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A REVISED MEASURE OF PERCEIVED LOCUS-OF-CONTROL.

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by

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ABSTRACT

On the basis of previous studies which demonstrated the multidimensional structure of Rotter's (1966) I-E Scale and the four-dimensional theoretical conceptualization of control suggested by Tiffany, Shontz, and Wolf (1969), an attempt was made to construct an inventory of perceived control scales. Initially, six 15-item true-false scales were devised as follows: (a) control over one's impulses, desires, and emotions (OIM); (b) control over the actions of other persons, institutions, etc. (OPO); (c) self-control over one's outcomes through personal effort, motivation, perseverance, ability, etc. (SCO); (d) control of the individual by his impulses, desires, or emotions (BIM); (e) control of the person by external forces in the environment such as other individuals, institutions, the government, etc. (BPO); and (f) control of the individual by fate, chance, or luck (BFT). Thus, the first three scales (a - c) represented perceived internal control, while the remaining three scales (d - f) represented perceived external control.

Through the item analytic processes inherent in rational-empirical scale construction (Schwartz, Note 1), the six scales were reduced to four as follows: (a) control of the individual by external forces such as fate, chance, or luck, or by other persons, institutions, etc. (BEX); (b) control of the individual by his impulses (BIM) versus control of one's

impulses (OIM); (c) control over other individuals, institutions, etc. (OPO); and (d) self-control of personal outcomes (SCO). A virtually identical structure was obtained in both the original and replication sample factor analyses of the retained 47 perceived control items. The factor analyses of the scale scores, on the other hand, yielded two different solutions. In the original sample, a single general factor was obtained which indicated that the four scales were best represented as an I-E continuum with the two external scales (BEX and BIM) loading positively and the two internal scales (OPO and SCO) loading negatively. In the replication analysis, two orthogonal factors were indicated; the first being external control (BEX and BIM) and the second internal control (OPO and SCO). Thus, the issue of whether I-E is best conceptualized as a continuum or as two separate, unrelated traits is left unsettled.

The relationship of the results of the two studies to locus of control theory as well as suggestions for future studies were discussed.

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CHAPTER I

INTRODUCTION

In 1966, J. B. Rotter presented the first formal exposition of his I-E Scale, designed to assess "whether or not an individual *believes* that his own behavior, skills, or internal dispositions determine what reinforcements he receives" (p. 4). According to Rotter (1966), external and internal control of reinforcement may be defined in the following manner:

> *External control*. When a reinforcement is perceived by the subject as following some action of his own but not being entirely 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. (p. 1)
>
> *Internal 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. (p. 1)

On the basis of earlier Likert-type scale construction attempts to measure this supposedly continuous dimension (James, 1957; Phares, 1957), Shephard Liverant sought to broaden the test by developing a series of subscales designed to tap several different I-E areas (cf. Rotter, Seeman, & Liverant, 1962) using forced-choice items. According to Rotter (1966), however, the subscales were incapable of generating separate predictions. For this reason, the use of subscales was abandoned and the I-E Scale was constructed with the intent of being unidimensional.

Problems with the I-E Scale

Construction phase. In a recent article (Rotter, 1975) it was sta-

ted that "the Likert format . . . was discarded in favor of a forced-choice instrument in order to reduce correlations with the Marlowe-Crowne Social Desirability Scale" (p. 61). On the surface, this appears to be a reasonable justification. However, the manner in which forced-choice inventories attempt to control for desirability responding is by matching choices within each item for correlation with social desirability. The only way in which one could fulfill this condition would be to administer the choices within each item separately and later pair them for desirability. In the construction of the I-E, Rotter (1966) failed to mention whether, in fact, this was done. Instead he reported only the average correlation between the entire two scales over several administrations, making no reference to the individual items or choices within items. Thus, it is uncertain whether he actually observed the general principles for constructing a forced-choice test. This appears, however, to be a common failing among even the more recent attempts to reconstruct the I-E or to add other subscales using a forced-choice format (e.g., Reid & Ware, 1973; 1974).

In two similar studies (Hjelle, 1971; Joe, 1972) the adequacy of matching choices within each item of the I-E for desirability was examined. The concluding statement for the Hjelle (1971) study serves to summarize the two studies' main findings: ". . . it appears that the adequacy of matching statements for SDSVs [social desirability scale values] is indeed quite questionable, if in fact not totally suspect on the basis of the present data" (p. 815).

Norman (cited in Jackson & Messick, 1967), in discussing some problems encountered with the use of forced-choice measures, has suggested

that even if the aforementioned procedure was strictly adhered to in pairing choices, one must make the added assumption:

> . . . that it makes no difference what the content of the stimulus is with which a given other stimulus is paired as long as they both have the same single-stimulus desirability parameters. On the face of it this seems improbable. There exists, in fact, a considerable body of research data in the areas of sensory psychophysics and attitude scaling indicating that perceived attributes of stimuli are markedly affected by variations in the context or background in which they are presented. (p. 378)

As another problem inherent in forced-choice inventories, Cattell (1973) and Nunnally (1967) have suggested that forcing subjects to select one member of a pair of highly desirable or highly undesirable alternatives may lead to resentment or frustration, surely not the sort of response one typically wishes to foster in one's subjects or in a clinical therapist/patient relationship.

Factor-analytic problems. In order to provide support for his contention that the I-E is unidimensional, Rotter (1966) presented the following results from two factor analyses of the I-E items:

> The first (Rotter, 1966), based on the same 400 cases . . . indicated that much of the variance [italics added] was included in a general factor. Several additional factors involved only a few items, and only a small degree of variance for each factor could be isolated. These additional factors, however, were not sufficiently reliable to suggest any clear-cut subscales within the test. Franklin (1963) also factor analyzed his 1,000 cases of high school students and obtained essentially similar results. All of the items loaded significantly on the general factor which accounted for 53% of the total scale variance. (p. 16)

One should notice that several important details of the analyses are absent; i.e., (a) the type of factor analysis--principal components or a common-factor technique--performed by each author, (b) the percentage of variance accounted for in Rotter's (1966) analysis, (c) each author's factor pattern matrix, (d) the size of the eigenvalues, and (e) the rota-

tional procedure, if any, applied to Rotter's "additional factors" before deciding to retain only one general factor. In order to give the reader a clear impression of the results, each of these points should have been delineated. Without knowing at least the particular form of analysis employed, it is highly unlikely that any independent researcher could replicate Rotter's (1966) results.

Again, as in the construction phase, Rotter was not alone in terms of incomplete reporting of factor-analytic results concerning the dimensionality of the I-E (cf. Collins, 1974; Collins, Martin, Ashmore, & Ross, 1973; Gurin, Gurin, Lao, & Beattie, 1969). Several of these studies, for example, refer to the procedure used as "principal components factor analysis with squared multiple correlations used as communality estimates" (Collins, 1974; Collins et al., 1973; Levenson, 1974). One wonders whether the various authors: (a) actually performed or meant that they had performed a common factor analysis, (b) utilized an iterative solution, and/or (c) knew the meaning of and the rationale for the procedures which they employed.

A related problem is that of determining the appropriate number of factors to extract. In the majority of the studies one can only assume that perhaps the number of factors was determined on an a priori theoretical basis (e.g., Collins, 1974; Gurin et al., 1969; Reid & Ware, 1974), as opposed to any statistical or mathematical means such as is involved in an examination of the eigenvalues. In a recent study (Schlegel & Crawford, 1976) it was suggested that "three varimax factors emerged" (p. 378). In this instance, one might suppose (although perhaps incorrectly) that this "emergence" might represent a built-in component of the partic-

ular analytic program employed, such as Kaiser's (1970) "Little Jiffy". It is suspected that a major source of confusion concerning the dimensionality of the I-E can be attributed to the sort of poorly reported and/or executed factor analyses such as those which were cited in the previous examples.

Further checks on the dimensionality of the I-E. Since Rotter's (1966) and Franklin's (1963) initial factor analyses of the I-E, no other author has succeeded in demonstrating the unidimensionality of the measure. In fact, the common concensus appears to be that there are at least two replicable factors within the scale. Gurin et al. (1969) found two factors which were termed "control ideology" and "personal control", representing third and first person items, respectively. Valecha and Ostrom (1974), using an abbreviated 11-item version of the I-E, replicated the two Gurin et al. (1969) factors.

Mirels (1970) identified "ability versus luck" and "control of social systems" as the two major factors. Although not specifically stated, all of the items saliently loading on the latter factor were stated in the third person, yet were different from the Gurin et al. (1969) items.

Abrahamson, Schludermann, & Schludermann (1973) replicated Mirels' (1970) two factors and discussed a possible third factor accounting for 7% of additional variance. This third factor concerned items dealing with an individual's control over his own "likability". Viney (1974) also obtained two separate replications of the Mirels (1970) factors using Australian adolescents as subjects.

Finally, Cherlin and Bourque (1974) identified a general control factor and a political control factor, composed entirely of political-

governmental referent items.

In general, all recent evidence has quite strongly demonstrated the multi-dimensionality of the I-E. Whether this finding is attributable to the more appropriate recent use of factor analysis or merely reflects a change of subject reaction to the scale in current years is uncertain. The fact that a majority of the later analyses typically accounted for an average of only 25% of the scale's total variance indicates that there likely is much greater diversity of item content than Rotter had originally supposed or intended.

Additional factors which may have contributed to the difference in results across studies include: (a) the typically small N, often less than 100 (e.g., Levenson, 1974; Reid & Ware, 1973); (b) the atypical populations sampled, such as blacks (Gurin et al., 1969), prison inmates (Rotter, 1966), female weight watchers (Reid & Ware, 1973), and earthquake victims (Cherlin & Bourque, 1974); and (c) the frequent addition of other scales which provide new marker variables and may radically alter the resulting factor structure (cf. Cherlin & Bourque, 1974, p. 579; Schlegel & Crawford, 1976).

Statement of the Problem and Related Theoretical Formulations

Since the I-E does not appear to be a unidimensional measure and the factor subscales identified within have questionable predictive validity in their present form (e.g., Woodburn & Bekker, 1975), I feel that it is time for a reformulation of Rotter's concept of locus of control and the construction of an adequate measure of the various identified facets of the construct. This sentiment is strongly echoed by Lefcourt (1976) in the following statement:

> The task that would seem to be of the greatest importance now would be in the systematic selection of specific factors to be studied; that is, there would not be much additional benefit from the continuous factor analyzing of given locus of control measures. . . At the present time it would seem most apt that investigators devise specifically aimed locus of control measures for theoretically relevant criteria. Instead of simply rediscovering multidimensionality, it is now appropriate to plan for the assessment of perceived control for specific reinforcement areas. (p. 133-134)

Perhaps the clearest and most relevant exposition in recent years concerning locus of control was offered in a series of articles by Tiffany and associates (Tiffany, 1967; Tiffany, Salkin, & Cowan, 1970; Tiffany, Shontz, & Woll, 1969). Tiffany et al. (1969) have presented a re-examination of Tiffany's (1967) dimensions of control and the relationship of these dimensions to psychoanalysis, S-R theory, Rotter's social learning theory, and Rogers' "self" theory. The four dimensions of control were identified as: (a) control of the individual by internal forces or impulses (FI), (b) control of these internal forces by the individual (OI), (c) control over forces external to the individual (OE), and (d) control of the individual by the external forces or the environment (FE).

This formulation fits surprisingly well into a general psychoanalytic framework, for example. FI may be represented as id impulses striving for expression and essentially uncontrolled, OI as control by the ego over the id impulses, and OE as the ego's role of managing the demands of the external world. Only FE is unaccounted for in orthodox psychoanalytic thought. However, according to the authors, "current theorists identified with the psychoanalytic school of thought are more concerned with how personality traits are acquired through experience and perceptions within social situations than with the instinctual basis of personality" (p. 77-78). Thus, by extending psychoanalytic theory to include that of

modern ego psychology, it is possible to account for all four of Tiffany's dimensions.

In light of the Tiffany et al. (1969) formulation and the previously mentioned studies which have demonstrated the multidimensional nature of the I-E Scale, it is felt that a deliberate attempt to construct a series of scales designed to assess these dimensions might generate predictions superior to those allowed by Rotter's (1966) total scale score based on his broad construct of internal-external control. Additionally, by lengthening each factorially and theoretically suggested subscale to an appropriate length (10 to 15 items each), it should be possible to achieve internal consistency for each subscale which is equal or superior to that obtained for the I-E (Rotter, 1966). Although many of the original I-E items may be adapted for the new subscales, several major changes are to be made.

