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DEVELOPMENT OF A MEASURE OF GENERALIZED EXPECTANCY OF TASK SUCCESS\(^1\)

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This report describes the development of the Estimate of Self-Competence (ESC) scale. The instrument was designed to measure generalized expectancy of task success, a trait which is presumed to reflect persons' beliefs regarding their likelihood of success in task situations and which accordingly has important implications for the study of expectancy theories of task motivation. A questionnaire containing the initial pool of 99 items was administered to 131 university students. Through correlational and factor analytic procedures, 12 items were selected for the instrument. Data from another sample of university students provide evidence for its reliability (internal consistency reliability estimate of .78; test-retest estimate of .86), convergent validity (significant correlations with other measures presumed to tap the same construct), and discriminant validity (lower correlations with measures of ability).

The expectancy concept plays a major role in several theories of motivated behavior. These are cognitive formulations sharing the central notion that behavior is in part determined by a person's beliefs or expectancies about consequences of his or her acts. Expectancy theories predict that the stronger the belief that desirable consequences will follow an act, and the more desirable those consequences, the greater the likelihood that the person will perform the act.

\(^{1}\) Research reported here is based on a portion of a dissertation prepared at the University of Minnesota in partial fulfillment of the requirements for the doctoral degree. Grateful appreciation is extended to John P. Campbell who served as thesis advisor.

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Expectancy formulations have become especially prominent as explanations of behavior directed toward work and task accomplishment. Theories in the need for achievement tradition (Lewin, 1938; Escalona, 1940; Atkinson, 1964; Weiner, 1972) and the valence-instrumentality-expectancy tradition (Vroom, 1964; Porter and Lawler, 1968; Mitchell, 1974; Campbell and Pritchard, 1976) fall into this category. Although the major theories have several important differences, they all agree that the likelihood of a person's striving to perform work- or task-related behaviors depends partially on the level of his or her expectancy that desirable consequences will occur as a result.

One aspect of this research is the systematic study of factors that determine a person's expectancy of task success contingent upon the performance of task behaviors. Motowidlo, Loehr, and Dunnette (Note 1) proposed that expectancy of success depends jointly on a person's perception of the task and on his or her own self-perceptions. They argued that expectancy thus involves both a state component consisting of situational cues about the objective probability of achieving the performance standard defined as success in a particular situation, and also a trait component consisting of a generalized expectancy of success related to a person's sense of general competence and knowledge of his or her abilities. Moulton (1974) made a similar distinction between two classes of variables presumed to determine expectancy of success. One class includes the person's judgements about "how difficult the task is for the average man or what proportion of a given population can succeed" (p. 77) and is roughly analogous to the notion of a state component of expectancy. The other class consists of a person's perceptions of his or her abilities and is roughly analogous to the Motowidlo et al. notion of a trait component of expectancy.

The line of reasoning followed by Motowidlo et al. (Note 1) and by Moulton (1974) points to generalized expectancy of task success, a person's overall feeling of self-competence and expectancy of achieving that level of performance considered to be success in task situations, as an important individual difference variable contributing to an individual's level of expectancy of task success. This variable differs conceptually from another variable suggested by Rotter (1966), locus of control, which was also proposed to explain individual differences in expectancies. Locus of control reflects individuals' beliefs regarding the extent to which desirable consequences are under their own control (internal control) rather than under the control of outside influences (external control). An individual may be high on internal control, yet, depending on his or her assessment of task-related competencies, may
conceivably be high, moderate, or low on generalized expectancy of task success. For this reason, locus of control is not conceptually the same as generalized expectancy of task success.

The construct of self-esteem does, however, seem to share elements in common with generalized expectancy of task success. This similarity is, perhaps, most evident in Lawler's (1973) discussion of self-esteem which he defines as a general sense of "competence in dealing with the environment" (Lawler, 1973, p. 54). Authors like Coopersmith (1967), however, discuss self-esteem as a more global construct encompassing at least four different kinds of success experiences: (1) winning acceptance, attention, and affection from others; (2) influencing and controlling others; (3) adherence to moral, ethical, and religious principles; and (4) performing tasks at a sufficiently high level to meet demands for achievement (Coopersmith, 1967, pp. 38-41). It is this last aspect of self-esteem, success through task performance, that most mirrors the concept of generalized expectancy of task success.

Because of the central role played by expectancy in current theories of task and work motivation and because the construct, generalized expectancy of task success, seems conceptually, at least, to be an individual difference variable that figures prominently in the determination of persons' expectancies of success in task situations, research reported here was aimed at the development of a measure of this construct.

