The Will and the Ways: Development and Validation of an Individual-Differences Measure of Hope

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Defining hope as a cognitive set that is composed of a reciprocally derived sense of successful (a) agency (goal-directed determination) and (b) pathways (planning of ways to meet goals), an individual-differences measure is developed. Studies demonstrate acceptable internal consistency and test–retest reliability, and the factor structure identifies the agency and pathways components of the Hope Scale. Convergent and discriminant validity are documented, along with evidence suggesting that Hope Scale scores augmented the prediction of goal-related activities and coping strategies beyond other self-report measures. Construct validational support is provided in regard to predicted goal-setting behaviors; moreover, the hypothesized goal appraisal processes that accompany the various levels of hope are corroborated.

The importance of hope has long been recognized. In Western culture, the concept of hope was first elaborated in the myth of Pandora. As the story goes, Zeus was angry at Prometheus for stealing fire from the gods. With revenge in mind, Zeus sent Pandora to earth with a box full of evil creatures. Zeus told Pandora not to open the box, yet he knew that her curiosity would soon overwhelm her. As predicted, Pandora eventually opened the lid to look inside. When she did, a swarm of creatures flew out to forever plague humankind: gout, rheumatism, and colic for the body; envy, spite, and revenge for the mind. Only one creature remained in the box when Pandora finally managed to close the lid. That creature was hope, which supposedly makes human cares and troubles seem bearable as we journey toward the myriad of goals in a lifetime (Smith, 1983).

Although the Pandora myth extols hope, other writings have characterized it as both a blessing and a curse. Tillich (1965) summarized this view by asserting that "hope is easy for the foolish, but hard for the wise. Everybody can lose himself into

foolish hope, but genuine hope is something rare and great" (p. . Although one may agree that foolish hope is bad and genuine hope is good, any attempt to clarify this issue must start with a definition. The typical dictionary definition of hope emphasizes the perception "that something desired may happen." Recent scholarly writings on the topic of hope have amplified this definition principally by emphasizing the importance of goals. Most writers have postulated that hope is a unidimensional construct involving an *overall perception that goals can be met* (e.g., Cantril, 1964; Erickson, Post, & Paige, 1975; Farber, 1968; Frank, 1968; Frankl, 1963; French, 1952; Gottschalk, 1974; Lewin, 1938; Melges & Bowlby, 1969; Menninger, 1959; Mowrer, 1960; Schachtel, 1959; and see Stotland, 1969, for the most detailed description). According to these writers, expectancies for goal attainment can be used to explain diverse behaviors, including those involving physical and mental health. Somatic disturbance and psychopathology, for example, are related to exceptionally low expectancies for goal attainment (Erickson et al., 1975; Gottschalk, 1974; Melges & Bowlby, 1969). Thus, the predominant view is that greater hope is generally associated with positive outcomes and as such is not "foolish."

Although the previous conceptualizations of hope have assumed that people are goal directed and that such goal directedness is adaptive, they generally have not detailed the means by which goals are pursued. In an expansion of these earlier views, the present analysis draws upon goal concepts (see Lee, Locke, & Latham, 1989; Pervin, 1989) to elucidate the cognitive set of hope. Within a goal-setting framework, we propose that there are two major, interrelated elements of hope. First, we hypothesize that hope is fueled by the perception of successful *agency* related to goals. The agency component refers to a sense of successful determination in meeting goals in the past, present, and future. Second, we hypothesize that hope is influenced by the perceived availability of successful *pathways* related to goals. The pathways component refers to a sense of being able to generate successful plans to meet goals. More formally, hope is

defined as a cognitive set that is based on a reciprocally derived sense of successful (a) agency (goal-directed determination) and (b) pathways (planning of ways to meet goals).

The two components of hope are reciprocal, additive, and positively related, although they are not synonymous. From this perspective, the saying, "Where there is a will there is a way" is only partly correct. People who have a sense of successful goal-directed agency (the will) typically should perceive paths (the ways) to reach their goals, but they may not. One can imagine instances in which the goal-directed agency is present but the pathways to the goal are not clearly perceived. Conversely, one may perceive available pathways to a goal, but without the agency. To sustain movement toward the goals in one's life, we would argue that both the sense of agency and the sense of pathways must become operative. That is, both agency and pathways are necessary, but neither is sufficient to define hope. Furthermore, hope does not merely involve one iteration in which a person first assesses agency and then proceeds to an analysis of available pathways, thereafter eliciting goal-directed behaviors. Nor does one pathways analysis unleash the agency to eventuate in goal-directed behavior. Rather, agency/pathways and pathways/agency iterations continue throughout all stages of goal-directed behavior; as such, hope reflects the cumulative level of perceived agency and pathways.

The agency and pathways components emphasize cognitive appraisals of goal-related capabilities, underscoring the phenomenological nature of the present conceptualization of hope. In this view, hope is egocentric in that it taps the person's perception in relation to his or her life goals. Important external factors influencing goal-related activities are incorporated into the cognitive analyses of agency and pathways. Thus, hope in the present context is not a goal-related state that is objectively defined according to sources external to the person, but rather it is an enduring disposition that is subjectively defined as people assess their agency and pathways related to goals.

Additionally, note that the cognitive emphasis of the present model does not imply that emotions are irrelevant, but rather that emotions are the sequelae of cognitive appraisals of goal-related activities. The quality of emotion for a particular goal-related setting depends on the person's perceived hope in that setting. More specifically, the high-hope person's analysis of sufficient agency and pathways in a given goal setting should lead to the perception of relatively high probability of goal attainment, a focus on success rather than failure, a sense of challenge, and a relatively positive emotional state as goal-related activities are conceptualized and undertaken. Conversely, the low-hope person's analysis of insufficient agency and pathways in a given goal setting should lead to perceptions of relatively low probability of goal attainment, a focus on failure rather than success, a sense of ambivalence, and a relatively negative emotional state during goal-related activities.

The present model assumes that hope is consistent across situations and time. Although specific situations may exert a unique influence on the level of hope, there is nevertheless a resiliency once this cognitive set is established. Generally, because of their underlying sense of agency and pathways in achieving goals, higher as compared with lower hope people should have more goals across the various arenas of their life, and they should select and attain more difficult goals. Whatever

the enduring level of hope, the person must confront the relevant impediments in the selection, appraisal, and movement toward a goal. Up until some extreme level of goal interference, higher hope people should sustain their agency and pathways behaviors; conversely, lower hope people should be more prone decrease their agency and pathways in the face of increasingly stronger goal impediments. Furthermore, as we have noted, higher as compared with lower hope people should evaluate their goals and the intervening impediments with more positive, challengelike appraisals.

It may be useful at this point to discuss the similarities between the components in the present hope model and the typical efficacy and outcome expectancies that are described in motivational and personality research. An outcome expectancy may be viewed as a belief that a particular behavior will produce a particular outcome (Bandura 1977, 1982, 1986; Maddux, 1991). In contrast, an efficacy expectancy refers to a person's confidence in his or her ability to perform a given behavior that will lead to a desired outcome. For example, an outcome expectancy of a new assistant professor may be that producing several published manuscripts will lead to the desired goal of being promoted, but he or she may or may not have the efficacy expectancy to achieve such a publication record. Note that the efficacy and outcome expectancies, respectively, parallel the agency and pathways components of the present hope model. Having briefly highlighted the similarities in these concepts, it may be illustrative to contrast the present hope model with two other models, optimism and self-efficacy, that use the notions of outcome and efficacy expectancy.

