INTERNAL VERSUS EXTERNAL CONTROL OF REINFORCEMENT

AS A VARIANT OF CONCERN FOR THE

TEACHER AND COUNSELOR

by

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# TABLE OF CONTENTS

ACKNOWLEDGMENTS ........................................... 1

NATURE OF THE PROBLEM ..................................... 1

Theory of the Problem ....................................... 1
Statement of the Problem .................................... 2
Definition of Terms .......................................... 2

RELATED AREAS ............................................... 4

Field Dependency and Independency ....................... 4
Inner-Other Directed ....................................... 6
Alienation .................................................... 6

MEASUREMENT OF I-E ......................................... 8

EDUCATIONAL CONCERNS ..................................... 11

Processes ..................................................... 11
Results ........................................................ 16
Approaches ................................................... 18

SUMMARY ....................................................... 23

LITERATURE REVIEWED ....................................... 25

APPENDIX ...................................................... 30

VITA .......................................................... 32
NATURE OF THE PROBLEM

Theory of the Problem

Rotter's (1954, 1960, 1964) social learning theory suggests that a reinforcement acts to strengthen an expectancy. These expectancies may differ from situation to situation; however, it is postulated (Rotter, 1960) that they bear a direct relationship to the potential occurrence of a behavior. Furthermore,

... it is presumed that the relationship between goal preference (reinforcement value) and behavior can be determined only by introducing the concept of the individual's expectancy, on the basis of past history, that the given behavior will actually lead to a satisfying outcome rather than to punishment, failure, or, more generally, to negative reinforcement. (Rotter, 1960, p. 305)

An outgrowth of this idea is the current research regarding internal versus external control of reinforcement. Basically, this centers on two general hypotheses. 1. That if a reinforcement is seen to be controlled by the individual, it will strengthen the expectancy and that if it fails to occur from this behavior, it will weaken the expectancy. 2. That if the reinforcement is seen to be under the control of external factors, i.e. luck, fate, or powerful others, the expectancy will neither increase as much by the reinforcement occurring, nor decrease as much by its non-occurrence
Statement of the Problem

Recent research suggests that internal versus external control (I-E) of reinforcement is a personality variant, as well as an important variant in learning and extinction. This, combined with recent refinement of I-E measurement tools, would seem to bring this postulate into the realm of educational concern.

The purpose of this report is a review of the I-E literature in an attempt to determine what, if any, implications research of I-E has for education.

Definition of Terms

Rotter defines internal control and external control in the following manner.

When a reinforcement is perceived by the subject as following some action of his own but not being contingent upon his action, then, in our culture, it is typically perceived as the result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of the forces surrounding him. When the event is interpreted in this way by an individual, we have labeled this a belief in external control. If the person perceives that the event is contingent upon his own behavior or his own relatively permanent characteristics, we have termed this a belief in internal control. (Rotter, 1966, p. 1)

Crowne and Liverant (1963), Battle and Rotter (1963), Gore and Rotter (1963), Phares (1965), Lefcourt and Ladwig (1965), and Strickland (1965) are all in agreement with this definition and this report will approach internal versus external (I-E) control as Rotter (1966) has defined it.
Often in discussions in the research, the phrase skill-chance is used in place of internal control and external control. Any usage of these words in this report will follow the Rotter (1966) definition of internal and external control (I-E).
RELATED AREAS

Field Dependency and Independency

Witkin (1949) questioned the idea of failing to recognize the importance of motivational factors in perception. Since that time, Witkin and others (i.e. Linton, 1955 and Konstadt and Forman, 1965) have conducted numerous studies regarding field dependent and independent individuals. Linton (1955), Witkin (1950, 1964), and Witkin, Dyk, Faterson, Goodenough and Karp (1962) all report evidence that field dependency or independency exists as a relatively consistent characteristic. Linton (1955) reports findings indicating that conformity is associated with field dependency. Konstadt and Forman (1965) found field dependent children needed a favorable emotional environment to function well and exhibited greater sensitivity to the environment, while field independent children require a less supportive emotional environment for adequate functioning. Witkin (1950) found women to be more field dependent. He also found perceptual tendencies tended to influence the ease with which a person solves cognitive tasks and the manner used in approaching such tasks.

