

THE SELF-EFFICACY SCALE: CONSTRUCTION AND VALIDATION¹

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Summary.—Self-efficacy theory asserts that personal mastery expectations are the primary determinants of behavioral change. Further, it is suggested that individual differences in past experiences and attribution of success to skill or chance result in different levels of generalized self-efficacy expectations. To measure these generalized expectancies, a Self-efficacy Scale was developed. A factor analysis yielded two subscales: a General Self-efficacy subscale (17 items) and a Social Self-efficacy subscale (6 items). Confirmation of several predicted conceptual relationships between the Self-efficacy subscales and other personality measures (i.e., Locus of Control, Personal Control, Social Desirability, Ego Strength, Interpersonal Competence, and Self-esteem) provided evidence of construct validity. Positive relationships between the Self-efficacy Scale and vocational, educational, and military success established criterion validity. Future research and clinical uses of the scale were discussed.

Self-efficacy theory has proposed that all forms of psychotherapy and behavioral change operate through a common mechanism: the alteration of the individual's expectations of personal mastery and success (Bandura, 1977, 1982). According to this theory, two types of expectancies exert powerful influences on behavior: outcome expectancies, the belief that certain behaviors will lead to certain outcomes; and self-efficacy expectancy, the belief that one can successfully perform the behavior in question (Maddux, Sherer, & Rogers, in press). According to Bandura (1977), expectations of self-efficacy are the most powerful determinants of behavioral change because self-efficacy expectancies determine the initial decision to perform a behavior, the effort expended, and persistence in the face of adversity.

Empirical research by Bandura and his colleagues (Bandura, 1977; Bandura, Adams, & Beyer, 1977; Bandura, Adams, Hardy, & Howells, 1980) has demonstrated positive correlations between therapeutic changes in behavior and changes in self-efficacy. This relationship holds over a variety of target behaviors and treatment procedures; see review by Bandura (1982). In addition, experimental research strongly suggests that self-efficacy is a more

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powerful predictor of behavior than either outcome expectancies² or past performance (Bandura, 1977; Bandura, et al., 1977).

Bandura (1977) asserted that recognition by clinicians of the powerful impact of efficacy expectancies on behavioral change will lead to better understanding of how behavioral changes are produced by therapy. In addition, research on self-efficacy may have implications for modifying therapeutic procedures. Convincing the client that a certain behavior will lead to desirable consequences will not lead to behavioral change unless the client believes that he can perform the behavior in the required situation. According to Mahoney and Arnoff (1978), self-efficacy theory "offers a stimulating and heuristic model of cognitive processes in adjustment" (p. 703).

Self-efficacy has been primarily conceptualized as a situation-specific belief. However, there is evidence that the experiences of personal mastery that contribute to efficacy expectancies generalize to actions other than the target behavior (Bandura, et al., 1977). Individuals with histories of varied and numerous experiences of success may be expected to have positive self-efficacy expectancies in a greater variety of situations than individuals with experiences of limited success and of failure. Bandura (1977) posited that the context in which mastery experiences occur, as well as the individual's attribution of success to chance or skill, determines the extent to which these experiences of mastery influence the level of self-efficacy. From these propositions, it was predicted that individual differences in general self-efficacy expectancies exist and that these differences have behavioral correlates. An individual's past experiences with success and failure in a variety of situations should result in a general set of expectations that the individual carries into new situations. These generalized expectancies should influence the individual's expectations of mastery in the new situations.

The goal of the series of studies reported here was to develop a measure of self-efficacy that is not tied to specific situations or behavior. The rationale for developing such a scale was, first, to provide a tool for subsequent researchers. Second, since clients enter therapy with differing levels of general self-efficacy, they are differentially influenced by the therapeutic process (Bandura, et al., 1977). Hence, a generalized self-efficacy scale might enable therapists to tailor the course and style of therapy to the client's needs. The scale might also provide a useful index of progress in therapy since expectations of self-efficacy should change during therapy.

STUDY 1: TEST CONSTRUCTION, RELIABILITY, AND CONSTRUCT VALIDITY

The purpose of the initial study was to construct, assess the dimensional-

²J. E. Maddux & R. W. Rogers, Protection motivation and self-efficacy: toward a general expectancy-value model of attitude change. (Manuscript submitted for publication, 1982)

ity, and determine the reliability of a dispositional measure of self-efficacy. In addition, construct validity was evaluated through correlations with several personality measures.

Method

Subjects.—Research participants were 376 students in introductory psychology classes, given extra course credit for participation.

