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Development and Validations of the State of Hope Scale

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Abstract

Defining hope as a cognitive set compromising agency (belief in one's capacity to initiate and sustain actions) and pathways (belief in one's capacity to generate routes) to reach goals, the Hope Scale was developed and validated previously as a dispositional self-report measure of hope (Snyder et al., 1991). The present four studies were designed to develop and validate a measure of *state* hope. The six-item State Hope Scale is internally consistent and reflects the theorized agency and pathways components. The relationships of the State Hope Scale to other measures demonstrate concurrent and discriminant validity; moreover, the scale is responsive to events in the lives of people as evidenced by data gathered through both correlational and causal designs. The State Hope Scale offers a brief, internally consistent, and valid self-report measure of ongoing goal-directed thinking that may be useful to researchers and applied professionals.

Previous writers have described hope as entailing an overall perception that one's goals can be met (e.g. Beck, Weissman, Lester, & Trexler, 1974; Cantril, 1964; Erickson, Post & Paige, 1975; Farber, 1968; Frankl, 1992; French, 1952; Gottschalk, 1974; Lewin, 1988; Melges& Bowlby, 1969; Menninger, 1959; Schachtel, 1959; Stotland, 1969). These conceptualizations of hope have assumed that one's thinking about goal directed activities plays and important role in the subsequent attainment of positive outcomes. Drawing on this as well as recent literature using goal concepts to provide crucial anchors in cognitions (e.g. Lee, Locke & Latham, 1989; Pervin, 1989), we have posited that goal directed thinking comprises two interrelated components. First, there is agency, which taps the individual's perceived capacity for initiating and maintaining the actions necessary to teach a goal. Second, there is pathways, which taps the perceived ability to generate routes to one's goals. More specifically, we have defined hope as a "cognitive set that is based on a reciprocally-derived sense of successful agency (goal directed determination) and pathways (planning to meet goals)" (Snyder et al, 1991, p. 571).

Agentic and pathways thinking are both necessary for higher levels of hopeful thought (i.e. they are additive), and they reciprocally interact (i.e. they iterate in the thoughts of people as they entertain their goals). Therefore, although agentic and pathways thinking are related, they are not synonymous. That is to say, they refer to differing aspects of the goal directed thinking process. Likewise, there may be occasional instances in which a person may be relatively higher in either agentic- or pathways-related thoughts. Based on these premises, the Hope Scale was developed and validated as an eight-item (four each of agency and pathways) *dispositional* self-report measure. Since that time, this hope measure has been used by researchers with theoretical (e.g. Babyak, Snyder, & Yoshinobu, 1993) and applied interests (e.g. Elliot, Witty, Herrick, & Hoffman, 1991; Sherwin, Elliott, Rybarczyk, Frank, Hanson, & Hoffman, 1992; see Snyder, 1994a&b, in press, for reviews).

The Hope Scale, similar to current self-report indices of optimism (e.g. Scheier & Carver, 1985; Seligman, 1991; see Snyder, 1994a, for brief review), is based on a dispositional approach to measurement. Given that the dispositional measures of hope (see for review, Snyder, 1994a) and optimism (see for reviews, Scheier & Carver, 1993; Seligman, 1991) have furthered our understanding of the general coping strengths of people, it follows that state indices of these constructs also may be useful. That is to say, in contrast to the more enduring type of motivational set, there should be a temporal state that is related to the ongoing events in people's lives. In this regard, we would suggest that any debate about the relative importance of such trait and state perspectives is best tempered by the conclusion that both are operative and useful depending on one's focus. People probably have dispositional hope that applies across situations and times, but they also have state hope that reflects particular times and more proximal events. State hope, as measured in a given moment, provides a snapshot of a person's current goal directed thinking.

Theoretically, dispositional hope should relate to the intensity of state hope by setting a band or range within which state hope varies. That is to say, persons with higher dispositional hope should respond across situations within a range of state hope that is higher that that established by persons with low dispositional hope as they confront situations. Dispositionally higher hope people reporting higher state hope (within a range) also should be engaging themselves cognitively in more positive events and fewer

negative events. In other words, persons who are dispositionally higher in hope should manifest higher ongoing state hope because they place themselves in situations where they (1) do experience successful goal-related outcomes, and (2) do not experience unsuccessful event sequences (see Skinner, 1985, for a similar argument as to how subjective control relates to ones' experiencing affirming or disconfirming event sequences). Further, the state hope taken at the time of transactions, with specific goal-related situations should be more strongly related to mental analyses of those situations than is the case for dispositional in which goal-related situations are sampled more generally. Likewise, the test-retest reliability of the state as compared to dispositional hope should be lower because of sensitivity of the former index to the impact of temporarily proximal events.

The purpose of the present series of studies were to develop and validate a measure of state hope, and in the process to address the aforementioned questions about the relationship of dispositional and state hope, as well as other questions related to scale development.

Study 1: Scale Development and Convergent Validation

The purposes of the first study were to select scale items that adhered to a two-factor solution involving agentic and pathways goal related thinking, to examine their overall internal consistency and their temporal variability. The descriptive characteristics, gender differences, and concurrent validity in relation to other state measures and appraisals of daily events also were examined, as well as the discriminant validity of the State Hope Scale in relation to the dispositional Hope Scale.

Method

Design Overview

The first study involved several steps. First, the items for a new self-report measure tapping state hope were selected on the basis of meeting the hypothesized factor structure. Second, the selected items wee inspected for internal reliability. Third, the temporal variability of the scores was tested. Fourth, the descriptive statistics were examined. Fifth, gender differences were explored. Sixth, the concurrent validity of the State Hope Scale was evaluated on the basis of correlations with selected other state individual difference measures and daily appraisal ratings. Seventh, the discriminant validity of the State Hope Scale was examined in regard to its ability to predict daily appraisals beyond projections attributable to dispositional Hope Scale scores.

Subjects

Four hundred and forty-four students (211 males and 233 females) enrolled in introductory psychology at the University of Kansas participated as one means of fulfilling the course requirements. In a mass screening session, these students completed the eight-item dispositional Hope Scale (Snyder et al, 1991), and the initial eight-item version of the State Hope Scale (described subsequently). Based on their dispositional Hope Scale scores, 240 subjects (40 males and 40 females from the top, middle, and bottom portions of the score distribution) were recruited by telephone to participate the subsequent study. Subjects from the extremes of the distribution were recruited in order to maximize the likelihood of variability in subsequent State Hope Scale responses.

Equal numbers of males and females were recruited so as to explore possible gender differences. Of the original 240 subjects who began the study, 72 did not complete it because of failing to keep appointments, failing to return questionnaires, or failing to follow instructions. Those who did not complete the study did not differ from those who did in terms of dispositional hope or gender. The specific final breakdown of subjects was as follows, low-hope males = 28; low-hope females = 28; medium-hope males = 28; medium-hope females = 29; high-hope males = 26; high hope females = 29.

Materials

Dispositional Hope Scale. This scale consists of 12 items: four are distracters, four tap agency for goals, and for tap pathways thinking in regard to goals. Subjects respond on an eight point continuum (1 = definitely false, to 8 = definitely true), such that scores can range from a low of 8 to a high of 64. Snyder et al. (1991) report that the scale is internally consistent (alphas in the range of .80 for several studies); moreover, the four agency items load principally on one factor and the four pathways items load principally on another. Likewise, the dispositional Hope Scale has evidenced construct and discriminant validity through several studies (Snyder et al. 1991).

State Hope Scale. The first version of this new scale was derived by changing the wording of the original agency and pathways items of the dispositional Hope Scale so as to focus on the present (e.g. the agency item "I energetically pursue my goals" was changed to "At the present time, I am energetically pursuing my goals", and the pathways item "There are lots of ways around any problem" became "There are lots of ways around any problem that I am facing now"). The original distracter items were omitted, and the instructions asked respondents to take a few moments to focus on what was going on in their lives right now. When persons had adopted this "here and now" set, they were asked to read each item and rate the extent to which it described their thinking at the moment (on an eight point scale, with 1 = definitely false, to 8 = definitely true).