Scheier and Carver (1985) define optimism as a generalized expectancy that good things will happen. They argue that optimists maintain positive expectations that are not limited to a specific domain or class of settings. (This definition is similar to earlier views of hope that described it as a unidimensional construct involving an overall perception that goals will be met.) Scheier and Carver hypothesize that optimism is a major determinant of the manner in which people pursue their goals and that optimists' expectancy that good things will happen leads them to approach goals through "contingent striving" rather than "giving up and turning away" (see also Klinger, 1975; Kukla, 1972; S. Roth & Cohen, 1986). Furthermore, optimism is construed as a stable personality trait that is not limited to a specific setting. Hope is similar to optimism in that it is conceptualized as a stable cognitive set reflecting general rather than specific outcome expectancies. Hope and optimism differ, however, in the hypothesized relationship between outcome and efficacy expectancies and the role that this relationship plays in the prediction of goal-directed behavior. Scheier and Carver (1985) suggest that outcome expectancies per se are the best predictors of behavior. Although Scheier and Carver allow for the possibility that efficacy expectancies may influence the analysis of outcome expectancies, they would argue that outcome expectancies are the last and most powerful analyses determining goal-directed behavior. Hope in the present model, however, involves reciprocal action between an efficacy expectancy reflecting the self-belief that one can achieve goals (agency) and an outcome expectancy reflecting the perception of one or more available strategies for achieving those goals (pathways).

Bandura's theory of self-efficacy (1977, 1982, 1986) also is predicated on a central distinction between the concepts of efficacy expectancies and outcome expectancies. Contrary to the theory of optimism, however, expectancies that are based on personal efficacy are viewed as the major determinants of behavior within the context of self-efficacy theory. Although Bandura (1989) has acknowledged the bidirectionality of outcome and efficacy expectancies, the latter are emphasized as the most powerful expectancies eliciting goal-directed behavior. Scheier and Carver (1987) are critical of Bandura's reliance on efficacy rather than outcome expectancies, stressing that personal efficacy expectancies cannot account for outcomes that are based on forces that are beyond the control of the person (e.g., religious faith, luck, or interventions from powerful others). We disagree with Bandura's emphasis on efficacy expectancies for the same reason that we disagree with Scheier and Carver's reliance on outcome expectancies. That is, if self-related cognitions pertaining to goal-directed behavior are the sum of the reciprocal action of efficacy expectancies and outcome expectancies, as we have posited in the present hope model, then focusing on either type of expectancy alone will not completely tap the cognitive set; moreover, focusing on only one of the expectancies should lessen the predictive impact of the cognitive set on subsequent goal-related activities. Furthermore, from Bandura's perspective, judgments of self-efficacy refer to specific assessments of how well one will perform a particular task in a particular setting. In contrast, hope (like optimism) is conceptualized as a more general cognitive set that applies across particular settings and, as such, hope may yield a wider range of goal-related predictions.

Having described the present model of hope, and its similarities and differences in relation to optimism and self-efficacy, we now present a series of studies that were undertaken to develop and validate an individual differences, self-report measure of the hope construct.

Scale Development and Validation

In the first stage of scale development, 45 items were written to reflect the hypothesized content of hope. In the fall of 1985, these 45 items were administered to 187 male and 197 female students at the University of Kansas who participated in partial fulfillment of introductory psychology course requirements. Subjects were asked to read each item and to rate the extent to which it applied to them on a 4-point scale (1 = *definitely false,* 2 = *mostly false,* 3 = *mostly true,* 4 = *definitely true*). The purpose of this initial study (Harris, 1988) was to condense the 45 items into a concise and psychometrically valid self-report scale. To achieve acceptable internal consistency, items that did not evidence a high item-remainder coefficient were discarded. The Harris study produced a reduced pool of 14 items with reasonably high item-remainder coefficients (all > .20). Subsequently, the four items that most clearly reflected the agency component and the four items that most clearly tapped the pathways component were selected for the final version of the scale by C. R. Snyder.

The Hope Scale (see Appendix) contains eight hope items, plus four fillers. The contents of the four agency items tap the sense of successful determination in relation to the person's goals generally. In regard to this overall successful sense of goal-related determination, one item reflects the past ("I've been pretty successful in life"), two items reflect the present ("I energetically pursue my goals," and "I meet the goals that I set for myself"), and one item reflects the future ("My past experiences have prepared me well for my future"). The sense of successful determination in regard to goals is implicitly acknowledged in the wording of the two items referencing the past and future agency and is explicitly acknowledged in the wording of the two items reflecting present agency. The four pathways items pertain to people's cognitive appraisals of their ability to generate means for surmounting goal-related obstacles and reaching goals (e.g., "I can think of many ways to get out of a jam," "There are lots of ways around a problem," "I can think of many ways to get the things in life that are most important to me," and "Even when others get discouraged, I know I can find a way to solve the problem").

Descriptive Statistics

The Hope Scale was administered to six separate samples of University of Kansas introductory psychology students and two samples (one outpatient and one inpatient) of people in psychological treatment (see Table 1). The outpatient sample came from the Traumatic Stress Institute in South Windsor, Connecticut (Pearlman, McCann, & Johnson, 1990); the inpatient sample came from Osawatomie State Hospital in Osawatomie, Kansas (Irving, Crenshaw, Snyder, Francis, & Gentry, 1990). As one would expect, the average Hope Scale scores for the people in psychological treatment were lower than the scores obtained by the college students (comparing each treatment sample with the appropriate student sample taken during the same time period, all *t*s > 17.38, all *p*s < .001). Although the treatment samples were significantly lower in hope than the college samples, however, note that these treatment sample people were toward the hopeful end of the response scale (i.e., around a 3 on the 4-point response scale for each hope item). The Hope Scale scores are not reported separately by gender in Table 1 because the scores of women and men were virtually identical across the various samples.

Reliability Indexes

Internal consistency. The information regarding the internal consistency of the Hope Scale also is shown in Table 1. For the total scale, Cronbach's alphas ranged from .74 to .84 (item-remainder coefficients of .23 to .63). For the Agency subscale, Cronbach's alphas ranged from .71 to .76 (item remainder coefficients of .40 to .72); moreover, for the Pathways subscale, Cronbach's alphas ranged from .63 to .80 (item remainder coefficients of .36 to .63). As Nunnally (1978, p. 245) notes, scales with internal reliabilities of .70 to .80 are acceptable for research purposes because correlations with such scales are not attenuated to any great degree by measurement error.

Temporal stability. The test–retest reliability of the Hope Scale has been examined in four samples of University of Kansas undergraduates. The test–retest correlations were .85, *p* < .001, over a 3-week interval (*N* = 130; Anderson, 1988); .73, *p* < .001, over an 8-week interval (*N* = 115; Harney, 1989); and .76

Table 1
Descriptive Statistics of the Hope Scale for Samples of College Students and People in Psychological Treatment

| | College student sample | | | | | | Psychological treatment sample | |
Measure	Fall 1987	Spring 1988	Fall 1988	Spring 1989	Fall 1989	Spring 1990	1989–1990 stress center	1988–1989 state hospital
n								
Women	508	326	246	476	349	194	97[a]	109[a]
Men	447	309	229	399	292	145		
Agency								
M	12.83	12.64	12.71	12.55	12.76	12.61	11.27	11.25
SD	1.69	1.86	1.70	1.83	1.66	1.73	2.56	2.86
Alpha	.71	.73	.71	.74	.71	.71	.77	.76
Item remainder coefficient	.45 to .57	.47 to .59	.41 to .58	.49 to .59	.47 to .53	.45 to .58	.40 to .72	.44 to .66
Pathways								
M	12.81	12.65	12.56	12.53	12.60	12.61	11.33	11.25
SD	1.75	1.83	1.84	1.77	1.76	1.65	2.36	2.35
Alpha	.65	.63	.67	.67	.68	.67	.80	.64
Item remainder coefficient	.42 to .44	.37 to .47	.42 to .53	.42 to .50	.42 to .50	.37 to .55	.59 to .63	.36 to .56
Total scale								
M	25.64	25.29	25.27	25.08	25.36	25.24	22.60	23.11
SD	2.93	3.08	3.00	3.07	2.91	2.81	4.35	4.45
Alpha	.76	.74	.76	.78	.76	.75	.84	.77
Item remainder coefficient	.36 to .53	.29 to .51	.36 to .51	.37 to .52	.37 to .53	.30 to .53	.41 to .68	.23 to .63

[a] Total of men and women.

and .82, respectively, *p*s < .001, over 10-week intervals in two samples (*N* = 205, Gibb, 1990; *N* = 133, Yoshinobu, 1989). These correlations attest to the temporal stability of Hope Scale scores.

