant. The two conditions of skill and

and chance did not cause significantly different shift scores.

The second hypothesis related to shifts, stated in the null form, postulated that there would be no difference in shifts among subjects classified as having a high degree of internal locus of control or those having a high degree of external locus of control. The results are shown in Table 5, page 61.

The F ratio of .30 did not meet the test of significance at the $p < .05$ level of confidence. The mean usual shift score for the internal control subjects was +1.30, while the mean usual shift score for external control subjects was +1.14. The total point difference for the two means of .16 was not significant. High internal control subjects did not have a greater usual shift score than subjects having a high degree of external locus of control.

The final hypothesis concerned with shifts, stated in the null form, postulated that there would be no differences in usual shift scores as a result of performance of a skill or a chance task, regardless of the degree of internal or external control of the subjects. The results are shown in Table 5, page 61.

The F ratio of .94 for interaction effects was not significant at the $p < .05$ level of confidence. Differences in usual shift scores as a result of performance of a skill or a chance task were not dependent upon the degree of internal or external control of subjects. The null hypothesis could not be rejected.

The mean usual shift scores for the skill versus chance

task situation under the conditions of internal versus external subjects are shown in Figure 7, page 65. The mean usual shift scores for the internal versus external subjects' status under the conditions of skill versus chance tasks are shown in Figure 8, page 66.

Findings

Locus of Control

1. Subjects having a high internal locus of control status, performing tasks under a skill condition, did not significantly change their locus of control scores.

2. Subjects having a high internal locus of control status, performing tasks under a chance condition, made significant increases in their locus of control scores.

3. Subjects having a high external locus of control status, performing tasks under a skill condition, significantly decreased their locus of control scores.

4. Subjects having a high external locus of control status, performing tasks under a chance condition, did not significantly change their locus of control scores.

5. Changes in locus of control scores following a skill task situation were significantly greater than changes following a chance task situation.

6. Subjects with high external locus of control status had a significantly greater decrease in locus of control scores.

7. Changes in locus of control scores as a result of performance of a skill or a chance task were not dependent upon the degree of internal or external control of the subjects.

Usual Shifts

1. The two conditions of skill and chance did not cause significantly different usual shift scores.

2. Subjects with high internal locus of control status did not have a greater usual shift score than subjects with a high external locus of control status.

3. Differences in usual shift scores as a result of performance of a skill or a chance task were not dependent upon the degree of internal or external control of the subjects.