State Self-Esteem Scale. Heatherton and Polivy (1991) developed the 20-item State Self-Esteem Scale to measure overall esteem, which is made up of performance, social matters, and appearance subscales. The State Self-Esteem Scale is internally consistent (alpha of .92) and has received construct validational support in several studies. A measure of self esteem was included in the present study because of one's self esteem should reflect an appraisal of successful or unsuccessful goal pursuits (see Snyder, 1994 b for discussion). In particular, the perception that one is moving toward a goal should be associated with higher ongoing self-esteem, whereas the perception that one is impeded in a particular goal pursuit should relate to lower ongoing esteem.

State Positive and Negative Affect Schedule. Watson, Clark, and Tellegin (1998) developed the Positive and Negative Affect Schedule as an index of positive affect (e.g., ten items such as interested, proud, strong, etc.) and negative affect (e.g., ten items such as distressed, afraid, jittery, etc.). More specifically, Watson et al. (1998) suggest that positive affect as measured by their scale taps "the extent to which a person feels enthusiastic, active, and alert…a state of high energy, full concentration, and pleasurable excitement" (p. 1063); conversely, negative affect reflects "a general dimension of subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states" (p. 1063). The instructions for this scale can be varied in regard to the temporal set. We employed a state-oriented wording in which subjects were asked to

"Indicate how you feel right now, that is, at this very moment." Internal consistencies for both the positive and negative affect scales utilizing the "at the moment" instructions range from .85-.89, and factor analyses confirm the distinctiveness of the two factors. The Positive and Negative Affect Schedule also has displayed convergent validity in terms of its relationships to other scale scores. Similar to what we have reasoned in the previous subsection for self-esteem, it is posited that ongoing positive affectivity taps a mental appraisal of successful goal pursuits, whereas ongoing negative affectivity relates to the sense that one is blocked in goal pursuits (see Snyder, 1994b for discussion).

Daily Report Form. This from was designed for this study, and was to be completed for each day (from 2 days through 28). Each from indicated the particular date and the day at the top, and the remaining portion of the page was divided into four horizontal sections. The first section asked subjects to list the personal events that had transpired during that day, as well as to rate the favorability of each event on a seven-point scale (with 1 = extremely negative; 2 = somewhat negative; 3 = slightly negative; 4 = neutral; 5 = slightly positive; 6 = somewhat positive; and 7 = extremely positive). Second, subjects were asked to list their major thoughts during the day, and to rate the overall favorability of each (the same seven-point scale used for events). Third, subjects were asked to assess the day as a whole on a single item with a seven-point response continuum (1 = the worst, to 7 = the best). Fourth, subjects completed the State Hope Scale. The implicit assumption that such mental assays are based on an analysis of how one fared recently in goal-related activities. This assumption borrow from goal literature in which it is suggested that goals are a natural part of our ongoing thinking (e.g., Lee, Locke, & Latham, 1989; Pervin, 1989) and is also based on a subjective analysis of the actual events and thoughts that subjects exhibited as they rated their days.

Procedure. On the first day (February 6, 1992), the subjects reported in groups of approximately 30 (5 males and 5 females from each of the three levels of dispositional hope). After explaining the purpose ("We are interested in studying the reactions of college students as they live a month of their lives") and the progression of the study, the female experimenter asked each participant to complete the dispositional Hope Scale, the State Hope Scale, the Self-Esteem Scale, and the State Positive and Negative Affect Schedule. Next, the experimenter distributed envelopes marked "Week 1," "Week 2," "Week 3," and "Week 4." In each envelope there were the Daily Report Forms for that week, and the detailed written instructions describing how to fill out these forms. The experimenter reviewed the instructions orally. Subjects were instructed to fill out the form for the given day at the same time each evening, and to return the "Week 1" envelope with the forms for days 2 through 7 on Day 8 (February 13, 1992); and, to return the envelope for "Week 2" with the forms for day 4-14 on Day 15 (February 20, 1992); and to return the envelope for "Week 3" with the forms for days 15 through 21 on Day 22 (February 27, 1992); and to return the " Week 4" envelope for days 22 through 28 when they arrived for the final session on Day 29 (March 5, 1992). Subjects were reminded to return the forms at the appropriate times by means of weekly telephone calls. The last session replicated the first in terms of the data gathered. After completion of this final session, the purpose of the study was described and any questions the research participants had were answered. They were then thanked for their participation and dismissed.

Results

Factor Analytic Item Selection

The responses of the mass screening initial sample (N=444) were submitted to a principal-components factor analysis with oblique rotations, and the request command of extracting two factors. Oblique rotations were used throughout because of the positive theorized relationship between the agency and pathways components. The resulting two factors had eigenvalues of 4.22 and 1.15, and together accounted for 67.2% of the variance. The four agency items loaded more strongly on the first (loadings of .78 to .89) than the second factor (loadings of .36 to .48); conversely, the four pathways items loaded more strongly on the second (.71 to .87) than the first factor (loadings of .31 to .58).

When constructing a new scale, a cross-validational study allows for confirmation of the original factor structure. Because research participants took the State Hope Scale on 29 consecutive days, this allowed for repeated tests of the factor structure. In half of these factor analyses, the original factor structure was replicated. (1) On the remaining days, however, one agency item ("I am well prepared to handle what is currently happening in my life") loaded more strongly on the pathways factor. For this reason, this item was omitted, and in order to balance the number of agency and pathways item with the lowest average factor loading ("Even though others may get discouraged, I know I can find a way to solve my latest problem") also was discarded. Therefore, the original eight-item State Hope Scale was reduced to the final six-item version (see Appendix at the end of the article for the items, as well as instructions for administration).

The original mass testing data for the six item version of the State Hope Scale were submitted to a principal components factor analysis, with oblique rotations, and the request command for a two-factor solution. The first factor encompassed the three agency items; it had an eigenvalue of 3.20 and accounted for 53.4% of the variance. The second factor included the three pathways items; it had an eigenvalue of 1.08 and accounted for 18.0% of the variance. The cumulative variance accounted for was 71.4%. The three agency items loaded highly on the first factor (loadings of .83 to .89) and less so on the second factor (loadings of .31 to .45); conversely, the three pathways items loaded highly on the second factor (loadings of .69 to .88) and less so on the first factor (loadings of .36 to .61). When the subjects' responses were factored separately according to gender, the factor structures were very similar.

The subjects' responses to the six-item version of the State Hope Scale for each of the 29 consecutive days were submitted to the same factor analyses. Each factor analysis yielded the hypothesized structure such that the three agency items loaded highly on one factor and less so on the second factor, and the three pathways items loaded highly on one factor and less so on the other. The total variance accounted for in these two-factor solutions varied from a low of 72% to a high of 87%. Gorsuch (1983) has noted that extracted variances of 40% to 50% reflect a factor structure of substantial impact for self-reported scales, and the State Hope Scale surpassed this criterion. On about half of the days, the agency items loaded on the first extracted factor. The male and female responses, when factored separately, yielded equivalent factor structures.

In order to formally test the adequacy of a two-factored model in contrast to a one-factor model, Bentler's EQS program (Bentler, 1993) was used to perform a

confirmatory factor analysis (CFA) on the full mass screening sample and on the subsample that completed the daily State Hope Scale. The one- and two- factor models can be directly compared via the chi-square difference test. The two-factor model is specified with the pathways items loading only on the first factor, the agency items loading only on the second factor, and allowing the correlation between the two factors free to be estimated. The one-factor model differs only in that the correlation between the factors is constrained to a value of one. This constraint is equivalent to specifying that all six items load on a single factor in the population. If the chi-square value of the one-factor model is significantly larger than the chi-square produced by the two-factor model, it can be concluded that the two factor model fits the data better than the one factor model. In all analyses we report Bentler-Sanona scaled chi square, which is more robust to violations of distributional assumptions than the maximum likelihood generated chi-square (Chou, Bentler, & Satona, 1991). It also should be pointed out that, like many self-report measures, the post hoc addition of one of two correlated errors improved the overall fit of the model quite dramatically. These additions, however, are of little substantive value, and are irrelevant to the question at hand, i.e the comparison of the one vs the two factor models. Therefore, the models reported here contain no post hoc additions.

In the case of the mass screening sample, the two factor model yielded a chi square of 34.16 with 8 degrees of freedom ($p<.001$), a comparative fit index (CH) of 95, and an Akanke Information Criterion (AIC) of 53.63. The correlation between th two factors was 64. All loadings (standardized) ranged between .63 and .84. The one factor model yielded as much worse fit with a chi-square of 91.11 (9df. $P<.001$, $N=444$), a CFI of 82, and an AIC of 172.17. The chi-square difference between the two models is 56.95, which is highly significant (1 df. $p < .001$), support the superiority of the two over the one factor model.