Procedure.—The subjects completed the Self-efficacy Scale and six personality measures, which will be described later. On the scale, subjects rated agreement with each item on 14-point Likert scales ranging from "strongly disagree" to "strongly agree." Reversed items were converted for scoring. The higher the score, the higher were self-efficacy expectations.

Results and Discussion

Factor analysis.—Items were written to measure general self-efficacy expectancies in areas such as social skills or vocational competence. These items focused on three areas: (a) willingness to initiate behavior, (b) willingness to expend effort in completing the behavior, and (c) persistence in the face of adversity. The original version of the Self-efficacy Scale had 36 items.

A scree test (Cattell, 1966) determined the number of factors to be rotated using the varimax method.

Inspection of the resulting factor structure indicated that a two-factor solution provided the optimal number of interpretable factors without unduly reducing the percentage of total variance accounted for. To be retained, an item was required to load at the .40 level or above on only one factor; 13 items did not meet this criterion and were discarded. The remaining 23 items and their factor loadings are presented in Table 1; subsequent results and analyses refer only to these 23 items.

Factor 1 contained 17 items and accounted for 26.5% of the total variance. Items loading on this factor measure self-efficacy without reference to any specific behavioral domain. Accordingly, the 17 items composing this factor were named the General Self-efficacy subscale. The mean score for the 376 subjects on this subscale was 172.65, $SD = 27.31$.

The six items of Factor 2 accounted for 8.5% of the total variance. These items reflected efficacy expectancies in social situations and were named the Social Self-efficacy subscale ($M = 57.99$, $SD = 12.08$).

Cronbach alpha reliability coefficients of .86 and .71 were obtained for the General Self-efficacy and for the Social Self-efficacy subscales, respectively. These results compare favorably with the alpha value of .6 recommended by Nunnally (1978) for scales to be used in basic research.

To confirm the original factor structure, the refined scale (composed of the 23 items retained from the original scale and 7 filler items) was admin-

TABLE 1
FACTOR LOADINGS OF ITEMS FROM SELF-EFFICACY SCALE

Item	Factor Loading
Factor 1. General Self-efficacy	
When I make plans, I am certain I can make them work.	.486
One of my problems is that I cannot get down to work when I should. (R)	.390
If I can't do a job the first time, I keep trying until I can.	.560
When I set important goals for myself, I rarely achieve them. (R)	.560
I give up on things before completing them. (R)	.631
I avoid facing difficulties. (R)	.439
If something looks too complicated, I will not even bother to try it. (R)	.687
When I have something unpleasant to do, I stick to it until I finish it.	.433
When I decide to do something, I go right to work on it.	.428
When trying to learn something new, I soon give up if I am not initially successful. (R)	.690
When unexpected problems occur, I don't handle them well. (R)	.547
I avoid trying to learn new things when they look too difficult for me. (R)	.665
Failure just makes me try harder.	.546
I feel insecure about my ability to do things. (R)	.552
I am a self-reliant person.	.438
I give up easily. (R)	.688
I do not seem capable of dealing with most problems that come up in life. (R)	.539
Factor 2. Social Self-efficacy	
It is difficult for me to make new friends. (R)	.701
If I see someone I would like to meet, I go to that person instead of waiting for him or her to come to me.	.591
If I meet someone interesting who is hard to make friends with, I'll soon stop trying to make friends with that person. (R)	.473
When I'm trying to become friends with someone who seems uninterested at first, I don't give up easily.	.607
I do not handle myself well in social gatherings. (R)	.619
I have acquired my friends through my personal abilities at making friends.	.640

Note.—(R) denotes items recoded in direction of high self-efficacy.

istered to a new sample of 298 students enrolled in introductory psychology classes. Results of the factor analysis replicated the original two-factor solution (General Self-efficacy and Social Self-efficacy). There was tentative evidence that General Self-efficacy might be broken into two components reflecting (a) initiation/persistence and (b) efficacy in the face of adversity.

Construct Validity

To assess the construct validity of the Self-efficacy Scale, scores on this instrument were correlated with measures of several other personality characteristics. These other measures included the Internal-External Control Scale (I-E) (Rotter, 1966); the Personal Control Subscale of the I-E Scale (Gurin, Gurin, Lao, & Beattie, 1969); the Marlowe-Crowne Social Desirability Scale

(Crowne & Marlowe, 1964); the Ego Strength Scale (Barron, 1953); the Interpersonal Competency Scale (Holland & Baird, 1968); and a Self-esteem Scale (Rosenberg, 1965). These scales measure personality characteristics that are related to personal efficacy, although none of these characteristics are synonymous with self-efficacy.

