Internal-external control as a predictor of success in a weight control program.

Joseph J. Toto
University of Windsor

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INTERNAL-EXTERNAL CONTROL
AS A PREDICTOR OF SUCCESS
IN A WEIGHT CONTROL PROGRAM

BY

JOSEPH J. TOTO

A Thesis
Submitted to the Faculty of Graduate Studies through the
Department of Psychology in Partial Fulfillment
of the Requirements for the Degree of
Master of Arts at the
University of Windsor

Windsor, Ontario, Canada

1973
The purpose of this study was to investigate the relationship between belief in locus of control and success in a weight reduction program. It was hypothesized that overweight females would be more externally controlled than normal weight females. Furthermore, it was hypothesized that among overweight females, internally controlled individuals would be more successful at weight reduction attempts than external individuals. To test these hypotheses, subjects attempting to lose weight were recruited from the Weight Watchers Organization. Results indicated no relationship between external control and the presence of overweight; however, results did indicate that internally controlled individuals were significantly more successful at weight reduction attempts than were externals. Furthermore, significant shifts in I-E orientation by successful and unsuccessful members indicated that Weight Watchers members within the program for two months to one year were significantly more internal than the group of new members. The practical applications of these results were discussed for weight control programs and suggestions for future research offered.
The author wishes to acknowledge his particular gratitude to Dr. Henry Hinton, the Chairman of his thesis committee, for his patient guidance and constant support throughout the completion of this project. The contributions of Dr. Martin Hart and Hayim Hilton are also gratefully acknowledged. Particular thanks are due to Garry Weyrauch, the Detroit area representative of Weight Watchers and Haniel Kuhner, the director of the Weight Watchers lecture workshops, whose kind cooperation and sponsorship made the present study possible. Special appreciation is acknowledged to the Windsor Weight Watchers lecturers who assisted during the testing sessions. Finally, the warmest thanks are extended to the many students and Weight Watchers members who contributed their time to serve as subjects.
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Chapter 1

INTRODUCTION

The purpose of this study was to investigate the relationship between the personality dimension of internal-external control and the ability to successfully meet the expectations of a weight-loss program for overweight individuals. Internal-external control (Rotter, 1966) refers to an individual's perception of whether the occurrence of a reinforcement is contingent upon his own efforts or on factors beyond his control. Externally-controlled persons believe that their reinforcements are controlled by outside agents. The locus of personal causality for such individuals is determined by factors such as luck, chance, fate, or powerful others. Those who believe that they have some control over their reinforcements, where events are contingent upon what one does, would be considered internally-controlled. This is a concept which has evolved out of social learning theory and is based on previous work by Rotter (1954) and Phares (1957).

The following section will review the literature relating to personality factors of overweight or obese individuals. Internal-external control research, which bears significant relevance to former personality studies, will then be summarized.

Studies of Obesity

Attempts to postulate personality factors related to overweight or obese individuals have been numerous. Obesity has been found to be related to anxiety (Caffman & Pauley, 1981; Hamburger, 1951; Hidole, 1967), depression (Simon, 1963), obesity of parents (Cappon, 1968), and a variety of other personality problems (Bruch, 1957; Kaplan & Kaplan, 1957). In a study that relates feelings about personal control to
obesity, Bruch (1969) carried out a series of systematic observations on hospitalized obese patients. She hypothesized that obese patients are more inaccurate in recognizing satiety than are normals. Early learning usually results in the ability to recognize and to differentiate hunger and discomfort that have nothing to do with food deprivation. Bruch maintains that, for the obese, this learned discrimination is confused and incorrect. For Bruch (1969), the old charge of obese people having "no will power" describes...an important deficit in their functioning related to their not being clearly aware of bodily sensations; one cannot exercise control over a function or need which is not even recognized" (p. 132). Within these observations, Bruch offers an overall analysis of her obese patients:

"I gradually recognized that it was not the one or other 'conflict' or anything of motivational content, but something in their basic approach to themselves and life. These patients suffered from an overriding all-pervasive sense of ineffectiveness, of not being in control of their body and its functions...of basic self mistrust.

Bruch's (1969) study suggests provocative hypothetical considerations; that is, obese individual's inaccurate recognition of satiety and feelings of ineffectiveness or not being in control as a basic approach to life. More systematic empirical support for Bruch's characteristic identifications of obese individuals is available.

In a recent series of experiments, Schachter (1967) has researched the idea that the types of stimuli which motivate eating for the obese individual differ from those which motivate eating for the individual of normal weight (Goldman, Jaffe, & Schachter, 1968; Schachter, Goldman and Gordon, 1968; Schachter & Gross, 1968). He has offered most of his evidence in the form of two generalizations: (1) overweight individuals
are highly responsive to "external" cues; that is, to cues inherent in food or the environment; and (2) overweight individuals are quite unresponsive to "internal" physiological cues of hunger and satiety. Other studies in this line of research have demonstrated that the more an individual weighs, the more responsive he is to "external" related cues and are consistent with Schachter's (1967) findings detailed above.