1. Two studies (Gurin et al., 1969; Valecha & Ostrom, 1974) as well as two review articles (Joe, 1971; Minton, 1972) have suggested that some individuals draw a sharp distinction between their beliefs concerning personal control and control of the average man, perhaps not including themselves among the latter group. Although Rotter (1966) originally worded a majority of his items in this fashion (i.e., "people", "an individual", "students", "average citizen", etc.) in order to control the social desirability of the items, apparently some individuals respond in a manner which suggests that these items are not considered to be of a personal nature at either a conscious or unconscious (disguised) level. Thus, what an individual believes about how other persons' reinforcements are governed may tell us little or nothing about his perceptions concern-

ing his own reinforcements. It is believed that a more appropriate measure of perceived locus of control should deal primarily with one's beliefs about himself as either a source or target of control, rather than what he believes about the sources or targets of other persons' control. Thus, all items in the new scales will be stated in the first person.

2. Recent studies (Collins, 1974; Levenson, 1974) employing Rotter's (1966) original items and I-E-like items have demonstrated both the essential equivalence of forced-choice and Likert-type items, and that items in Likert format may be successful in overcoming desirability responding. Thus, instead of using the forced-choice format, the new subscales will be constructed using individual "true-false" items, the most common special case of a Likert item.

3. Although the I-E is scored only for "externality", on the assumption that internality-externality are on a continuum, recent evidence suggests that this may be an inappropriate formulation of the construct. In Levenson's (1974) study separate scales were constructed for internal control, control by chance, and control by powerful others. Items were taken directly from Rotter's (1966) scale and additional I-E-like items were constructed. Although the correlations between internal control and the remaining scales were negative as expected, neither was significant! Thus, the new subscales will initially be written to tap either a facet of internal control or one of external control. It is probably best at this time to treat an individual's beliefs concerning internal and external control as separate, distinguishable entities until demonstrated otherwise.

The New Subscales

The new subscales will consist of three separate 15-item scales of internal control and three of external control as described below. Each scale represents an attempt to obtain an index of: (a) a theoretical construct suggested by Tiffany et al. (1969) or (b) a construct suggested by examination of specific item-types found in the I-E inventories of Rotter (1966), Levenson (1974), and/or Reid and Ware (1973; 1974). All items concern one's perceived, not actual, locus of control.

Internal Control Subscales

Self-control of one's emotions and impulses (OIM). This dimension is represented in the Tiffany et al. (1969) OI scale as ego control of id impulses which are striving for expression. An individual with a high score on this proposed scale might be described as being in full control of his emotions and not being a slave to impulses or sudden whims. This scale is based largely on the items of Reid and Ware's (1974) scale of "self-control". Since the factor analyses of Reid and Ware (1974) and Schlegel and Crawford (1976) were somewhat conflicting, it is uncertain whether this dimension should properly be considered a facet of internal-external control. However, Joe (1971) has cited impressive research evidence demonstrating that internal subjects can control "their own impulses better than externals" (p. 626).

Self-control of personal outcomes (SCO). Although the distinction between this and the previous subscale is perhaps only semantic, this scale deals more directly with the individual's expectancy of reinforcement issuing as a result of one's own ability, motivation, hard work, etc. This scale serves as a measure of what Rotter (1966) has defined as

internal control.

Control of or influence over others (OPO). This scale corresponds with OE (Tiffany et al., 1967), Mirels' (1970) "control of social systems", and Rotter, Seeman, and Liverant's (1962) dimensions of "social-political control" and "dominance". This particular scale may not typically be thought of as a measure of internal control. More correctly, it implies internal control in that if an individual feels he can influence other individuals or systems which are external to himself, he is likely to experience a greater sense of personal power or control over his own reinforcements.

Several theoretical and research articles have supported an OPO-like variable as being related to internal control (Joe, 1971; Phares, 1965; Rotter, 1966). Typical of these writings are the following quotations:

> Several early investigations have shown that internals exhibit more initiative in their efforts to attain goals and to control their environments than did externals. (Joe, 1971, p. 626)

> . . .in this experiment, internally controlled subjects were able to induce significantly greater changes in the expressed attitudes of others than were external subjects. (Phares, 1965)

Thus, not only do these individuals believe that they possess internal control, but their actions also attest to this.

External Control Subscales

Control of the self by one's own emotions or impulses (BIM). This scale serves as a reflection of the first internal scale, representing Tiffany's FI. The essential notion is that the id impulses are in control of the person, or that the id is simply uncontrolled or unchecked. This scale has been made a part of external control not because the id impulses are actually outside of the person, but rather that they may be

felt as such by the individual. These items, as in the OIM scale, consist largely of those of Reid and Ware's (1974) "self-control" scale. A person scoring high on this proposed scale may be described as being quite emotional and frequently acting on impulse.

Control of the self by others (BPO). Many individuals may perceive other persons, institutions, and even concepts such as "the law" as primary determinants of the reinforcements they receive in life. This scale represents FE (Tiffany et al., 1969) and "social systems control" (Reid & Ware, 1973). This scale and the following one jointly represent what Rotter (1966) has referred to as "external control".

Control of the self by fate, chance, or luck (BFT). In this scale an individual's reinforcements are seen as entirely beyond his control; in the hands of "the gods", so to speak. The scale is best represented by Reid and Ware's (1973) "fatalism".

As a related matter, all items were written for each subscale and scored in the "true" direction only. This was necessary because it was uncertain what a denial or "false" answer to any specific item might mean. The denial or non-endorsement of an external item might not necessarily imply an opposite internal scale or even that the individual feels himself to be internally controlled. For example, in answering "false" to an item such as the following: "My behavior is frequently determined by other influential people", one's rationale for doing so might be that he considers fate to be a more potent determinant of his own reinforcements, rather than that he believes that he personally controls these people.

The only two scales which appear logically to represent a bipolar

continuum are OIM and BIM. Denial of an item in the former scale could quite reasonably lead one to the conclusion that the individual's impulses do, in fact, control his actions or that he feels these impulses to be uncontrolled or uncontrollable. In general, it appears as though the only appropriate way to determine if some of these scales are bipolar (or that denial of an external item, for example, implies internal control) is to leave the issue to be resolved by the final data analysis. Admittedly, it would be preferable to deliberately specify the polarity of the scales prior to test construction and, thus, be able to write an equal number of true and false keyed items. However, the present theoretical formulations and research findings are not at a stage where this is warranted.

Conceivable Factor Solutions

The following hypothetical solutions represent, although simplistically, three general types of possible factor solutions for the measure under construction. Since the poorest items will have been removed prior to the factor analysis, it shall be assumed that items will load in parcels; i.e., all items for each individual intended scale will load together.

Solution #1. Each of the six dimensions of perceived control may be relatively orthogonal or unrelated to each other dimension. Thus, each dimension may vary from high possession of the trait to virtual absence of the trait.

Solution #2. OIM may serve as one pole of a bipolar dimension with BIM as the opposite pole. The remaining four subscales may then be unipolar as in the previous solution.

Solution #3. There is the possibility of obtaining three bipolar dimensions as in the following manner: (a) BIM versus OIM, (b) BPO versus OPO, and (c) BFT versus SCO. Additionally, several other related solutions could appear, such as both BPO and BFT being opposed by SCO. This particular solution is strongly suggested by an examination of Rotter's (1966) forced-choice pairings.

At this time, the second solution appears most logically appealing, since not one of the other four dimensions seems to have one most appropriate second pole. As seen in the third solution, each of the remaining four subscales may equally logically have either 0, 1, or 2 possible second poles.

Statement of Purpose

In summary, the main intentions of this study are as follows: (a) to construct a series of sub-dimensions of perceived locus of control using a true-false format; (b) to determine if the true-false format (a special case of a Likert format) can be used to assess these dimensions and still show reasonably low item and overall scale correlations with social desirability (as suggested by Collins, 1974), thus eliminating the major reason for a forced-choice format (Rotter, 1975); (c) to determine whether these scales are best represented as bipolar both at the subscale and overall levels (i.e., internal versus external) or as unipolar constructs, as recent findings seem to indicate (Levenson, 1974); and (d) to coordinate the theoretical work of Tiffany and associates with the experimental studies of Rotter, Reid and Ware, etc. by constructing the subscales and attempting to demonstrate the relative independence among the subscales, each designed to assess a facet of perceived control.

CHAPTER II

METHOD FOR ORIGINAL STUDY

Subjects

Subjects were volunteers solicited from the undergraduate introductory psychology courses of the University of Windsor, and testing took place in class during the period of January 25 - February 8, 1977. The 221 volunteers consisted of 93 males and 128 females. The males ranged in age from 18 to 55 ($\overline{X}$ = 21.355); females from 17 to 37 ($\overline{X}$ = 20.641). For participating in the study each subject received one point of extra credit toward his or her course grade.

Development of the Instrument

The sole instrument used was a 136-item true-false personality questionnaire. The questionnaire was composed of the six previously described 15-item perceived control scales (OIM, OPO, SCO, BIM, BPO, BFT), a 16-item social desirability scale (Jackson, 1967), and a 30-item acquiescence scale.

As shown in Table 1, items for the six locus of control scales were obtained from several sources: (a) from forced-choice tests (Reid & Ware, 1973; 1974; Rotter, 1966), (b) from a Likert format test (Levenson, 1974), (c) from examples cited in a theoretical article (Rotter, Seeman, & Liverant, 1962), and (d) those which were especially written for this instrument.

Items which were taken from the forced-choice inventories involved

TABLE 1

Items Used in the Revised Measure of Perceived Locus of Control

Source	Item #	Item
Self-Control Over One's Emotions and Impulses (OIM)		
*	20	I seldom rush out and buy things that I really do not need.
*	25	I make it a policy never to let my moods influence my actions.
*	33	Even if I were very drunk, I could still prevent myself from insulting someone that I did not like.
*	38	It is difficult for me to understand why some students panic during an exam.
*	41	I seldom make major decisions on the spur-of-the-moment.
*	50	I would never strike someone out of anger.
RW	61	When I put my mind to it I can constrain my emotions.
RW	75	I can always resist the temptation to act impulsively.
*	79	In many cases I cannot seem to identify with the feelings of others.
*	81	No matter how strong my emotion, it would never cause me to act without thinking.
*	88	I could never fall in love with someone "at first sight."
*	92	If I decided to rid myself of a bad habit, I am sure I could succeed.
RW	96	It is important to me to have complete mastery over the way I behave.
RW	123	If necessary, I can always control my immediate wishes and desires.
*	134	No matter how hungry I may be, I can resist snacking and wait for the upcoming meal.
Self-Control of Personal Outcomes (SCO)		
R	7	When I make plans, I am almost certain that I can make them work.
*	12	Compared to others, I am a self-made individual.
*	13	If I fail at a task it is generally because I do not give it my best effort or I lack the appropriate skills.
*	22	What I do now and in the future will be determined by me alone.
R	29	What happens to me is my own doing.
RW	39	In the long run I will receive the respect and rewards that I deserve.

TABLE 1 (Continued)

Source	Item #	Item
RW	48	My ability and motivation will determine what kind of job I eventually get.
*	53	I seldom act on the advice of others.
R	63	There is a direct connection between how hard I study and the grades I get.
RW	77	The misfortunes and successes I have had were the direct result of my own behavior.
*	91	If I do not attain my life's goal, I will have no one to blame but myself.
L	105	I am usually able to protect my personal interests.
*	119	How well I do in competitive games is determined solely by my abilities.
RSL	126	My accomplishments in life typically turn out to be the result of ability and perseverance.
*	130	If I work hard and have the necessary skills, nothing can stop me from getting ahead in life.
Control of or Influence Over Others (OPO)		
RW	5	If I put my mind to it, I could have an important influence on what a politician does in office.
*	15	I believe that I could successfully defend my point of view on a topic even against experts.
*	17	I could convince a policeman not to give me a traffic ticket if I tried hard.
*	30	If I really wanted to, I could find a way to beat Las Vegas at its own game.
*	34	I have the capacity to be an excellent fund-raiser for a charity.
*	45	When going out with friends we usually do whatever I suggest.
*	52	If I wanted to do so, I could influence the actions and decisions of many powerful individuals.
*	58	I could teach child psychologists a thing or two about children.
*	64	Personal relationships are invariably terminated by me and not by the other person.
*	69	I would have little difficulty getting people to help me even if they did not particularly want to.
RW	82	By active participation in the appropriate political organizations I could do a lot to keep the cost of living from going higher.
*	89	With the proper training I could find enough loopholes in the law so that I could completely avoid paying taxes.

TABLE 1 (Continued)

Source	Item #	Item
*	108	I believe I could talk almost any teacher into giving me a higher grade.
*	128	I could easily convince others that I was experienced in a field which I knew very little about.
*	133	I am capable of dominating almost any conversation.
Control of the Self by One's Impulses and Emotions (BIM)		
*	2	At times my temper gets out of hand.
RW	11	Even if I try not to submit, I often find that I cannot control myself from some of the enticements of life such as over-eating or drinking.
*	21	I am seldom successful in concealing strongly felt emotions.
*	31	If I wanted to attend a party, I would do so even if I had a test the next day.
*	42	Sometimes I say things which I find hard to believe that I said.
*	56	I would find it difficult not to brood or sulk if a close friend let me down.
RW	65	Sometimes I impulsively do things which at other times I definitely would not let myself do.
*	72	I might easily be tempted into spending more than I could afford for a new car.
*	84	It would be hard for me not to feel depressed after watching a very sad movie.
*	109	When someone hurts my feelings, I find it very hard not to strike back.
*	111	When I want something special, I want it immediately and have a hard time waiting to obtain it.
*	115	There are some mistakes which I seem to make over and over again, even though I know better.
RW	118	There are moments when I cannot subdue my emotions and keep them in check.
*	125	It is easy for me to understand how people can get emotionally worked-up in a mob.
RW	131	Something I cannot do is have complete mastery over the way I behave.
Control of the Self by Others (BPO)		
RW	3	There will always be wars and there is nothing I can do about it.