The same analysis was carried out using the initial daily ratings for the subsample of the above individuals who took part in the daily rating, and the two factor model generated a chi- square valued of 17.18 (8 df. $P=.028$, $N=164$), a CFI of .97, and an AIC of 11.88. The correlation between the factors was .77 and all loadings were between .73 and .89. The one factor model, in contrast, yielded a chi-square of 48.28 (9df. $P<.001$), a CFI of .81, and an AIC of 71.44. The chi-squre difference between the two models is 31. 10, which, again, is highly significant (1 df. $P<.001$). This analysis is actually a relication ona suabsample of the mass screening sample, but the results support the stability of the two facto structure of Internal Reliability.

Cronbach alphas computed each of the 30 days (i.e. the mass testing day and the 29 subsequent days for the six item version ranged from a low of .82 to a high of .95, with a median alpha of .93. The item remainder coefficients ranged from a low of .48 to a high of .88 (all ps .001).

Cronbach alphas composed on each of the 30 days for the three agency items ranged from a low of .83 to a high of .95, with the median alpha being .91. The item remainder coefficients for the agency subscale ranged from a low of .62 to a high of .92 (all $ps < .001$).

Cronbach alphas computed on each of the 30 days for the three pathways items ranged from a low of .74 to a high of .93, with the median alpha of .91. The item

remainder coefficients for the pathways subscale ranged from a low of .53 to a high of .88 (all ps <.001).

Nunnally (1978) has suggested that self-report indices with internal reliabilities in the .70 to .80 range are acceptable for research purposed. The total State Hope Scale appears to exceed these benchmarks, as do the agency and pathways subscales. Further, the item remainder coefficients tell a similar story about the significant contribution of each item to the others.

Yet another question related to the issue of internal reliability involves the correlation between the agency and pathways components score. Although agency and pathways are theorized to be separately identifiable and were verified to be so by the factor analyses, they should be related according to the underlying theory. Results from the various samples show that these two components from the State Hope Scale are moderately and positively correlated mass testing (4421=.50,Day 1 (166)=.68, Days 2-28, median (66) =.76, Day 29 (166) = .71, all ps.001.

Temporal Variability

Because the State Hope Scale scores should vary over days, it was expected that the correlations across any two days in the four week period of the study should vary considerably. Indeed, these correlations ranged from .48 to .93. The dispositional Hope scale, by way of comparison, repeatedly has shown test-retest correlations in the .80 range over periods of up to ten weeks (Snyder et al, 1991). These finding suggest that State Hope scale scores were malleable, especially in comparison to scores on the dispositional Hope Scale. Another means of testing this variability is derived by submitting the daily State Hope Scale scores to a repeated measures analysis of variance with Dispositional Hope (low, medium, and high and Gender (male, female) as between subject independent variables. This analysis yielded a significant within-subject effect of Days, $F(26, 107) = 1.02$, $p<.02$. There were no interactions with Days.

Descriptive Statistics

For the mass testing, the overall mean was 37.15, with a standard deviation of 6.33. Collapsing across the subsequent 29 consecutive days of the study, the overall mean was 33.99, with a standard deviation of 7.02. The coefficient of variation (see Tabachnik &Videll, 1989), which reflects the ratio of the standard deviation to the total scale score, was .17 for the mass testing sample, and .21 for the data collapsed across the subsequent 29 days. This variability across subjects is especially desired for a state measure and, it should be noted, is higher than the 11 that typically results for the dispositional Hope Scale (see Snyder et al. 1991). If an individual differences measure does not have sufficient variability, this will attenuate its ability to produce significant relationships with other variables of interest.

Gender Differences

For the mass testing sample, the means for males and females were very similar (Ms = 37.24, 37.06, respectively). For the data over the course of the study, the males had somewhat higher State Hope Scale scores than did the females. In the aforementioned analysis for variance of the 29 days, with Days as a within subject variable, and Dispositional Hope and Gender as between subject variables, the Gender

effect on State Hope Scale scores approached significance, $F(1, 132) = 3.75$, $p<.06$. This main effect reflected the fact that the State Hope mean for the males was somewhat higher than that for the females (Ms= 34.79, 33.23, respectively). Gender did not interact with Days or Dispositional Hope.

Convergent Validity

A usual step in scale development involves the concurrent validation process in which the new scale is correlated with other scales that are posited to tap similar processes. Such relationships are addressed next.

Dispositional Hope. The State Hope Scale should vary over time, and yet should not deviate greatly from the level of dispositional hope. This stems from our theoretical premise that depositional hope should establish a band within which state hope varies. The correlations between the State Hope Scale and the dispositional Hop Scale at Day 1 and Day 29 supported this hypothesis, rs (166) = .79 and .78 respectively, ps<.001. Another approach to this same question is to examine daily State Hope Scale scores across the four weeks of the experiment as a function of dispositional hope. In the aforementioned analysis with Days as a within-subject variable, and Dispositional Hope and Gender as between subject variables, the Dispositional Hope effect on State Hope Scale scores was significant, $F (2, 132) = 45.98$, $p < .001$). Dispositional hope did not interact with Gender or Days.

State Self-Esteem. Because the individual's agentic and pathways thinking at a given time should relate to the ongoing sense of self-esteem, it was posited that the State Hope Scale and overall Self-esteem scores should correlate positively. The correlations for Day 1 and Day 29 were consistent with this hypothesis, rs (166) = .68 and .75, respectively, ps < .001.

State Positive Affect. A positive relationship was predicted between scores on the State Hope Scale and scores on the state form of the Positive Affect Scale. This prediction was borne out by the correlations on Day 1 and Day 29, rs (166) = .65 and .55, respectively, ps <.01.

State Negative Affect. The predicted negative relationship between State Hope Scale scores and negative affectivity was confirmed at Day 1 and Day 29. rs = -.47 and -.50, respectively, ps < .01.

Daily Report Form – Events. For the events that the subjects listed for a given day, the ratings on the seven-point scale were averages and correlated with State Hope Scale scores, with the hypothesis that higher ratings of daily events should relate to higher state hope. The correlations across the 27 days (Day 2 – 28) ranges from a low of .30 to a high of .52, with the median correlation of .39 (all ps < .01). Thus, higher State Hope related to more positive appraisals of the events on given days.

Additional analyses were conducted with the Daily Report of Events in order to move the focus form the quality of those vets as rated by subjects (as we report in the previous paragraph), to the quantity of events that subjects were engaging. Recall our hypothesis in the introduction that high state hope persons should access a larger number of positive events and a lower number of negative events in their daily lives. In order to test this, counts were made for each day of the number of events that were rated on the 7-point scale as being "slightly" (#5), "somewhat" (#6), or "extremely" (#7) positive, as well as counts for the number of events that were rated as "slightly" (#3), "somewhat"

(#2), or "extremely" (#1) negative. As hypothesized, higher state hope on a given day correlated positively, median r = .19, p < .05 (correlations range of .08 to .33), with number of positive events on that day; conversely, higher state hope on a given day correlated negatively, median r = .34, p< .01 (correlations range of -.11 to -.51), with number of negative events on that day.

Daily Report Form – Thoughts. For the thought that the subjects listed for a given day, the rating on the seven-point scale were averages and correlated with State Hope Scale scores. The hypothesis was that higher ratings of daily thoughts would relate to higher state hope. As predicted, these correlations were positive. More specifically, the correlations across the 27 days (Day 2 – Day 28) ranged from a low of .32 to a high of .50, with a median correlation of .42 (all ps < .01).

As was the case for events, additional analyses of the Daily Report of Thoughts were conducted in order to examine the quantity of the type of thoughts that subjects were engaging. Following from the prediction that higher state hope persons should access a larger number of positive thought and a lower number of negative thoughts in their daily lives, cont were made for each day of the number of thoughts that were rated on the 7-point scale as being "slightly" (#5), "somewhat" (#6), or "extremely" (#7) positive, as well as counts for the number of events that were rated as "slightly" (#3), "somewhat" (#2), or "extremely" (#1) negative. As hypothesized, higher state hope on a given day correlated positively, median r = .22, p < .05 (correlations range of .10 to .30), with number of positive thoughts on that day; conversely, higher state hope on a give day correlated negatively, median r = -.35, p <.01 (correlations range of -.19 to -.51), with number of negative thought on that day.