For example, Nisbett (1967) has reported that when three sandwiches were offered to hungry individuals, the obese subjects would eat more than the normal; whereas, if only one sandwich was offered and additional sandwiches were available but out of sight, it was the normals who ate the greater quantity.

Considering the evidence that eating behavior for overweight individuals is more contingent upon external cues than the eating behavior of normal individuals, Glass, Lavin, Henchy, Gordon, Mayhew and Donchow (1969) raised the following question: "Are obese individuals characterized by a general propensity to respond to external cues, or is their susceptibility to external influence limited to eating?" (p. 407). This study systematically examined the degree to which an individual's weight is related to his acceptance of a variety of persuasive appeals. The subjects for this study were between sixteen and twenty-five years old, 65 were males and 51 were females. Following Schachter (1967), the Metropolitan Life Insurance Company (1941) norms were used to establish percentage weight deviation and cut-off points between overweight, underweight, and normal subjects. These cut-off points were similar to those found in Schachter's research. The persuasibility index was measured by a modified version of the Janis & Field (1957) persuasibility measure.
The findings of Glass et al. (1969) provide strong support for the hypothesis that obese subjects are significantly more persuadable than normal-weight subjects. This data is consistent with Schachter's notion that overweight individuals, in contrast to normals, are more responsive to external cues. The identification of what constitutes "external cues" has further been broadened beyond that of Schachter's to include not only interpersonal food-related cues, but also social cues in the form of persuasive appeals. Glass et al. indicated that underweight individuals are more persuadable than normals, a finding which was not originally anticipated on the basis of Schachter's external cues hypothesis. The authors have offered Festinger's (1954) theory of social comparison processes as a theoretical understanding of the underweight-overweight findings reported in this study. They point out that Festinger has provided evidence to show that there is a considerably greater opinion change among "deviates" in a group than among conformers. Glass et al. continue this reasoning by stating:

"If this notion of opinion deviance can be broadened to encompass any form of deviance including "abnormal" weight, then it might be argued that overweight and underweight subjects are more persuadable than normals because deviates in general tend to be less resistant to external influence... This is obviously a 'post hoc' explanation, but it does deserve systematic testing in view of its ability to account for both sets of findings reported in the study" (p. 413).

As indicated by Glass et al., before this explanation can be usefully accepted, it would have to be determined whether or not underweight individuals are in fact, externally oriented to cues. However, this work does suggest that future research in this area should be directed in untangling the causal relationships between persuadability and obesity.
Glass et al. (1969) suggest, "...one may only speculate that according to social-comparison theory, persuasibility and external control are both reflections of the state of obesity" (p. 413).

In a study related to Glass et al.'s (1969) findings of obesity and the propensity to respond to persuasive appeals, Karp & Fardas (1969) have suggested that obesity may be positively related to external influence, where the latter was defined in terms of Witkin's (Witkin, Hy, Peterson, Goodenough, and Karp, 1962) field dependence/independence concept. Karp and Fardas found that in studying sixty-eight obese and non-obese females, obese subjects were more field-dependent than those of average weight. Furthermore, though the correlation did not reach significance, a slight trend in the direction of the heaviest obese women being the most field-dependent was noted. The above findings offer further support to Glass et al.'s (1969) notion that obese individuals are characterized by a general propensity to respond to external cues.

To summarize, the findings of relationships between obesity and external cues suggest that overweight individuals are quite responsive and susceptible to external influences from a variety of sources - external physical cues, external social cues in the form of persuasive appeals, and external cues in perceiving unstructured situations.

The findings of obese individual's propensity to respond to external influences reflects Bruch's (1969) original notion that the obese may be suffering from a basic sense of "not being in control" concerning their approach to themselves and life. Bruch's conclusion bears conceptual relevance to the notion of internal-external control, which refers to the degree to which individuals perceive the events in their
Given as being a consequence of their own actions, and thereby controllable, or as being unrelated to their own behaviors and thus beyond personal control. It may be speculated that, for the overweight, perceived external influences, as opposed to internally directed behaviors, play a more dominant role in their general orientation.