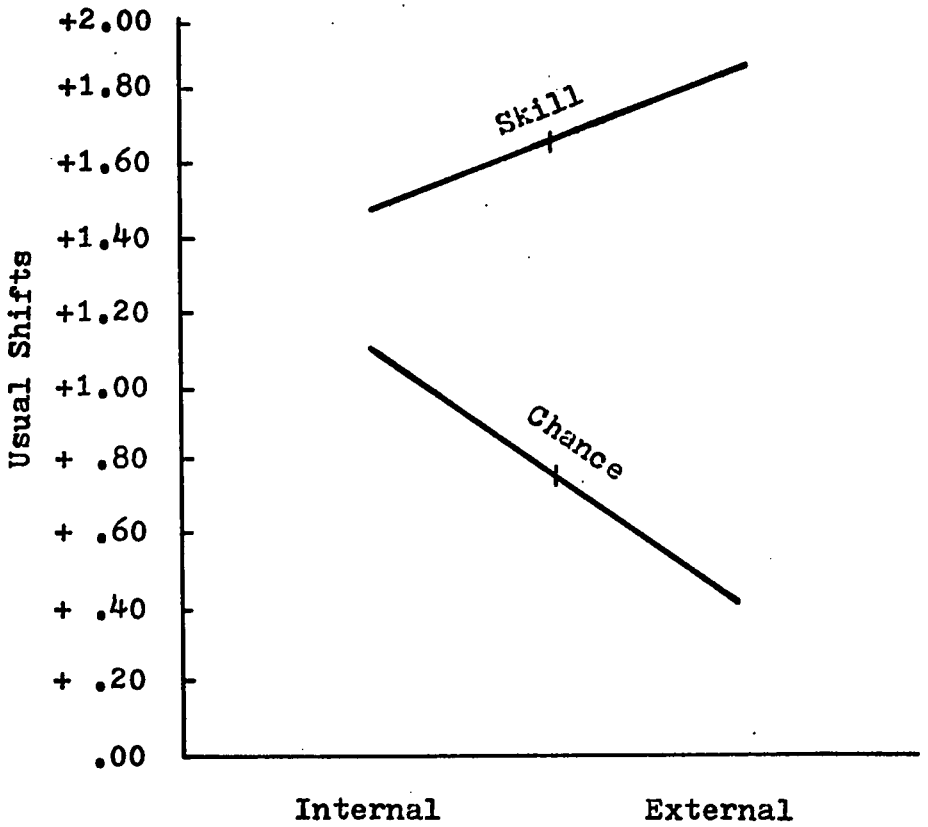

Fig. 7. Mean Usual Shift Scores for Skill-Chance Task Situation Under the Conditions of Internal-External Subjects.

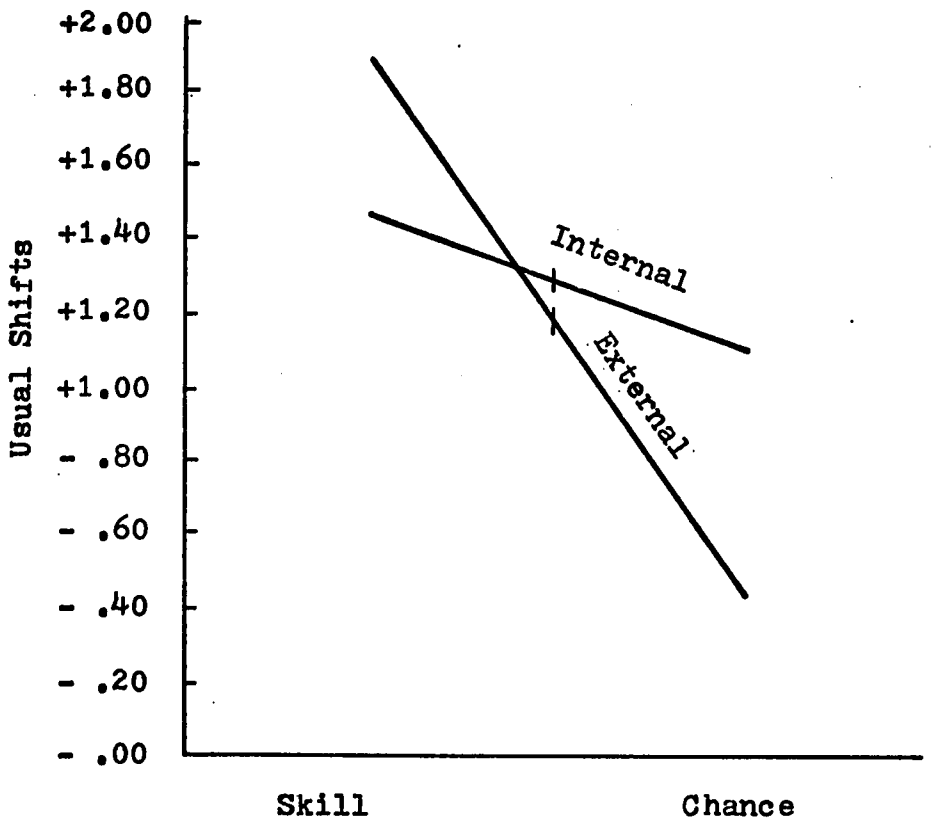

Fig. 8. Mean Usual Shift Scores for Internal-External Subject Status Under the Conditions of Skill-Chance Tasks.