TABLE 1 (Continued)

Source	Item #	Item
RW	26	My behavior is frequently determined by other influential people.
*	36	In general, it seems that who I know in life is more important than what I know.
*	40	If a friend wanted a favor, it would be hard for me to say no to him or her.
RW	47	There is no point in planning my life too far in advance because other people invariably upset my plans.
*	57	Other people's wishes often come before my own.
L	66	I would have very little chance of protecting my personal interests if they were to come in conflict with those of strong pressure groups.
RW	73	This world is run by a few people in power and there is not much that I can do about it.
L	78	Getting what I want requires pleasing those people above me.
*	86	I seem to spend more time than I would like catering to the whims of other people.
*	94	It would be hard for me to get to the top of an organization without the aid of some influential people.
RW	104	There are institutions in our society that have considerable control over me.
*	113	If a supervisor felt that I should not get a raise, nothing I could do or say would change his mind.
*	120	I would probably buy an article of clothing if the salesperson said it looked good on me.
*	124	Whether an instructor likes me is often a more important determinant of my grade than is my ability.
Control by Fate, Chance, or Luck (BFT)		
R	9	For me to become a boss or supervisor would depend a lot on happening to be in the right place at the right time.
RW	28	It is not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.
*	49	Astrology or something similar might be a useful aid in planning my daily activities.
*	54	People in enviable positions are simply luckier than I am.
RW	59	Many times I feel I might just as well decide what to do by flipping a coin.
L	67	To a great extent my life is controlled by accidental happenings.

TABLE 1 (Continued)

Source	Item #	Item
RW	74	Because of misfortune or bad luck, my personal worth often passes unrecognized no matter how hard I try.
*	85	If I am destined to fail, I will do so; the matter is out of my hands.
L	90	Whether or not I get into a car accident is mostly a matter of luck.
R	97	I have often found that what is going to happen will happen and there is little I can do about it.
*	102	To succeed in the stock market all I would need is some good luck.
RW	106	My getting a good job or promotion in the future will depend a lot on getting the right turn of fate.
*	110	It makes little difference how hard I study, since most teachers seem to assign grades arbitrarily.
RW	121	Many of the unhappy things in my life are at least partly due to bad luck.
RW	127	I often realize that despite my best efforts some things seem to happen as if fate planned it that way.

Note. Many of the items adopted from previous scales were re-written to suit the purpose of the present scale. Also, several of the Reid and Ware items were originally taken by them from the Rotter I-E Scale.

The source key is: * = original item; R = Rotter (1966); RSL = Rotter, Seeman, & Liverant (1962); RW = Reid & Ware (1973; 1974); and L = Levenson (1974).

selecting only those choices within each pair which best fit the previous definition of one of the six scales. The Likert-type items were merely restated as being true-false. In most cases it was necessary to rewrite the selected items to conform with the necessity: (a) that all items be stated in the first person, (b) that they not appear to be overly solicitous of social desirability responding, (c) that each elicit a subject's perceived locus of control, not actual control, and (d) that each be stated in a clear, unambiguous manner.

The social desirability scale and the acquiescence scale were included in order to determine which, if any, perceived control items were inappropriately related to either of these response sets. The social desirability scale exists as a complete scale in the Personality Research Form (Jackson, 1967), and the acquiescence items (scored only for "true" responding) were obtained from an experimental PRF scale.

Of the six perceived control scales, a perusal of Table 1 will indicate that: (a) OPO is the newest scale of the lot, being essentially unrepresented in previous tests; (b) OIM and BIM originated solely in the work of Reid and Ware (1974); (c) BPO and BFT are well represented in previous scales, and jointly serve as Rotter's (1966) main representation of external control; and (d) SCO is what is typically thought of as internal control, as evidenced by the heavy reliance of Rotter (1966) on SCO-like items as internal choices within each forced-choice item.

Administration

At a time which had been pre-arranged with each instructor, I arrived at the classroom and asked for volunteers to fill out the questionnaire. After being introduced to the students, I paraphrased the follow-

ing:

> I am here today to administer an experimental personality inventory which consists of 136 true-false items. The test is untimed, but usually takes less than half an hour to complete. Also, the scale is anonymous, so the only identifying information you will be asked to supply is your age and sex.
>
> Participation is voluntary. You cannot be required to participate if you do not wish to do so. However, if you do decide to fill out the questionnaire, you will receive one point of extra credit for doing so.
>
> I would appreciate any comments you might have concerning items that gave you difficulty, ones you disliked, things which you liked or disliked about the test in general, etc. These comments may be written on the back of your answer sheet.
>
> Any additional questions you might have concerning feedback, the purpose of the study, and how to fill out the questionnaire are answered in the instruction sheet on the first page of the test booklet. Now please raise your hand if you would like to fill out the questionnaire. Read the instructions carefully and you may begin.

Subjects were then given a copy of the questionnaire, consisting of the 136 items arranged in a random-appearing order, and an answer sheet. A copy of the questionnaire (including instructions to the subjects) and the answer sheet may be found in Appendix A.

Subjects were further instructed that upon completion of the questionnaire, they were to bring the test booklet and answer sheet to me, and to sign a sheet of paper indicating that they had participated. This was to insure that each subject would be awarded credit by his or her instructor for participating. Each answer sheet was taken from the subject and promptly mixed with the other test papers to be certain that no individual set of responses could be identified with a particular subject. At the end of the testing session, the previously mentioned "sign-up sheet" was presented to the instructor.

Several weeks after each class was tested, subjects were informed that a write-up of this phase of the study would be posted on their

classroom wall in order to further acquaint them with the purpose of the study, the nature of the individual scales, and the results to that time. A copy of this debriefing appears in Appendix B.

Phases of the Item Analysis

Since the procedures involved in the item analysis to determine the composition and polarity of the final scales involves several radical departures from "the norm" (cf. Nunnally, 1967), it seems appropriate to provide a brief description of the techniques to be applied.

The initial elimination of items shall be based on the fulfillment of any one of the following conditions: (a) possession of an endorsement proportion (p) which is greater than .95 or less than .05 for the keyed response, (b) a biserial correlation with social desirability or acquiescence which is greater than or equal to the item's biserial correlation with its intended scale, or (c) a biserial correlation with any other perceived control scale which is greater than or equal to its biserial correlation with the intended scale.

Following this initial screening, Differential Reliability Indices (DRI) will be calculated for each remaining item (Jackson, 1967) in order to determine approximately the amount of content variance which each item possesses once social desirability variance has been removed. Each item may then be ranked within its appropriate scale according to its DRI in order to determine visually which items are best saturated with content variance.

At this stage, a progressive series of factor analyses will be performed over the remaining perceived control items in order to further reduce the scales, and to determine their composition and polarity. Al-

though the typical unreliability of individual items and the problems encountered in attempts to factor them have been thoroughly discussed elsewhere (e.g., Nunnally, 1967), several recent articles have suggested that it is quite appropriate to base the initial item analysis on a factor analysis of the items (e.g., Burdsal & Vaughn, 1974; Cattell & Burdsal, 1975; Comrey, 1961; Schwartz, Note 1). A common factor technique has generally been recommended, as it appears to provide the best resolution of each item's communality (Gorsuch, 1974).

The factor analyses of the remaining items will utilize an iterative principal axis solution with squared multiple correlations as the initial communality estimates. In order to determine the most appropriate number of factors, each varimax rotated solution from six to one factor will be examined and a solution will be selected solely on grounds of maximal interpretability. Any other method of determining the correct number of factors such as is involved in an examination of the initial eigenvalues is clearly inappropriate when factoring items (Gorsuch, 1974).

After the number of factors has been determined, successive principal axis factor analyses will be performed, eliminating additional items with each analysis according to the following criteria: (a) those which saliently load more than one factor, (b) those saliently loading an inappropriate factor, (c) those having a communality less than .10 in the later solutions, and (d) those which contribute nothing to the later solutions (i.e., those which do not saliently load at least one factor). The final factor analysis in this series will serve to define both the composition and polarity of each scale. Each derived factor and the items which saliently load it will represent one final scale.

Total scale scores for each subject may then be obtained as a result of the final factor analysis by reassigning unit weights to each item saliently loading within a factor and simply adding the number of keyed responses given. Once the total scale scores have been obtained, the item statistics which will change as a result of the reduced scales may be recomputed; i.e., the DRI coefficients, the biserial correlations of each item with its intended scale and the irrelevant scales, and the alpha coefficients.

CHAPTER III

RESULTS OF THE ORIGINAL STUDY

As an initial step in the item analysis, the following statistics were computed: (a) the endorsement proportion (p) for each item, (b) the biserial correlation of each item with its intended scale (with that item removed), (c) the biserial correlation of each item with every irrelevant scale, (d) Jackson's Differential Reliability Index (DRI) for each item, and (e) the alpha reliability (internal consistency) coefficient for each full scale. Initial alphas for the 15-item scales were .494 (OIM), .740 (OPO), .525 (SCO), .675 (BIM), .670 (BPO), and .771 (BFT).

On the basis of these statistics, 16 items were eliminated as follows: (a) item #48 (SCO) for possessing an endorsement proportion which was greater than .95 in the keyed direction; (b) items #50, 79 (OIM), and 86 (BPO) for having a biserial correlation with desirability or acquiescence which was equal to or greater than the correlation with the respective intended scale; and (c) items #40, 47, 57, 104 (BPO), 20, 25, 88, 96 (OIM), 31 (BIM), 53, 63, 119 (SCO) for correlating equally or higher with an irrelevant perceived control scale than with the intended scale. Table 2 shows the biserial correlation of each item with its total intended scale before the abovementioned items were eliminated, as well as the DRI for each retained item.

An intercorrelation matrix of phi coefficients was computed for the remaining 74 items and a series of iterative principal axis factor analy-

TABLE 2

Biserial Correlations of Each Item with Its Total Intended Scale and Differential Reliability Index Coefficients

Item #	r_b	DRI	Item #	r_b	DRI	Item #	r_b	DRI
OIM Scale			OPO Scale			SCO Scale		
20	.06 NS		5	.32*	.292	7	.34*	.250
25	.19**		15	.32*	.257	12	.23*	.212
33	.26*	.258	17	.37*	.356	13	.10 NS	.099
38	.18**	.082	30	.39*	.389	22	.40*	.399
41	.33*	.303	34	.48*	.366	29	.55*	.549
50	.03 NS		45	.39*	.385	39	.29*	.075
61	.38*	.361	52	.62*	.606	48	.33**	
75	.45*	.448	58	.43*	.428	53	-.07 NS	
79	-.10 NS		64	.23*	.228	63	.08 NS	
81	.41*	.410	69	.40*	.400	77	.42*	.417
88	.11 NS		82	.63*	.601	91	.50*	.462
92	.28*	.206	89	.27*	.237	105	.22 NS	.066
96	.17 NS		108	.64*	.638	119	.10 NS	
123	.40*	.334	128	.54*	.539	126	.45*	.428
134	.31*	.245	133	.72*	.714	130	.40*	.367
BIM Scale			BPO Scale			BFT Scale		
2	.50*	.458	3	.36*	.268	9	.47*	.463
11	.48*	.410	26	.37*	.329	28	.58*	.484
21	.40*	.375	36	.43*	.416	49	.55*	.485
31	.12 NS		40	.13 NS		54	.69*	.671
42	.37*	.290	47	.47*		59	.42*	.337
56	.40*	.367	57	.23*		67	.67*	.609
65	.44*	.433	66	.53*	.467	74	.66*	.572
72	.35*	.332	73	.57*	.496	85	.45*	.352
84	.15 NS	.149	78	.46*	.419	90	.41*	.395
109	.23*	.212	86	.16 NS		97	.58*	.513
111	.44*	.406	94	.38*	.349	102	.42*	.416
115	.46*	.419	104	.20**		106	.75*	.735
118	.59*	.586	113	.39*	.307	110	.41*	.339
125	.29*	.272	120	.47*	.425	121	.45*	.412
131	.35*	.272	124	.31*	.252	127	.34*	.300

Note. NS = not significant; * = significant at or beyond the .01 level (adjusted for p); and ** = significant at or beyond the .05 level (adjusted for p).

ses was performed to further reduce the scales. On the basis of interpretability, it was decided to retain four factors accounting for 42.4% of the total variance. The first four eigenvalues were 6.25, 3.62, 2.58, and 1.93, and accounted for 18.4, 10.7, 7.6, and 5.7% of the variance, respectively. The content of the factors, in order, was BPO and BFT, OPO, BIM versus OIM, and SCO.