Factor Structure and Relationship of Agency and Pathways Components

Factor analyses. Because items were selected to reflect the two theoretical components of hope, we deemed factor analysis to be appropriate to explore the presence of agency and pathways factors. Given that the two components were hypothesized to be related, principal-components exploratory factor analyses with oblique rotations (from the factor pattern matrixes) were performed on the eight Hope Scale items for each of the eight samples. As can be seen in Table 2, the four items that were hypothesized to tap agency generally demonstrated high loadings on Factor 1 but not on Factor 2, and the four pathways items demonstrated high loadings on Factor 2 but not on Factor 1. The only major exception was found in the inpatient sample, in which one pathways item loaded on the agency factor. Factor analyses for each gender produced results that were similar to those shown in Table 2.

In Table 2, note also that the two factors accounted for 52% to 63% of the variance across the samples. According to Gorsuch (1983), an extracted variance of 40% to 50% defines a factor structure with substantial combined impact. Furthermore, an analysis of the scree plots across the samples demonstrates eigenvalues considerably less than 1.0 for factors extracted beyond the first two, indicating that the subsequent factors did

not account for much additional variance. Thus, the two-factor solution appears to be a viable one.

Relationship of agency and pathways components. Although the factor analyses suggest that the Hope Scale reflects the two separable theorized components, the agency and pathways component scores correlated positively in each of the six college student samples shown in Table 2, for fall 1987, *r* = .46, *p* < .001; for spring 1988, *r* = .39, *p* < .001; for fall 1988, *r* = .42, *p* < .001; for spring 1989, *r* = .46, *p* < .001; for fall 1989, *r* = .46, *p* < .001; for spring 1990, *r* = .38, *p* < .001, and in the two samples of people in psychological treatment, for the outpatient sample, *r* = .57, *p* < .001; for the inpatient sample, *r* = .46, *p* < .001. These correlations support the theoretical speculation that the agency and pathways components are related but not necessarily synonymous.

Convergent Validity

One typical step in the concurrent validation process involves correlating responses on a new scale with responses to other existent scales that tap similar processes. In this vein, there are several self-report indexes measuring processes that should be related to hope as presently defined. In a study by Gibb (1990), the Hope Scale was administered to 241 University of Kansas introductory psychology students along with selected other scales that were hypothesized to correlate moderately with hope. Additionally, in a study by Holleran and Snyder (1990), the Hope Scale and conceptually related measures were given to 158 University of Kansas introductory psychology students. Finally, in a study by Irving et al. (1990), the Hope Scale

Table 2
Principal-Components Factor Analyses Loadings (Oblique Rotations From Pattern Matrixes) of Hope Scale Items for Samples of College Students and People in Psychological Treatment

Hope Scale item no.	College student sample												Psychological treatment sample			
	Fall 1987[a]		Spring 1988[b]		Fall 1988[c]		Spring 1989[d]		Fall 1989[e]		Spring 1990[f]		1989–1990 stress center[g]		1988–1989 state hospital[h]	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Agency																
10	.77	.01	.79	.00	.83	−.10	.78	.00	.73	.22	.76	.19	.80	.24	.76	.12
12	.75	−.03	.77	−.05	.72	−.01	.82	−.11	.72	.17	.70	.06	.80	.24	.79	.00
2	.75	−.08	.77	−.06	.71	.03	.73	.00	.70	.21	.70	.05	.74	.22	.78	−.07
9	.64	.09	.61	.19	.62	.09	.62	.14	.74	.32	.70	.26	.64	.05	.63	.07
Pathways																
1	−.13	.82	−.05	.78	−.03	.81	−.07	.81	.22	.80	.14	.79	.14	.85	.02	.79
4	−.04	.77	−.15	.74	−.15	.81	−.12	.80	.15	.80	−.08	.75	.10	.85	.00	.78
8	.29	.52	.15	.63	.34	.48	.26	.57	.50	.64	.25	.68	.52	.57	.76	.21
6	.36	.45	.28	.51	.19	.57	.32	.46	.52	.56	.31	.53	.50	.61	.53	.58
Eigenvalue	3.06	1.18	2.90	1.32	2.97	1.27	3.13	1.23	3.05	1.28	2.93	1.34	2.77	2.29	3.26	1.45
Variance accounted	38.2	14.8	36.3	16.5	37.1	15.8	39.2	15.4	38.2	16.0	36.6	16.8	34.6	28.6	40.8	18.1

Note. Factors are annotated by 1 and 2. [a] $N = 508$ women and 447 men. [b] $N = 326$ women and 309 men. [c] $N = 246$ women and 229 men. [d] $N = 476$ women and 399 men. [e] $N = 349$ women and 292 men. [f] $N = 194$ women and 145 men. [g] $N = 97$ outpatients. [h] $N = 109$ psychiatric inpatients.

was administered along with other measures to 109 people who were inpatients at a state mental health facility. Results from these studies are discussed in the following subsections.

Generalized positive outcome expectations. Given the underlying importance of outcome expectancies to the present Hope Scale, two indexes of generalized outcome expectancies were used as convergent measures. First, optimism was measured because persons who manifest a strong sense of agency and pathways for goals also should expect positive outcomes in their lives. Scheier and Carver (1985) developed the Life Orientation Test (LOT) as a measure of dispositional optimism, which taps generalized positive outcome expectations. The LOT correlated .60 and .50 (ps < .005) with the Hope Scale in the Gibb (1990) and Holleran and Snyder (1990) studies, respectively. Second, the Generalized Expectancy for Success Scale (GESS; Fibel & Hale, 1978), which assesses cross-situational expectancies for attaining goals, was administered in the Gibb (1990) and Holleran and Snyder (1990) samples, and the correlations with the Hope Scale were .55 and .54, respectively (ps < .005).

Control perceptions. Higher hope people should want to exert personal control in their life. Desirability of control was measured by the Burger-Cooper Life Experiences Survey (Burger & Cooper, 1979); items in this scale involve a general desire for control, decisiveness, preparation and prevention coping in anticipation of stressors, avoidance of dependence, and leadership. The correlation between the Hope Scale and this index was .54 (p < .005; Gibb, 1990). Similarly, higher hope people should perceive themselves as being facile at problem-solving activities. The Problem Solving Inventory (PSI; Heppner & Petersen, 1982) was administered because it taps perceived problem-solving ability, rather than problem-solving skills per se. The scale is composed of items involving self-perceptions related to problem-solving confidence, an approach rather than avoidant style, and personal control. The correlation between the Hope Scale and problem solving was −.62 (p < .005; Gibb, 1990; lower scores reflect greater perceived problem solving).

Esteem. Persons with higher hope also should experience an enhanced sense of self-esteem across situations. The Hope Scale correlated .58 (p < .005; Gibb, 1990) with responses to the Rosenberg (1965) Self-Esteem Scale.

Hopelessness and depression. Certain scales should have an inverse relationship to hope. Most obviously, hope should relate negatively to hopelessness. Beck, Weissman, Lester, and Trexler (1974) developed the Hopelessness Scale in a sample of hospitalized inpatients to capture an overall hopeless attitude. The Hopelessness Scale contains items involving affective feelings about the future, motivations involving decisions to give up, and cognitions involving anticipations of a generally dark future. The Hope Scale correlated −.51 (p < .005) with the Hopelessness Scale (Gibb, 1990). Higher hope people also should evidence less depression as they maneuver through their life in pursuit of goals. In this regard, the Hope Scale correlated −.42 (p < .005; Gibb, 1990) with depression as measured by the Beck Depression Inventory (Beck, Ward, Mendelsohn, Mock, & Erbaugh, 1961).