CHAPTER VI

DISCUSSION AND SUMMARY

The problem involved in this present research was to attempt to modify locus of control. Expectancy changes were investigated (whether one expected to succeed or fail on successive trials) in skill and chance task situations as related to changes in locus of control among aged white women.

When comparing results of this present research with previous studies concerned with the internal versus external control dimension, some unique aspects of this study must be emphasized. These are listed below:

1. Subjects were 60 years old or older; other I-E research dealt primarily with children or with college students.
2. In this present research, performance was controlled for all subjects (70% success and 30% failure). Other studies emphasized the effect of skill versus chance task instructions on performance and on the subjects' estimate of their ability to perform a task correctly.
3. This research was designed to determine whether or not skill or chance task instructions would alter posttest locus of control scores after a brief (approximately one hour session) for treatment. In other studies where attempts were made to alter locus of control, treatment constituted some type of therapy session extending from several weeks to perhaps several months.

The main hypothesis of this study was that there would be no changes in locus of control under each of the four experimental conditions (internal-skill, internal-chance, external-skill, external-chance). The analysis of data only partially supported this premise. Changes in locus of control

were significant only under two conditions: internal-chance and external-skill.

Social learning theory (Rotter, 1954) assumes that a skill task has greater reinforcement value for an internally controlled person because he is presumably committed to doing well on tasks dependent on his ability, but does not have such a commitment for chance tasks. Reinforcement value for externally controlled persons, on the other hand, would be greatest for chance tasks. Rotter and Mulry (1965) confirmed this prediction. Watson and Baumal (1967), on the other hand, concluded that the arousal of "anxiety" resulting from incongruent situations (internal status under chance tasks and external status under skill tasks) is a nonfacilitative level of motivation. In other words, subjects, while highly motivated, made more errors in task performance.

While task performance in the present research was not a variable concerned with altering locus of control, it would appear that incongruent task situations had a greater effect on altering locus of control. Subjects in congruent task situations (internal status under skill tasks and external status under chance tasks) experienced no significant changes in locus of control scores. However, another explanation would appear to be relevant. Since the sample used in this research eliminated subjects who scored within one standard deviation from the mean distribution of the I-E scores for this group, it would follow that internal subjects would be less amenable to change after exposure to skill-task

situations, and conversely, external subjects would be less amenable to change after exposure to chance-task situations because of upper and lower ceiling effects.

Further analysis of data supported the hypothesis that exposure to skill-task treatment caused a significantly greater change in locus of control (i.e., a greater shift toward the mean I-E score) than did exposure to a chance task. This conclusion is consistent with Rotter's social learning theory (1954) from which it was predicted that expectancies for future reinforcement show greater changes following reinforcement in a skill situation than in a chance situation. This prediction is based on the interpretation that since obtained reinforcements in a skill situation are a result of performance, subjects whould utilize past performance as a basis for future expectancies for reinforcement in such a situation. In a chance situation, obtained results are not controlled by the subject, thus providing little basis for generalization to future trials. Research by Phares (1957) and Feather (1966) provided additional support for social learning theory.

The finding that subjects with high external locus of control status had significantly greater decreases in locus of control scores than were the increases in locus of control scores experienced by subjects with a high internal locus of control status is not consistent with social learning theory (Rotter, 1954). The predictions which follow social learning theory are that internals would rely on previous experience

more than externals as a basis for determining future expectancies, regardless of specific instructions, and therefore, would make significantly more changes of expectancies in the direction of the immediate previous reinforcements than externals. The external subjects, then, should fail to maintain the kind of internal dialogue that would facilitate the categorizing of situations so that the opportunities for reinforcements in different situations could be more self-evident. Data supporting the above reasoning have been cited by several researchers (Lefcourt, 1967; Lefcourt, Lewis, & Silverman, 1967).