In the series of iterative principal axis solutions which followed, additional items were eliminated: (a) for having a communality less than .10, (b) for saliently loading more than one factor, (c) for saliently loading an inappropriate factor (e.g., a BPO item loading within the SCO factor), or (d) for contributing nothing to the final solution. The final orthogonal resolution of the 47 retained items is illustrated in Table 3. The preliminary eigenvalues were 4.76, 2.81, 2.04, and 1.49, accounting for 28.4, 16.7, 12.1, and 8.9% of the total variance, respectively. Thus, 66.1% of the total variance of the 47 remaining items was accounted for.

Allowing each obtained factor to represent a perceived control scale (cf. Comrey, 1962), total scale scores were computed for each subject by assigning a weight of one to the keyed response for each item and summing the number of keyed responses per scale. The new total scale scores and the item scores were then used to recalculate the item and scale statistics as seen in Table 4. The revised alpha coefficients were as follows: (a) .81 (BEX), (b) .73 (BIM), (c) .74 (OPO), and (d) .60 (SCO).

Table 5 presents the scale, not factor, intercorrelation matrix. In order to determine if the perceived control scales were interrelated in any sort of meaningful manner, the intercorrelations between the four

TABLE 3

Varimax Rotated Factor Loadings, Biserial Correlation (r_b) of Each Item with Its Total Intended Scale, and Endorsement Proportions (p)

Item #	Original Scale	Factors I	II	III	IV	p	r_b
External Control (BEX)							
3	BPO	343	---	---	---	55	38
36	BPO	303	---	---	---	39	39
66	BPO	347	---	---	---	29	48
73	BPO	521	---	---	---	50	62
78	BPO	401	---	---	---	43	42
113	BPO	425	---	---	---	28	52
120	BPO	328	---	---	---	16	48
124	BPO	312	---	---	---	22	35
9	BFT	376	---	---	---	43	42
28	BFT	540	---	---	---	40	58
49	BFT	404	---	---	---	08	61
54	BFT	526	---	---	---	17	73
59	BFT	365	---	---	---	27	48
67	BFT	495	---	---	---	24	63
74	BFT	574	---	---	---	24	72
90	BFT	335	---	---	---	24	43
97	BFT	444	---	---	---	30	51
102	BFT	375	---	---	---	25	44
106	BFT	547	---	---	---	27	70
Control Over Others (OPO)							
17	OPO	---	355	---	---	45	44
34	OPO	---	463	---	---	48	50
45	OPO	---	386	---	---	30	37
52	OPO	---	521	---	---	46	57
58	OPO	---	336	---	---	21	42
69	OPO	---	411	---	---	62	45
82	OPO	---	559	---	---	29	63
108	OPO	---	454	---	---	19	65
128	OPO	---	436	---	---	43	48
133	OPO	---	674	---	---	37	72
Impulse Control (BIM)							
2	BIM	---	---	455	---	69	52
11	BIM	---	---	415	---	46	48

TABLE 3 (Continued)

Item #	Original Scale	Factors I	II	III	IV	p	r_b
21	BIM	---	---	318	---	48	39
42	BIM	---	---	409	---	63	44
56	BIM	---	---	314	---	67	38
65	BIM	---	---	446	---	71	51
111	BIM	---	---	325	---	51	36
115	BIM	---	---	455	---	70	53
118	BIM	---	---	519	---	75	62
131	BIM	---	---	337	---	44	40
61[a]	OIM	---	---	-331	---	22	37
75[a]	OIM	---	---	-479	---	64	44
81[a]	OIM	---	---	-464	---	60	48
Self-Control of Outcomes (SCO)							
22	SCO	---	---	---	473	48	46
29	SCO	---	---	---	509	70	61
77	SCO	---	---	---	554	75	55
91	SCO	---	---	---	399	87	52
126	SCO	---	---	---	379	93	43

Note. All factor loadings, biserial correlations, and endorsement proportions are rounded to three, two, and two decimal places, respectively, with the decimal assumed. Loadings smaller than an absolute value of .30 are indicated by dashes (---). Endorsement proportions (p) are the percentage of subjects who endorsed the keyed response. All biserial correlations are significant beyond the .01 level (adjusted for p).

[a] Since the three OIM items all loaded Factor III saliently in the negative direction, scores for this total scale (Impulse Control) were obtained by summing the true responses for all salient BIM items plus the false responses for the three OIM items. The p for each OIM item represents the proportion of subjects answering false. All other perceived control items were keyed in the true direction.

TABLE 4

Biserial Correlations of Each Item with Its Total Reduced Scale and with Irrelevant Scales, and DRI Coefficients

Item #	Biserial Correlations: Intended Scale	Scale 1	Scale 2	Scale 3	ACQ	DES	DRI
BEX Scale		BIM	OPO	SCO			
3	.38	.12	-.14	.06	.16	-.24	.295
36	.39	.14	-.01	.00	.17	-.11	.374
66	.48	.21	-.15	-.11	.21	-.25	.410
73	.62	.19	-.17	-.11	.20	-.28	.553
78	.42	.05	.09	.09	.19	-.19	.375
113	.52	.12	-.18	-.14	.11	-.24	.461
120	.48	.16	.01	-.04	.14	-.20	.436
124	.35	.07	.11	-.01	.04	-.18	.300
9	.42	.15	-.06	-.01	.16	-.08	.412
28	.58	.10	-.10	-.04	.20	-.32	.484
49	.61	.11	.06	.00	.13	-.26	.552
54	.73	.17	.04	-.22	.20	-.16	.712
59	.48	.28	-.16	-.05	.16	-.25	.410
67	.63	.17	.01	-.20	.16	-.28	.564
74	.72	.23	-.02	-.08	.21	-.33	.640
90	.43	.04	.07	-.09	.21	-.11	.416
97	.51	.08	-.01	-.18	.20	-.27	.433
102	.44	.15	.01	.04	.13	-.06	.436
106	.70	.10	-.07	-.15	.25	-.15	.684
BIM Scale		BEX	OPO	SCO			
2	.52	.14	-.02	-.08	.16	-.20	.480
11	.48	.28	-.02	.07	.13	-.25	.410
21	.39	.21	.01	-.03	.22	-.14	.364
42	.44	.14	-.11	.06	.04	-.23	.375
56	.38	.22	-.10	.00	.25	-.16	.345
65	.51	.15	-.02	.04	.05	-.08	.504
111	.36	.15	.03	.06	.15	-.17	.317
115	.53	.17	-.08	-.09	.12	-.19	.495
118	.62	.10	-.12	-.08	.06	-.07	.616
131	.40	.14	-.15	-.02	.00	-.22	.334
61	.37	.06	.02	-.10	.02	-.12	.350
75	.44	.00	-.18	-.06	.04	-.04	.438
81	.48	.05	-.19	.00	.01	-.01	.480

TABLE 4 (Continued)

Item #	Biserial Correlations: Intended Scale	Scale 1	Scale 2	Scale 3	ACQ	DES	DRI
OPO Scale		BEX	BIM	SCO			
17	.44	-.04	-.10	.07	.10	.10	.428
34	.50	-.12	-.12	.06	.11	.31	.392
45	.37	-.02	-.01	-.02	.05	.06	.365
52	.57	-.20	-.14	.09	-.08	.13	.555
58	.42	.04	-.09	.01	.10	-.04	.418
69	.45	.04	.03	.08	.06	.00	.450
82	.63	-.15	-.08	.13	.05	.19	.601
108	.65	-.01	-.08	.15	.06	.05	.648
128	.48	.01	-.12	.11	.08	-.04	.478
133	.72	.01	-.09	.14	.10	.09	.714
SCO Scale		BEX	BIM	OPO			
22	.46	.00	-.09	.12	.02	.03	.459
29	.61	-.08	.02	.08	-.02	.04	.609
77	.55	-.06	.02	.10	.07	.05	.548
91	.52	-.17	.05	.13	.10	.19	.484
126	.43	-.18	-.12	.01	-.02	.14	.407

TABLE 5

Final Scale Intercorrelation Matrix

	Variables					
Variables	BEX	BIM	OPO	SCO	DES	ACQ
BEX						
BIM	.291*					
OPO	-.085	-.148				
SCO	-.132	-.033	.150			
DES	-.437*	-.302*	.162	.122		
ACQ	.361*	.198	.113	.048	-.144	

Note. An * indicates that the correlation is significant at or beyond the .001 level with N = 221. DES indicates social desirability; ACQ indicates acquiescence.

scales were factored using an iterative principal axis technique with squared multiple correlations as the initial communality estimates. The Scree test (Cattell, 1966) indicated the presence of one factor accounting for 35.8% of the total variance. The factor pattern for this solution may be found in Table 6.

TABLE 6

Factor Pattern Matrix for the First Iterative Principal Axis Factor

	Factor I	Communality Estimate	Final Communality
Scales			
BEX	0.54929	0.11040	0.30172
BIM	0.55022	0.10065	0.30274
OPO	-0.31108	0.04359	0.09677
SCO	-0.25579	0.03738	0.06543

CHAPTER IV

REPLICATION STUDY

Subjects

In order to examine the robustness of the derived dimensions, it was decided that a replication attempt be made. Thus, an additional sample composed of students enrolled in undergraduate psychology courses at the University of Windsor was solicited. Testing took place in Intersession during the week of May 13-19, 1977. Of the 156 volunteers, 151 submitted completed questionnaires. The 151 subjects consisted of 45 males and 106 females. The males ranged in age from 18 to 52 ($\overline{X}$ = 25.178); females from 17 to 50 ($\overline{X}$ = 25.906). Since course enrollment during the summer months includes a large number of professionals and job-holders of the surrounding community, the average age for both sexes is somewhat higher than that of students attending classes during the regular school year. Additionally, since the awarding of extra credit was necessarily at the discretion of the individual instructor, only 62 of the 151 subjects received a point of credit for their participation.

Instrument

For the replication attempt, the questionnaire consisted of the 47 items retained from the original study plus the 16-item social desirability scale. The items were presented in a random-appearing order. A copy of the questionnaire has been provided in Appendix C.

Procedure

The same introductory statement as was given to the initial sample was paraphrased to the subjects in order to acquaint them with the test. The only changes were as follows: (a) that the test consisted of 63 items rather than 136; (b) that although untimed, the test typically was completed within 15 minutes rather than 30 minutes; (c) extra credit was mentioned only to those classes for which it had been arranged; and (d) no comments from the subjects were solicited. All other administration procedures and conditions, including that of individual anonymity, remained the same.

CHAPTER V

RESULTS OF THE REPLICATION

In order to compare the replication sample and the original sample, the following statistics and analyses were performed: (a) the endorsement proportion for each keyed item-response, (b) the correlation of each item with its total intended scale (with that item removed), (c) scale means and intercorrelations, (d) alpha coefficients, (e) t-tests between the scale means, (f) a factor analysis of the items, (g) a factor analysis of the four perceived control scales, and (h) a factor comparison of the original and the replication item factor analyses. Analyses of (a) through (c) may be found in Tables 7 and 8.

The alpha coefficients for the four scales were: BEX = .787, BIM = .703, OPO = .600, and SCO = .504. The t-tests included: (a) sample one versus two for each total scale score, (b) sample one males versus sample two males for each scale, (c) sample one females versus sample two females for each scale, (d) sample one males versus sample one females for each scale, and (e) sample two males versus sample two females for each scale. The t-tests may be found in Table 9. The remaining analyses are described below.

The Item Factor Analysis

The 47 perceived control items were intercorrelated and the matrix subjected to an iterative principal axis factor analysis. To make this

TABLE 7

Endorsement Proportions and Item-Total Biserial Correlations for the Replication Sample

Scale	Orig. Item # [a]	Rep. Item # [b]	r_b	p	Scale	Orig. Item #	Rep. Item #	r_b	p
BEX	3	10	40*	503	BIM	2	37	50*	570
BEX	36	55	18 NS	377	BIM	11	42	35*	351
BEX	66	23	44*	331	BIM	21	24	35*	464
BEX	73	50	59*	517	BIM	42	58	48*	497
BEX	78	16	36*	344	BIM	56	29	37*	623
BEX	113	38	34*	252	BIM	65	11	57*	788
BEX	120	44	43*	159	BIM	111	7	39*	464
BEX	124	59	29**	132	BIM	115	49	46*	517
BEX	9	26	50*	457	BIM	118	18	68*	735
BEX	28	14	57*	258	BIM	131	4	23**	430
BEX	49	53	51*	079	BIM	61	46	38*	192
BEX	54	3	59*	139	BIM	75	21	38*	748
BEX	59	61	76*	139	BIM	81	15	46*	689
BEX	67	34	47*	152					
BEX	74	20	86*	159	OPO	17	27	45*	483
BEX	90	45	67*	192	OPO	34	62	38*	411
BEX	97	8	61*	417	OPO	45	36	29*	325
BEX	102	30	39*	199	OPO	52	2	40*	265
BEX	106	40	75*	245	OPO	58	19	13 NS	278
					QPO	69	57	45*	490
SCO	22	33	38*	536	OPO	82	6	25**	238
SCO	29	12	48*	762	OPO	108	31	17 NS	099
SCO	77	25	49*	722	OPO	128	47	52*	272
SCO	91	54	29**	815	OPO	133	41	52*	338
SCO	126	51	67*	980[c]					

Note. Endorsement proportions and correlations rounded to three and two decimal places, respectively. Significance levels are as follows: * indicates significant at or beyond .01 level; ** indicates significant at or beyond .05 level; NS indicates that the correlation is not significant.