From the work on field dependency and independency has come Witkin's construct of a sense of separate identity. Witkin et al. (1962) discuss this construct as applying to the outcome of a person's development of awareness for his own needs and his separation of these needs.
from like needs of others. Separate identity implies a self that is segregated, structured, and has developed internal frames of reference. To the extent that these internal frames of reference have failed to be formed, the person is postulated to be determined from without and as having his ability to function independently greatly limited. A person having a sense of separate identity is seen as having relatively little need for support from others, having a firmer maintenance of his own direction in the face of contradicting attitudes, judgements, and values of others, having a relatively stable view of self in various social contexts and as needing these contexts less for self definition. In contrast, the individual who does not develop a sense of separate identity needs support and guidance from others in many situations, lacks internal frames of reference and hence is dependent upon the reference frames of others, and has an unstable view of self because the self view is dependent upon external contexts.

The construct of separate identity is similar to I-E control of reinforcement in that field independent and internal individuals both are probably directed by inner cues and the field dependent and external individuals probably rely more on external ones. However, Witkin's separate identity tends to center on modes of perception. Rotter's I-E control tends to center on expectancy of reinforcement.
Inner and Other Directed

Riesman (1954) discusses what he has classified as inner and other directed. Inner directed is equated with a striving to master the environment, and the other directed person is seen as more concerned with getting along in it. One is inwardly motivated and directed by internal frames of reference, while the other is considered to be busy looking for cues from others as to what to do. The attitudes seem indicated by the producer (inner) and the consumer (other). Neither is completely good or bad. For example, the inner is apt to be, at times, insensitive of others, while the other directed would likely be very sensitive of others.

At first glance it might appear that inner–other directed and internal–external control of reinforcement might be nearly identical concepts. However, while the individual who is actively attempting to flow into the environment would fall at the lower end of Riesman’s continuum, he might, because of a belief in his own ability to determine this, fall in the middle of Rotter’s I–E continuum.

Alienation

Probably of a closer relationship to internal and external control (I–E) than either Witkin’s separate identity or Reisman’s inner and other directiveness, is the sociological concept of alienation. Seeman (1959), and Rotter, Seeman, and Liverant (1962) discuss alienation of consisting
of five factors: powerlessness, meaninglessness, normlessness, isolation, and self estrangement. Powerlessness is defined as the expectancy held by the individual that his own behavior cannot determine the outcomes he seeks. (Seeman, 1959; Rotter, et al. 1962) Meaninglessness is considered to be the lack of a search for meaning, in which one's capacity to act intelligently from one's own insights decreases. Normlessness is defined as a breakdown of social norms, which is considered to lead to a belief in chance. Social isolation is felt to be estrangement from one's society and self estrangement is when the person experiences himself as alien. (Rotter, et al. 1962) As can be seen from these definitions, alienation bears considerable relationship to I-E. This is especially true of the factors powerlessness, meaninglessness, and normlessness. There are, however, some basic differences present. First of all, alienation concerns itself only with the external end of I-E. Secondly, alienation tends to be approached from the sociological orientation of group behavior, while I-E tends to be approached from the psychological concern of individual behavior. Despite these differences, the close existing relationship is exemplified by Seeman (1963) when he states,

Furthermore, this demonstration of the relevance of alienation for learning can be seen as an extension of the laboratory studies of learning under conditions of "internal versus external control." These studies have likewise embodied social learning theory, . . . The evidence is clear that the construct that has been variously called powerlessness, expectancies for control, or alienation, is indeed important in the learning process . . . (Seeman, 1963, p. 284)
A question which might be asked is, how do we determine to what extent a person sees himself in control of his reinforcement or to what extent he sees himself as unable to control his environment, how do we measure this I-E variable? This chapter will deal with this question in the following manner. First, a brief background leading up to the development of the I-E Scale (Rotter, 1966) and Crandall, Katovsky and Crandall's (1965) Intellectual Achievement Responsibility (IAR) Questionnaire. Secondly, a discussion of these two instruments.

Typically, the scales developed previous to Rotter's (1966) I-E Scale and Crandall, et al's., (1965) IAR Questionnaire, consisted only of a series of questions derived by the person(s) doing the study or adapted from some earlier study. The first questionnaire was developed by Phares (1955) and modified later by James (1957) into the James-Phares Scale. Various adaptations (i.e. Bailer, 1961) of this scale have been used, the end product of which is the I-E Scale (Rotter, 1966) and Crandall et al's., (1965) Intellectual Achievement Responsibility (IAR) Questionnaire.