Daily Report Form – Overall Rating. We hypothesized that the overall ratings of the days should correlate positively with State Hope Scale scores. The correlations across the 27 days (Day 2 – Day 28) ranged fro a low of .36 to a high of .59, with the median correlation of .53 (all ps < .01).

Discriminant Validity

In order to establish the discriminant validity of the State Hope Scale, we examined whether the aforementioned State Hope Scale-Daily Appraisal Ratings correlations were attenuated when the common variance related to dispositional Hope Scale scores taken at the beginning of the experiment are partialled out.

Daily Report Form – Events. For the events that the subjects listed for a given day, the rating on the seven-point scale were averaged and correlated with State Hope Scale scores, partialling out the dispositional Hope Scale scores. The correlations across the 27 days (Day 2 to Day 28) ranged from a low of .13 to a high of .75, with a median correlation of .51 (p < .01). Descriptively, this median correlation of .51 was somewhat higher than the original median correlation of .39 for the State Hope scores and rating of daily events.

Daily Report Form – Thoughts. For the thought that the subjects listed for a given day, the rating on the seven-point scale were averaged and correlated with State Hope Scale scores, partialling out the dispositional Hope Scale scores. The correlations across the 27 days (Day 2 to Day 28) ranged from a low of .27 to a high of .69, with a median correlation of .53 (p < .01). Descriptively, this median correlation of .53 was somewhat higher than the original median correlation of .39 for the State Hope scores and rating of daily thoughts.

Daily Report Forms – Overall Ratings. The overall daily ratings on the seven-point scale were averaged and correlated with State Hope Scale scores, partialling out the dispositional Hope Scale scores. The correlations across the 27 days (Day 2 to Day 28) ranged from a low of .15 to a high of .67, with a median correlation of .49 ($p < .01$). Descriptively, this median correlation of .49 was somewhat lower than the original median correlation of .53 for the State Hope scores and overall ratings of daily events.

Before closing the results section for Study 1, it should be noted that wherever we have presented correlations between overall scores on the State Hope Scale and other indices, we have not reported the comparable statistics for the agency and pathways components separately because the basically mirror the findings for the total score. Further, it should be emphasized that the Hope Scale, following fro the underlying theoretical model, was developed as a cumulative index of agentic and pathways thoughts toward goals.

Study 1 Discussion

Results of this initial scale development study suggest that the six-item State Hope Scale comprises two identifiable and robust factors reflecting ongoing agentic and pathways thinking. These findings mirror those found for the dispositional Hope Scale (Babyak, Snyder, & Yoshinobu, 1993; Synder et al., 1991). Both traditional factor analyses and newer confirmatory factor analyses support this contention. Three items contribute to each factor, and both factors aggregate to capture a major proportion of the variance accounted for in subjects' responses.

Turning to the results pertaining in internal consistency, while the items on the State Hope Scale clearly load on the two theorized factors of agency and pathways, the items also reflect an overarching index of hope. The Cronbach alphas, as well as the item-remainder coefficients, routinely reveal high internal consistency.

Gender differences were apparent in the mass testing sample, but males were somewhat higher than females in State Hope Scale scores during the subsequent course of the study. Given that this effect was only marginally significant, data from additional samples are necessary before commenting further on this issue. It should be noted that none of the previous studies with the dispositional Hope Scale has found gender differences (Snyder et al., 1991).

The State Hope Scale also exhibited predicted relationships with other indices in its nomological network. State Hope Scale scores had a robust positive relationship to scores on the dispositional Hope Scale taken at the same time. Ongoing hope should reflect one's more stable level of hopeful thinking. Additionally, State Hope Scale scores related positively to ongoing state self-esteem and positive affect, and negatively to ongoing negative affect. In a variant of this concurrent validational theme, the daily reports (events, thoughts, and overall rating) showed that having a more positive appraisal of one's day related to having higher hope on that day.

The present results also lend support to our speculations in the introduction about the relationship of dispositional and state hope. We will discuss these in the same order as they were presented in the introduction. First, level of dispositional hope should set a band within which persons should respond with state hope, such that persons with higher as compared to lower dispositional hope should respond with within a range of generally higher state hope in their daily lives. The correlational data corroborate this inference in that dispositional hope correlated highly (rs of .78 and .79) with state hope taken on the

same days. Further, dispositional hope taken at the beginning of a month served to constrain the daily levels of state hope as evidenced by the analysis of variance.

Second, given that the level of dispositional hope sets bands of response for state hope, we reasoned that this occurred, in part, because of the differential extent to which people engage situations that are negative or positive in nature. In particular, we suggest that persons with higher state hope experience a greater number of positive and a smaller number of negative events and thoughts in their daily lives. The correlational data regarding the number of positive and negative daily events reported support this contention.

Third, although we suggested and documented that higher dispositional hope should set the range of state hope in a given situation, we noted that the state measure should be more strongly related to the mental appraisals on given days. In this regard, the State Hope Scale appears to have discriminant validity in that it continued to predict daily appraisals of events and thoughts when the shared variance of dispositional Hope Scale scores was removed.

Fourth, it was suggested that a state measure should be more malleable than the dispositional counterpart. Several analyses support this assertion in regard to the State Hope Scale. The scores on the State Hope Scale appear to vary over days, as should be the case with a measure of ongoing events. Both the correlational and analysis of variance results reveal this variability over days. Further, the coefficients of variation for the State Hope Scale indicate that it produces considerable variability across respondents. In fact, the coefficients of variability for the State Hope Scale are approximately twice the magnitude of those obtained previously for the dispositional Hope Scale.

Study 2: Validation Based on Performance-Induced Successful and Unsuccessful Goal Pursuits

Study 1 provides correlation-based validational information about the State Hope Scale. Yet another approach to the construct validation of the State Hope Scale is to move from a correlational to an experimental examination of the hypothesized malleability of State Hope Scale scores. The purpose of Study 2 was to test the sensitivity of the State Hope Scale scores to experimentally-induced successful or unsuccessful goal pursuits. It was expected that people who succeed in pursuit of a goal should increase their State Hope scale, while persons who fail in pursuit of a goal should undergo a decrease in state hope. Hope is a cognitive construct that is anchored in goal-related cognitions. As such, when we move unimpeded and experience a sense of attainment in our ongoing goal pursuits, we should experience in increase in agentic and pathways thinking; conversely, when we are impeded and experience a sense of blockage in our ongoing goal pursuits, we should experience a decrease in agentic and pathways thinking. As such, state hopeful thinking should track success and failure in goal pursuits (see Snyder, 1994b for discussion).

Design Overview

The study employed a 4 x 2 x 2 mixed factorial, with the between-subjects independent variable of Performance Feedback (success, success/failure, control, and failure) and Gender (males and females), the within-subject independent variable of Time (pre vs. post feedback), and the dependent variable of State Hope Scale scores. A manipulation check was taken to ascertain the effectiveness of the Performance Feedback independent variable.

Subjects

One hundred and twenty college students (60 males, 60 females) participated as one means of fulfilling the requirements of their introductory psychology courses. Subjects were assigned through randomized blocking to one of the four Performance Feedback conditions. Thus, there were 15 subjects per cell for each of the eight cells formed by the 4 (Performance Feedback) x 2 (Gender) design.

Anagram Task

An anagram task was developed specifically for this study. Twenty success-inducing anagrams were developed by mixing the letters of three or four letter words (e.g. lil → ill; eetm → meet; evgi → give; otn → not; etc.), while 20 failure-inducing anagrams mixed the letters of six to eleven letter words (e.g., xceneirepe → experience; eeyrcnass → necessary; gnchac →change; iiroetcdn → direction; etc.). The twenty success/failure anagrams were formed from ten of the aforementioned success-inducing and ten of the failure-inducing anagrams. A pilot test of 40 subjects showed that the three lists of anagrams produced the expected sense of success and failure.