[a] Item number from the questionnaire used in the original study.

[b] Item number from the questionnaire used in the replication study.

[c] The endorsement proportion for this item is unacceptable.

TABLE 8

Mean Scale Scores Over Both Samples

Scale	Original Sample Scores			Replication Sample Scores		
	Total	Male	Female	Total	Male	Female
BEX	5.697	6.226	5.313	5.053	6.244	4.547
BIM	7.502	6.796	8.016	7.066	6.889	7.142
OPO	3.801	4.022	3.641	3.199	3.889	2.906
SCO	3.724	3.645	3.781	3.815	3.844	3.802
DES[a]	10.742	10.387	11.000	11.185	9.844	11.755
ACQ[b]	14.330	14.054	14.531			

Note. The scales are based on the following numbers of items: BEX = 19, BIM = 13, OPO = 10, SCO = 5, DES = 16, ACQ = 30.

[a] DES = social desirability.

[b] ACQ = acquiescence.

TABLE 9

T-Tests

Scale	Sample 1 Total vs. Sample 2 Total		Sample 1 Males vs. Sample 2 Males		Sample 1 Females vs. Sample 2 Females		Sample 1 Males vs. Sample 1 Females		Sample 2 Males vs. Sample 2 Females	
	t	p[a]	t	p	t	p	t	p	t	p
BEX	1.607	NS[b]	0.024	NS	1.669	NS	1.654	NS	2.421	.02
BIM	1.416	NS	0.168	NS	2.344	.02	3.040	.01	0.475	NS
OPO	2.468	.02	0.305	NS	2.492	.02	1.083	NS	2.514	.02
SCO	0.714	NS	0.862	NS	0.136	NS	0.784	NS	0.193	NS
DES	1.454	NS	0.974	NS	2.139	.05	1.498	NS	3.692	.01
ACQ							1.248	NS		

Note. All tests were 2-tailed. Sample 1 represents the original sample; Sample 2 represents the replication sample. Only one t-test was possible for the acquiescence (ACQ) scale since it was administered only to the original sample. The N for each group was as follows: Sample 1 males = 93; Sample 1 females = 128; Sample 1 total = 221; Sample 2 males = 45; Sample 2 females = 106; Sample 2 total = 151.

[a] The symbol p indicates the probability level.

[b] NS signifies that the t in question was not significant at or beyond the .05 level.

solution comparable to the one from the original sample, four factors were extracted and rotated to a varimax criterion. Eigenvalues for the first four factors were 4.64, 2.30, 2.11, and 1.62, and accounted for 23.8, 11.8, 10.8, and 8.3% of the total variance, respectively. Thus, 54.7% of the total variance was accounted for with four factors. The content of these factors in order of extraction was essentially BEX, BIM, OPO, and SCO.

A visual examination of the loadings in the item solution indicated that the solution was quite similar to that obtained in the original study. Thus, in order to determine the goodness of fit between the two solutions, the replication factor pattern was orthogonally rotated to the best possible fit with the original factor pattern using the OSIRIS III Compare program. Since the resulting solution is merely an orthogonal rotation of the replication factor pattern, only the Compare factor pattern will be reported [see Table 10]. Additionally, three goodness of fit measures were obtained: (a) normalized symmetric error = .0166; (b) TR(E'E)/PQ = .0171; and (c) the root mean square distance = .0191. The matrix of correlations among factors between the two studies is shown in Table 11.

The Scale Factor Analysis

The four perceived control scales were intercorrelated and the matrix subjected to an iterative principal axis factor analysis, as done in the original study. The Scree test (Cattell, 1966) indicated two factors. Factors I and II accounted for 34.5 and 27.6% of the total variance, respectively. The factor pattern is presented in Table 12. The correlation matrix upon which the analysis is based, excluding all correlations

TABLE 10

Matrix of Best Fit of Replication Factor Pattern Rotated to the Original Factor Pattern

Original Item #	Replication Item #	Factors I	II	III	IV	h^2
External Control (BEX)						
3	10	.271	037	-151	-187	132
36[a]	55	211	-116	-078	092	072
66[b]	23	297	118	-265	-125	188
73	50	440	023	-041	-164	222
78	16	296	-009	-176	138	138
113	38	251	239	-121	096	144
120	44	284	013	-192	061	121
124	59	266	-085	034	240	137
9	26	514	203	073	-195	349
28	14	507	-020	-071	-154	286
49	53	374	-120	009	-142	174
54	3	465	-131	024	-212	279
59	61	519	-088	-090	-029	286
67	34	390	-021	063	-050	159
74	20	611	116	-122	-098	412
90	45	528	-095	-098	018	297
97	8	493	-042	-171	-105	285
102	30	317	-159	010	-027	126
106	40	562	088	-115	-168	366
Control Over Others (OPO)						
17	27	-039	-453	-123	-039	224
34[b]	62	003	-343	-126	092	142
45[b]	36	-093	-358	-067	276	218
52[a]	2	-006	-402	030	-092	171
58[a]	19	281	-126	056	048	100
69[a]	57	-044	-448	-078	-065	213
82[a]	6	-046	-218	020	121	065
108[a]	31	140	-167	-025	102	058
128	47	066	-557	068	-147	341
133	41	027	-517	-136	-112	299
Impulse Control (BIM)						
2	37	159	117	-388	045	192
11	42	202	-187	-302	112	179

TABLE 10 (Continued)

Original Item #	Replication Item #	I	II	III	IV	h^2
21	24	061	066	-296	207	139
42	58	168	-023	-415	071	206
56[b]	29	371	178	-280	203	289
65	11	013	-147	-529	-186	337
111	7	112	-012	-339	-025	128
115[b]	49	358	-081	-357	017	263
118	18	074	078	-598	-018	369
131[a]	4	113	096	-200	-204	104
61	46	-079	-007	-375	221	196
75[b]	21	-242	138	-470	-329	407
81	15	-188	-021	-506	-051	295
Self-Control of Outcomes (SCO)						
22	33	062	-016	168	402	194
29	12	-185	-094	058	412	216
77	25	-059	-147	006	478	254
91	54	-002	-082	024	285	088
126[a]	51	013	099	-020	238	067

Note. All factor loadings and communalities are rounded to three decimal places with the decimal assumed. For purposes of interpretation, assume any absolute value greater than .25 as salient.

[a] Item with an insufficient loadings on its intended factor.

[b] Item which is complexly determined; i.e., saliently loading more than one factor.

TABLE 11

Correlations Between Factors in Sample One Versus Two

Replication Factors	Original Factors			
	BEX	OPO	BIM	SCO
BEX	.990	-.083	.021	-.113
OPO	-.095	-.981	-.099	-.134
BIM	.045	.074	-.984	.158
SCO	.095	-.157	.149	.972

Note. Replication factors OPO and BIM are presented here in reverse order of extraction since Compare rotated to the original matrix. A minus sign (-) in the diagonal indicates that the factor in one of the studies should be reflected; i.e., the OPO and BIM factors.

TABLE 12

Varimax Rotated Factor Pattern for the Replication Sample Factor Analysis of the Perceived Control Scales

Scales	Factor I	Factor II	Communality Estimate	Final Communality
BEX	0.60765	-0.03377	0.10684	0.37038
BIM	0.49883	0.01413	0.09693	0.24903
OPO	0.10579	0.35287	0.02067	0.13571
SCO	-0.20715	0.38881	0.03863	0.19409

with social desirability [DES], is shown in Table 13.

TABLE 13

Scale Intercorrelation Matrix for the Replication Sample

Scales	Scales				
	BEX	BIM	OPO	SCO	DES
BEX					
BIM	.303*				
OPO	.054	.056			
SCO	-.140	-.096	.115		
DES	-.456*	-.351*	.030	.078	

Note. An * indicates that the correlation is significant at or beyond the .001 level with N = 151.

DISCUSSION

In order to tie together the remaining loose threads of this paper, the following topics will be discussed: (a) the interpretations of the item factors and their relationships to previous studies, (b) the degree of match between the two item factor analyses, (c) properties of the final scales, (d) a comparison of the two obtained scale factor analyses, (e) the relationship of the results to locus of control theory, and (f) suggestions for future studies.

The Item Factors

The question of polarity. The final item factor-analytic solution in each study demonstrated four distinct, replicable factors; i.e., BEX (BPO and BFT), OPO, BIM versus OIM, and SCO. Only one factor--BIM--is represented in the analyses as being a true bipolar factor, varying from low impulse control (BIM) to high control over one's emotions, desires, and impulses (OIM). Thus, true-keyed BIM items go with false-keyed OIM items to define this factor and visa versa. All other factors ranged from high possession of the trait to absence of the trait. For example, the OPO scale may be interpreted as varying from a perception of having great personal power over others to believing that one has little or no influence over others. Therefore, the analyses suggest that the six original perceived control scales can best be represented as three unipolar and one bipolar scale.

BEX. The BEX (By External) scale was designated as such in order to

indicate that it was a clear representation of Rotter's (1966) construct of external control, combining the original scales of control by luck, chance, or fate (BFT) and control of the individual by others (BPO). In Levenson's (1974) analysis of her P (powerful others) and C (chance) scales, the intercorrelation between the two scales was quite high; i.e., .59 (p less than .01). Although her factor analysis allowed the two sets of items to represent orthogonal factors, the correlation between the two scales coupled with the findings of the present study seem to indicate that they might best be collapsed into a single scale of general external control, such as BEX. Also, with a correlation of the magnitude which Levenson (1974) obtained, it would seem unlikely that one would be able to generate separate predictions from the two scales. This seems particularly true when one considers that unit weights, not factor weights, will be used to obtain the scale scores. A similar correlation (.35) between social systems control [BPO] and fatalism [BFT] obtained over a sample of university students in a recent study (Schlegel & Crawford, 1976) also adds support for combining the two scales.

BPO and OPO. A majority of previous studies have used social systems control (SSC) to mean control by external forces or BPO. This is implied by the common practice of scoring the I-E only for externality (e.g., Reid & Ware, 1973; 1974; Schlegel & Crawford, 1976). This is also demonstrated in scale construction attempts such as that of Levenson's (1974) P scale. The sole exception to date has been that of Mirels (1970), who scored the I-E in the internal direction. Thus, his SSC factor was interpreted as control over social systems by the individual. Later studies scoring in the external direction have also obtained an SSC

factor (Reid & Ware, 1973; 1974; Schlegel & Crawford, 1976), which has been presented implicitly as an opposite of the Mirels (1970) SSC factor; i.e., control of others versus control of the person by others. In the Reid and Ware studies, as well as that of Schlegel and Crawford, it was necessary to present these factors as implicit opposites due to the nature of forced-choice tests. When an OPO and a BPO choice are paired in a forced-choice item, if one denies the OPO choice he must select the BPO choice. The previous representations of the SSC factors as implicit opposites (or as a single bipolar factor) appear to be more a function of the nature of the I-E's test format rather than that of the scales themselves. The present study demonstrates that BPO and OPO (the functional equivalents of the two types of SSC factors) are essentially unrelated, in that each represented a separate orthogonal factor or portion of a factor.

It should be noted as well that the OPO scale represents a considerable expansion of the SSC construct to include not only control over social systems and institutions, but control of virtually anything which is perceived to be external to the individual such as friends, employers, professionals (e.g., child psychologists), and even concepts like "the law". That OPO as a scale was uncorrelated with all other scales including social desirability lends additional credence to its probable utility as a new dimension of perceived control.

BIM and SCO. Although there was a slight correlation between the BIM and BEX scales in both studies (.29, .30), obtaining the two as separate factors in each study gives support to Reid and Ware's (1974) finding that "belief in Self-Control [impulse control] appears to differ from

both belief in chance determinants of one's outcomes [BFT] and expectations of control by social-political forces in society [BPO]" (p. 140). Since the BIM and BEX scales are both significantly related to desirability responding [see Tables 5 and 13], the correlation between the two may at least partially reflect shared desirability variance. However, it is uncertain what proportion of the correlation is due to this shared desirability as opposed to shared "externality" variance.

The correlations between BIM and SCO in the two studies (-.03, -.10) support the two as being separate scales. Thus, what one feels about his level of impulse control is quite unrelated to what he might tell us concerning his perception of control over personal outcomes, even though both deal with the topic of perceived self-control.