The I-E Scale (Rotter, 1966) is a twenty-nine item, forced-choice questionnaire. Six of these items are filler items which are included to make the test more ambiguous. The test is scored for the number of external responses the subject makes. Two sample items; one scored and one filler are as follows:
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
   (a is the external response)

14. a. There are certain people who are just no good.
   
b. There is some good in everybody.
   (filler)
   (Rotter, 1966, p. 11)

The complete test, directions for administering, and normative data can be found in Rotter (1966). ¹

Crandall, Katkovsky, and Crandall's (1965) IAR Questionnaire was developed for use with children. It consists of thirty-four force-choice items involving internal and external response. These items are scored I+ for internal responsible success responses and I- for internal responsible failure responses. Two sample items from this test would be:

3. When you have trouble understanding something in school, it is usually
   
a. because the teacher didn't explain it clearly, or
   b. because you didn't listen carefully?

21. If people think you're bright or clever, is it
   
a. because they happen to like you, or
   b. because you usually act that way?
   (Crandall, Katkovsky, and Crandall, 1965, pp. 95-96)

¹This journal is presently lost from the Utah State University Library. It was ordered by inter library loan from the University of Utah but not available because of being at the bindery. It was then reordered from Brigham Young University, but has not as yet arrived.
The complete IAR Questionnaire, directions for administering, and normative data can be found in Crandall, Katkovsky, and Crandall (1965). This test may be administered either written or orally.

Basically, it seems that these tests, at present, are valuable for group and experimental use, but of dubious accuracy for individual prediction. This would appear to make these measurement instruments of limited value to the teacher and counselor until further refinement occurs.
EDUCATIONAL CONCERNS

In the following section three basic areas of the problem, how internalization or externalization of reinforcement is applicable to the educational setting, will be discussed. 1. Processes: Those cognitions, emotions, and other internal happenings that we must infer, but which play such an important role in directing the individual. 2. Results: Those things which occur to the individual or because of the individual. These things the individual is apt to evaluate and hence, will have the potential of strengthening or weakening an expectancy. 3. Approaches: Those things, which by relating to the individual's nature, are apt to produce a more profitable educational experience for him. Recognition should also be given at this time that I-E is a continuum and not a true dicotomy. And that any sharp lines drawn between these two, must of necessity, be artificial.

Processes

It would seem, that an individual who holds a belief that he can have some influence on the types of things that happen to him, would also be more apt to attempt to understand and control his environment. On the other hand, we might expect the individual who feels his actions have no effect on what happens to him to exhibit no such attempts at mastery. The internal individual should then 1) acquire more information pertaining to those things he comes in contact with and 2) profit more from experiences because
of a keener evaluation of what has occurred. Seeman (1963) and Seeman and Evans (1962) report findings that support the first of these tenets. The second, however, at present, has not been investigated.

Besides acquiring a larger and more accurate repertoire of information, an individual believing in fate-mastery should perform under frustration in a more efficient productive manner, than a person who feels mastered by fate. Educators have long been aware of the stress and frustration produced by the competitive school system. This frustration is easily seen in the testing situation, where the ability to maintain cognitive order under stress is indeed a valuable asset for a student to possess. Butterfield (1964) and Phares (1962) both offer tentative support that reinforcement-responsible individuals exhibit coping behavior superior to that of reinforcement-irrelevant persons.

Motivation is often an illusive construct which we can at best only infer. It undoubtedly differs from person to person and within the person from moment to moment. It would appear that the environment-controlling organism would differ motivationally in several respects from the environment-controlled person. First of all, if one's efforts are not seen as capable of producing a desirable outcome, one is unlikely to expend effort in that direction. Hence, if achievement and success are seen as being behind one's scope of influence, little effort would be expended in acquiring skills or making the required effort necessary for such attainment. By the same token, the external individual might be seen as resigning himself
into a defensive latency on the abnormal end of the continuum or actively attempting to "get next to" these powerful others if they fall in the middle of the I-E continuum. Secondly, it would appear likely that the skill-believing individual might be motivated to achieve success while the chance-believing individual is apt to be motivated to avoid failure. Also likely to be characteristic of achievement-followers' motivation, would be a desire to please one's self, in contrast of the desire to please others on the part of the more failure-avoident person. Support is lent to this tenet by studies conducted by Crowne and Liverant (1963) and Bennion (1961) when they found the externally controlled person more easily influenced by others.