Procedure

Subjects met individually with the male experimenter and were told that the purpose of the experiment was to explore how college students experience and approach the learning process. Next, the subject completed the State Hope Scale, the State Self-Esteem Scale, and the state version of the Positive and Negative Affect Schedule. These scales were described previously in Study 1. After completing these questionnaires, subjects in the control Performance Feedback condition simply sat quietly for six minutes. Subjects in the three other Performance Feedback conditions were told that they would be taking a cognitive test that "Although somewhat different from what one usually encounters in college, is an index of your mind's ability to flexibly adapt to new situations and to learn new information." The intent of this introduction was to stress the importance of the anagram task and to have the subjects take it seriously. All subjects in the Performance Feedback conditions were given six minutes to complete the anagram task. At the end of this time period, the experimenter "graded" the test in the presence of the subject and gave oral feedback. The success Performance Feedback (i.e., easy anagrams) condition subjects were told, "You did really well, in fact, you got (typically around 18) out of 20 right." The success/failure Performance Feedback (i.e., half easy, half hard anagrams) condition subjects were told, "You did OK, you got some right and some wrong, (typically round 10) out of twenty right." These numbers of correct answers were based on the scores that subjects in the pilot study obtained, and as such the oral feedback by the experimenter served to enhance the subject's natural sense of how she or he had performed. Next, subjects in the Performance Feedback conditions completed a brief manipulation check questionnaire asking (1) "How had did you try to solve all of the anagrams?" (1 = not at all, to 7 = extremely); (2) "How difficult did you find the anagram task?" (1 = not at all, to 7 = extremely); and (3) "How well did you feel you performed on the anagram task?" (1 = not at all, to 7 = extremely well). After finishing theses manipulation check items, the subject completed the same state measures that they took at the beginning of the experiment.

Lastly, the full purposes of the experiment were explained. Because this experiment involved manipulating subjects' sense of ability (for the Performance

Feedback condition subjects), care was taken to point out that performance on the anagram task in actuality was no reflection of intellectual abilities. It was explained that we were interested in the effects of successful or unsuccessful experimental performance on ones goal-directed thinking. Any questions the students had were answered. They then were thanked for their participation and excused.

Results

Factor Analyses

Principal components factor analyses with oblique rotations were performed on the pretest and posttest State Hope Scale scores. At pretest, the first factor had an eigenvalue of 3.10 and it accounted for 51.6% of the variance; the second factor had an eigenvalue of .94 and it accounted for 15.7% of the variance. The total variance accounted for was 67.3%. The first factor comprised the three agency items that loaded more on the first (loadings of .74 to .89) than on the second factor (loadings of .33 to .42), plus the pathways item "I can think of many ways to reach my current goals" (loading of .77 and .38 on factors one and two respectively). The second factor comprised the remaining two pathways items that loaded more on the second (both loadings of .83) than on the first (loadings of .36 and .40).

The factor analysis on the posttest State Hope scores basically replicated those on the pretest, such that the pathways item "I can think of many ways to reach my current goals" loaded most heavily on the agency rather than the pathways factor.

Internal Reliability

In order to provide another cross-validation of the internal consistency of the State Hope Scale, and to rule out attenuations in relationships due to difficulties with internal consistency, Cronbach alphas were computed for the pre and post Time periods. These indices were .81 and .88, respectively. Additionally, the pretest and posttest alphas for the agency subscale were .79 and .76, and .82 and .63 for the pathways subscale.

In order to examine the posited positive relationship between the agency and pathways subscale scores, as was done in Study 1, these subscales were correlated at the pre and post Time periods. These correlations were .56 and .68, respectively, $ps < .001$.

Descriptive Statistics

For the pretest, the mean was 31.10 ($SD = 6.02$). For the posttest, the mean was 35.12 ($SD = 5.85$). The coefficients of variability at pretest and posttest both were .17.

Concurrent Relationships to Other State Measures

At the pre Time period, Hope Scale scores correlated (1) positively with State Self-Esteem Scale scores, $r(118) = .49$, $p < .001$; (2) positively with state Positive Affect Schedule scores, $r(118) = .48$, $p < .001$; and (3) negatively with state Negative Affect Schedule scores, $r(118) = -.37$, $p < .001$.

In order to explore more specifically the nature of the convergent and discriminant validity, the relationships of the State Hope Scale scores to the performance, social, and appearance subscales of the State Self-Esteem Scale were examined. Because the subjects were informed that the study involved cognitive performance, it was expected that State Hope Scale scores taken at the pretest should correlate more strongly

and positively with performance self-esteem than with social or appearance self-esteem (r [118] = .56) than with social (r [118] = .39, r [117] = 2.33, p < .05).

Manipulation Checks on Performance Feedback Independent Variable

With regard to the first question involving the amount of effort exerted, there were no significant differences among the three anagram groups, and subject in all conditions reported relatively high effort (approximate scores of 5 on the 7-point continuum). With regard to the second (perceived difficulty) item, there was a significant effect of Feedback condition, F (2, 84) = 81.57, p < .001, such that the order from least to most perceived difficulty was success (M = 2.07), success/failure (M = 5.00), and failure (M = 6.17) (all means were significantly different from each other at ps < .001 by post-hoc t–tests). With regard to the third (perceived performance) item, there was a significant effect of Feedback condition, F (2, 84) = 66.14, p < .001, such that the success/failure (M = 3.60), and failure (M =2.03) (all means were significantly different from each other at ps < .001 by post-hoc t-test). These results suggest that the Feedback manipulations were successful in that subjects in all three conditions were highly involved, and yet experienced differential success.

Changes in Pretest/Posttest State Hope Scale Indices as a Function of Performance Feedback

The 4 (Performance Feedback) x 2 (Gender) x 2 (Time) analyses of variance on State Hope Scale, the agency subscale, and the pathways subscale scores did not yield any main effects or interactions involving Gender. Therefore, Gender was collapsed to form a 4 (Performance Feedback: success, success/failure, control, failure) x 2 (Time: pretest posttest) model in all subsequent analyses of variance presented.

The predicted Performance Feedback x Time interaction was significant for State Hope Scale scores, F (3, 116) = 7.28, p < .001. As depicted in Table 1, this interaction reflected the predicted pretest to posttest (1) significant increase for those in the success condition; (2) lack of change for those in the success/failure and control conditions; and (3) significant decrease for those in the failure condition.

Table 1: Study 2 Pretest and Posttest State Hope Scale Means as a Function of Performance Condition

Performance Feedback Condition	Pretest Mean	Posttest Mean	t	p
Success	36.10	37.40	2.77	<.01
Success/Failure	35.70	34.40	1.26	ns
Control	35.13	35.57	.69	ns
Failure	37.50	33.60	3.56	<.001

Note: The t-test reported in Table 1 through 8 are for paired means (i.e., repeated measures)

Turning to the agency subscale scores, the predicted Performance Feedback x Time interaction was significant for State Hope Scale scores, F (3, 116) = 5.88, p < .001. As can be seen in Table 2, this interaction reflected the predicted pretest to posttest (1) lack of change for those in the success/failure and control conditions; and (2) significant

decrease for those in the failure condition. The predicted significant increase in agency for those in the success conditions was not obtained.

Table 2: Study 2 Pretest and Posttest Agency Subscale Means as a Function of Performance Feedback Condition

Performance Feedback Conditions	Pretest Mean	Posttest Mean	t	p
Success	18.10	18.50	1.01	ns
Success/Failure	17.00	16.70	.50	ns
Control	17.20	17.53	.99	ns
Failure	18.50	16.27	3.52	< .001

In regard to the pathways subscale scores, the predicted Performance Feedback x Time interaction was significant for State Hope Scale scores, F (3, 116) = 5.83, $p < .001$. As revealed in Table 3, this interaction reflected the predicted pretest to posttest (1) significant increase for those in the success condition; (2) lack of change for those in the success/failure and control conditions; and (3) significant decrease for those in the failure condition.