Minnesota Multiphasic Personality Inventory (MMPI) and Rotter Incomplete Sentences Blank (ISB). People with higher hope should report (a) less severe psychological problems and

(b) more positive perceptions of the stimuli in their life. These guiding hypotheses formed the basis of a study performed at Osawatomie State Hospital, a Kansas state inpatient mental health facility (Irving et al., 1990). From June 1988 through July 1989, the Hope Scale was administered to 109 inpatients during initial psychological testing upon admission to the hospital. In addition to the Hope Scale, the MMPI (1st ed., Hathaway & McKinley, 1951) and the ISB (Rotter & Rafferty, 1950) were administered.

The correlations of the Hope Scale with each of the 10 K-corrected MMPI clinical subscales were as follows: Hypochondriasis, $r = -.30$, $p < .001$; Depression, $r = -.60$, $p < .001$; Hysteria, $r = -.35$, $p < .001$; Psychopathic Deviate, $r = -.43$, $p < .001$; Masculinity–Feminity, $r = -.13$, ns; Paranoia, $r = -.34$, $p < .001$; Psychasthenia, $r = -.52$, $p < .001$; Schizophrenia, $r = -.46$, $p < .001$; Hypomania, $r = -.08$, ns; Social Introversion, $r = -.59$, $p < .001$.

For the ISB, the original, complex scoring procedure was simplified to assess the degree to which people provided negative versus positive responses to the stimulus prompts. Each statement was rated as negative (e.g., "A mother is: *never around*"), neutral (e.g., "A mother is: *a person*"), or positive (e.g., "A mother is: *a great person*"), with respective scores of 1, 2, and 3. Three raters reviewed all sentence completion responses; the interrater reliabilities were .83, .83, and .65 (all $ps < .001$). Therefore, the raters' three scores were summed to derive an overall index for each subject. The correlation between this sentence completion index and Hope Scale scores was .63 ($p < .001$). Thus, the data for the inpatient sample corroborated the hypotheses that higher hope people, as measured by the Hope Scale, would report less psychological disturbances and more positive content in response to open-ended stimulus prompts.

Social desirability/self-presentation. The previous tradition in test construction was that one must demonstrate the discriminant validity of a new scale in relation to measures that tap some form of socially desirable responding. Increasingly in the 1980s, however, socially desirable responding was viewed as providing substantive rather than artifactual interpretations of scale content (see, for excellent example, McCrae & Costa, 1983). In other words, socially desirable responding can be viewed as providing convergent rather than discriminant validational information. Consistent with this suggestion, socially desirable responding has been conceptualized as a positive self-presentational style that is part of adaptive coping; in this regard, the adaptiveness of maintaining positive illusions about oneself has been documented in recent reviews (Snyder, 1989; Snyder & Higgins, 1988; Taylor & Brown, 1988). On the basis of this newer line of thinking, therefore, we would argue that higher hope should be moderately related to positive self-portrayal. Accordingly, Gibb (1990) administered the Hope Scale along with two measures of socially desirable responding. First, the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960) exhibited a positive relationship, $r = .30$, $p < .005$, with the Hope Scale. Second, the Hope Scale correlated positively, $r = .28$, $p < .005$, with the Self-Presentation Scale (D. L. Roth, Harris, & Snyder, 1988; D. L. Roth, Snyder, & Pace, 1986), which taps the extent to which people endorse positive attributes that are actuarially uncommon and deny negative attributes that are actuarially common. Taken together, these

results suggest a tendency of higher hope people to present themselves in a favorable light.

In summary, the correlations described in this section on convergent validity suggest that there are predictable relationships involving the shared nomological network of the present Hope Scale and its underlying construct and several related existent measures and their underlying constructs.

Discriminant Validity

In the establishment of a new individual-differences measure, it is important to demonstrate the independence of this measure from theoretically unrelated self-report measures. To address this issue, the Hope Scale was given to introductory psychology students along with two subscales of the Self-Consciousness Scale by Fenigstein, Scheier, and Buss (1975). The Self-Consciousness Scale was used because it yields scores on (a) private self-consciousness (focus on attending to one's inner thoughts and feelings) and (b) public self-consciousness (general awareness of the self as a social object). There was no obvious theoretical reason to predict that higher as compared with lower hope people would vary on these dimensions. As predicted, the correlations between the Hope Scale and the Private and Public Self-Consciousness subscales were not significant ($rs = .06$ and $-.03$, respectively; Gibb, 1990), suggesting that these scales share little variance. As should be the case, these latter correlations are smaller in magnitude than the .30 to .60 correlations found in the previously discussed convergent validational studies.

Discriminant Utility

It also is instructive to examine the discriminant utility of a new scale for accounting unique variance in theoretically related outcome measures. A new measure such as the Hope Scale, while demonstrating moderate correlations with other related constructs (e.g., negative affect or generalized positive outcome expectancies), also should account for additional variance beyond that accounted for by these related constructs. The studies reported in this section address the discriminant utility of the Hope Scale.

Negative affectivity. Recent writings in the area of personality constructs have suggested that negative affectivity (or neuroticism) should be considered as an alternate explanation for the results that are supposedly obtained through the operation of other variables (Clark & Watson, 1991; Costa & McCrae, 1987; Depue & Monroe, 1986; Holroyd & Coyne, 1987; T. W. Smith, Pope, Rhodewalt, & Poulton, 1989; Watson & Pennebaker, 1989). Negative affectivity, which appears to be the affective core of the neuroticism construct (see McCrae & Costa, 1987), refers to "a broad, stable dimension of personality consisting of chronic negative emotions including sadness, anxiety, guilt, and anger, as well as low self-esteem, preoccupation, and insecurity" (T. W. Smith et al., 1989, p. 641).

In assessing the association of negative affectivity with Hope Scale responses, we must first present our rationale as to why these two constructs should be moderately related. Because higher hope people should be less prone to exhibit negative affect and self-deprecatory cognitions across goal-related situa-

tions, Hope Scale scores should exhibit significant negative correlations with indexes of negative affectivity. Indeed, such relationships would provide convergent validational information for the Hope Scale. Considering the findings of Watson and Clark (1984), who reviewed several measures of negative affect, the Taylor (1953) Manifest Anxiety Scale (TMAS) and the State–Trait Anxiety Inventory, trait form (STAI; Spielberger, Gorsuch, & Luchene, 1970), were selected for inclusion along with the Hope Scale in a correlational study (Holleran & Snyder, 1990) with 158 University of Kansas introductory psychology students. Results showed that the Hope Scale was significantly and negatively correlated with the two indexes of negative affect: for TMAS, $r = -.47$, $p < .001$; for STAI, $r = -.58$, $p < .001$.

The question now turns to whether relations of the Hope Scale responses with selected theoretically related coping behaviors are basically explicable in terms of negative affect. To examine this issue, the Problem-Focused Coping subscale of the revised Ways of Coping Checklist (Folkman & Lazarus, 1980; Folkman & Lazarus, 1985—the college sample) was examined because it was hypothesized to be related to the present definition of hope. In particular, we hypothesized that higher hope people would engage in increased problem-focused coping. The discriminant utility of the Hope Scale would emerge if it demonstrated the predicted positive relationship with problem-focused coping strategy while controlling for the effect of negative affect.