Because of a greater knowledge of events produced by his achievement motivation and more accurate evaluation of these events and of relationships, it would appear that transfer would more readily occur for those who see events as contingent upon themselves. This would seem to occur in two ways: First, the belief that events are the results of one's own effort should be a relatively stable outlook on life that would transfer from situation to situation. Secondly, specific facts should transfer more readily because of this causative outlook. The individual who is practiced in the analysis of events to determine how best to master them, should also be able to transfer this ability to more specific situations. That transfer is indeed facilitated by a controlling outlook on life, is supported by findings of Phares (1957, 1962), Crowne and Liverant (1963), Worell (1956), and James (1957).
Another plausible idea involves the construct of extinction and forgetting. If a person learns a task, a response, or conceives of an idea under conditions he perceives as related to his own proficiency, it seems likely, if for no other reason than ego defensive, that it would not extinguish as rapidly, nor be forgotten as easily, as when the person had no such personal involvement. James (1957) showed that greater resistance to extinction occurs under skill conditions. Neff (1956) and Rotter, Liverant, and Crowne (1961) found that the advantage of partial reinforcement over whole reinforcement in determining time to extinction, does not hold true under skill conditions. However, no studies can be found in the literature regarding forgetting or inhibition.

If an individual sees events as being under his control, he should, because of his confidence that time will not spoil his reward, be able to defer gratification until some future date. If, however, the individual felt that events were beyond his control, he would lack this surety of reward. He would have only the insecurity of knowing his luck might change. Because of this, his preferred choice would be to seize what immediate reward might be available. Bailer (1961), Graves (1961), and Ladwig (1963), have adequately shown that the reinforcement-responsible person is more apt to defer gratification than is the reinforcement-irrelevant person. Despite the fact that there is no research available which links attitudes of chance control to dropping out of school, it seems highly likely that the decision to remain in school or seek a job, is related to such an outlook.
It would appear that an individual who perceived events as contingent upon his own effort, would likely receive satisfaction from outcomes occurring as he had predicted them. This should, 1) make him more predictable under skill conditions, 2) enable him to use achievement as a motivating factor, 3) make him more rational so as to be more accurate in his predictions, and 4) have him prefer and perform better under skill conditions. Cromwell, Rosenthal, Shakow and Zahn's (1961) results give tentative support to the idea that internal individuals prefer and perform better under skill conditions, and James, Woodruff and Werner's (1965) findings, that smokers who were influenced by the surgeon general's report tended to believe more in self destiny than those who were not influenced, would appear to lend support to the idea that internalizers of reinforcement are more rational. The other two postulates have no support from research.

An individual, self directed and seeking success as a reward, should be able to motivate others more than an individual who sees success in any such happenings as beyond his control. Phares (1965) in attempting to investigate such a hypothesis, found that the achievement-follower did significantly motivate others more and that the trend-following individual achieved no success. However, these results are viewed with question by this writer. While it does seem plausible that such a relationship truly exists, Phares' study is felt to be a victim of sampling bias. In breaking down Phares' sample, using Rotter's (1966) reported percentages in his validation of the measure used, this writer found Phares (1965) using
18.96 per cent from the upper tail as I and 55.83 per cent from the lower end of E. This creates an uneven sample of the variant being measured and casts a shadow on the results.

Basically, it appears that the individual who holds beliefs that he, not others, is the controlling factor in his life, will tend to be more productive, more stable, and maintain a more desirable role in life. It would appear that Rotter, Seeman and Liverant's (1962) point is well taken when they maintain:

...it is quite possible that the real innovators could be drawn from that population which is relatively high in a generalized belief in internal control of reinforcement. (Rotter, Seeman and Liverant, 1962, p. 476)