Table 3: Study 2 Pretest and Posttest Pathways Subscales Means as a Function of Performance Feedback Condition

Performance Feedback Condition	Pretest Mean	Posttest Mean	t	p
Success	18.00	18.90	2.32	< .01
Success/Failure	18.70	17.70	1.80	ns
Control	17.93	18.03	.23	ns
Failure	19.00	17.33	3.10	< .01

Because the State Self-Esteem Scale, Positive Affect Schedule, and Negative Affect Schedule scores all correlated significantly with the State Hope State scores, it may be speculated that the aforementioned predicted and obtained changes in State Hope Scale scores actually were driven by the processes tapped by these other measures. In order to make the strongest test of the discriminant validity of the State Hope Scale scores in responsiveness to experimentally induced feedback, the common variances related to state self-esteem and positive and negative affectivity were removed by analysis of covariance. When this analysis of covariance was run, the predicted Performance Feedback x Time interaction remained significant for State Hope Scale scores, F (3, 113) = 7.55, $p < .001$, and reflected the same pattern of means shown previously. In perhaps the most stringent test of discriminant validity, the state scores on the performance self-esteem measures were covaried, and the predicted Performance Feedback x time interaction remained significant for State Hope Scale scores, F (3, 113) = 7.21, $p < .001$.

Study 2 Discussion

The results of Study 2 again confirm the internal consistency and convergent and discriminant validity of the State Hope Scale in relation to other state indices. No gender

differences emerged, which is consistent with the research on the dispositional Hope Scale, and the mass testing data of Study 1. The fact that the one pathways item loaded on the agency factor was not obtained in any of the previous factor analyses, and as such is not readily explicable.

The major focus of Study 2 was to ascertain whether successful or unsuccessful goal pursuits, when casually manipulated in a laboratory setting, would result in commensurate increases or decreases in State Hope Scale scores. The groups against which the effects of induced successful and unsuccessful conditions can be compared were people who did not take the anagram task and just waited (a no-contact control) and people who took the anagram task with a mixed failure and success outcome. The manipulation checks showed that subjects in all three anagram conditions were relatively equally and highly engaged, and that the success and failure Performance Feedback engendered the expected ratings regarding task difficulty and performance. In brief, the Performance Feedback manipulation appears to have been effective. More importantly, the predicted significant interaction between Performance Feedback and Time was obtained for overall State Hope Scale scores, as well as in separate analyses of the agency and pathways subscales. As can be seen in Table 1, 2, and 3, the predicted results generally were obtained in that the success/failure and control conditions subjects did no reliable change over time, but the success and failure condition subjects increased and decreased, respectively, on the total and subscale scores of state hope. These results lend further construct validation to the State Hope Scale through a causal manipulation, and as such extend the correlation-based validational information gleaned from Study 1.

Beyond the aforementioned results pertaining to the construct validity of State Hope Scale scores, the results of Study 2 lend concurrent validational information about the predicted relations of State Hope Scale scores to state indices of self-esteem, positive affectivity, and negative affectivity. These corroborate the findings of Study 1. Additionally, the results of Study 2 lend discriminant validational support to the scale. That is to say, the responsiveness of State Hope Scale scores to the performance feedback was not explicable in terms of state self-esteem (total on performance), positive affectivity, or negative affectivity.

Study 3: Validation Based on Recall-Induced Successful and Unsuccessful Goal Pursuits

Based on the results of Study 2, State Hope Scales scores appear to be responsive to performance-induced feedback on a laboratory cognitive task. The purpose of Study 1 was to employ naturally occurring successful and unsuccessful goal pursuits as means of changing State Hope Scale scores. In order to manipulate successful or unsuccessful goal attainment, subjects were asked to recall a positive or negative event. Relatedly, previous theory and research suggest that autobiographical recollections can influence ones ongoing psychological state (Brewer, Doughtie, & Lubin, 1980; Mosak & Dreikeis, 1973; Yang & Rehm, 1993). Study 3 examined the hypothesis that positive and negative memory inductions, respectively, would produce increases and decreases in State Hope Scale scores

Design Overview

The study employed a 3 x 2 x 2 mixed factorial, with the between subject independent variables of Recall Feedback (successful, control, and unsuccessful) and Gender (males and females), the within-subject independent variable of Time (pre vs. post recall), and the dependent variable of State Hope scores. A manipulation check was taken to ascertain the effectiveness of the Recall Feedback independent variable.

Subjects

Ninety subjects (45 males and 45 females) participated in the study as ones means of fulfilling the requirements of their introductory and personality psychology courses. Using randomized blocking, 15 subjects were assigned to each of the six cells of the 3 (Recall Feedback) x 2 (Gender) design.

Procedure

Subjects met individually with the female experimenter and were informed that the purpose of the experiment was to examine the motivational and affective processes of college students. First, the subjects completed the State Hope Scale, the State Self-Esteem Scale, and the state version of the Positive and Negative Affect Schedule. These scales were described previously in Studies 1 and 2. Additionally, subjects completed a measure of socially desirable responding, the Crowne-Marlowe Social Desirability Scale (Crowne & Marlowe, 1960).

For subjects in the control condition, subjects were told that in order to help them relax the overhead light would be turned off. A small lamp was left on for soft lighting. The experimenter then said,

> "Now, I'd like you to close your eyes (Pause 3s). How take a deep breath and hold if for a few moments (Pause 7s). And let it out slowly (Pause 5s). Again inhale deeply and hold it for a few moments (Pause 7s). And exhale (Pause 5s). Now, inhale and hole (Pause 7s). And exhale (Pause 5s). Now just continue to breathe slowly while you just sit here and relax for a few minutes (Pause 5 minutes)."

Subjects in the successful Recall Feedback condition were given the identical instructions, except that they were allowed only 30 seconds of relaxation before they were given the following set of instructions designed to recreate a sense of goal accomplishment:

> "OK. As you continue relaxing, I'd like you to begin remembering a personal situation in which you tried very hard to achieve a goal that was very important to you (Pause 3s) and that you were successful at attaining (Pause 7s). When you imagine such a situation, please raise your right index finger (Wait for cue). Very good. Now, try to picture the events of this past situation as if they were happening to you all over again (Pause 15s). See all the details of the situation (Pause 15s). Picture in your mind's eye the surroundings as clearly as possible (Pause 15s). See the people or objects (Pause 15s) and hear the sounds (Pause 15s). Re-experience the event that happened to you. Remember how you felt when you were able to successfully reach your goal (Pause 15s). Feel the feelings again (Pause 15s). And let yourself react as if you were actually there (Pause 15s)."

For the failure Recall Feedback condition subjects, the following instructions were given after the initial introduction:

> "OK. As you continue relaxing, I'd like you to begin remembering a personal situation in which you tried very hard to achieve a goal that was very important to you (Pause 3s) and that you were not at all successful in attaining (Pause 7s). When you can imagine such a situation, please raise your right index finger (Wait for cue). Very good. Now, try to picture the events of this past situation as if they were happening to you all over again (Pause 15s). See all the details of the situation (Pause 15s). Picture in your mind's eye the surroundings as clearly as possible (Pause 15s). See the people or objects (Pause 15s) and hear the sounds (Pause 15s). Re-experience the event that happened to you. Remember how you felt when you were not at all able to reach your goal (Pause 15s). Feel the feelings again (Pause 15s). And let yourself react as if you were actually there (Pause 15s)."

After the subject was exposed to one of the three Recall Feedback conditions, the manipulation checks and second State Hope Scale were administered. The first manipulation check item asked subjects to write down, in a few sentences, what they were thinking during the interim period, and to rate this on a seven point scale (1 = extremely positive, to 7 = extremely negative). On a second page, three additional manipulation check items asked: (1) "How difficult did you find the visualization task?" (1 = not at all, to 7 = extremely), or for subjects in the control condition, "How difficult did you find the task?"; (2) "How hard did you try to remember the event?" (1 = not at all, to 7 = extremely), or for the subjects in the control condition, "How had did you try to relax?"; and (3) "How well do you feel you performed on the visualization task?" (1 = not at all, to 7 = extremely), or for subjects in the control condition, "How well do you feel you performed on the relaxation task?"

At this point, the control and successful Recall Feedback condition subjects were debriefed. The unsuccessful Recall Feedback condition subjects were not debriefed until they were exposed to the successful Recall Feedback condition in order to counteract any negative thought they may have dredged up because of remembering the failure experience. At the end of the study, all subjects were given a full description of the experimental purposes, encouraged to ask questions and comment on the study, thanked for their participation, and excused.

Results

Factor Structure

In order to examine the factor structure of the State Hope Scale, the pretest and posttest scores were subjected to a principal components factor analysis with oblique rotations and a request command of two factors. At pretest, the three agency items loaded on a first factor (loading of .78 or .85) more than a second (loadings of .12 to .32), while the three pathways items loaded on the second factor (loadings of .76 to .82) more strongly than the first (loadings of .14 to .24). The eigenvalue for the first factor was 2.96, and it accounted for 49.4% of the variance; the eigenvalue for the second factor was 1.14, and it accounted for 19.0% of the variance. The total variance accounted for was 68.4%.