Internal-External Control

Internal-external (I-E) control has been found to be a successful predictor of a wide variety of behaviors (Gross et al., 1961; Leffert, 1966, 1972; Hinton, 1972; Lefcourt, 1966). Among the many relationships uncovered, none deal specifically with the presence of overweight and I-E control; however, Lefcourt (1972) in reviewing the latest I-E literature, has drawn together important relationships between locus of control and areas of research concerned with field-dependence and the preference for immediate versus delayed reinforcement (deferred gratification). The nature of these two areas of investigation deserves noteworthy attention in attempting to relate internal-external control orientations to overweight. Field-dependence, which can be shown to bear substantial similarity to the I-E construct, has already been supported as a concomitant personality factor concerning obese individuals (Karp & Fardes, 1965). Furthermore, difficulty or inability to defer gratification, an obvious chore for the overweight or obese individual attempting to lose weight, may underlie his difficulty or ineffectiveness to control reinforcements, thereby reflecting a more pervasive external control orientation.

As cited previously, Karp and Fardes (1965) have mentioned a substantial relationship between field-dependence or psychological differentiation (Wells, et al., 1962) and obesity. Lefcourt (1972) notes
that Nikkin and his colleagues speak of differentiation in terms that overlap with the locus of control construct:

"With respect to relations with the surrounding field, a high level of differentiation implies clear separation of what is identified as external to the self. The self is experienced as having definite limits or boundaries. Segregation of the self helps make greater determination of functioning from within, as opposed to a more or less enforced reliance on external nurturance and support for maintenance of the relatively undifferentiated state" (p. 10).

While there are apparent similarities between the locus of control and differentiation constructs, support for a relationship between the two constructs has been limited. Lafcouri (1972) however, suggests that I-E and differentiation constructs might prove complementary in predictive power as they "...bear theoretical similarity in predicting to supernativeness, the experiencing of oneself as a distant source of causation and the tendency to be self reliant rather than acquiescent and conforming" (p. 16).

As field-dependence has been related to obesity, it would seem to follow that external control should be similarly related to obesity.

Furthermore, Lafcouri's (1972) comments about the theoretical similarity between field-dependence and I-E control would also suggest such a relationship.

With respect to the particular purpose of this study, the interest is in predicting ability to successfully fulfill a weight-loss program. While overweight individuals may be generally characterized as externally controlled, those who are more internally controlled should be more successful in a weight-loss program. The rationale for this assumption is based upon research relating I-E and the preference for immediate versus delayed reinforcement (deferred gratification). Despite method-
...logical limitations in the above research, for example, lack of sampling of reinforcement techniques, the overuse of samples atypical or extreme in regard to the measures in question, and the general lack of information linking I-E and "real life" decisions involving delayed reinforcement, Lefcourt's (1972) review offers support for a relationship between ability to defer gratification and internal control. Lefcourt has concluded that "The challenge now (of this research)...is testing the relevance of I-E to the making of long range goal commitments that require tolerance of immediate frustrations and deprivations" (p. 24).

Within the above framework, external control has been related to an inability to defer gratification. Such an inability would seem to characterize overweight individuals. The loss of a substantial amount of weight might certainly be viewed as a long range goal commitment requiring tolerance of immediate frustrations and deprivations. Therefore, it would seem plausible that an overweight person who is able to defer gratification, i.e., to decrease his preferred food intake, would be one who was successful at weight reduction attempts. This success may be due to underlying features of internal control. That is, the person who views himself as an effective controller of his reinforcements is the one who accustoms himself to planning and prolonged effort.

Long time delays between the expression of desire and their satisfaction seem to be a generally accepted affair for the internally controlled person. In this regard, the overweight person's expression of the desire would be to diet, in order to become more physically appealing and fit; the satisfaction would come in the actual loss of weight and increased physical fitness. Likewise, the overweight individual's unsuccessful weight reduction attempts, may underlie a more external orientation, where impulsiveness and a tendency to prefer more easily obtainable and im-
mediate goals would adversely impair his achievement motivations. This process would in turn reflect the "I'll eat today, diet tomorrow" philosophy of so many unsuccessful weight losers.

With regard to weight reduction, it is difficult to specify exactly why an overweight individual would decide to diet in the first place. Two motivational areas seem to be involved either separately or in combination; that is, (1) social pressures (to become more appealing or conforming) and (2) internal pressures (to become more physically fit or healthy). For whatever reasons, once the commitment to lose weight is made, an overweight individual's I-E control orientation may distinguish his success in maintaining the diet.