**Method**

**Phase I: Instrument Development**

*Item pool.* Although self-esteem is not completely similar to generalized expectancy of task success, there appeared to be enough overlap to justify examining available measures of self-esteem and related concepts as a potential source of items. Accordingly, three self-esteem instruments were selected for inclusion in the initial item pool: 34 items from the Self Acceptance scale of the California Psychological Inventory (Gough, 1957); 23 items from the Feelings of Inadequacy scale developed by Janis and Field (Hovland and Janis, 1959); and 16 items from the Shrauger and Rosenberg (1970) revision of the Self-Description Inventory [not to be confused with another instrument of the same name developed by Ghiselli (1971)] developed by Cutick (1962) and used extensively by Diggory (1966). In addition, 16 other items were selected from the CPI because their manifest content seemed related to generalized expectancy of task success. Another 10 items, written especially for this study in the same format as items
from the Self-Description Inventory, were also included in the initial item pool for a total of 99 items.

Research participants. A questionnaire containing the item pool was administered to 131 university students. Of these 105 were male and 26 were female. Sixty-nine males completed questionnaires for experimental credit toward grades in an undergraduate psychology course. The rest of the sample consisted of students in a beginning or an advanced psychology course who volunteered to complete the questionnaire on their own time and return completed forms to their class instructor.

Item analyses. In addition to the item pool, the questionnaire also included two sets of other items which were intended to serve as criterion indices in subsequent analyses. One set required respondents to indicate what proportion of university students were superior to them in each of five skill areas: social, verbal, general intelligence, manual, and numerical. Then they were to rank the skill areas according to how important they were to them personally. These ratings and rankings were combined to yield the Skills Criterion Index (SCI), which was computed for each research participant as the sum of his self-ratings in the five skill areas weighted by the mean ranking of importance assigned to each skill area in the total sample. Thus, a person's SCI reflects his combined self-perceived competence in five skill areas weighted by the mean importance assigned to each by his peers.

A second set of criterion items required respondents to rate their self-confidence on four items asking very generally about their judged likelihood of becoming outstandingly successful, their self-evaluation of important skills and abilities, and their feelings of self-confidence. Responses to these items were summed to yield the General Confidence Criterion Index (GCCI).

Correlations were computed between the 99 items in the initial pool and each criterion index. Thirty-one items had average correlations with the two indices larger than .30 and were retained for further analysis.

Each of the three types of items in the initial pool—items from the California Psychological Inventory, items from the Feelings of Inadequacy scale, and items in the format of the Self-Description Inventory—was examined separately for additional items to be retained for further analysis, which may not have been selected previously on the basis of correlations with criterion indices. Items of each type were submitted to a principal axes factor analysis with rotation to the varimax criterion and then retained or discarded depending on whether the factor loadings, inter-item correlations, and manifest con-
tent indicated they might reflect the concept of generalized expectancy of task success. Twenty-one items were selected by these procedures, of which 12 had already been selected because of their correlations with the criterion indices.

Thus, from the initial pool of 99 items, 40 were selected for further analysis according to the two procedures described above. To these were added the four items that comprised the GCCI. (Although items that served as criterion indices might not normally be included in the final instrument, in this case, the individual items comprising the GCCI seemed sufficiently general and, according to manifest content, sufficiently saturated with the construct to be measured that they were considered for inclusion in the instrument.) One other item from the Feelings of Inadequacy scale was added because of a clerical error discovered too late to be corrected—for a grand total of 45 items in the final pool.

The 45 items were submitted to a principal axes factor analysis in which three factors were extracted and rotated to the varimax criterion. Twelve items loading on the factor that best represented the construct of generalized expectancy of task success were chosen for the final form of the ESC.

**Phase II: Experimental Use of the Instrument**

The ESC was subsequently used as a measure of generalized expectancy of task success with a second sample of university students in a laboratory experiment. The primary purpose of the experiment was to test hypotheses about effects of individual differences and situational characteristics on expectancy and motivation. In addition, some data collected during the experiment bears on the reliability and validity of the ESC and is therefore relevant to the purposes of this report.

The experiment was conducted in two sessions approximately one week apart. In the first session, 177 male research participants completed the ESC; rated their social, verbal, general intelligence, manual, and numerical skills; completed the SET-N (Bennet and Gelink, 1956) which measures arithmetic ability; and completed the verbal section of the Wesman PCT (Wesman, 1956) which measures verbal intellectual ability.