In this present research using aged women as subjects, performance was controlled for all subjects with a 70-percent success ratio being maintained. Subjects experienced both oral confirmation by the experimenter, as well as visual confirmation by the subject herself regarding the outcome of each trial. This conclusion that externally controlled subjects experienced greater changes in post I-E scores may be explained by the findings of Levens (1968), Gottesfeld and Dozier (1966), Reimanis and Schaefer (1970) whose research supports the conclusions that success in coping with difficulties would change one in the direction of more internal control. Therefore, it is important to investigate means of providing the aged in our society with sufficient opportunities for success in coping with problems.

Results of the final hypothesis, related to changes in locus of control among subjects, indicated that changes in

locus of control scores as a result of performance of a skill or a chance task were not dependent upon the degree of internal or external control of the subjects. In other words, it was the combination of generalized I-E attitudes and specific skill-task instructions which were reflected in changed I-E scores. This finding further supports I-E theory (Petzel & Gynther, 1970).

Finally, the conclusion that exposure to either a skill or a chance-task situation, regardless of locus of control status, did not significantly affect the usual shift expectancies contradicted previous studies (Phares, 1957; Petzel & Gynther, 1970) in which it was concluded that internals, under skill conditions, made more usual shifts in expectancies. There is an important way that the present study differs from previous researches: that is, subjects in this present research were 60 years of age or older, while those in previous studies were college students (often psychology) where motivation for participation in research was great. Possibly, the older subjects in this present research were less motivated or perhaps they misunderstood the significance of the directions related to expectancy estimates.

Minority membership and low social class level appear to be conducive to the development of low expectancy for success (Lefcourt, 1966). Implicit in this conclusion, as discussed in the literature review, is that persons who have a lower internal control orientation exert less effort to overcome their difficulties. In addition, success in coping with

difficulties will change one in the direction of more internal control orientation, and likewise, the reverse is true.

In our industrial society, research indicates that the aged are becoming more like a minority group (Busse & Pfeiffer, 1969; Riley & Foner, 1968; Tibbitts, 1960) in which low expectancy for success is a characteristic. This expectancy of events and conditions beyond one's ability to control is often strengthened in our society. For example:

1. Forced retirement without adequate preparation for the post-retirement transition.
2. Stringent requirements (often confusing and misleading) of eligibility for retirement benefits.
3. State requirements of property leins from those who seek social welfare aid (specifically aid to disables and old-age assistance).
4. Job discrimination.
5. Disproportionate income tax rate borne by many retired adults.
6. Ineffective property tax exemption laws which often force retirees from their own homes.
7. Abrupt change in income level experienced by retirees.
8. Inadequate preparation and provision for fulfilling activities during newly acquired leisure time.

If a brief encounter in the experimental treatment session, described in this present research, produced changes in locus of control scores, the cumulative effect of external forces exerted upon the aged by society might be multiplied relative to effects on locus of control orientation.

In summary, the results of this research indicate that internal or external locus of control can be altered in order

adult white women by arrangement of appropriate situational conditions. These findings are particularly significant as they relate to older adults. First, the treatment was applied over a relatively short period of time. Second, a simple success task was used to bring about changes in locus of control scores. The research reported here suggests some directions for future studies designed to specify those situational conditions that are likely to lead to growth in internal control among older adults. First, if one wishes to change locus of control status toward internality, expose subjects to skill rather than to chance-task situations. In addition, this research suggests that externally controlled people are more amenable to change than are those who are internally controlled. An important task, then, would appear to be to identify and provide the social conditions necessary to support internality, especially among the aged.

Further, this research suggests the possibility that changes in environmental reinforcements experienced by the older adult during retirement years might alter his locus of control status from internality to externality.

The results, limited to situations defined in terms of chance and skill, suggest the wider benefit of a situational analysis of expectancy changes. Moreover, the need seems apparent for additional, more representative sampling of populations beyond the range investigated in the present study. Studies designed to include older men, racial differences, and pre- and post-retirement locus of control status would be beneficial.