To test this question, Holleran and Snyder (1990) administered the college student version of the revised Ways of Coping Checklist (Folkman & Lazarus, 1985), the Hope Scale, and the TMAS and STAI as indexes of negative affect. With problem-focused coping as the criterion variable in hierarchical multiple regressions, forcing the TMAS and the STAI into the regression equation at Step 1 resulted in $R^2 = .06$, $p < .01$; when Hope Scale scores were forced in at Step 2, the prediction was significantly augmented, increment in R^2 (hereafter referenced as ΔR^2) = .03, $p < .05$. Conversely, if Hope Scale scores were forced in at Step 1, $R^2 = .09$, $p < .001$, and the TMAS and STAI entered at Step 2 did not account for additional variance in coping, $\Delta R^2 = .01$, ns. Therefore, the Hope Scale contains unique predictive variance in relation to problem-focused coping that cannot be explained by negative affectivity.

Positive and negative affectivity. Drawing on previous personality literature defining the factors of extraversion and anxiety/neuroticism, Watson and Tellegen (1985) have presented a two-factor model of positive affect and negative affect. In a subsequent article introducing the Positive and Negative Affect Schedule (PANAS), which reflects this two-factor model, Watson, Clark, and Tellegen (1988, p. 1063) define positive affect as "a state of high energy, full concentration, and pleasurable engagement," and negative affect as "a general dimension of subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states, including anger, contempt, disgust, guilt, fear, and nervousness." Obviously, the concept of positive affect taps processes that relate to the present definition and measurement of hope. Although we have examined the discriminant utility of Hope Scale scores in relation to negative affectivity, the larger question of the possible roles of *both* positive and negative affect in accounting for the relationships

between hope and other criterion variables remains. The two subsequent studies were conducted to address this question.

In the first study (Sigmon & Snyder, 1990b), 128 University of Kansas introductory psychology students (74 women, 54 men) completed the Hope Scale along with the Active Coping and Planning subscales of a coping inventory (the COPE) developed by Carver, Scheier, and Weintrab (1989) and the PANAS (Watson et al., 1988). The instructions for the PANAS asked subjects to "respond as they feel generally." In regard to the two subscales of the COPE, active coping involves taking steps to eradicate or overcome the effects of stressors in a direct and effortful manner, and planning involves coming up with action strategies so as to handle stressors. These two coping strategies should be manifested to a higher degree by people with greater hope.

As expected, the Hope Scale correlated positively with the PANAS positive affect items, $r(126) = .30$, $p < .001$, and negatively with the PANAS negative affect items, $r(126) = -.18$, $p < .05$.

Using active coping as the criterion variable in hierarchical multiple regressions, when negative affect was forced in at Step 1, $R^2 = .01$, ns; when positive affect was forced in at Step 2, it augmented the prediction, $\Delta R^2 = .075$, $p < .01$; finally, when Hope Scale scores were forced in at Step 3, they augmented prediction further, $\Delta R^2 = .09$, $p < .001$. Conversely, Hope Scale scores forced in at Step 1 predicted active coping, $R^2 = .15$, $p < .001$; positive affect entered at Step 2 augmented the prediction, $\Delta R^2 = .03$, $p < .05$; negative affect entered at Step 3, however, did not augment prediction, $\Delta R^2 = .00$, ns. With planning as the criterion variable in hierarchical regressions, when negative affect was forced in at Step 1, $R^2 = .02$, ns; when positive affect was forced in at Step 2, it did not augment the prediction, $\Delta R^2 = .028$, ns; finally, when Hope Scale scores were forced in at Step 3, they augmented prediction, $\Delta R^2 = .032$, $p < .05$. Conversely, Hope Scale scores forced in at Step 1 predicted planning, $R^2 = .06$, $p < .01$; positive affect entered at Step 2 did not augment the prediction, $\Delta R^2 = .01$, ns; furthermore, negative affect entered at Step 3 did not augment the prediction, $\Delta R^2 = .01$, ns. These results suggest that Hope Scale scores contributed unique variance in relation to active coping and planning that was not explained by positive and negative affect.

The second study was conducted to ascertain whether the relationship of Hope Scale scores to an overall index of well-being could be accounted for by positive and negative affect. In this study (Sigmon & Snyder, 1990a), 210 University of Kansas introductory psychology students completed the Hope Scale, along with (a) the PANAS as a measure of positive and negative affectivity, (b) the STAI as a second index of negative affectivity, and (c) the Mental Health Inventory (Veit & Ware, 1983). The instructions for the PANAS asked subjects to "respond as they feel generally." The 38-item Mental Health Inventory was developed and validated to assess characteristics of psychological well-being in a general population.

As was the case in the previously described Sigmon and Snyder (1990b) study, the Hope Scale evidenced the predicted positive correlation with the positive PANAS items, $r(208) = .55$, $p < .001$, and a negative correlation with the negative PANAS items, $r(208) = -.18$, $p < .01$.

Using overall well-being as the criterion variable in hierarchical regressions, when STAI scores were forced in at Step 1, the

$R^2 = .40$, $p < .001$; when negative affect was forced in at Step 2, it did not augment the prediction, $\Delta R^2 = .00$, ns; when positive affect was entered at Step 3, it augmented the prediction, $R^2 = .035$, $p < .001$; finally, when Hope Scale scores were forced in at Step 4, they further augmented prediction $\Delta R^2 = .01$, $p < .05$. Conversely, Hope Scale scores forced in at Step 1 predicted the overall well-being index, $R^2 = .17$, $p < .001$; positive affect entered at Step 2 augmented the prediction, $\Delta R^2 = .05$, $p < .01$; negative affect entered at Step 3 augmented the prediction, $\Delta R^2 = .08$, $p < .001$; finally, STAI scores entered at Step 4 augmented prediction, $R^2 = .16$, $p < .001$. These results suggest that hope, negative affect (as tapped by the STAI more so than by the PANAS), and positive affect each accounted for unique variance in overall self-reported well-being.

In summary, the two studies using measures of both positive affect (as measured by the PANAS) and negative affect (as measured by the PANAS and STAI) suggest that these two variables do not serve as viable alternative explanations for the obtained relations between Hope Scale scores and active coping, planning, and psychological well-being.

Generalized positive outcome expectancies. Generalized positive outcome expectancies represent another concept against which the discriminant utility of the Hope Scale should be tested. As we have shown in the previous section on convergent validity, the Hope Scale correlated positively with two measures of generalized positive outcome expectancies, the LOT and the GESS. In a previously described study (Holleran & Snyder, 1990), it also was possible to test whether Hope Scale scores accounted for significant variance in problem-focused coping beyond that accounted for by the LOT and GESS.

Using the Problem-Focused Coping index of the Revised Ways of Coping Checklist (Folkman & Lazarus, 1985) as the criterion variable in a hierarchical regression, when the LOT was forced in at Step 1, the $R^2 = .04$, $p < .05$; when the GESS was forced in at Step 2, it augmented the prediction, $\Delta R^2 = .04$, $p < .05$; finally, when Hope Scale scores were forced in at Step 3, they augmented the prediction further, $\Delta R^2 = .03$, $p < .05$. Conversely, Hope Scale scores forced in at Step 1 predicted the Problem-Focused Coping index, $R^2 = .085$, $p < .001$; the LOT entered at Step 2 did not augment prediction, $\Delta R^2 = .005$, ns; finally, the GESS entered at Step 3 also did not augment prediction, $\Delta R^2 = .015$, ns. Thus, the Hope Scale exhibited discriminant utility in relation to the LOT and the GESS in predicting problem-focused coping.