Another area of I-E research relevant to the concerns of the present study is the relationship of I-E control and attempts at self change. In this respect, the attempt to lose weight for the obese or overweight individual may certainly be viewed as an attempt to bring about self change. In terms of changing a specific behavior pattern, there is evidence for a relationship of the control dimension and smoking. Hjolle and Cleaver (1970) found that among female smokers, externals smoke significantly more than internals. The difference in proportions for external and internal males, while in the expected direction, was not statistically significant. This study supported two earlier works, that of James, Woodruff, and Werner (1965) and Straits and Sachse (1963), both of which have supported a relationship between smoking and external control. James et al. reported that smokers have higher I-E scores (more externally controlled) than non-smokers. Furthermore, after subjects reviewed the Surgeon General's Report (United States Department of Health, Education and Welfare 1964) on the effects of smoking, more internals actually gave up the habit than did
the external. This latter finding was only supported for male smokers. James et al. have offered the possible explanation for the sex difference in that the Surgeon General's Report of studies cited involved male subjects only. Thus, they did not offer sufficient identification strength for females. Alan, the meaning of smoking may be somewhat different for the sexes. Regarding this research, Straits and Scehrest (1963) have also reported that smokers were significantly more external than non-smokers. In another finding, Phares, Richle, and Davis (1966) have noted that when individuals were confronted with personal shortcomings, internals displayed the greater willingness to engage in attempts at self-change which included planning to undergo personal counseling, attending a lecture on mental health or attending a small group discussion on the stresses of college life.

The Relationship Between I-E and Weight Control

Although the above studies have not dealt with I-E control and overweight per se, they do suggest a possible relationship between I-E and programmed diets (e.g., Weight Watchers). That internals are more prone to initiate general and specific action-taking behaviors in attempts at beneficial self-change and are generally more successful in these attempts indicates the following for the obese—those who would successfully lose weight, committing themselves to a weight reduction schedule, might be the more internally controlled individuals. In contrast, unsuccessful weight losers, while committing themselves to the same program and goal, would be more externally controlled. The above implies that differences of I-E within an overweight group exist over and beyond a possible overall relationship between overweight and external control.
Generalizing from the research cited, two hypotheses can be generated regarding the state of overweight and I-E control:

**Hypothesis I**: Overweight people motivated to lose weight as compared to individuals of normal weight, are more externally controlled.

Rationale for the above is based on correlational evidence which supports the notion that obese individuals exhibit excessive vulnerability to external cues that stimulate eating behaviors and more generally, vulnerability to external influences reflected by persuasibility and field-dependence.

**Hypothesis II**: Among the overweight who are self-committed to weight-reducing efforts (e.g., joining Weight Watchers Organization), internally controlled individuals will be more successful than externally controlled individuals in their weight-reducing attempts.

The research has indicated that internal individuals are more prone to initiate action taking behavior (e.g., to undergo psychotherapy or to stop smoking) in order to promote beneficial self-change. Furthermore, the indications are that internals are usually more successful at those attempts.
Subjects:
Subjects were drawn from several lecture classes of the Windsor Ontario Weight Watchers Organization. These subjects were selected from a pool of 250 new and returning Weight Watchers, where 43 new members of the program were chosen for a test-retest procedure. New members were defined as those who had just joined the Weight Watchers Organization and who were selected for their first time at a lecture class. Since there was a small percentage of male Weight Watchers members, this study was restricted to females only, whose ages ranged from 20 to 55 years. A sample of 60 normal weight females enrolled in undergraduate psychology courses at the University of Windsor comprised the control group. Right students were selected since they provided a comparable age group with the age range of Weight Watchers members.

Materials:
The L-Scale (Rotter, 1966) is a 29 item forced-choice questionnaire which includes six filler items. Each item consists of two alternative expectancy statements, one statement characteristic of a belief in internal locus of control, the other is characteristic of a belief in external locus of control. The scale is scored in the direction of external control. (See Appendix A). Rotter (1966) has reported test-retest reliabilities ranging from .60 to .70; extensive reliability studies indicate test-retest reliability ranging from .49 to .83. Results of factor and item analysis indicate internal consistency reliability coefficients from .65 to .79. Recent evidence has questioned the unidimensionality of the I-E Scale. Hirels (1970), carried out a factor analytic study which identified two factors: (1) a personal control factor whose items refer to the relative importance of ability
and hard work versus luck and fate in achieving personally relevant outcomes; and, (II) a system modifiability factor where items refer to the perceived extent to which an individual can influence the direction of the socio-political system. The fact that research summarized by Lefcourt (1972) remains contradictory, that is, personal expectancies of control often do not increase with changes in objective probabilities and the lack of clear-cut replicability of the Personal Control factor reported by Hinton (1972a) supported the use of the total original I-E Scale in this study.

Weight Watcher members are weighed weekly and complete progress charts (see Appendix D) and keep on file for all active members. For a complete description of the Weight Watcher program, see Appendix D.

Weight Watcher members are expected to lose two pounds per week, according to the prescribed diet. Therefore, the progress charts will serve as criterion measures for success in the program.