The same factor analysis performed on the posttest data revealed that the three agency items loaded on a first factor (loadings of .72 to .93) more than a second factor

(loadings of -.05 to .23), while the three pathways items loaded on a second factor (loadings of .59 to .96) more than the first factor (loadings of -.09 to .37). The eigenvalue of the first factor was 3.72 and it accounted for 62.0% of the variance; the eigenvalue of the second factor was .87, and it accounted for 14.5% of the variance. The total variance accounted for was 76.5%.

In order to provide yet another check on the factor structure, we performed a confirmatory factor analysis along the same lines as that conducted for the first study. These results again supported the tenability of the two factor model. More specifically, the two-factor model produced a chi-square value (Bentler-Satorra scaled chi-square) or 12.78 (df = 8, p = .12, N = 90) a CFI of .96, and an AIC of 1.43. The correlation between the factors was .80 and loadings ranged from .64 to.83. The one-factor model again did not fit the data nearly as well, with a chi-square value of 25.70 (9 df, p = .003), a CFI of .89, and an AIC of 19.98. The chi-square difference of 12.92 also is significant (1 df, $p<.01$), lending support to the two-rather than the one-factor model.

Internal Reliability

Cronbach alphas computed for the pre and post Time periods were .79 and .88; moreover, the pretest and posttest alphas for the agency subscale were .85 and .78 and .75 and .82 for the pathways subscale.

So as to examine the posited positive relationship between the agency and pathways subscale scores, as was done in Studies 1 and 2, these subscales were correlated at the pre and post Time periods. These correlations were .44 and .65, respectively, ps $<.001$.

Descriptive Statistics

The State Hope Scale pretest mean and standard deviation were 37.55 and 5.37, with a coefficient of variability of .14. The posttest mean and standard deviation were 37.48 and 6.71, with a coefficient of variability of .18.

Concurrent Relationships to Other State Measures

At the pre Time period, Hope Scale scores correlated (1) positively with State Self-Esteem Scale scores, $r (88) = .45$, $p<.001$; (2) positively with state Positive Affect Schedule scores, scores, $r (88) = .53$, $p<.001$; (3) negatively with state Negative Affect Schedule scores, $r (88) = -.38$, $p<.001$; and (4) positively with social desirability scores, $r (88) = .32$, $p<.01$.

Manipulation Checks on Recall Feedback Independent Variable

The descriptions that subjects wrote of their recalled successful or unsuccessful goal attainment experiences were diverse and compelling in content. One person in the successful Recall Feedback condition wrote,

> "I was running at a track meet and the KU coaches were there. Not only did I achieve my goal of impressing the KU coaches and getting a track scholarship but I also achieved my goal of breaking my high school record in the 800m run. I had striven to achieve these goals ever since I was a Freshman and just starting out in track."

Another subject in the same condition wrote,

> "Last fall and winter I worked hard applying to different colleges and setting up my resume. I really wanted to go to KU. I thought about when I found out that I was accepted and knew that I would come here this year."

In contrast, one of the unsuccessful Recall Feedback condition subjects briefly described an academic setback as, "I was thinking of a biology test that I tried to study so hard for and failed."

Another failure condition subject wrote of trying to mend a broken relationship with his father.

> "My father and I have not talked in over three years. Last year after Christmas I tried to resolve all of our arguments. Instead, he continually screamed and yelled that I was a failure and unworthy…"

Beyond the qualitative statements, the quantitative analyses show that the Recall Feedback variable operated as expected. On the central item tapping overall rating as they visualized their goals (1= extremely positive, 4= neutral, 7= extremely negative), the means for the successful, control, and unsuccessful condition subjects were 1.67, 3.20, and 5.40, respectively (all means significantly different at ps<.001 by t-tests). No Recall Feedback condition main effects resulted for the remaining three manipulation check items, and the absolute values of these means showed that subjects in all three conditions reported exhibiting similar ease and high performance in the visualization, and high effort expended in remembering the event.

Changes in Pretest/Posttest State Hope Scale Indices as a Function of Recall Feedback

The 3 (Recall Feedback) x 2 (Gender) x 2 (Time) analyses of variance on the State Hope Scale, the agency subscale, and the pathways subscale scores, did not yield any main effects or interactions involving Gender. Accordingly, gender was collapsed to form a 3 (Recall Feedback: successful, control, unsuccessful) x 2 (Time: pretest, posttest) model in all subsequent analyses of variance.

Beginning with the State Hope Scale scores as the dependent variable, the predicted Recall Feedback x Time interaction was significant, $F(2, 87) = 14.87$, $p<.001$. As can be seen in Table 4, this interaction reflected the predicted pretest to posttest (1) significant increase for those in the success condition; (2) lack of change for those in the control condition; and (3) significant decrease for those in the failure condition.

Table 4: Study 3 Pretest and Posttest State Hope Scale Means as a Function of Recall Feedback Condition

Recall Feedback Condition	Pretest Mean	Posttest Mean	t	p
Successful	38.33	40.90	3.62	<.001
Control	37.00	37.70	1.43	ns
Unsuccessful	37.33	33.83	3.19	<.01

Turning to the agency subscale scores, the predicted Performance Feedback x Time interaction was significant for State Hope Scale scores, $F (2, 87) = 13.67$, $p <.001$.

As illustrated in Table 5, this interaction reflected the predicted pretest to posttest condition (1) significant increase for those in the success condition; (2) lack of change for those in the control condition; and (3) significant decrease for those in the failure condition.

Table 5: Study 3 Pretest and Posttest Agency Subscale Means as a Function of Recall Feedback Condition

Recall Feedback Condition	Pretest Mean	Posttest Mean	t	p
Successful	18.27	19.73	2.93	<.01
Control	17.80	18.20	1.28	ns
Unsuccessful	18.23	16.33	3.46	<.01

With regard to pathways subscale scores, the predicted Performance Feedback x Time interaction was significant for State Hope Scale scores, $F(2, 87) = 9.36$, $p < .001$. As shown in Table 6, this interaction reflected the predicted pretest to posttest (1) significant increase for those in the success condition; (2) lack of change for those in the control condition; and (3) significant decrease for those in the failure condition.

Table 6: Study 3 Pretest and Posttest Pathways Subscale Means as a Function of Recall Feedback Condition

Recall Feedback Condition	Pretest Means	Posttest Means	t	p
Successful	20.07	21.17	3.70	<.001
Control	19.20	19.50	1.03	ns
Unsuccessful	19.10	17.50	2.40	<.03

Although the unsuccessful Recall Feedback group was given the extra successful recall experience for ethical reasons, this offered yet another test of the sensitivity of the State Hope Scale scores to memory-induced manipulation. As can be seen in Table 7, after receiving the success memory manipulation, these subjects' State Hope Scale scores were raised relative to the post-unsuccessful memory state hope. Further, as Table 8 reveals, after receiving the success memory manipulation, the State Hope Scale scores were elevated beyond the state hope they exhibited prior to receiving the unsuccessful memory induction.

Table 7: Study 3 State Hope Scale, Agency Subscale, and Pathways Subscale Means For Subjects After Recall of Unsuccessful Event (Time 2 [Posttest]) and Successful Event (Time 3)

Scale	Time 2 Mean	Time 3 Mean	t	p
State Hope Total	33.83	39.73	5.31	<.001
Agency Subscale	16.33	19.70	4.83	<.001
Pathways Subscale	17.50	20.03	4.36	<.001

Table 8: Study 3 State Hope Scale, Agency Subscale, and Pathways Subscale Means For Subjects Before Recall of Unsuccessful Event (Time 1 [Pretest]) and After Recall of Successful Event (Time 3)

Scale	Time 1 Mean	Time 3 Mean	t	p
State Hope Total	37.33	39.73	4.21	<.001
Agency Total	18.23	19.70	4.83	<.01
Pathways Subscale	19.10	20.03	3.49	<.07

Because measures of state self-esteem, positive affectivity, negative affectivity, and social desirability correlated reliably with the State Hope Scale scores, it may be that the aforementioned predicted and obtained changes in State Hope Scale scores actually reflected psychological processes that were being tapped by these other state measures. As was done in Study 2, to make the strongest test of the discriminant validity of the State Hope Scale scores, the common variances related to state self-esteem, positive and negative affectivity, and social desirability were removed by analysis of covariance procedures. When this analysis of covariance including all four covariates was run, the predicted Recall Feedback x Time interaction was significant, $F(2, 83) = 14.61$, $p<.001$, and reflected the same pattern of means shown previously.