Results

Those people who perceive themselves as influencing and/or determining what does or does not happen to them, should, because of more persistent strivings to master the environment, tend to emerge as leaders, innovators, and posts of stability. They should, because of this belief that they, rather than others, may control the outcome, tend to be more actively engaged in events, organizations, and actions they perceive as related to their purpose. In short, they should exhibit more behavioral commitment, less conformity, higher achievement, more productivity, and feel less thwarted under skill conditions. However, it would also be conceivable that under conditions of repeated failure that the internalizer, lacking the external viewpoint of irrelevant responsibility, might exhibit more anxiety. Somewhat opposite
outcomes might be predicted for persons lacking personal commitment in that which happens or fails to happen to them. Lacking achievement goals and possessing failure or unpleasant avoidance goals, it would appear that they would look to the avenues of least threat that would convince them that all was going well. Crowne and Liverant (1963), Bennion (1961), and Gore (1962) give tentative support to these proposals with studies regarding conformity. Rotter, Seeman and Liverant (1962) in a study that found externally-expectant individuals higher in status seeking also seem to offer support. Gore and Rotter (1963), Strickland (1965), Douvan and Walker (1956), and Dean (1956) support the tenet that internally-expectant individuals tend to be higher in behavioral commitment. Butterfield (1964) however, found that persons with a reinforcement-responsible outlook, tended to earn lower rather than higher grades. In offering an explanation for this, he maintains that those things a teacher considers important may well differ from those things a student considers important, and that the internal person is more resistant to teacher expectations that differ from his own. Gore's (1962) findings regarding resistance to experimenter bias, seem to support this explanation.

A question raised by Butterfield's explanation and Gore's study has been previously hinted in this paper. Does the person who perceives events as related to his own behavior when compared to a person with a chance expectancy tend to be more creative? In view of the previous discussion and the findings reported regarding conformity, behavioral commitment and speculations presented regarding motivation, one might conceivably answer
yes. However, this is a relationship that has not yet been subject to investigation.

Approaches

Bailer (1961) has suggested that it is quite possible that the child does not build enough experience to evaluate the results of his actions in terms of success or failure until approximately the time he begins to enter school. If this is so, the child would not see results of his behavior as because of himself or because of others, until the school was occupying a major portion of his cognitive hours. The question of concern then for early school years need not even relate to whether the child sees himself as reinforcement responsible, but rather as to how to get the child to see himself in this way. Even during the later school experience, attempting to produce internal viewpoints would appear more profitable thancondoning or adjusting to external perceptions.

It has long been recognized that one way to teach causal relationships is to begin by pointing out such relationships to the child. It would seem that such an approach would be profitable in teaching attitudes of internalization. The teacher who explains to young Johnny that reward or punishment, success or failure in situations will, to a large degree, depend upon himself and continues to explain when appropriate, might be contrasted with the teacher who approaches the child thinking, "you came from those good for nothings that live by the dump, I guess you can't help the way you are." The first approach would likely produce feelings of self responsibility for outcomes, while the
second would produce an outlook that events are beyond one's control. The approach suggested in the second teacher above rings a somewhat familiar note, reminiscent of discussions regarding the culturally impoverished. Findings by Battle and Rotter (1963), Graves (1961), and Lefcourt and Ladwig (1965a, 1966) indicated that the lower class and certain ethnic or racial groups such as Negroes, tend to see life as much more under the control of others than do middle class and Anglo-individuals. Viewed from the standpoint of Sullivan's significant others, it would seem that in the lives of such peoples, important persons have approached life with an air of resignation and defensive "nothing to do with me" attitudes. Bailter's (1961) previously mentioned findings seem to place a great deal of the weight on the teacher for feelings of self power in the child and would seem to be an especially important goal in such projects as Head Start. Cromwell, Rosenthal, Shakow and Zahn's (1961) findings, add further support to this idea when they found that covertly controlling and hostile attitudes on the part of significant others is likely to produce an approach to life consistent with resignation and powerlessness.

Blackman (1962) in an investigation involving flashing lights, found that long sequences and patterns tended to produce feelings of skill, while short sequences and non-patterning tended to produce chance feelings. Often in the school setting in an attempt to reach certain goals by the end of the year, teachers will hastily, or inadequately, cover certain areas. This might be equated with the short, non-pattern sequences tested by Blackman. It would seem that when approaching subject matter, feelings of self-subject-mastery might be attained by the slower, more orderly process of staying
with a task until mastery or sufficient success experience has occurred, so that the child might experience the feeling of "I can do it" rather than "what was that all about."

However, one should not decide from this that failure experiences have no role in the school setting. Bailar (1961) points out from his results, that children indeed will strive to overcome failure if given the chance. Success in overcoming failure should enhance any feelings of outcomes being directed by one's actions. Thus, failure, if used properly, might well be a motivator to greater effort, success in which would lend to interpreting the environment as subject to one's self.

Self discovery learning with its greater autonomy, and emphasis on learning how to learn, would appear to contain promise for aiding individuals produce an internal expectancy of control. By doing and structuring (somewhat) one's own progress, it would seem to alleviate the problem suggested by Butterfield (1964) in the previous section and prevent the short, non-patterned effect mentioned earlier in this section. Self discovery learning might well have a positive snowball effect, in as much as self discovery learning would seem to facilitate reinforcement-responsibility and reinforcement-responsibility should facilitate self discovery learning.