Negative affect and generalized positive outcome expectancies. An even more stringent test of discriminant utility pertains to the question of whether the Hope Scale augments the prediction of problem-focused coping beyond measures of both negative affect and generalized positive outcome expectancies. Using the Holleran and Snyder (1990) data, with the criterion variable of problem-focused coping, the negative affect measures (TMAS and STAI) forced in together at Step 1 were significant, $R^2 = .02$, $p < .01$; the LOT entered at Step 2 did not augment the prediction, $\Delta R^2 = .00$, ns; the GESS entered at Step 3 tended to augment the prediction, $\Delta R^2 = .02$, $p < .06$; and finally, Hope Scale scores entered at Step 4 tended to augment prediction, $\Delta R^2 = .02$, $p < .06$. Additionally, note that when the other measures were entered last in similar hierarchical regressions, none of them came close to significantly aug-

menting the prediction of problem-focused coping as did Hope Scale scores.

Life stress, optimism, and locus of control. In a prospective study, Anderson (1988) addressed the discriminant utility of the Hope Scale in relation to measures of life stress, optimism, and locus of control. Initially, 130 introductory psychology students (68 men and 62 women) at the University of Kansas, all of whom 3 weeks earlier had scored in either the bottom, middle, or top third of the Hope Scale distribution given at a mass-screening session, completed the Hope Scale along with three other measures that have conceptual similarity to the present hope concept. First, the Schedule of Life Events (Boaz & Denney, 1986) was given as an index of life stress. Life stress was included because this variable often accounts for major variance in predicting health-related outcomes. This scale includes 76 nonoverlapping items from other life stress questionnaires, and indexes of the total positive stress and total negative stress are derivable. Second, the LOT was given as an index of optimism. Third, the Locus of Control Scale (Rotter, 1966) was administered because it has proven to be a powerful individual-differences measure in predicting various health outcomes (see Lefcourt & Davidson-Katz, 1991).

Ten weeks after the initial testing session, subjects returned to complete a measure of mental health symptoms. Subjects were administered the Psychological Symptoms Measure, consisting of 60 items from the Symptom Distress Checklist, which is a self-report measure that has been validated by Derogatis, Lipman, and Covi (1973). The symptoms measured include somatization, obsessive–compulsive behavior, interpersonal hypersensitivity, depression, anxiety, hostility, phobic anxiety, and paranoid ideation.

When number of overall mental health symptoms reported was used as the criterion variable, a hierarchical regression in which negative life stress was forced in at Step 1 yielded an $R^2 = .10$, $p < .001$; locus of control entered at Step 2 augmented the prediction, $\Delta R^2 = .04$, $p < .05$; positive life stress entered at Step 3 did not augment the prediction, $\Delta R^2 = .00$, ns; the LOT entered at Step 4 augmented the prediction, $\Delta R^2 = .03$, $p < .05$; finally, Hope Scale scores entered at Step 5 augmented prediction further, $\Delta R^2 = .05$, $p < .01$. Conversely, a hierarchical regression in which hope was forced in at Step 1 produced an $R^2 = .13$, $p < .001$; the LOT entered at Step 2 did not augment the prediction, $\Delta R^2 = .02$, ns; positive life stress entered at Step 3 did not augment the prediction, $\Delta R^2 = .01$, ns; locus of control entered at Step 4 did not augment the prediction, $\Delta R^2 = .02$, ns; finally, negative life stress scores entered at Step 5 augmented prediction further, $\Delta R^2 = .04$, $p < .05$. In this study, therefore, both negative life stress and hope contributed significant and unique variance to the prediction of mental health symptoms. In summary, note that the Hope Scale contributed unique variance in relation to all other individual-differences dispositional measures discussed in the present section on discriminant utility.

Construct Validation of Hope and Goal-Related Behaviors

The present conceptualization and operationalization of hope are built on the importance of goals. Corroboration of the predicted goal-related behaviors to be described next would

provide additional construct validation for the Hope Scale. The studies in the following section address this issue.

Hope × Stressor interaction. Hope should be manifested in people's day-to-day activities (this is analogous to positing a main effect of hope in analysis of variance terms). Furthermore, the agency and pathways of high-hope people should be maintained in the face of a stressor, such as an obstacle to a goal, and the agency and pathways of low-hope people should deteriorate when they encounter an obstacle (this is analagous to positing a Hope × Stressor interaction in analysis of variance terms). This predicted interaction is captured in the saying "When the going gets tough, the tough get going." To test these predictions, an analogue study (Yoshinobu, 1989) was undertaken with 133 University of Kansas introductory psychology students (69 women and 64 men). Based on Hope Scale scores obtained earlier at mass-screening sessions, men and women scoring in the bottom 17%, the middle 14%, and the top 22% of the pool were recruited to form the low-, medium-, and high-hope groups. The design was a 3 (level of hope: low, medium, high) × 2 (grade feedback condition: none, negative) × 2 (sex: male, female) factorial.

Subjects in the no-feedback situation were asked to imagine themselves in an introductory college course in a field that may eventually be their major. Furthermore, these subjects were instructed to imagine that they had set a grade goal of at least a B in the course. In the negative-grade-feedback condition, the subjects received the previously described instructions and also were told:

> Although you have set your goal of getting a B, when your first examination score worth 30% of your final grade is returned, you have received a D. It is now one week after you have learned about the D grade.

Subjects were then given a questionnaire designed to assess their goal-related agency and pathways behaviors.

Subjects completed manipulation checks pertaining to the degree to which they could imagine themselves in the situation, as well as the degree to which they felt involved in the experimental situation; there were no significant differences among any of the conditions, and subjects reported a high level of involvement in the scenarios. For the eight manipulation check items involving affective terms (stressed, nervous, satisfied, challenged, content, threatened, relaxed, and tense), 3 (hope level: low, medium, high) × 2 (grade feedback: none, negative grade) × 2 (sex: male, female) analyses of variance on the individual items and on a combined index indicated that subjects in the negative-grade-feedback condition reported more distress than those in the no-feedback condition (all $ps < .02$ on individual items, $p < .001$ on collapsed rating).

The dependent variable of agency was assessed by five items: (a) How much effort are you exerting to reach your grade goal of a B? (1 = *no effort*, to 7 = *extreme effort*); (b) When I think about this goal, I feel energized (1 = *not at all*, to 7 = *extremely*); (c) How confident are you of reaching your goal? (1 = *not at all*, to 7 = *extremely*); (d) How important is achieving this grade goal to you? (1 = *not at all*, to 7 = *extremely*); and (5) What is the probability (0% to 100%) that you will reach your grade goal? Because the agency items were highly intercorrelated, subjects' scores on the five items were standardized, summed, and then

divided by five to yield one agency dependent variable. As predicted, the main effect of Hope Level was significant, $F(2, 120) = 13.45$, $p < .001$, so that the high-hope people reported more agency than the medium-hope subjects, who reported more agency than the low-hope subjects. An important test of the relationship of hope and stressors was provided by the interaction between hope level (low, medium, high) and grade feedback (none, negative). Although this interaction only approached statistical significance, $F(2, 120) = 2.70$, $p = .07$, an examination of the relevant means (see Table 3) revealed that the high-hope people were not significantly lower in their sense of agency in the no-feedback situation as compared with the negative-feedback situation; the medium-hope people did report less agency after the negative feedback, however, and the low-hope people especially reported less agency in the negative-feedback conditions.