Procedure

The I-E Scale was administered two times to seven Weight Watcher lecture classes. The first administration took place between January 1973 and February 1973. The second administration occurred after two month intervals, between March 1973 and April 1973. Acculation of the I-E Scale for Weight Watcher members in January was considered desirable since the organization inherits many new members due to New Year's resolution effects. The month of January, therefore, was the optimal time to reach new members. From the 220 members tested, 50 new members' I-E score distributions were divided into categories according to the 33rd and 67th percentiles for the purpose of isolating extreme groups of internals and externals. The I-E Scale was also administered once during February, to a number of
main classes in undergraduate psychology courses. Students were requested to fill in a biographic data sheet (see Appendix C), attached to the I-E Scale, which included their sex, age, height, and weight. The Metropolitan Life Insurance (1941) norms (see Appendix E) were used as the criterion measure for the selection of normal weight individuals. Forty-three normal-weight females' I-E score distributions served as the control group.

When the experimenter arrived at the Weight Watcher lecture classes, he was introduced to the class members by their weekly lecturer. In order to establish rapport, the experimenter introduced himself and explained that he was interested in the Weight Watcher program because he himself once suffered a weight problem and realized the difficulty involved in losing weight. He then offered the following communication:

After meeting with the area representative of Weight Watchers, Mr. Jerry Bowers, and your weekly lecturer Mrs. ___, I have been encouraged to conduct some research concerned with the attitudes of people who join Weight Watchers. (test booklets distributed) Could you please read the instructions attached to this general attitude questionnaire and then record your answers on the separate answer sheet enclosed. The results of this survey will in no way affect your status or membership here at Weight Watchers, however, it is hoped that this data will be helpful for future Weight Watcher programs. All information is strictly confidential. Your name and simple background information are asked for simply so that at some later time, I might offer you feedback on your participation in this study.

Two months after the initial testing of the Weight Watcher members, the experimenter re-administered the I-E Scale to the same seven lecture classes. After being re-introduced to the class members by
their weekly lecturer, the experimenter offered the following statement:

As many of you remember, I have been conducting a survey on the attitudes of people who join Weight Watchers. My research is nearly complete; however, there is need to ask you for your assistance in this study one last time. I have been in communication with the area representative of Weight Watchers, Mr. Jerry Beyer, and he is enthusiastic that the results of this survey will certainly benefit the Weight Watcher Program; however, he has agreed that there is need for a follow-up administration of the attitude questionnaire you received a few months ago. (test booklets distributed) Could you please read the instructions attached to this questionnaire and record your answers on the separate answer sheet enclosed. I have again asked you to supply your name and date of birth in order that I might keep track of who has taken the questionnaire and then offer you feedback on the completed results. Thank you all for your cooperation.

Upon arriving at the night classes of psychology, undergraduate students, the experimenter introduced himself and stated that he was conducting a survey attempting to compile normative data on an attitude questionnaire. The test booklets were distributed and the instructions on the biographical data sheet were reviewed.

Data Analysis

In order to analyze the data, cross-sectional comparisons were examined between all weight groups and mean group I-E scores. A further comparison of I-E and the criterion measure for successful and unsuccessful weight loss was carried out for the new members of the Weight Watchers program.

Since longitudinal data was available, the opportunity arose to investigate any changes in locus of control that may have occurred from the Weight Watchers members participation in the program. Therefore,
the following possibility was considered - the I-E scores of successful
weight losers will, over the course of their membership, shift in a
more internal direction.

Research, reviewed by Decorti (1972), concerning changes in I-E
central has offered support for the theoretical relationship between
increased effectiveness and increased perception of internal control.
The most convincing support for this relationship has been offered in
studies dealing with traditional psychotherapy clients or short term
crisis patients working through problem confronting situations
(Smith, 1970; Duš, 1970; Gillis & Jessor, 1970). In a non-therapy
investigation, Gottesfeld & Dexter (1966) found that prolonged active
involvement in problem confrontation also produced I-E change.
Chapter III

Results

Overweight and I-E

Table 1 presents the mean I-E scores for each of the various weight groups examined in this study. Higher means indicate a more external score.

Table 1

Mean I-E Distribution for the Various Weight Groups

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean Scores</th>
<th>Group N's</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Normal Weight-Rignt Students</td>
<td>10.11</td>
<td>60</td>
</tr>
<tr>
<td>2. Overweight Right Students</td>
<td>9.55</td>
<td>51</td>
</tr>
<tr>
<td>3. WW members - New</td>
<td>10.91</td>
<td>44</td>
</tr>
<tr>
<td>4. WW members - in program 2 months or less</td>
<td>8.19</td>
<td>32</td>
</tr>
<tr>
<td>5. WW members - in program 6 months to 1 year</td>
<td>8.22</td>
<td>34</td>
</tr>
<tr>
<td>6. WW members - in program 1 to 1+1/2 years</td>
<td>8.58</td>
<td>36</td>
</tr>
<tr>
<td>7. WW members - in program 2 years or more</td>
<td>8.76</td>
<td>38</td>
</tr>
</tbody>
</table>

* - WW indicates the term Weight Watcher.