The match between solutions. The exceptionally high correlations in Table 11 between factors in the original study and those in the replication study (e.g., OPO with OPO) indicate an excellent match between the two item factor analyses. Although strong evidence of a successful replication was obtained, some problems were evident in the individual item loadings [see Table 10]. Six items had non-salient or marginal loadings on their respective intended factors and five items saliently loaded one or more additional factors. It is possible, however, that sample differences between the two studies such as those previously discussed (i.e., age and credit points) might partially or even totally account for these minor discrepancies between the two solutions. On the whole, I am quite satisfied that the existence and relative independence of the four subscales of perceived locus of control within the 47 retained items has been firmly established. Additionally it should be noted that the item-

analytic procedures suggested in the construction of this instrument appear to have performed admirably.

Properties of the Scales

Sex and sample differences between scale means. The only scale mean which had an overall change, regardless of sex, from the first to the second study was OPO. However, since the second sample of subjects was composed largely of older individuals, many of whom were already working in the "real world" as opposed to being full-time students, they may have had a slightly more realistic conception of the limits to the power which they felt they could exert over others.

No difference in mean scale scores was found between males in the two studies. However, several differences between the two samples of females were obtained. In general, females in the replication study scored significantly: (a) lower on BIM, (b) lower on OPO, and (c) higher on social desirability (DES) than did females in the original study. Finding (c) may account for (a), and a more realistic conceptualization of OPO (as suggested above) might account for the lowered scores on OPO.

Finally, no reliable sex difference was found which existed in both studies. In the original sample, females scored significantly higher on BIM than did the males. In the replication, females scored significantly lower on BEX and OPO, and higher on DES than did the males. Since these differences were not constant across the two studies, it is probably best, for now, to consider them as being due to sample differences.

Correlations of the scales with social desirability (DES). Only the BEX and BIM scales showed any relationship with DES. However, even correlations as large as these have been considered acceptable by recent per-

sonality scale constructors. For example, in the construction of the PRF, Jackson (1967) reported correlations of several scales with social desirability which were in excess of those reported in the present study. The present scale correlations with DES also compare favorably, on the whole, with those reported for the original I-E Scale (Rotter, 1966).

Alpha coefficients (internal consistency). Alphas for the BEX and BIM scales remained fairly constant between the two studies, dropping only .02 and .03, respectively. The OPO and SCO scales, on the other hand, did not fare quite so well, OPO dropping .14 and SCO dropping .10. However, even the alphas in the replication, when adjusted for scale size, are comparable to those of the entire I-E (Rotter, 1966).

The true-false format. The earlier rejection of the Likert format in favor of a forced-choice format in order to reduce correlations with DES has been shown here to have been essentially unnecessary, as hypothesized. As seen in Table 4, the relationship with desirability has been fairly successfully suppressed at the item level and only two of the total scales--BEX and BIM--showed even a moderate correlation with DES [see Tables 5 and 13]. As previously suggested, the adoption of a true-false format serves quite well to avoid the problems typically encountered in constructing and utilizing a forced-choice measure.

The Scale Factors

Scale intercorrelations. The only major difference between the two scale intercorrelation matrices involved the OPO scale's correlation with BIM (original sample r = -.148; replication r = .056). It is possible that the change in this relationship in the second sample was responsible for the scale factor solution breaking from one factor in the original

study [Table 6] to two factors in the replication [Table 12]. That is, since OPO was no longer negatively related to an external scale (BIM), it was unlikely that a general factor should be obtained.

The factor solutions. The solution in the original study indicated a single general I-E factor with external control (BEX and BIM) playing the dominant role. It is a bipolar factor, indicating that a person who scores high on BEX and BIM will probably score low on the OPO and SCO scales, and visa versa. Thus, although the internal loadings on this general factor were somewhat low, the solution serves to give credence to Rotter's (1966) claim that internality-externality may be represented as a continuum.

The factor solution in the replication study, on the other hand, indicated two factors; Factor I being external control and Factor II being internal control. Since these are orthogonal factors, one might reach the general conclusion that internal and external control (as represented in the present scales) are two unrelated constructs; i.e., how one scores on the external scales tells us nothing about how he would score on the internal scales. A recent study (Collins, 1974) in which the I-E items were administered as separate Likert format statements lends support to the replication scale factor analysis, in that, of the four retained factors, Factor I was composed entirely of external items while Factor II was essentially internal items.

Thus, the two present studies provide two different hierarchical solutions, ranging from the item level to the item-factor level to a general factor in the original sample, and from the item to the item-factor to two main factors in the second study. This is shown more clearly in Fig-

ure 1.

The Relationship of the Results to Locus of Control Theory

Since the relationship of the present findings to Rotter's (1966) construct of internal-external control has already been discussed, it is appropriate to look now at the relevance of these findings to the Tiffany et al. (1969) dimensions of control. In essence, excluding the SCO scale, it has been shown that a measurement representation of the Tiffany dimensions allows a reduction of from four to three dimensions as follows: (a) OI and FI have merged to form a single dimension of impulse control (BIM), (b) OE was represented by OPO, and (c) FE was represented by the combination of BPO and BFT into the BEX scale. Thus, at the scale level, the Tiffany et al. (1969) conceptualization of control appears more useful and appropriate than that of Rotter's (1966) single dimension of I-E. Essentially, the present study represents a partial return to an earlier theoretical version of perceived control espoused by Rotter, Seeman, and Liverant (1962):

> It is conceivable but highly unlikely that all or even almost all rewards are characterized as exclusively internal or external by a given individual. . . . It seems more reasonable to assume that for any individual the attribution of causes will vary with the class of reinforcing events which have occurred or are anticipated. (p. 500-501)

The authors later went on to suggest that several reinforcement areas be assessed such as academic recognition, social recognition, love and affection, dominance (being able to influence the behavior of others), social-political control, and general life philosophy. These categories were later apparently abandoned in favor of the latter category (general life philosophy) in order to tap "generalized expectancies" over many re-

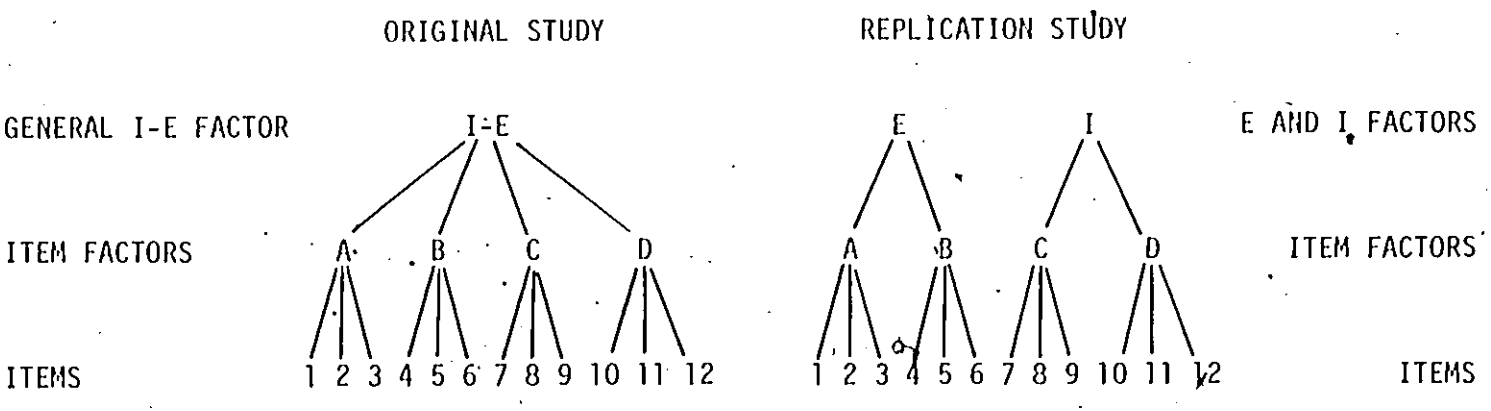

Figure 1. Hierarchical solutions obtained in the original and replication studies.

inforcement areas (cf. Rotter, 1966).

Albeit, there is nothing inherently wrong or bad about the use of a broad, general construct such as is represented in the I-E Scale. However, until individuals such as Mirels (1970) and Reid and Ware (1973) began to examine the structure of the I-E through factor analysis, specific reinforcement areas were totally ignored or considered to be non-productive and non-predictive. In short, it is my contention that, based on the present findings and replication, only a multidimensional construct (such as that provided by Tiffany and his co-workers) will best serve to understand and represent theoretically a multidimensional instrument, and visa versa. Although Rotter's (1966) instrument is multidimensional, it is apparent that his construct was not (cf. Rotter, 1966).

Suggestions for Future Studies

Before the subscales can properly be used in applied research, future studies assessing the properties of convergent and discriminant validity should be performed. It will be particularly interesting, for example, to learn what, if any, relationships the individual scales have to pathology or maladjustment. The demonstration of suitable short-term test-retest reliability is also considered necessary, since one would expect the scale scores to remain consistent given that major events affecting the perception of control are taken into account. Furthermore, the drop in alpha levels in the replication for the OPO and SCO scales indicates that additional items should be tested with the intent of lengthening the two scales as well as conceivably replacing the unstable items. One might also consider changing the acceptable endorsement proportion

from the present .95 level to, say, .90 or even .85.

The differences in the two scale factor-analytic solutions leaves unsettled the issue of whether I-E is best conceptualized as a continuum or as two separate constructs--internal and external control. Perhaps after the scales have been suitably strengthened according to the previous suggestions, solutions across several samples will aid in providing an answer.

Related to this issue is the possibility of forming composite scales. The initial scale factor solution indicated that it would be appropriate to derive a single general score by summing the scores for BEX and BIM, and subtracting the scores for OPO and SCO. The second scale factor solution indicated, on the other hand, that two composite scores could be derived; one for external control (BEX + BIM) and one for internal control (OPO + SCO). If one intended to form either a general I-E score or two separate composite scores (i.e., internal and external control), as would follow from the two factor solutions, given the present findings it would be appropriate to do so only if the factor loadings were applied as scale weights. As an example, to form an internal composite, one would follow the formula:

$$\text{Internal Score} = .35\ \text{OPO} + .39\ \text{SCO}$$

This assumes that the BEX and BIM scores are unimportant since their loadings within the factor were approximately zero. If composites were desired without weighting the individual subscales, it would be necessary to have all subscales equal in number of items in order to avoid overweighting the longer subscales.

Although the validity of the scales has not yet been demonstrated, it is perfectly acceptable to use the scales in their present form to determine if separate predictions can be generated and substantiated using the individual scales or composite scales as outlined above. Additionally, one might determine whether certain predictions could be made which would not conceivably have been suggested given Rotter's (1966) assumption of unidimensionality. For example, impulse control (BIM) may be found to be a more relevant variable in governing ability to quit smoking than is general external control (BEX).

It would be appreciated if future studies utilizing these scales would refer to them collectively as the SIPC (Schwartz Inventory of Perceived Control). Using these initials will serve a double purpose. First, it will provide a means of differentiating the scales from the prior construction attempts of individuals such as Reid and Ware (1974), Rotter (1966), and Levenson (1974), as well as from scales yet to come. Second, it will provide a name for the inventory without informing subjects what precisely is being assessed.

Finally, the four dimensions identified in this study are undoubtedly not exhaustive of all conceivable facets of perceived locus of control, but it is my feeling that they represent a substantial start in the development of a viable inventory of internal and external control scales.

APPENDIX A

TEST BOOKLET FOR ORIGINAL SAMPLE

INTRODUCTION

This questionnaire represents the initial phase of the development of a personality inventory. The purpose of this phase will be to determine which of the items in this form will be used in the final version of the inventory. Through your participation, you will be serving a vital function in the revision of this test.

Since these are experimental scales, you may occasionally notice that some of the items appear to be similar. If this is the case, please try not to respond to items that look familiar by checking back through the test. It is probably best for you to attempt to consider each item as an entirely separate entity. In other words, we are not checking for the consistency of your responses.

DIRECTIONS

On the following pages you will find a series of statements which a person might use to describe himself. Read each statement and decide whether or not it describes you. Then indicate your answer on the separate answer sheet. PLEASE MAKE NO MARKS ON THIS TEST BOOKLET.

If you agree with a statement or decide that it does describe you, CIRCLE the T on the answer sheet (TRUE). If you disagree with a statement or feel that it is not descriptive of you, CIRCLE the F on the answer sheet (FALSE).

In marking your answers on the answer sheet, be sure that the number of the statement you have just read is the same as the number on the answer sheet. Answer EVERY statement either true or false, even if you are not completely sure of your answer.

In order to completely assure your anonymity in this study, the only identifying information which you will be asked to supply is your AGE and SEX (at the top of the answer sheet). Since your responses are anonymous, there can obviously be no feedback concerning individual test scores. However, if at all possible, a description of the scales used in this test and the general findings of this phase will be given to you by your instructor before the end of the semester.