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APPENDIX A

ROTTER INTERNAL -EXTERNAL LOCUS OF CONTROL SCALE

APPENDIX A

ROTTER INTERNAL-EXTERNAL LOCUS OF CONTROL SCALE

Instructions

This is a questionnaire to find our the way in which certain important events in our society affect different people. Each item consists of a pair of alternatives lettered a or b. Please select the one statement of each pair (and only one) which you more strongly believe to be the case as far as you're concerned. Be sure to select the one statement 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; obviously, there are no right or wrong answers.

Your answers to the items on this inventory are to be recorded on a separate answer sheet.

Please answer these items carefully, but do not spend too much time on any one item. Be sure to find 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 you more strongly believe to be the case as far as you are concerned. Also, try to respond to each item independently when making your choices. (Key: score is number of underlined items.)

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 a major role in determining one's personality.

b. It is one's experiences in life which determine what they're like.

9. a. I have often found that 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 an 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 that 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 world events.

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

    b. There really is 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 atheletics 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 B

ORAL DIRECTIONS FOR SKILL AND CHANCE TASKS

APPENDIX B

ORAL DIRECTIONS FOR SKILL AND CHANCE TASKS

This is an experiment to see how well people can do at copying a series of designs using colored marbles or blocks. Please try to do your best; your scores will be recorded, and I will let you know how you are doing.

SKILL--There is reason to believe that some people are considerably skilled at this.

CHANCE--There is reason to believe that replicating the designs is purely a matter of luck.

In this experiment, we are using a series of designs which you are to replicate, using colored marbles or blocks, on these boards. The task consists of these design patterns which you are to replicate as accurately as possible, on this board using blocks, or on this board using marbles. You will be given the correct number of blocks or marbles needed to complete each separate design. I will be keeping score and will let you know how well you did at the end of each trial when you have used all of the blocks or marbles provided for you.

SKILL--Remember, it is believed that some people are considerably skilled at this. In other words, some people have a special skill at performing this task and do consistently better than others. The results depend entirely on your skill. Do as well as you can and we will see if you have some skill for this.

CHANCE--Remember, it is believed that success in doing this task is entirely a matter of luck. Although the tasks appear easy, we feel that correct replication of designs is purely a matter of chance; some people are lucky and get high scores. Do as well as you can and we will see if you are lucky at this.

SKILL--Before each trial, I would also like for you to estimate how well you feel you will do; you can estimate this on a scale going from 0-10. If you feel moderately sure that you will succeed, you might rate yourself with a 5 or 6. If you feel pretty sure that you won't be successful, you might rate yourself with a 0.

CHANCE--Before each trial, I would also like for you to estimate how lucky you feel you will be. You can estimate this on a scale going from 0-10. If you feel moderately sure that you will be lucky, you might rate yourself with a 5 or 6. If you feel pretty sure that you won't be lucky, you might rate yourself with a 0. Use any of the numbers on the scale from 0-10 to indicate how you feel you will do.

Now, these estimates that you make before each trial can also affect your total scores. If you are successful on the trial, the estimate which you made will be added to your total score. If you are not successful, the estimate you select will be subtracted from your total. Thus, it is important that you select your estimates carefully on the 0-10 scale and that they correspond closely with how well you feel you will do. The idea, of course, is to get as high a total score as you can. At the end of the experiment, I will let you know how you did.

SKILL--We have found that some people are considerably skilled at this. Do you have any questions so far? All right--do as well as you can and let us see if you are skilled at this sort of thing. Now, before we begin, would you make an estimate on the scale from 0-10 of the degree to which you feel you will succeed on this first trial.