In the second session, 113 of the same participants took part in the experiment itself. Upon arriving for the second session, they were told they would be asked to work on a long series of arithmetic problems and that those who completed the largest number of problems correctly in the time allotted would win a $1.00 bonus. One third of the participants were told that only the top one out of four performers in
TABLE 1
Three Items Loading Highest on Each Factor Extracted Through a Three-Factor Solution

<table>
<thead>
<tr>
<th>Loadings</th>
<th>Fctr. 1</th>
<th>Fctr. 2</th>
<th>Fctr. 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1 (Eigenvalue = 11.78)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you find it hard to make conversation when you meet new people?</td>
<td>.83</td>
<td>.15</td>
<td>.07</td>
</tr>
<tr>
<td>When in a group of people, do you have trouble thinking of the right things to talk about?</td>
<td>.79</td>
<td>.06</td>
<td>.11</td>
</tr>
<tr>
<td>When meeting new people for the first time, what percent of the time are you able to impress them favorably and form good relations?</td>
<td>.70</td>
<td>.05</td>
<td>.26</td>
</tr>
<tr>
<td>Factor 2 (Eigenvalue = 2.66)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you ever think you are a worthless individual?</td>
<td>.13</td>
<td>.75</td>
<td>.17</td>
</tr>
<tr>
<td>How often do you have the feeling that there is NOTHING you can do well?</td>
<td>.04</td>
<td>.68</td>
<td>.22</td>
</tr>
<tr>
<td>How often do you feel inferior to most of the people you know?</td>
<td>.29</td>
<td>.66</td>
<td>.23</td>
</tr>
<tr>
<td>Factor 3 (Eigenvalue = 2.30)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When your performance is being evaluated by someone, what percent of the time is it evaluated as “superior”?</td>
<td>.05</td>
<td>.09</td>
<td>.70</td>
</tr>
<tr>
<td>When you have to do something that most people would consider extremely difficult, what percent of the time do you succeed?</td>
<td>.104</td>
<td>.01</td>
<td>.66</td>
</tr>
<tr>
<td>When you try to reach important goals of any kind, what percent of the time do you feel you have really succeeded</td>
<td>.08</td>
<td>.21</td>
<td>.66</td>
</tr>
</tbody>
</table>

Results

Instrument Development

Table 1 presents three items with the highest loadings on factors extracted and rotated in a factor analysis of the 45 items in the final pool. The first factor, as shown in Table 1, deals with social and...
TABLE 2
Final Form of the ESC Scale

Estimate of Self-Competence

The following questions ask you to assess your competence in various areas of performance. Please answer each question by putting a number from 0 to 100 in the blank to the right of the question. A score of 0 would mean "never" and 100 would mean "all the time." Pick any number you want, but try to make it represent as closely as possible how you judge your competence in the particular performance area addressed by the question. Even though some questions are more difficult than others, it is important that you answer all of them. Reach each question carefully and please answer all questions honestly.

1. When you try to reach important goals of any kind, what per cent of the time do you feel you have really succeeded?

2. When you are competing against someone, what per cent of the time do you win?

3. When your competence is being evaluated, what per cent of the time is it evaluated as only "mediocre"?

4. In situations where it is necessary for you to speed up your performance in order to meet a deadline, in what per cent of the cases can you do so without sacrificing the quality of your work?

5. When you have to do something that most people would consider extremely difficult, what per cent of the time do you succeed?

6. When you do something you enjoy, what per cent of the time do you do it outstandingly well?

7. When wise, careful judgment is needed about something, what per cent of the time do you exercise sound judgment?

8. When others trust and depend on you for something, what per cent of the time can you live up to this?

9. When your performance is being evaluated by someone, what per cent of the time is it evaluated as "superior"?

10. When you try to do something that none of your friends has been able to do, what per cent of the time do you manage to do it?

For each of the two questions that follow, please circle a number (ranging from 1 to 8) to indicate how you feel about your abilities and skills in general.

11. How would you rate yourself in terms of abilities and attributes necessary for highly effective functioning in American society today?
   1. Extremely far above average.
   2. Very far above average
   3. Far above average
   4. Above average
   5. Average
   6. Below average
   7. Far below average
   8. Very far below average

12. Now please rate yourself in terms of the sum of total of all those skills and attributes that are most important to you personally.
   1. Extremely low
   2. Very low
   3. Quite low
   4. A little bit low
   5. A little bit high
   6. Quite high
   7. Very high
   8. Extremely high

Note—To score the ESC, items 3 and 11 are reversed. Also, responses to items 11 and 12 are multiplied by 10 before summing responses to yield the total ESC score.
TABLE 3
Response Means, Standard Deviations, and Factor Loadings for Items Finally Selected for the Estimate of Self-Competence (ESC) Scale