Table 11 presents the one way analysis of variance results which indicate that the mean I-E scores for the seven weight groups differed significantly ($F=5.12$, $df=6/266$, $p<.001$).

Table 11

One Way Analysis of Variance for I-E Distribution

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>MS</th>
<th>df</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groups</td>
<td>430.19</td>
<td>71.70</td>
<td>6</td>
<td>5.12</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Error</td>
<td>3727.29</td>
<td>14.01</td>
<td>266</td>
<td></td>
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</table>
To determine where the specific differences of this interaction were, a further analysis employing the Tukey (a) procedure (Miller, 1962) was performed and was fully represented in Appendix E. Within the specific comparisons for the groups, no support for hypothesis I was found; that is, there were no differences in I-E control among the normal weight females and the overweight females of either the student or the new Weight Watcher’s groups. An unexpected finding was that the retaining Weight Watcher members who had been in the program for 2 months or less; to one year or less; were each significantly more internal than the group of normal weight females and the new weight watchers.

I-E and Attempts at Weight Loss

Table III presents the frequency distribution for the forty-three Weight Watcher members which represent the three levels of I-E control (external, middle, internal) and the standard success criterion of 2 pounds per week. A chi square analysis indicated support for hypothesis II; namely, that internal members of the Weight Watcher program were significantly more successful in their weight reduction attempts than were externals of the same group ($X^2 = 6.68$, df=2, $p<.05$).

In considering the possibility that after 2 months the I-E scores of successful new members might shift to a more internal direction, a chi square analysis using the Fischer Exact Test (Ferguson, 1989) was performed. The Fischer Exact Test was chosen due to the small number of individuals available for the repeat procedure. From eight individual sets of I-E scores, one set showed no change and could not be used; therefore, the sample size employed was seven (see Table IV). At least than the .05 level of significance (1 chance out of 35 or .0283),

---

1. Group mean scores for the three levels of I-E control (external, middle, internal) were 14.5, 11.0, and 6.9 respectively.
the results of this analysis indicated that the I-E scores of unsuccessful members did in fact decrease, while the scores of unsuccessful members increased (became more external).

Table III

<table>
<thead>
<tr>
<th>External group</th>
<th>Unsuccessful Weight Loss</th>
<th>Successful Weight Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Middle group</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Internal group</td>
<td>5</td>
<td>10</td>
</tr>
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</table>

Table IV

<table>
<thead>
<tr>
<th>Group Numbers</th>
<th>I-E Test</th>
<th>I-E Test II</th>
<th>Unsuccessful (6, V)</th>
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<tbody>
<tr>
<td>1</td>
<td>9</td>
<td>0</td>
<td>8</td>
</tr>
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<td>2</td>
<td>15</td>
<td>16</td>
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<td>3</td>
<td>15</td>
<td>23</td>
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Chapter IV
DISCUSSION

The results of this study provide no support for the hypothesis that overweight individuals in a weight reduction program are more externally controlled than individuals of normal weight. Overweight subjects of either the new Weight Watcher group or the student group that were not in a weight reduction program were not significantly more external than normal weight individuals. To maximize the homogeneity of subject groups, sufficient care was taken to control for such variables as age, sex, occupation, and education by an elimination of extremes along these dimensions and thorough matching procedures. Although previous research indicated that overweight individuals are more susceptible to external cues, personality and field dependence, it would not seem that these variables may be generalized to a characteristic expectancy of external control among overweight individuals.

Previous studies concerned with the aforementioned variables defined the overweight range as significantly higher than that of the present research. If a relationship between external control and obesity were to be found, a more strictly defined population of clinically obese individuals should be examined. Overweight individuals in this study ranged from twenty percent to twenty-five percent above their normally prescribed medical weights. With a less restricted weight group such as this, there is reason to suspect that the possible relationship between overweight and external control would not be as pronounced.

The unexpected result of the first two groups of returning Weight Watchers being significantly more internal than the newcomers would seem to suggest that over a course of time, an individual's exposure to the Weight Watcher program and his concomitant weight loss affects and
strengthen his sense of control. Although information regarding the outcome of each individual within the first two returning groups was not available, Weight Watcher drop-out rates indicate that a major percentage of unsuccessful members will leave the program within the first two months after their initiation. Therefore, it seems probable that individuals within the first two groups of returning members were generally unsuccessful since they were in the program from two months to one year. Furthermore, evidence that old members are more internal than newcomers suggests that the returning members' initial scores, were they available, would have been comparable to the present, more external group of newcomers.