In the public schools one must of necessity, often work with students not necessarily of one's choosing. The fact remains that in the school system there are individuals that will fall all along the I-E continuum. Some will have very strong convictions that one is master of his own fate, and some will hold just as strong a conviction that man sits adrift on the
sea of life. For many teachers and counselors, the question must go beyond how to produce feelings of reinforcement-mastery, it must also be concerned with how to most effectively approach these different individuals until, hopefully, they gain an outlook of control of their own reinforcement.

Lefcourt and Ladwig (1956) in a study involving Negro inmates with an external controlled outlook, found that they exhibited internally controlled responses in a chance task when they were led to believe it was related to an area they believed to be a function of their own skill. It would appear that this same approach might also be applicable to the public schools. The individual who believed that no event was under his control would be hard to find. If a task was made to appear related to a skill area, greater motivation should occur and possibly an increase in feelings of reinforcement-control.

Individuals with views of reinforcement-control might very well adjust more to a teacher's view of knowledge-to-be-acquired if the rationale behind such views were explained. If such shifts should occur, this should reverse the low achievement cited by Butterfield (1964). (This at times, however, might feasibly be a negative effect.)

A counselor adhering to a behavioral approach, might well find an individual operating from an internal control locus, more resistant and less predictable than behavioral theory would suggest. A counselor, on the other hand, operating from a non-directive approach, might well find it more profitable to provide more initial structure for an individual with beliefs of an uncontrollable-reinforcement locus.
Group Therapy seems to also offer an approach for helping students with an external-locus of control outlook. Would it be possible to use the very thing they believe to control them (i.e., powerful others) to subtly change them to an internal locus of control and help them with other problems they might have at the same time by using the group situation. To the extent that Phares' (1965) results hold true, regarding the internal individual being better able to influence others, it might be well to include some such individuals in the group.

There are at present many gaps in knowledge pertaining to the variant internal versus external control reinforcement. As new knowledge becomes available, and as the ideas and knowledge presented in this report are tested in the classroom, new and more applicable implications, support, and knowledge, will hopefully appear.
SUMMARY

In summary, it would appear that the construct regarding one's belief that, he is or is not in control of possible reinforcements, would be of interest to education in the following ways: 1) Understanding pupils who exhibit, to various degrees, an internal or external locus of control, 2) Awareness of the greater desirability of producing internally oriented individuals, 3) Suggestions of how to help produce reinforcement-responsible behavior, and 4) Suggestions of how to more effectively approach individuals who now hold beliefs of self or other control of reinforcement.

The basis of I-E in Rotter's social learning theory has been discussed. Three related constructs; separate identity, inner-other directedness, and alienation have been presented. A brief review regarding the measurement of internal-external control of reinforcement, with emphasis on two tests, the I-E Scale and IAR Questionnaire, was given.

This variant, control of reinforcement, should, as more becomes known regarding it, open more vistas for educators. New insights in understanding and in efficiently approaching the learner, should occur as a result of investigation and application of this construct.

Despite the value of research that has been done to date, much more is needed. Only recently has the locus of control been systematically investigated. However, the greatest lack would appear to be in the application of the already available knowledge. It is hoped that this paper will have
made more meaningful, more accessible, and more applicable, to educators, the variant known as internal-external control of reinforcement.
LITERATURE REVIEWED


Suggestions for Research

1. A repetition of pertinent classic studies with I-E involved as a variant.
2. Replication of Phares' (1965) study without sampling bias.
3. The relationship of I-E to various types of anxieties.
4. The relationship of I-E to creativity.
5. The relationship of I-E to school drop-outs.
6. Studies involving how the production of I might be accomplished.
7. The suggestion would seem to be given by Crandall et al's., (1962) study that girls would tend to be more I, and are using this internal viewpoint to flow into the environment. Is this writer's hypotheses concerning these results valid?
8. Do internalists perceive keener than externalists, and if so, does this suggest that a greater ability must be present in externals to obtain a comparable IQ with internals?
9. Do chance conditions have greater forgetting than skill?
10. Do internal individuals use achievement as a motivator more than external individuals?
11. Are internal persons more predictable than external persons?
12. What implications might group techniques contain for the production and utilization of I factors?
VITA

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