<table>
<thead>
<tr>
<th>ESC Item No.</th>
<th>Mean</th>
<th>S.D.</th>
<th>Fctr. 1</th>
<th>Loadings Fctr. 2</th>
<th>Loadings Fctr. 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>71.83</td>
<td>19.03</td>
<td>.08</td>
<td>.21</td>
<td>.66</td>
</tr>
<tr>
<td>2.</td>
<td>60.26</td>
<td>16.87</td>
<td>.28</td>
<td>.27</td>
<td>.35</td>
</tr>
<tr>
<td>3.</td>
<td>27.68</td>
<td>20.10</td>
<td>-.03</td>
<td>-.27</td>
<td>-.51</td>
</tr>
<tr>
<td>4.</td>
<td>53.45</td>
<td>27.24</td>
<td>.06</td>
<td>.14</td>
<td>.42</td>
</tr>
<tr>
<td>5.</td>
<td>55.91</td>
<td>21.65</td>
<td>.14</td>
<td>.01</td>
<td>.66</td>
</tr>
<tr>
<td>6.</td>
<td>78.48</td>
<td>18.77</td>
<td>.10</td>
<td>.10</td>
<td>.50</td>
</tr>
<tr>
<td>7.</td>
<td>75.82</td>
<td>13.62</td>
<td>.12</td>
<td>.29</td>
<td>.35</td>
</tr>
<tr>
<td>8.</td>
<td>84.84</td>
<td>12.97</td>
<td>.18</td>
<td>.08</td>
<td>.39</td>
</tr>
<tr>
<td>9.</td>
<td>48.94</td>
<td>26.76</td>
<td>.05</td>
<td>.09</td>
<td>.70</td>
</tr>
<tr>
<td>10.</td>
<td>46.86</td>
<td>22.64</td>
<td>.10</td>
<td>.06</td>
<td>.64</td>
</tr>
<tr>
<td>11.</td>
<td>3.64</td>
<td>0.97</td>
<td>-.27</td>
<td>-.30</td>
<td>-.43</td>
</tr>
<tr>
<td>12.</td>
<td>5.61</td>
<td>0.90</td>
<td>.15</td>
<td>.39</td>
<td>.50</td>
</tr>
</tbody>
</table>

Note—Responses to items 1 through 10 are on a scale of 0 to 100; responses to items 11 and 12 are on a scale of 1 to 8.

interpersonal aspects of self-confidence. The second factor seems to involve mostly general self-evaluation and, perhaps, personal adjustment with a few hints of task and social competence. Factor 3 seems to be the one most like the concept of generalized expectancy of task success. Items loading on this factor deal with perceptions about how frequently one reaches difficult and important goals, achieves success on difficult tasks, and performs effectively enough to be considered superior rather than mediocre. They also reflect feelings of proficiency in important abilities, confidence of achieving long-range success, and certainty of winning respect from significant others.

Twelve items from Factor 3 were chosen for the measure of generalized expectancy of task success. They appear in Table 2 which presents the final form of the Estimate of Self-Competence (ESC) scale. Table 3 presents item means, standard deviations, and factor loadings. The first 10 items are either from the Self-Description Inventory (Cutick, 1962; Diggory, 1966; Shrauger and Rosenberg, 1970) or were composed especially for this study in the same format. Items 11 and 12 are two of the four items that made up the GCCI. Instructions for completing the ESC are adapted from instructions which appear on the Shrauger and Rosenberg (1970) version of the Self-Description Inventory.

Intercorrelations among the ESC items range from .05 to .57 with a median of .30. Correlations between ESC items and the two criterion indices (SCI and GCCI) range from .05 to .64 with a median of .38. All but two of these are significant at the level of \( p < .05 \) or better and
considered together with item loadings on Factor 3 of the final factor analysis, provide additional evidence that the items tap a common construct.

ESC total scores were computed as the sum of item responses after responses on items 3 and 11 were inverted around their scale midpoints. Before summing, responses to 11 and 12, which were on a scale of 1 to 8, were multiplied by 10 to give them roughly as much weight in the total ESC score as the other items.

The ESC, like its constituent items, correlates quite well with criterion items and indices used during scale development. It correlates .45 (p < .01) with the SCI and .48 (p < .01) and -.43 (p < .01) with two GCCI items not included among ESC items. The magnitude of these correlations is due in part to the development strategy; that is, ESC items were selected partly according to their correlations with the criterion indices.