Longitudinal data available for the present group of newcomers further supports findings concerning the internality and success of the first two returning groups. Since the repeat results must be qualified, due to a small sample size, they nevertheless indicate a significant trend concerning successful and unsuccessful weight losers. While the 1-R scores of successful Weight Watchers diminished, indicating increased internal control, the scores of unsuccessful members increased (became more external). This trend partially supports the finding that Weight Watcher members within the program for two months to a year were more internal than the newcomers; that is, the influence of the Weight Watcher program itself, plus actual loss of weight can initiate a change to a more internal orientation. Among those who remain in the program but are unsuccessful weight losers, a sense of control appears to shift in a more external direction.

The results from hypothesis II indicate a relationship between an individually locus of control and his degree of success in weight loss. Internally-controlled individuals were more successful in losing weight
than were their external counterparts. In order to understand the underlying functions of this relationship, the dynamic aspects of weight reduction need to be examined. The necessity of dieting in order to lose a substantial amount of weight requires the ability to withhold or defer intake of either large quantities of food or preferred foods. The requirement to withhold or defer gratification suggests that an individual attempting to lose weight must exercise a good deal of self-control. The finding that internal individuals are more successful at reduction attempts suggests that they also possess a high degree of self-control. These results also complement previous research involving internal individuals' successful attempts to stop smoking (Jamez, Moodie, and Burman, 1965). It would seem that self-control is a common factor in both successful weight loss and the ability to stop smoking. Future research could employ questionnaire measures concerning feelings of self-control, in order to establish further refinement in predicting behaviors such as the extinction of smoking and weight loss.

The results of hypothesis II further suggest that I-E may be of use to weight reduction programs as a diagnostic aid. Self-control, or the relative lack of such quality, seems to vary among internal and external individuals. Since externals are not as successful in their weight reduction attempts, it would be possible to alter specific courses of a weight loss program to more fully meet the needs of their external members. For example, diets could be adjusted to offer the external member higher quantities of food at first with a slowly diminishing intake over time. A slower but more successful initial progress may aid the external individual in acquiring the added self-confidence and self-control needed to maintain a later more stringent diet. Weight
control programs that employ a lecture series technique, such as the Weight Watchers, could vary the mood and tone of lecture communications to maximize their effects upon particular audiences. Internal members would seem to benefit more, not by drilling lectures pertaining to the need for self control or the necessities to restrain impulsive eating, but by more direct and helpful communications dealing with how particular foods on the diet menu may be prepared and the initiation of group discussions pertaining to common concerns. Likewise, it may be found that external members could benefit from lecture series involving a more intense supportive atmosphere dealing specifically with the problems of self control required to sustain a diet and discussions of behavior modification techniques to avoid impulsive eating.

Overall, the implications of the present study suggest that the problems of weight reduction, similar to those of weight gain are multifaceted. Therefore, if varied lecture techniques are employed to maximize effects upon particular groups, there should remain common educational communications for all lecture series. Weight reduction programs should deal not only with the physiological and nutritional aspects of weight loss, but with important psychological information as well. Specifically, the relevance of overweight individuals' susceptibility to external cues and the related problems concerning self control may be offered as valuable insight to be used in the management of impulsive eating and overall weight control.

The present study has indicated a relationship between internal control and self control within a specific adult age range. Future research using a younger age population may determine whether such a relationship could be supported for children. If so, significant

2. It should be noted that the Weight Watchers program employs none of the above suggestions.
Information regarding the way in which self-control may develop in children and the varied aspects of a child's socialization might be gleaned from such investigation. In order to further examine the relationship between locus of control and field-dependence, future studies concerned with external control and obesity should employ the joint predictive power of the I-E and field dependence-independence constructs. Since the present study was restricted to only females of the Weight Watchers program, extended research should examine the possible sex difference relationships that might occur between locus of control and overweight status. Furthermore, an examination of comparisons in I-E control among members of other weight reduction programs may serve as useful information for the advance and development of future weight control programs.

In conclusion, the results have shown that internal control, which reflects the belief that an individual's actions will effectively determine his life's consequences is predictive of the ability to be successful in a weight loss program. These results are consistent with the theoretical underpinning of the locus of control construct, in which it should be expected that a person with a belief in internal control will be more effective in accomplishing goal-oriented behaviors.
REFERENCES


Metropolitan Life Insurance Company, statistical bulletin, 40, 1941.


Internal-External Control Scale

This is a questionnaire to find out the way in which certain important events in our society affect different people. Each item consists of a pair of alternatives labeled 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 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 the separate answer sheet which has been passed out. PRINT OUT THIS ANSWER SHEET NOW. Print your identification number and any other information requested by the examiner on the answer sheet, then finish reading these directions. Do not open the booklet until you are told to do so.

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. Find the number of the item on the answer sheet and blacken the space under the letter which corresponds to the statement you choose as most true.

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're concerned. Also try to respond to each item independently when making your choice; do not be influenced by your previous choices.