Personal mastery experiences enhance self-efficacy expectations only if the individual attributes these successes to skill (internal orientation) and not to luck or chance (external orientation) (Bandura, 1977). Individuals with an internal locus of control are, therefore, more likely to have high self-efficacy expectations than those with an external one. Since low scores on the I-E Scale indicate an internal orientation, a moderately negative correlation was expected between scores on the Self-efficacy Scale and scores on the I-E Scale. Of particular relevance to the concept of self-efficacy is the Personal Control Subscale of the I-E Scale, which assesses the extent to which one believes that one controls one's own life (Gurin, *et al.*, 1969). Scores on the Personal Control Subscale were hypothesized to also correlate negatively with those of the Self-efficacy Scale.

As belief in one's ability to perform a variety of tasks is likely to be seen by others as a positive characteristic, a moderate positive correlation was expected between the Marlowe-Crowne Social Desirability Scale and the Self-efficacy Scale.

The Ego Strength Scale was constructed to assist in predicting response to psychotherapy (Barron, 1953). Individuals who are determined, persistent, effective socially, and well adjusted psychologically score high on the Ego Strength Scale (Graham, 1978). The Interpersonal Competency Scale is a measure of personal effectiveness, ability to deal with others, and global positive mental health (Holland & Baird, 1968). Some of the items of the Interpersonal Competency Scale are relevant to self-efficacy while others are not (e.g., "I am seldom ill."). It was expected that scores on both the Ego Strength Scale and the Interpersonal Competency Scale would show a moderately positive correlation with self-efficacy, although the Self-efficacy Scale is not a measure of psychological adjustment.

Personal efficacy is but one of a number of other factors such as other beliefs and past experiences which contribute to self-esteem. Self-efficacy concerns beliefs about one's abilities while self-esteem represents an attitude about one's self-worth. Since high self-esteem is indicated by low scores on Rosenberg's Self-esteem scale, the relationship with the Self-efficacy Scale was expected to be moderately ^{and} negative.

As illustrated by Table 2, the predicted correlations between the two Self-efficacy subscales and the other measures were obtained; all were moderate in magnitude in the appropriate direction. The predicted conceptual

relationships with the Self-efficacy Scale were confirmed. The correlations, however, were not of sufficient magnitude to indicate that any of these scales measures precisely the same underlying characteristic as the General and Social Self-efficacy subscales.

TABLE 2
PEARSON CORRELATIONS OF SCORES ON SELF-EFFICACY SUBSCALES AND MEASURES OF PERSONALITY CHARACTERISTICS

Personality Characteristics	<i>r</i> : Self-efficacy	
	General	Social
Internal-External	-.287†	-.173*
Personal Control	-.355†	-.132*
Social Desirability	.431†	.278†
Ego Strength	.290†	.061
Interpersonal Competency	.451†	.432†
Self-esteem	-.510†	-.279†

* $p < .01$. † $p < .0001$.

STUDY 2: CRITERION VALIDITY

Self-efficacy theory asserts that successful performance leads to increases in self-efficacy expectations and that mastery experiences in one area may generalize to other areas of behavior (Bandura, et al., 1977). Individuals with a history of success experiences in important life areas such as employment, education, and military experience should have higher self-efficacy expectations than individuals who lack these experiences of success. The purpose of the second study was to provide evidence of criterion validity of the Self-efficacy Scale by demonstrating that past success experiences in vocational, educational, and military areas are positively correlated with scores on the Self-efficacy Scale.

Method

Subjects.—Research participants were 150 inpatients from the Tuscaloosa Veterans Administration Medical Center who were in the alcoholism treatment unit at the time of their voluntary involvement in this study.

Procedure.—The subjects completed the Self-efficacy Scale and a demographic questionnaire designed to measure success in vocational, educational, and military areas. Taken as indicative of vocational success were the subject's current employment status (employed vs unemployed), the number of jobs quit, and the number of times fired. Highest educational level completed was used as a measure of educational success. Highest military rank obtained was used as a measure of success in the military. Results of the demographic questionnaire were correlated with scores on the General Self-efficacy and Social Self-efficacy subscales.

Results and Discussion

The correlations obtained between the demographic variables and the two subscales of the Self-efficacy Scale are presented in Table 3. High scorers on this scale were more likely to be employed, to have quit fewer jobs, and to have been fired fewer times than low scorers. The General Self-efficacy scores correlated positively with educational level and military rank. As hypothesized, scores on General Self-efficacy predicted past success in vocational, educational, and military goals.