CHANCE--We have found that successful completion is purely a matter of luck. Although at times people do well, the results, in the long run, are like those obtained in a coin-tossing situation. Do you have any questions so far? All right--do as well as you can and let us see if you can get a high score on this. Now, before we begin, would you make an estimate on the scale from 0-10 of how lucky you feel you will be on this first trial.

Following completion of estimates and trials for the

13 tasks, subjects were provided with the de-briefing statement immediately after post-administration of the I-E scale.

APPENDIX C

GENERAL INFORMATION FOR SUBJECT PARTICIPANTS

MID-SESSION LETTER OF INFORMATION

DE-BRIEFING STATEMENT FOR SUBJECT PARTICIPANTS

GENERAL INFORMATION FOR SUBJECT PARTICIPANTS

You have probably heard, or read about the White House Conference on Aging, held in Washington, D. C., November, 1971. During this conference, the problems and concerns of older Americans were voiced. The important remaining task is to determine how some of these needs of retired Americans can best be met.

You can help provide some of these answers by assisting me with the research which I am undertaking. I am a teacher of child development and family relations at East Carolina University. Also, I am studying for the Ph. D. degree at the University of North Carolina at Greensboro, North Carolina. Most important of all, however, I am deeply interested in you.

I have listed some questions which I would like for you to answer. There are no right or wrong answers. Just give the answer that is right for you. The questions will need only one answer. Read each question carefully before you write the answer.

MID-SESSION LETTER OF INFORMATION

Dear

Most of you, by now, have graciously cooperated with me in the research that I am doing. When I first met with you during one of your senior citizen's meetings this fall, you recall, I explained that I am a teacher of family relations at East Carolina University. Also, I am studying for a doctoral degree at the University of North Carolina at Greensboro. This research that you, along with over 100 others are helping me with is part of the requirement for completing the graduate degree which I seek. Most important of all, however, as a teacher of family life, I am deeply interested in you, the age group of our society which represents adult maturity of the family life cycle.

The questions which you answered for me during our first meeting represent your opinions, not RIGHT or WRONG answers to anything. I am simply trying to find our how different people feel about certain events in our society. Now that you have given your opinions to the questionnaire, the final part of my research is to ask you to spend a few minutes with me playing a simple matching game, which I designed especially for this study. I hope to begin the matching game sessions within the coming week. All of this, no doubt, seems like nonsense to you. When we are finished, I can explain what it means to me as I seek to understand how needs and satisfactions of older Americans can best be met.

Thank you again for your most helpful cooperation in this project.

Sincerely

DE-BRIEFING STATEMENT FOR SUBJECT PARTICIPANTS

This study was done in order to attempt to find out how two different sets of directions for performing the tasks affected your guess of how well you would do on the next trial.

You were especially chosen because of my confidence in your ability to tolerate vague uncertainties. This was necessary in order to get a more realistic response to the two different instructions. I must admit that you performed splendidly and that my confidence in you is confirmed.

In order to do this test, it was necessary to lead you to believe that there were right or wrong responses for the tasks you performed. Actually, there were none. I am sorry to have mislead you, but there was no other way this test could be performed.

You impress me as being a strong individual who can respond effectively in similar real life situations. I cannot thank you enough for cooperating with me. I am so very interested in working with and for older adults, and I feel that you have contributed greatly to the success of this study.

When I finish, I will share with you all that I have learned.

Sincerely

APPENDIX D

SCORE SHEET

APPENDIX D

SCORE SHEET

BLOCK TRIALS	Estimates (0-10)	MARBLE TRIALS	Estimates (0-10)
1			
2			
3			
4[a]			
5			
6			
7			
8			
9			
10			
11			
12			
13			

Name_____
Group_____
Pre-I-E_____ Post-I-E_____

1 .-[b]	2 .a[c]	3 .b	4 .b	5 .b	6 .a	7 .a	8 .-	9 .a
10.b	11.b	12.b	13.b	14.-	15.b	16.a	17.a	18.a
19.-	20.a	21.a	22.-	23.a	24.-	25.-	26.b	27.-
28.b	29.a							

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[a]Underlined numbers represent negative reinforcement.
[b]Unlettered spaces indicate "filler" items on the I-E scale.
[c]Letters represent external orientation responses.