REMEMBER

Select that alternative which you personally believe to be more true.
I now strongly believe that:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

* Note: - These alternatives are scored in the external direction,
I more strongly believe that:

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 in 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 must just as well decide what to do by flipping a coin.

16. a. How 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 one's mistakes.
   b. It is usually best to cover up one's mistakes.
I once strongly believe that:

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

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

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

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

27. a. There is too much emphasis on athletics in high school.
     b. Team sports are an excellent way to build character.

28. a. What happens to me is my own doing.
     b. Sometimes I feel that I don't have enough control over the direction
        my life is taking.

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

Weight Watcher Progress Chart
What Is the Weight Watchers program?

The Weight Watchers program, consisting of a carefully planned eating program and regular attendance at weekly classes, is designed to enable the overweight person to reach a realistic weight goal and maintain that weight loss.

How do you join?

The only requirement is that a person have at least 10 pounds to lose. Each member is given a weight loss goal that is based on insurance company studies that relate height and body build to ideal weight.

What does it cost?

The fee for the first class is $6.00, which includes registration. The classes are $2.50 each thereafter. After paying the $2.50, members can attend as many meetings a week as they wish — at no extra charge. These fees are the same for all Weight Watchers classes. Each person is responsible for the weekly dues so long as he is a member.

How long does the program last?

The basic program lasts as long as the member wishes. There is no obligation or contract to continue. Members can attend weekly classes until they reach “goal weight.” Those who attend 16 consecutive weekly classes receive an award based on the amount of weight loss. The ultimate award is a free lifetime membership for those who reach and maintain goal weight within two pounds.

Do you need a doctor's approval to join?

Weight Watchers recommends that members consult with a physician before starting on this or any other weight reduction program. In some states, local law requires that they obtain a doctor’s certificate in order to join Weight Watchers.

Once you start the program, are you obliged to continue?

There is no obligation to continue with the Weight Watchers program and members may drop out at any time. Of course, if someone wishes to rejoin he may do so when an opening is available. In such instances, a new registration fee will be required.

What happens at a Weight Watchers® class?

At a typical class, members are weighed in privately and their weight loss for the week is recorded. Members’ weights are never divulged. The members then hear a lecture by a carefully trained Weight Watchers’ lecturer — a successful graduate of the program, who is highly qualified to describe the official Weight Watchers plan for weight reduction. She relates her own experiences in losing weight and in keeping it off.

She then asks for comments from members on their own progress. This “group approach” is especially successful in that it gives overweight people the opportunity to freely discuss their experiences and to draw encouragement from one another. The class atmosphere is one of comradery, cordiality, and great empathy, which encourage interchange and exchange by the members.

Are the classes “Co-ed”?

Weight Watchers conducts “co-ed” classes in some areas, classes “for women only” or “men only.” There are also classes exclusively for teenagers who may prefer these special sessions.

What do you eat as a member of Weight Watchers?

The principal purpose of the Weight Watchers program is to teach members to eat sensibly, and to lose weight without starving. Each member is given a prescribed eating program when he joins, a program that will help him lose weight, look better and feel better. Members eat three satisfying, well-balanced, nutritional meals a day, and in many cases, eat more as Weight Watchers than they did before they joined! The difference is that they are learning proper eating habits.

When members reach their “goal weight”, they may go on “maintenance”, thereby staying at their desired weight.

“Free lifetime membership”

A special “Free Lifetime Membership” is awarded to members who reach “goal weight” and who have received their Weight Watchers pin.

They must stay within two pounds of their goal and attend one meeting each month or a class of their choice. These classes are without charge.
I am conducting a survey, attempting to compile normative data on an attitude questionnaire. Before reading the instructions to the questionnaire, could you please supply all the information indicated on this form below. This is simply background information needed to complete a large amount of normative data. After completing this information, please read the instructions to this questionnaire carefully and record your responses to the questionnaire on the computer answer sheet. Penalties will be supplied.

DATE: __________________________

NAME: __________________________

PLACE OF BIRTH: __________________________

AGE: __________________________

SEX: __________________________

HEIGHT: __________________________

WEIGHT: __________________________

EDUCATION: __________________________

OCCUPATION: __________________________

MARITAL STATUS: __________________________

NUMBER OF CHILDREN: __________________________
### Metropolitan Life Insurance Weight Norms

#### Normal Weights for Men

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Table of Paired Differences

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Note: * indicates significance at .05 level.
**APPENDIX G**

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VITA AUCTORIS

1949
- Born in Newark, New Jersey, to Vincent and Antoinette Toto.

1956-1966
- Educated at Tremont Avenue Public School and St. Benedict's Preparatory School, Newark, New Jersey.

1971
- Received the Bachelor of Arts degree in Psychology from the University of Colorado, Boulder, Colorado.

1971-1973
- Registered as a full-time graduate student at the University of Windsor.