Work at your own speed and try to answer as honestly as possible. If you encounter any difficulties, please raise your hand and your questions will be answered.

BE SURE THAT YOU COMPLETE EVERY ITEM ON THE QUESTIONNAIRE. THANK YOU FOR YOUR COOPERATION.

Steven A. Schwartz

ACQ[1]	1.	I don't praise people unless they really deserve it.
BIM	2.	At times my temper gets out of hand.
BPO	3.	There will always be wars and there is nothing I can do about it.
ACQ	4.	I can't tell much about a person unless I find out what other people think of him.
OPO	5.	If I put my mind to it, I could have an important influence on what a politician does in office.
DY-[2]	6.	I believe people tell lies any time it is to their advantage.
SCO	7.	When I make plans, I am almost certain that I can make them work.
ACQ	8.	I don't seek out activities controlled by strong leaders.
BFT	9.	For me to become a boss or supervisor would depend a lot on happening to be in the right place at the right time.
DY-	10.	My daily life includes many activities I dislike.
BIM	11.	Even if I try not to submit, I often find I cannot control myself from some of the enticements of life such as over-eating or drinking.
SCO	12.	Compared to others, I am a self-made individual.
SCO	13.	If I fail at a task it is generally because I do not give it my best effort or I lack the appropriate skills.
ACQ	14.	I prefer pets which are independent of their masters to small, cuddly ones.
OPO	15.	I believe that I could successfully defend my point of view on a topic even against experts.

---

[1] Intended scales were not listed on the Ss' copies of the test.

[2] DY (desirability) items are listed with a + or - to indicate the direction of keying; + = true, - = false. All other items were true-keyed.

ACQ 16. I never read a book when someone wants to play a game.

OPO 17. I could convince a policeman not to give me a traffic ticket if I tried hard.

ACQ 18. If I really want to wear something, I am not bothered by it having a spot of dirt here or there.

ACQ 19. My obligations seldom keep me at home when others are out having fun.

OIM 20. I seldom rush out and buy things that I really do not need.

BIM 21. I am seldom successful in concealing strongly felt emotions.

SCO 22. What I do now and in the future will be determined by me alone.

ACQ 23. When I was young, I had a few favorite toys that I played with all of the time.

DY- 24. I often question whether life is worthwhile.

OIM 25. I make it a policy never to let my moods influence my actions.

BPO 26. My behavior is frequently determined by other influential people.

ACQ 27. I try to get along in life by being gentle and agreeable.

BFT 28. It is not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

SCO 29. What happens to me is my own doing.

OPO 30. If I really wanted to, I could find a way to beat Las Vegas at its own game.

BIM 31. If I wanted to attend a party, I would do so even if I had a test the next day.

ACQ 32. I don't try to maintain an easy-going, light-hearted attitude towards almost anything.

OIM 33. Even if I were very drunk, I could still prevent myself from insulting someone that I did not like.

OPO 34. I have the capacity to be an excellent fund-raiser for a charity.

DY+ 35. I am quite able to make correct decisions on difficult questions.

BPO 36. In general, it seems that who I know in life is more important than what I know.

DY+ 37. If someone gave me too much change I would tell him.

OIM 38. It is difficult for me to understand why some students panic during an exam.

SCO 39. In the long run I will receive the respect and rewards that I deserve.

BPO 40. If a friend wanted a favor, it would be hard for me to say no to him or her.

OIM 41. I seldom make major decisions on the spur-of-the-moment.

BIM 42. Sometimes I say things which I find it hard to believe that I said.

DY+ 43. I am always prepared to do what is expected of me.

ACQ 44. Even without clearly defined lines of authority, I would expect a group of which I were a member to accomplish quite a bit.

OPO 45. When going out with friends we usually do whatever I suggest.

ACQ 46. I could not get along without as many friends as I have now.

BPO 47. There is no point in planning my life too far in advance because other people invariably upset my plans.

SCO 48. My ability and motivation will determine what kind of job I eventually get.

BFT 49. Astrology or something similar might be a useful aid in planning my daily activities.

OIM 50. I would never strike someone out of anger.

ACQ 51. I would like to be a foreman.

OPO 52. If I wanted to do so, I could influence the actions and decisions of many powerful individuals.

SCO 53. I seldom act on the advice of others.

BFT 54. People in enviable positions are simply luckier than I am.

ACQ 55. I can't say that I have learned that one must be independent to be a mature individual.

BIM 56. I would find it difficult not to brood or sulk if a close friend let me down.

BPO 57. Other people's wishes often come before my own.

OPO 58. I could teach child psychologists a thing or two about children.

BFT 59. Many times I feel I might just as well decide what to do by flipping a coin.

ACQ 60. I don't seem to have more feeling for my friends than most people.

OIM 61. When I put my mind to it I can constrain my emotions.

DY+ 62. I am one of the lucky people who could talk with my parents about problems.

SCO 63. There is a direct connection between how hard I study and the grades I get.

OPO 64. Personal relationships are invariably terminated by me and not by the other person.

BIM 65. Sometimes I impulsively do things which at other times I definitely would not let myself do.

BPO 66. I would have very little chance of protecting my personal interests if they were to come in conflict with those of strong pressure groups.

BFT 67. To a great extent my life is controlled by accidental happenings.

ACQ 68. I rarely get so involved in my work that I don't even hear people speak to me.

OPO 69. I would have very little difficulty getting people to help me even if they did not particularly want to.

ACQ 70. If I were planning a picnic and it began to rain, I would go ahead with the picnic and try to find a sheltered place to eat.

DY- 71. I find it very difficult to concentrate.

BIM 72. I might easily be tempted into spending more than I could afford for a new car.

BPO 73. This world is run by a few people in power and there is not much that I can do about it.

BFT 74. Because of misfortune or bad luck, my personal worth often passes unrecognized no matter how hard I try.

OIM 75. I can always resist the temptation to act impulsively.

ACQ 76. I feel very protective towards my friends.

SCO 77. The misfortunes and successes I have had were the direct result of my own behavior.

BPO 78. Getting what I want requires pleasing those people above me.

OIM 79. In many cases I cannot seem to identify with the feelings of others.

ACQ 80. I would probably file a complaint if a bully roughed me up on the street.

OIM 81. No matter how strong my emotion, it would never cause me to act without thinking.

OPO 82. By active participation in the appropriate political organizations I could do a lot to keep the cost of living from going higher.

DY+ 83. I get along with people at parties quite well.

BIM 84. It would be hard for me not to feel depressed after watching a very sad movie.

BFT 85. If I am destined to fail, I will do so; the matter is out of my hands.

BPO 86. I seem to spend more time than I would like catering to the whims of other people.

DY+ 87. My life is full of interesting activities.

OIM 88. I could never fall in love with someone "at first sight."

OPO 89. With the proper training I could find enough loopholes in the law so that I could completely avoid paying taxes.

BFT 90. Whether or not I get into a car accident is mostly a matter of luck.

SCO 91. If I do not attain my life's goal, I will have no one to blame but myself.

OIM 92. If I decided to rid myself of a bad habit, I am sure I could succeed.

ACQ 93. I usually speak in an assertive manner.

BPO 94. It would be hard for me to get to the top of an organization without the aid of some influential people.

ACQ 95. I accept criticism by younger people calmly.

OIM 96. It is important to me to have complete mastery over the way I behave.

BFT 97. I have often found that what is going to happen will happen and there is little I can do about it.

ACQ 98. I have definite preferences in the type of perfume that women wear.

DY+ 99. I am glad I grew up the way I did.

ACQ 100. I have worked for several different people and done several different kinds of work in the last few years.

ACQ 101. The food I eat is usually very plain.

BFT 102. To succeed in the stock market all I would need is some good luck.

DY- 103. Many things make me feel uneasy.

BPO 104. There are institutions in our society that have considerable control over me.

SCO 105. I am usually able to protect my personal interests.

BFT 106. My getting a good job or promotion in the future will depend a lot on getting the right turn of fate.

DY- 107. I did many very bad things as a child.

OPO 108. I believe I could talk almost any teacher into giving me a higher grade.

BIM 109. When someone hurts my feelings, I find it very hard not to strike back.

BFT 110. It makes little difference how hard I study, since most teachers seem to assign grades arbitrarily.

BIM 111. When I want something special, I want it immediately and have a hard time waiting to obtain it.

ACQ 112. I am seldom outgoing in action.

BPO 113. If a supervisor felt I should not get a raise, nothing I could do or say would change his mind.

ACQ 114. I often mark a calendar with things I have to do.

BIM 115. There are some mistakes which I seem to make over and over again, even though I know better.

DY- 116. I am never able to do things as well as I should.

DY- 117. I would be willing to do something a little unfair to get something that was important to me.

BIM 118. There are moments when I cannot subdue my emotions and keep them in check.

SCO 119. How well I do in competitive games is determined solely by my abilities.

BPO 120. I would probably buy an article of clothing if the salesperson said it looked good on me.

BFT 121. Many of the unhappy things in my life are at least partly due to bad luck.

ACQ 122. I need to get lots of sleep even when I'm very busy.

OIM 123. If necessary, I can always control my immediate wishes and desires.

BPO 124. Whether an instructor likes me is often a more important determinant of my grade than is my ability.

BIM 125. It is easy for me to understand how people can get emotionally worked up in a mob.

SCO 126. My accomplishments in life typically turn out to be the result of ability and perseverance.

BFT 127. I often realize that despite my best efforts some things seem to happen as if fate planned it that way.

OPO 128. I could easily convince others that I was experienced in a field which I knew very little about.

ACQ 129. I can't say that I would rather study mathematical theory than perform arithmetic computations.

SCO 130. If I work hard and have the necessary skills, nothing can stop me from getting ahead in life.

BIM 131. Something I cannot do is have complete mastery over the way I behave.

ACQ 132. I have never felt that I was getting too wrapped up in my work.

OPO 133. I am capable of dominating almost any conversation.

OIM 134. No matter how hungry I may be, I can resist snacking and wait for the upcoming meal.

DY+ 135. I am careful to plan for my distant goals.

ACQ 136. I don't like studying things just because they have a direct practical use.

SEX _____
AGE _____

PERSONALITY INVENTORY ANSWER SHEET

1.	T	F	26.	T	F	51.	T	F	76.	T	F	101.	T	F	126.	T	F			
2.	T	F	27.	T	F	52.	T	F	77.	T	F	102.	T	F	127.	T	F			
3.	T	F	28.	T	F	53.	T	F	78.	T	F	103.	T	F	128.	T	F			
4.	T	F	29.	T	F	54.	T	F	79.	T	F	104.	T	F	129.	T	F			
5.	T	F	30.	T	F	55.	T	F	80.	T	F	105.	T	F	130.	T	F			
6.	T	F	31.	T	F	56.	T	F	81.	T	F	106.	T	F	131.	T	F			
7.	T	F	32.	T	F	57.	T	F	82.	T	F	107.	T	F	132.	T	F			
8.	T	F	33.	T	F	58.	T	F	83.	T	F	108.	T	F	133.	T	F			
9.	T	F	34.	T	F	59.	T	F	84.	T	F	109.	T	F	134.	T	F			
10.	T	F	35.	T	F	60.	T	F	85.	T	F	110.	T	F	135.	T	F			
11.	T	F	36.	T	F	61.	T	F	86.	T	F	111.	T	F	136.	T	F			
12.	T	F	37.	T	F	62.	T	F	87.	T	F	112.	T	F						
13.	T	F	38.	T	F	63.	T	F	88.	T	F	113.	T	F						
14.	T	F	39.	T	F	64.	T	F	89.	T	F	114.	T	F						
15.	T	F	40.	T	F	65.	T	F	90.	T	F	115.	T	F						
16.	T	F	41.	T	F	66.	T	F	91.	T	F	116.	T	F						
17.	T	F	42.	T	F	67.	T	F	92.	T	F	117.	T	F						
18.	T	F	43.	T	F	68.	T	F	93.	T	F	118.	T	F						
19.	T	F	44.	T	F	69.	T	F	94.	T	F	119.	T	F						
20.	T	F	45.	T	F	70.	T	F	95.	T	F	120.	T	F						
21.	T	F	46.	T	F	71.	T	F	96.	T	F	121.	T	F						
22.	T	F	47.	T	F	72.	T	F	97.	T	F	122.	T	F						
23.	T	F	48.	T	F	73.	T	F	98.	T	F	123.	T	F						
24.	T	F	49.	T	F	74.	T	F	99.	T	F	124.	T	F						
25.	T	F	50.	T	F	75.	T	F	100.	T	F	125.	T	F						

APPENDIX B

DEBRIEFING FOR SUBJECTS OF ORIGINAL STUDY

FEEDBACK NOTICE FOR EXPERIMENT #8 ... EXPERIMENTAL SCALE CONSTRUCTION
EXPERIMENTER: STEVEN A. SCHWARTZ

Participation in this study involved filling out a 136-item TRUE-FALSE personality questionnaire. The stated purpose was to determine which of the 136 items were best suited to be used in the final version of the questionnaire.