APPENDIX E

PRE- AND POST-TREATMENT SCORES FOR LOCUS OF CONTROL

APPENDIX E

PRE- AND POST-TREATMENT SCORES FOR LOCUS OF CONTROL

Subject	Internal Skill		Internal Chance		External Skill		External Chance	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
A	5.00	2.00	6.00	7.00	9.00	5.00	9.00	10.00
B	4.00	4.00	3.00	5.00	10.00	7.00	10.00	11.00
C	3.00	3.00	6.00	8.00	10.00	5.00	12.00	12.00
D	2.00	3.00	4.00	4.00	16.00	11.00	9.00	10.00
E	6.00	3.00	5.00	5.00	10.00	10.00	9.00	9.00
F	6.00	5.00	5.00	8.00	12.00	9.00	10.00	12.00
G	4.00	3.00	5.00	6.00	10.00	7.00	10.00	10.00
H	6.00	6.00	6.00	7.00	12.00	8.00	11.00	10.00
I	5.00	3.00	3.00	5.00	11.00	9.00	9.00	6.00
J	3.00	3.00	6.00	7.00	12.00	9.00	9.00	12.00
K	3.00	4.00	3.00	7.00	10.00	13.00	12.00	8.00
L	5.00	5.00	3.00	4.00	12.00	14.00	12.00	8.00
M	6.00	4.00	4.00	8.00	9.00	10.00	7.00	13.00
N	6.00	3.00	3.00	4.00	12.00	11.00	14.00	8.00
O	5.00	5.00	5.00	8.00	9.00	11.00	13.00	6.00

APPENDIX F

CHANGES IN LOCUS OF CONTROL SCORES FOR FOUR EXPERIMENTAL CONDITIONS

APPENDIX F

CHANGES IN LOCUS OF CONTROL SCORES FOR FOUR EXPERIMENTAL CONDITIONS

Subject	Internal Skill	Internal Chance	External Skill	External Chance
A	-3.00	1.00	-4.00	1.00
B	0.00	2.00	-3.00	1.00
C	0.00	2.00	-5.00	0.00
D	1.00	0.00	-5.00	1.00
E	-3.00	0.00	0.00	0.00
F	-1.00	3.00	-3.00	2.00
G	-1.00	3.00	-3.00	0.00
H	0.00	1.00	-4.00	-1.00
I	-2.00	2.00	-2.00	-3.00
J	0.00	1.00	-3.00	3.00
K	1.00	4.00	3.00	-4.00
L	0.00	1.00	2.00	-4.00
M	-2.00	4.00	-2.00	3.00
N	-1.00	1.00	-1.00	-6.00
O	1.00	3.00	2.00	3.00

APPENDIX G

USUAL SHIFT SCORES FOR FOUR EXPERIMENTAL CONDITIONS

APPENDIX G

USUAL SHIFT SCORES FOR FOUR EXPERIMENTAL CONDITIONS

Subject	Internal Skill	Internal Chance	External Skill	External Chance
A	.000	.400	2.000	.400
B	2.000	4.000	.375	.375
C	2.000	2.000	.571	.286
D	3.000	2.500	.000	.444
E	0.000	0.000	.250	.200
F	2.000	0.000	0.000	5.000
G	1.667	5.000	.500	0.000
H	5.000	0.000	9.000	0.000
I	1.000	1.670	0.000	0.000
J	0.000	0.000	5.000	0.000
K	0.000	0.000	1.500	1.400
L	0.000	0.000	9.000	.444
M	5.000	0.000	0.000	0.000
N	.750	0.000	0.000	-2.000
O	0.000	1.000	0.000	0.000