In the instrument development sample, the ESC correlated .17 (N = 117, N.S.) with the CPI Self-Acceptance scale, .30 (p < .01) with the Feelings of Inadequacy scale (Hovland and Janis, 1959) and .36 (p < .01) with the Shrauger and Rosenberg (1970) version of the Self-Description Inventory (the correlation with the SDI is spuriously high because the ESC and SDI have four items in common). These correlations between the ESC and the self-esteem scales are somewhat lower than correlations with criterion indices, perhaps because the self-esteem measures include components not directly related to generalized expectancy of task success, components like social poise, assertiveness, and personal adjustment. They do, however, correlate in the direction one would expect on the assumption that they also include generalized expectancy of task success as one component of the more global self-esteem construct.

Experimental Use of the Instrument

Research participants in the laboratory experiment completed the ESC on two occasions approximately one week apart. The correlation between the two administrations of the ESC, an estimate of test-retest reliability, is .86. The internal consistency reliability in the second sample of research participants [computed from Equation 6-18 in Nunnally (1967, p. 193)] is .78. These results indicate an acceptable level of reliability for the instrument, at least for research purposes. On the first administration, the mean score on the ESC was 792.72, with a standard deviation of 115.27 (N = 177). On the second administration, the mean was 797.77, with a standard deviation of 118.26 (N = 143).

The correlations between the ESC and self-ratings of competence in
the five skill areas range from \(-.19 (p < .05)\) for numerical skills to \(-.44 (p < .01)\) for social skills, with a median of \(-.39 (p < .01)\) for verbal skills and show that people with high ESC scores tend also to rate themselves highly in particular areas of competence. In contrast, the lack of any significant correlation with the arithmetic test \((r = -.09, \text{N.S.})\) or the test of verbal intellectual ability \((r = .00)\) suggests that although significantly related to perceived ability in certain areas of competence, ESC scores may be quite independent of actual (i.e., measured) ability.

Finally, the correlation between ESC scores and research participants' reported expectancies of success at the experimental task is .16 \((N = 113, \text{N.S.})\). Although in the right direction, this correlation is not large enough to meet conventional levels of statistical significance.

**Discussion**

The estimate of Self-Competence (ESC) scale consists of 12 items selected according to their correlations with two criterion indices, factor analysis results, inter-item correlations, and item content. Its items appear to be homogeneous with respect to manifest content explicitly reflecting the construct of generalized expectancy of task success. In the developmental sample, correlations of total ESC scores with criterion indices and self-esteem scales and correlations among ESC items suggest some construct validity for the ESC. Although the item factor loadings might also be viewed as providing some construct validity for the ESC, the sample is likely too small \((N = 131)\) to warrant a high level of confidence in their magnitude or stability (Guertin and Bailey, 1970; Gorsuch, 1974). Further evidence for the construct validity of the ESC comes from correlations in the experimental sample which included persons who participated in the subsequent experiment but not in the developmental phases of the ESC. In the experimental sample, the ESC was shown to have adequate test-retest and internal consistency reliability. Also, it correlated reasonably well with ratings of self-perceived proficiency in five skill areas.

Correlations between the ESC and two measures of ability indicate no significant, linear relationships. Thus, persons with high ESC scores may feel generally more competent than do persons with low scores, but may not actually possess higher levels of ability. Relative to low scorers on the ESC, high scorers likely overestimate their abilities while low scorers may tend to underestimate their abilities.

Although in the direction one would expect, the correlation between ESC scores and reported expectancy of success at the experimental task does not meet accepted levels of statistical significance. Possibly,
the state components of expectancy, which were manipulated in this experiment by clearly informing research participants of their objective probabilities of success, were so explicit that they left little room for the expression of the trait component tapped by the ESC. Or perhaps performing the experimental task (a long series of addition and subtraction problems) was not sufficiently ego-involving or important for the university students who participated in the experiment to be relevant for the ESC trait. This explanation receives some support from the finding that self-ratings on social skill and general intelligence, which were ranked as the two most important skill areas, were most strongly correlated with ESC (correlations of −.44 and −.42, respectively) while self-ratings on manual and numerical skills, ranked as least important, were least correlated with ESC scores (correlations of −.36 and −.19 respectively).

In sum, the results of this study suggest that the Estimate of Self Competence scale is adequately reliable and possesses sufficient construct validity to warrant further study as a measure of generalized expectancy of task success. Although evidence reported here is only suggestive, at best, regarding its relationship with reported expectancy of task success, it seems reasonable to anticipate that the scale may show stronger relationships with this variable in situations that do not explicitly and unambiguously provide cues about objective probabilities of task success or that represent important, highly ego-involving activities.

Reference Notes


References


Cutick, R. Self-evaluation of capacities as a function of self-esteem and