TABLE 3
PEARSON CORRELATIONS OF SCORES ON SELF-EFFICACY SUBSCALES AND
DEMOGRAPHIC VARIABLES (N = 150)

Demographic Variables	r: Self-efficacy	
	General	Social
Employed	.278†	.096
Number of Jobs Quit	-.240†	-.204*
Number of Times Fired	-.226*	-.304†
Educational Level	.268†	-.017
Military Rank	.218†	.135

* $p < .05$. † $p \leq .01$.

The results provide some evidence of criterion validity for Social Self-efficacy. Scores on this subscale were negatively correlated with number of jobs quit and with the number of times fired. Hence, individuals who had difficulty holding jobs had lower Social Self-efficacy expectancies.

GENERAL DISCUSSION

These studies described the construction and factor structure of the Self-efficacy Scale and presented results that provide preliminary evidence of reliability and validity of its two factors. Items were constructed to cover the range of behavioral implications of self-efficacy, assuring content validity. The final items were selected on the basis of their contribution to psychologically meaningful factors which accounted for a significant proportion of the total variance. The studies indicated that the subscales were reliable. Other results confirmed the hypothesized relationships between scores on the self-efficacy subscales and other personality constructs, as well as criteria of past success in a variety of areas. These results provided evidence of the construct and criterion validity of the Self-efficacy Scale.

As predicted, high self-efficacy was associated with an internal orientation as measured by the I-E Scale and its Personal Control subscale. These findings support Bandura's (1977, 1982) contention that attribution of success to chance or skill determines the extent to which success experiences con-

tribute to one's self-efficacy expectations. An implication of this finding is that clients will continue to do better if they attribute their success in therapy to their own efforts rather than to the efforts of the therapist. An additional implication is that an internal locus of control is inadequate to ensure an individual's belief in the ability to control one's chances for success or failure in a given area. The individual must have also had some success experiences from which to introject beliefs of self-efficacy.

Both General and Social Self-efficacy expectations were associated with only a tendency to respond in a socially desirable manner. Scores on the Self-efficacy Scale are not simply indications of the desire to present oneself in a positive light.

The hypothesized relationship between General Self-efficacy and the Ego Strength Scale was obtained, supporting the proposition that the Self-efficacy Scale may assist the therapist in tailoring treatment to suit the client's needs. Clients with high scores on General Self-efficacy may be generally competent but be currently having difficulties in a few areas. Treatment with such an individual could be specific in focus and short in length.

There is a clear conceptual relationship between General and Social Self-efficacy and self-rated ability to deal effectively with others and with life in general as measured by the Interpersonal Competency Scale. However, the Self-efficacy Scale is a measure of one's belief in the ability to perform behavior and does not make the reference to the global adjustment associated with the Interpersonal Competency Scale.

As predicted, high scores on General and Social Self-efficacy are associated with increases in self-esteem. Belief in one's ability to perform behavior is one factor contributing to an individual's attitude toward oneself. These results imply that techniques designed to increase self-efficacy expectations may also be useful in improving self-esteem when this is seen as a goal of therapy.

Past success in vocational, educational, and military areas was predicted by scores on the General Self-efficacy subscale. This supports Bandura's (1977) proposition that past mastery experiences are powerful determinants of self-efficacy expectations. An alternative interpretation would be that preexisting self-efficacy expectations led to the successes, which is also consistent with self-efficacy theory. Both interpretations are probably partially correct. Individuals with high self-efficacy expectations are more likely to attempt new behaviors and to persist in them, and in turn are more likely to meet with successes, thereby increasing their self-efficacy expectations.

The Social Self-efficacy scores were associated with ability to keep a job but not with success in education or with military rank. This suggests that belief in one's ability to deal effectively with others is more important in academic achievement or military promotion in rank.

The Self-efficacy Scale is not intended to replace more specific measures that assess expectations for specific target behaviors. When dealing with specific behaviors in unambiguous situations, more specifically worded questions or direct behavioral measures are likely to provide the most accurate estimates of an individual's self-efficacy expectations. The Self-efficacy Scale measures generalized self-efficacy expectations dependent on past experiences and on tendencies to attribute success to skill as opposed to chance. These general expectancies are likely to manifest themselves in general patterns of behavior and in responses to situations about which the individual has little or no information. Thus, the Self-efficacy Scale, particularly the General Self-efficacy subscale, may be a useful adjunct measure in determining the success of psychotherapy and behavioral change procedures.

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