In regard to pathways, subjects were asked to list potential strategies for reaching the grade goal of B. For each strategy listed, the subject also was asked to rate "[their] certainty that this strategy will work" (1 = *not at all*, to 7 = *extremely*) and the actual "likelihood of [their] using the strategy" (1 = *not at all*, to 7 = *extremely*). A pathways score was generated by summing the products of certainty and likelihood scores across the number of activities listed. This index conveys an overall sense of the effective goal-directed options that a person generates and would actually use. Again, the expected main effect of hope level resulted, $F(2, 120) = 6.26$, $p < .01$, so that the high-hope people reported more pathways than the medium-hope subjects, who reported more pathways than the low-hope subjects. The Hope Level × Grade Feedback interaction was significant, $F(2, 120) = 3.67$, $p = .03$; the relevant means are shown in Table 3. Here, under the no-feedback condition, the pathways index was similar for the three hope groups, but under the negative-feedback condition, the low-hope people appeared to exhibit significantly fewer pathways responses than the medium- and

Table 3

Mean Agency and Pathways Sum Scores as a Function of Hope and Feedback Condition

Hope level	Feedback condition	
	None	Negative
Agency sum score		
Low	.08$_{ab}$	−.79$_c$
Medium	.40$_a$	−.18$_b$
High	.40$_a$	.11$_{ab}$
Pathways sum score		
Low	136.13$_{bc}$	107.48$_c$
Medium	137.72$_{abc}$	161.00$_{ab}$
High	148.75$_{ab}$	168.43$_a$

Note. $N = 133$. For the top or bottom section of this table, means across or within rows that do not share a subscript are significantly different at $p < .05$ by post hoc pairwise comparisons with the least significant difference test. For the agency sum scores, 5 items were standardized, summed, and divided by 5. The pathways sum scores were derived by multiplying "my certainty that this strategy will work" by the perceived "likelihood of my using the strategy" across the number of pathways listed.

high-hope people. Comparing the reactions with the no-feed-back and negative-feedback scenarios (although the differences do not reach statistical significance), it appeared that in the face of an obstacle, medium- and high-hope people tended to exhibit more pathways but low-hope people exhibited fewer pathways.

To examine the role of academic achievement in regard to the relationship of hope level and reported agency and pathways in the face of stressors, subjects were asked to report their cumulative high school and college grade point averages (GPA). High school GPA correlated .17, $p < .10$, and college GPA correlated .13, ns, with Hope Scale scores. Additionally, GPA entered as a covariate in the aforementioned agency and pathways analyses of variance did not tend to change the main effects of hope or the Hope $\times$ Feedback interactions.

In summary, when confronted with a goal obstacle, high-hope people sustained agency and pathways behaviors; medium-hope people had less agency but nevertheless generated pathways; and low-hope people evidenced both decreased agency and pathways for the goal.

Hope and number of goals. Another prediction flowing from the hope model is that higher hope people, with their generally enhanced goal-directed agency and sense of pathways to goals, should have a greater number of goals across their various life arenas. An interview study of the self-reported goals was undertaken with residents of Lawrence, Kansas, to examine this prediction (Langelle, 1989). People in their 20s, 30s, and 40s, with an equal number of men and women from each cohort, were contacted first by letter, then by telephone, resulting in a 50% rate of participation. The mean age for each of the cohorts was 25 (15 men, 14 women), 35 (14 men, 15 women), and 45 (15 men, 15 women). The sample was White, predominately middle class, and 75% were married; the typical education level varied between some college and a college degree.

Respondents initially completed the Hope Scale; there were no significant effects related to gender or age cohort. For each of six life arenas (family of origin, friendships, marriage or intimate relationships, employment, health, and personal or spiritual development), the respondent was asked whether they had a goal (yes or no). As predicted, the number of goals (0 to 6) summed across the six life arenas correlated positively with Hope Scale scores, $r = .24$, $p < .03$.

Hope and preferred difficulty of goals. The elevated sense of agency and pathways of higher in relation to lower hope people should relate to their selection of more difficult goals. This hypothesis was tested in two studies. In a first study (Harris, 1988), introductory psychology students at the University of Kansas completed the Hope Scale at mass screening; 88 subjects were recruited, with approximately a third from the bottom, the middle, and the top 20% of the Hope Scale distribution. This latter selection procedure was used to assure a range of Hope Scale scores. Subjects were provided an ambiguous task involving a lengthy series of multiple-choice tests (e.g., analogies, sentence completions, and quantitative- and spatial-reasoning items). The items were of varying difficulty; there were many more items than could be completed in the time period. After subjects worked on these problems, the experimenter informed them that for the next part of the study, they could select among tests differing in difficulty (1 = *very easy*, to 5 = *very*

difficult). As hypothesized, the correlation between Hope Scale scores and level of task difficulty selected was positive, $r = .45$, $p < .001$. Thus, as hypothesized, higher hope people selected more difficult goals.

To ascertain whether the relationship of Hope Scale scores to difficulty of task selected was explained by other related variables in the aforementioned Harris (1988) study, two additional measures were administered along with the Hope Scale. First, because optimism could provide an alternative explanation for difficulty of task selected, the LOT was administered. Second, because differences related to the cognitive capabilities of higher hope people could account for their selection of more difficult tasks, students were asked to report their cumulative high school GPA (almost all the subjects were college freshmen and therefore had not established a college GPA). In a hierarchical regression, LOT scores forced in at Step 1 predicted the criterion variable of difficulty of task selected, $R^2 = .11$, $p < .01$; high school GPA entered at Step 2 did not augment the prediction, $\Delta R^2 = .02$, ns; finally, Hope Scale scores entered at Step 3 further augmented prediction, $\Delta R^2 = .07$, $p < .05$. When Hope Scale scores were forced into a similar hierarchical regression at Step 1, they predicted the criterion variable of difficulty of task selected $R^2 = .20$, $p < .001$; high school GPA entered at Step 2 did not augment the prediction, $\Delta R^2 = .00$, ns; finally, LOT scores entered at Step 3 did not augment prediction, $\Delta R^2 = .00$, ns.

The findings that LOT scores did not explain the variance predicted by scores on the Hope Scale replicate previously discussed discriminant utility findings related to other criterion variables involving coping and mental health. In regard to the relationship between Hope Scale scores and high school cumulative GPA, note that the simple correlation was .49 ($p < .001$), suggesting that higher hope did relate to better high school performance. What is noteworthy, however, is that the Hope Scale nevertheless provided predictive information in relation to the selection of task difficulty beyond that which was attributable to GPA.

In a second study (Sigmon & Snyder, 1990b), subjects completed the Hope Scale and the PANAS and were then asked to select a subsequent task for the next phase of the experiment. Subjects could select from five tasks (varying from 1 = *very easy*, to 5 = *very difficult*). In a hierarchical regression using difficulty of task selected as the criterion variable, hope forced in at Step 1 predicted difficulty of task selected, $R^2 = .06$, $p < .01$; positive affect entered at Step 2 augmented the prediction, $\Delta R^2 = .03$, $p < .05$; finally, negative affect entered at Step 3 did not augment prediction, $\Delta R^2 = .00$, ns. To ascertain whether the relationship of hope to difficulty of task selected was explained solely by positive and negative affect scores, another hierarchical regression was performed. When negative affect was forced in at Step 1, it did not predict difficulty of task selected, $R^2 = .00$, ns; positive affect entered at Step 2 did augment the prediction, $\Delta R^2 = .06$, $p < .01$; finally, hope entered at Step 3 augmented prediction further, $\Delta R^2 = .04$, $p < .05$. Thus, Hope Scale scores predicted difficulty of task selected beyond variance that was explicable in terms of positive and negative affect.

Taken together, the two studies involving selection of tasks varying in difficulty support the hypothesis that higher in relation to lower hope people should select more difficult tasks.

Furthermore, the discriminant utility of the Hope Scale is illustrated by its ability to predict difficulty of task selected beyond variance related to optimism, positive and negative affect, and cognitive/intellectual capabilities as measured by high school GPA.

Hope, academic goal-setting, ongoing goal attainment appraisals, and goal attainment. Beyond demonstrating that higher hope people set more difficult goals, one is still left with questions about how people differing in level of hope may vary in terms of their perceived estimates of obtaining their goals as they work toward them; moreover, do the higher hope people actually meet the more difficult goals that they set for themselves?