The 136 items were designed to measure six different facets of PERCEIVED LOCUS OF CONTROL; i.e., who or what a person believes to have control over his life. The six scales were as follows:

(1) OIM (Over Impulses) = An individual who answered "true" to a large number of OIM items may be described as feeling that he has a great deal of personal control over his own impulses, desires, etc. He does not act on impulse and is generally able to postpone the gratification of these desires.

(2) BIM (By Impulses) = This sort of person does act on impulse and does not consider himself to be in control of the impulses, desires, etc.

(3) OPO (Over Powerful Others) = This individual (as in all other examples, answering TRUE to items for each scale) may be described as feeling that through the use of his own personal power he is able to influence the actions of other people. This sort of person may think he can influence a politician's actions in office, get others to do special favors for him, etc.

(4) BPO (By Powerful Others) = This individual feels that many other individuals, institutions, etc. exert considerable control over his actions (such as the government, friends, the law, etc.). By answering TRUE to BPO items, a person indicates that he feels many of his own actions are powerless; i.e., it doesn't matter what he does because the government, for example, will decide in the long run what will happen to him.

(5) SCO (Self-Control of Outcomes) = An individual who answers TRUE to SCO items feels that his own personal motivation, abilities, perseverance, etc. will determine what happens to him in life. He typically feels that he has a great deal of control over his own outcomes.

(6) BFT (By Fate) = Someone answering TRUE to BFT items believes that fate plays a major role in determining what happens to him. Because of this belief (like BPO), he feels that many things about his own life are beyond his power to control. It is as though chance, luck, or fate are more important determinants of what happens to him than is his own ability.

In addition to the 15-item scales dealing with each of the six topics listed above, an acquiescence and a social desirability scale were included. In this way, items could be eliminated from the test if they correlated too highly with: (1) the tendency to respond TRUE to items re-

gardless of their content or (2) the tendency to respond to items in a socially desirable manner, not responding according to one's own ACTUAL personality. In the item analysis to the present point, 16 items have been removed either because: (1) too high correlation with social desirability or acquiescence, or (2) too high correlation with an incorrect scale (e.g., an SCO item correlating higher with OIM than with its own scale).

POST ON CLASSROOM WALL FOR ONE WEEK ONLY

APPENDIX C

QUESTIONNAIRE FOR REPLICATION SAMPLE

INTRODUCTION

This questionnaire represents the second phase of the development of a personality inventory. The purpose of this phase will be to determine how successful the initial selection and screening of items was. Through your participation, you will be serving a vital function in the revision and standardization of this test.

Since these are experimental scales, you may occasionally notice that some of the items appear to be similar. If this is the case, please try not to respond to these items by checking back through the test. It is probably best for you to attempt to consider each item as an entirely separate entity. In other words, I am not checking for the consistency of your responses.

DIRECTIONS

On the following pages you will find a series of statements which a person might use to describe himself. Read each statement and decide whether or not it describes you. Then indicate your answer on the separate answer sheet. PLEASE MAKE NO MARKS ON THIS TEST BOOKLET.

If you agree with a statement or decide that it does describe you, CIRCLE the T on the answer sheet (TRUE). If you disagree with a statement or feel that it is not descriptive of you, CIRCLE the F on the answer sheet (FALSE).

In marking your answers on the answer sheet, be sure that the number of the statement you have just read is the same as the number on the answer sheet. Answer EVERY statement either true or false, even if you are not completely sure of your answer.

In order to assure your anonymity in this study, the only identifying information which you will be asked to supply is your AGE and SEX (at the top of the answer sheet). Since your responses are anonymous, there can obviously be no feedback concerning individual test scores. However, if at all possible, a description of the scales used in this test and the general findings of this phase will be given to you by your instructor before the end of this school session.

Work at your own speed and try to answer as honestly as possible. If you encounter any difficulties, please raise your hand and your questions will be answered.

BE SURE THAT YOU COMPLETE EVERY ITEM ON THE QUESTIONNAIRE. WHEN YOU HAVE FINISHED, PLEASE BRING THIS TEST BOOKLET AND YOUR ANSWER SHEET UP TO THE EXPERIMENTER. THANK YOU FOR YOUR COOPERATION.

Steven A. Schwartz

DY+[1] 1. My life is full of interesting activities.

OPO 2. If I wanted to do so, I could influence the actions and decisions of many powerful individuals.

BEX 3. People in enviable positions are simply luckier than I am.

BIM 4. Something I cannot do is have complete mastery over the way I behave.

DY- 5. I often question whether life is worthwhile.

OPO 6. By active participation in the appropriate political organizations I could do a lot to keep the cost of living from going higher.

BIM 7. When I want something special, I want it immediately and have a hard time waiting to obtain it.

BEX 8. I have often found that what is going to happen will happen and there is little I can do about it.

DY- 9. I would be willing to do something a little unfair to get something that was important to me.

BEX 10. There will always be wars and there is nothing I can do about it.

BIM 11. Sometimes I impulsively do things which at other times I definitely would not let myself do.

SCO 12. What happens to me is my own doing.

DY+ 13. I get along with people at parties quite well.

BEX 14. It is not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

BIM-[2] 15. No matter how strong my emotion, it would never cause me to act without thinking.

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[1] Intended scales were not listed on the Ss' copies of the test. DY items are listed with a + or - to indicate the direction of keying.

[2] Three BIM items (originally OIM items) are false-keyed. In all other items, where there is no indication of keying it may be assumed that they are true-keyed.

BEX 16. Getting what I want requires pleasing those people above me.

DY+ 17. I am one of the lucky people who could talk with my parents about problems.

BIM 18. There are moments when I cannot subdue my emotions and keep them in check.

OPO 19. I could teach child psychologists a thing or two about children.

BEX 20. Because of misfortune or bad luck, my personal worth often passes unrecognized no matter how hard I try.

BIM- 21. I can always resist the temptation to act impulsively.

DY+ 22. If someone gave me too much change I would tell him.

BEX 23. I would have very little chance of protecting my personal interests if they were to come in conflict with those of strong pressure groups.

BIM 24. I am seldom successful in concealing strongly felt emotions.

SCO 25. The misfortunes and successes I have had were the direct result of my own behavior.

BEX 26. For me to become a boss or supervisor would depend a lot on happening to be in the right place at the right time.

OPO 27. I could convince a policeman not to give me a traffic ticket if I tried hard.

DY- 28. I believe people tell lies any time it is to their advantage.

BIM 29. I would find it difficult not to brood or sulk if a close friend let me down.

BEX 30. To succeed in the stock market all I would need is some good luck.

OPO 31. I believe I could talk almost any teacher into giving me a higher grade.

DY- 32. I did many very bad things as a child.

SCO 33. What I do now and in the future will be determined by me alone.

BEX 34. To a great extent my life is controlled by accidental happenings.

DY+ 35. I am always prepared to do what is expected of me.

OPO 36. When going out with friends we usually do whatever I suggest.

BIM 37. At times my temper gets out of hand.

BEX 38. If a supervisor felt I should not get a raise, nothing I could do or say would change his mind.

DY+ 39. I am quite able to make correct decisions on difficult questions.

BEX 40. My getting a good job or promotion in the future will depend a lot on getting the right turn of fate.

OPO 41. I am capable of dominating almost any conversation.

BIM 42. Even if I try not to submit, I often find I cannot control myself from some of the enticements of life such as over-eating or drinking.

DY+ 43. I am glad I grew up the way I did.

BEX 44. I would probably buy an article of clothing if the salesperson said it looked good on me.

BEX 45. Whether or not I get into a car accident is mostly a matter of luck.

BIM- 46. When I put my mind to it I can constrain my emotions.

OPO 47. I could easily convince others that I was experienced in a field which I knew very little about.

DY- 48. I am never able to do things as well as I should.

BIM 49. There are some mistakes which I seem to make over and over again, even though I know better.

BEX 50. This world is run by a few people in power and there is not much that I can do about it.

SCO 51. My accomplishments in life typically turn out to be the result of ability and perseverance.

DY+ 52. I am careful to plan for my distant goals.

BEX 53. Astrology or something similar might be a useful aid in planning my daily activities.

SCO 54. If I do not attain my life's goal, I will have no one to blame but myself.

BEX 55. In general, it seems that who I know in life is more important than what I know.

DY- 56. I find it very difficult to concentrate.

OPO 57. I would have little difficulty getting people to help me even if they did not particularly want to.

BIM 58. Sometimes I say things which I find hard to believe that I said.

BEX 59. Whether an instructor likes me is often a more important determinant of my grade than is my ability.

DY- 60. My daily life includes many activities I dislike.

BEX 61. Many times I feel I might just as well decide what to do by flipping a coin.

OPO 62. I have the capacity to be an excellent fund-raiser for a charity.

DY- 63. Many things make me feel uneasy.

SEX _____

AGE _____

ANSWER SHEET

1. T F	22. T F	43. T F
2. T F	23. T F	44. T F
3. T F	24. T F	45. T F
4. T F	25. T F	46. T F
5. T F	26. T F	47. T F
6. T F	27. T F	48. T F
7. T F	28. T F	49. T F
8. T F	29. T F	50. T F
9. T F	30. T F	51. T F
10. T F	31. T F	52. T F
11. T F	32. T F	53. T F
12. T F	33. T F	54. T F
13. T F	34. T F	55. T F
14. T F	35. T F	56. T F
15. T F	36. T F	57. T F
16. T F	37. T F	58. T F
17. T F	38. T F	59. T F
18. T F	39. T F	60. T F
19. T F	40. T F	61. T F
20. T F	41. T F	62. T F
21. T F	42. T F	63. T F

PLEASE BE CERTAIN THAT YOU HAVE CIRCLED ONE ANSWER FOR EVERY ITEM.

APPENDIX D

DEBRIEFING FOR THE REPLICATION SAMPLE

FEEDBACK NOTICE FOR EXPERIMENT #8 ... EXPERIMENTAL SCALE CONSTRUCTION
EXPERIMENTER: STEVEN A. SCHWARTZ

Participation in this study involved filling out a 63-item TRUE-FALSE personality questionnaire. The stated purpose was to determine how successful the initial selection and screening of items was.

Forty-seven of the 63 items were designed to assess four different facets of PERCEIVED LOCUS OF CONTROL; i.e., who or what a person believes to have control over his life and his reinforcements. The four dimensions or scales were as follows:

(1) BEX (By External Forces) = An individual scoring high on this scale indicates that he feels many of his reinforcements in life are simply out of his hands; i.e., that forces such as fate, chance, or luck or powerful other persons, institutions, etc. govern what happens to him. This sort of individual feels, in general, that he is powerless to do anything about his lot in life.

(2) BIM (By Impulses) = This sort of individual is one who frequently describes himself as being impulsive and over-emotional. In general, he feels that he is unable to control his impulses, desires, and emotions.

(3) OPO (Over Powerful Others) = This person may be described as feeling that through the use of his own personal power he is able to influence the actions of other people, institutions, etc. For example, he may think that he could control or influence a politician's decisions in office, get other people to do special favors for him, etc.

(4) SCO (Self-Control of Outcomes) = An individual answering TRUE to SCO items feels that his own motivation, ability, perseverance, hard work, etc. are responsible for what happens to him in life. He typically feels that he has a great deal of control over his outcomes, and takes full responsibility for his failures as well as successes.

In addition to the scales listed above, a 16-item social desirability scale was also included in order to determine if total response to any item scale was related to a tendency to respond in a socially desirable manner, rather than according to one's ACTUAL personality.

The factor analyses of item in the two studies showed an exceptional match, indicating that the factor scales had been successfully replicated. Thus, the scales now stand on their own. Additional studies will be necessary to determine whether: (a) the scales are valid; i.e., that they measure what they purport to measure, and (b) they possess suitable short term test-retest reliability; i.e., whether the scores are stable over time.

THANK YOU AGAIN FOR YOUR PARTICIPATION.

PLEASE POST THIS NOTICE ON CLASSROOM WALL.

APPENDIX E

EXPERIMENTAL CREDIT SHEET FOR BOTH STUDIES

EXPERIMENTAL CREDIT SHEET FOR EXPERIMENT #8

TITLE: Experimental Scale Construction
EXPERIMENTER: Steven Schwartz
CREDIT TO BE GIVEN: 1 point

INSTRUCTOR'S NAME _____
DATE OF TESTING _____

SUBJECTS SIGN HERE AFTER COMPLETION OF QUESTIONNAIRE

1.	21.	41.
2.	22.	42.
3.	23.	43.
4.	24.	44.
5.	25.	45.
6.	26.	46.
7.	27.	47.
8.	28.	48.
9.	29.	49.
10.	30.	50.
11.	31.	51.
12.	32.	52.
13.	33.	53.
14.	34.	54.
15.	35.	55.
16.	36.	56.
17.	37.	57.
18.	38.	58.
19.	39.	59.
20.	40.	60.

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