Study 3 Discussion

The results of Study 3 echo and expand upon those obtained in the previous studies. Once again, the State Hope Scale demonstrated the two posited agency and pathways factors, and yet had high internal consistency.

There were no gender differences in spite of the fact that males and females could recall personal memories of whatever successful or unsuccessful goal pursuits they wished. If there are goal-related activities for which men and women perceive themselves to be differentially effective, one would expect differences in state hope for those particular arenas. Perhaps Study 3 did not tap such differential arenas, yet there is not readily apparent reason why the free recall of successful or unsuccessful goal pursuits would have precluded this. The emerging picture for state hope, just as has been the case for dispositional hope, is that males and females may share considerable similarities in their goal-directed thinking. Of course, the use of a sample of college males and females may tend to result in homogenizing of hopeful thinking.

The State Hope Scale, as well as the agency and pathways subscales, were quite responsive to the recall of successful and unsuccessful goal pursuits. This expands the results of Study 2 where success and failure were induced via a cognitive (anagram) task, and reveals that State Hope Scale scores are reactive to one's memories. This lends further construct validational support to the scale.

In addition to the results relevant to the concurrent validity of State Hope Scale scores (i.e., the predicted relations to state self-esteem and positive and negative affectivity), the results of Study 3 lend further discriminant validational support. As was the case in Study 2, the responsiveness of State Hope Scale scores in Study 3 to the recalled feedback was not totally due to state self-esteem, or positive and negative affectivity. Furthermore, in Study 3, the question of ruling out desirable responding can

be examined. First, let us note that State Hope Scale scores exhibited a positive and reliable relation to socially desirable responding. This suggests, similar to the findings for the dispositional Hope Scale (see Snyder et al., 1991), that persons reporting more hopeful thoughts also are subscribing to the socially favorable expectations. When social desirability is covaried, however, the results of the State Hope Scale remain unaltered, thereby lessening the impact of the counter explanation related to social desirability. In short, to report one's ongoing level of hope is not synonymous with a simple tendency to present oneself favorably (3).

Study 4: Predictive Utility of State Hope Scale Scores

Previous studies have addressed issues pertaining to the psychometric and validational properties of the State Hope Scale, and have suggested that the scale meets the criteria expected for such self-report instruments. The next question, to which we will present only one of several possible experimental examples, pertains to the usefulness of a given instrument. In the present context, what use can be made of the State Hope Scale? One answer is that the scale should provide predictive information about goal related pursuits, such as how one is to perform on a cognitive task. The present study was conducted to address this question.

Study Overview

Students were informed that they would be taking a complex verbal learning task that is highly related to actual classroom performance. Prior to beginning this task, the subjects completed the State Hope Scale. The hypothesis was that State Hope Scale scores taken just before the beginning of the task would significantly relate to subsequent performance on that task.

Subjects

Seventy-four, first-semester college students participated as one means of fulfilling the requirements of their introductory psychology courses.

Complex Verbal Learning Task

The cognitive task, which has been described previously by Snyder and Katahn (1970), consisted of 16 items covering principles associated with the learning process. Each item was presented via slide projection onto a screen, and was viewed for ten seconds. After viewing of the information, 14 fill-in-the-blank questions were presented individually by slide, with each being viewed for 10 seconds. Subjects were given an answer sheet on which there were 14 numbered blanks. The number of correct responses reflects the dependent variable. This learning task was employed because previous research in our laboratory has indicated that number of correct responses has correlated significantly and positively with introductory psychology and overall semester grades (Ray, Katahn, & Snyder, 1971; Snyder, 1972; Snyder & Omens, 1975).

Procedure

When the subjects reported individually to the laboratory, the female experimenter described how they were going to take a brief fill-in-the blank quiz about information that they were to be presented via slides. It was noted that performance on this task is related to actual classroom performance. Prior to the task, subjects reported their high school grade point average to one decimal (e.g., 4.0 = A; 3.5 = A-/B+; 3.0 = B; etc.), and they completed the State Hope Scale. After finishing the complex verbal

learning task, the purposes of the study were explained, any questions were answered, and the research participants were thanked for their participation and dismissed.

Results

Scale Properties

Factor Analysis. The principal components factor analysis, with oblique rotations, and a two factor request command, yielded a first factor with an eigenvalue of 3.26 that accounted for 54.3% of the variance, and a second factor with an eigenvalue of 1.00 that accounted for 16.7% of the variance on the State Hope Scale responses. The total variance accounted for was 71.0%. The three agency items loaded more strongly on the first factor (loadings of .86 to .91) than the second (loadings of .29 to .49). The three pathways items loaded more strongly on the second factor (loadings of .61 to .87) that the first (loadings of .34 to .60).

Internal Reliability. The Cronbach alpha for the overall State Hope Scale was .88 with item-remainder coefficients of .52 to .79. The alpha for the agency subscale was .86, with item-remainder coefficients of .73 to .76. The alpha for the pathways subscale was .59 with item-remainder coefficients of .31 to .49. The agency and pathways subscales correlated .82 in this sample.

Predictive Utility

The scores on the State Hope Scale correlated positively, $r(72) = .27$, $p<.02$, with number of correct responses on the complex verbal learning task.

Discriminant Validity

In order to examine the degree to which the State Hope Scale scores predicted performance on the learning task beyond predictions attributable to previous reported academic-related performance, the high-school and college grades were partialled, and the relationship remained positive and statistically significant, $r(67) = .29$, $p>.02$.

Study 4 Discussion

This study again suggests that the factor structure of the State Hope Scale is consistent with the two component model, and that the components account for a large proportion of the response variance. Additionally, the overall internal reliability of the six items is acceptable, although the pathways subscale fell below the usual accepted levels. Because this low alpha for the pathways subscale was not obtained in any previous studies, and the focus of the State Hope Scale is upon the combined role of agency and pathways, this finding was not viewed as being problematic.

The most important focus of this study was to see whether State Hope Scale scores predicted the actual goal-related performance that ensued on the complex verbal learning task. Results thus supported the hypothesis that ongoing goal-related thoughts should predict performance on a task that immediately followed. Further, it should be notes that the State Hope Scale scores contributed unique predictive variance in relation to measures of previous academic performance, thereby demonstrating further discriminant validity for the scale.

Conclusions

In summary, the State Hope Scale appears to meet the psychometric standards for self-report scales. It is internally consistent, yet the agency and pathways subscales are factorally identifiable as subcomponents of the overall measure. Additionally, these agency and pathways subscales exhibit high internal consistency, which is noteworthy

given the fact that each subscale is based on only three items. Likewise, using correlational and causal designs, construct validational support is garnered for the State Hope Scale and its subscales; moreover, the scale exhibits discriminant validity in that it cannot be explained in terms of other related state self-report indices related to social desirability, self-esteem, positive and negative affectivity, and academic performance. Finally, there is no emerging evidence for gender differences in responses to the scale, although this conclusion must be tempered by the fact that we sampled only college students.

With these steps in scale development having been accomplished, the State Hope Scale is now available for a variety of uses. Among such possibilities, it may be employed in pre-post designs in which the focus is on changes in goal-directed thinking. Second, it may be used as an instrument to further our understanding of the mediational processes between antecedent and consequent events. Third, it can be employed as a situational correlate of ongoing goal-related activities involving academics, sports, work, relationships, etc. Fourth, the State Hope Scale allows for the tracking of ongoing goal-related cognitions that are associated with various emotional states. Research and applied professionals probably can envision yet other uses for the instrument. Whoever pauses to measure ongoing goal-directed thinking is tapping an essential process. Although this is our perspective, it is appropriate to close this article by acknowledging that it is not a new one. Some 25 centuries ago, the Greek lyric poet Pindar (1961, p. 611) observed, "Hope, who chiefly ruleth the changeful mind…(emphasis added)."