These questions were addressed in another part of the previously described study by Anderson (1988). In this study, introductory psychology students took the Hope Scale during mass testing. Approximately 3 weeks later, 130 students (68 men, 62 women) from the bottom, middle, and top 20% of the distribution were recruited to ensure a range of hope scores. The subjects were asked to set a realistic goal for their final grade in introductory psychology before any exams had been given in their introductory psychology course. Results revealed that Hope Scale scores correlated positively with grade expected, $r = .32$, $p < .001$, so that higher hope persons set higher grade goals.

Subjects returned 3 weeks later after receiving feedback on their first introductory psychology examination, and they were asked to report their grade (F to A). Additionally, subjects were reminded of the particular grade goals that they had established earlier in the semester and then were asked to estimate the probability (0% to 100%) of attaining this goal in light of their first grade. Using actual grade obtained on the first exam as the criterion variable in a regression, Anderson (1988) found that Hope Scale scores were not a significant predictor, $R^2 = .01$. Using probability of attaining the grade predicted at the beginning of the semester in light of the grade obtained on the first exam as the criterion variable in a regression, Anderson found that Hope Scale scores approached significance, $R^2 = .02$, $p < .10$. These latter results suggested that higher hope students tended to believe that they would be more likely to reach their higher final grade goals, even though there was little evidence after the first examination that they were doing so.

The students' final psychology grades were obtained at the end of the semester (the letter grades were converted to numbers, F to A = 1 to 5, respectively). With final grades as the criterion variable in a regression, Hope Scale scores were a significant predictor, $R^2 = .04$, $p < .05$. To ascertain whether the aforementioned relationship between Hope Scale scores and final grade obtained occurred irrespective of the grade obtained on the first exam, another hierarchical regression was performed using final grade as the criterion variable; grade obtained at the first exam predicted the final grade when entered at Step 1, $R^2 = .47$, $p < .001$; additionally, however, Hope Scale scores entered at Step 2 augmented the prediction of final grade, $\Delta R^2 = .02$, $p < .05$.

Overall, this study suggests that higher as compared with lower hope students (a) set higher grade goals, (b) tended to perceive that they would be more successful at attaining those higher grade goals despite early grade feedback that was not

supportive of their estimate, and (c) actually attained higher grades. In regard to this latter point, however, note that students with differing levels of hope were equally successful at attaining the goals that they had set for themselves, although the higher hope students set and attained higher grade goals. Additionally, note that Hope Scale scores actually provided some enhancement in the ability to predict final semester grade beyond variance related to grades on the first exam. Thus, the Hope Scale appears to tap a cognitive set that is more than cognitive/intellectual capabilities as inferred by early course performance.

To provide another test of the possible relationship of cognitive capabilities and hope, as well as the influence of cognitive capabilities on the hope–grade attainment relationship, an additional study was conducted (Harney, 1989). Female ($n = 59$) and male ($n = 56$) introductory psychology students at the University of Kansas were recruited on the basis of having scored at the mean or one standard deviation below or above the mean on Hope Scale scores. Subjects signed a consent form allowing the experimenter to obtain their final introductory psychology grade and their subsequent semester GPA from the university registrar. First, high school GPA and Hope Scale scores were not significantly correlated, $r = -.10$. Turning to the issue of the discriminant utility of hope, high school GPA entered at Step 1 was not a reliable predictor of final psychology course grade, $R^2 = .00$, *ns;* additionally, however, Hope Scale scores entered at Step 2 augmented prediction, $\Delta R^2 = .04$, $p < .05$. Similarly, using subsequent semester GPA as the criterion variable in a hierarchical regression, high school GPA entered at Step 1 was not a reliable predictor, $R^2 = .00$, *ns;* however, Hope Scale scores entered at Step 2 augmented prediction, $\Delta R^2 = .04$, $p < .05$. Again, therefore, cognitive capability as measured by reported high school GPA did not account for the hope–grade attainment relationship.

Before leaving the topic of the relation between Hope Scale scores and cognitive/intellectual capabilities, a finding from the previously discussed Irving et al. (1990) sample of psychiatric inpatients is worth noting. In that study, Shipley IQ equivalent scores (Shipley, 1967; Zachary, 1986) also were collected along with Hope Scale scores, and they correlated $-.06$, *ns.* Thus, Hope Scale scores were not explicable in terms of cognitive/intellectual capabilities as measured by Shipley IQ equivalent scores.

Hope and life goal appraisals. Following from the work of Lazarus and his colleagues (e.g., Lazarus & Folkman, 1984), we would argue that the appraisals made about life goals are integral to hope's relation to the coping process. That is, it is more adaptive for people to perceive their life goals in a more positive, challenge-like set as compared with a less positive, ambivalent set. Thus, higher as compared with lower hope people should perceive their goals in a more challenging, positive perspective. In the previous section regarding academic goals, this general question was addressed in the Anderson (1988) study. This latter study also expands on this question by examining challenge-related appraisals related to goal arenas beyond just academics.

In a large group session, subjects completed the Personal Goal Questionnaire (PGQ), which was developed specifically to measure personal goals along with several beliefs and feelings about those goals. This questionnaire is based on the work of Wadsworth and Ford (1983), who developed a methodology

for assessing personal goal hierarchies. In the first part of the PGQ, the subjects were asked to describe their most important personal goal for the next 6 months in each of four life areas: (a) work and school, (b) primary family life (e.g., parents, siblings), (c) intimate relationships, and (d) personal changes or development. Subjects were instructed to take several minutes to conceptualize and specify their 6-month goals. Then, the goal appraisals were assessed, in part, by the method used by Folkman and Lazarus (1985). Directions instructed the subjects to imagine themselves in relation to each particular goal before making their ratings. Subjects were asked whether, in thinking about each goal, they focused on the consequences of failing or succeeding (1 = *exclusively on the consequences of failure* to 5 = *exclusively on the consequences of success*). Additionally, subjects rated their probability of attaining each goal (0% to 100%). Finally, in an effort to tap positive and negative affect appraisals, subjects were asked to indicate on a 5-point scale (1 = *not at all* to 5 = *a great deal*) the extent to which they experienced particular emotions when considering each of their goals. The five positive affects were confident, inspired, eager, energized, and challenged; the five negative affects were worried, fearful, shaky, anxious, and threatened. Subjects also were asked to formulate 1-month subgoals for their 6-month goals in each of the four arenas. After formulating these subgoals, subjects completed the aforementioned additional appraisal items pertinent to the appropriate 1-month goal.

To collapse the appraisal data into more succinct units for analyses, the scores for the variables were first summed across the four life arenas. This yielded success/failure foci for 1- and 6-month goals, probabilities of attaining the 1-month and 6-month goals, total positive affect related to the 1- and 6-month goals (summed across the five affects), and total negative affects related to the 1- and 6-month goals (summed across the five affects). Hope Scale scores produced the following correlations with each of these variables: (a) success/failure focus for 1-month goals, $r = .35$, $p < .001$; (b) success/failure focus for 6-month goals, $r = .39$, $p < .001$; (c) probability of attaining the 1-month goals, $r = .31$, $p < .001$; (d) probability of attaining the 6-month goals, $r = .38$, $p < .001$; (e) positive affect related to the 1-month goals, $r = .41$, $p < .001$; (f) positive affect related to the 6-month goals, $r = .50$, $p < .001$; (g) negative affect related to the 1-month goals, $r = -.09$, *ns;* and (h) negative affect related to the 6-month goals, $r = -.20$, $p < .05$. These correlations suggest that higher as compared with lower hope people, when thinking about their goals, tend to focus on success and perceive that they will have a higher probability of attaining their goals. In addition, higher hope people appear to appraise their goals in positive affective terms, and negative affect is not as strongly related to their appraisals. These findings serve to expand upon the previous Anderson (1988) evidence for higher hope students' challenge-like set as they undertake specific academic goals. That is, the present results suggest that higher hope people appraise their other life goals with a positive cognitive set.[1]

Summary and General Discussion

Although the hope motive may be rather ambiguous and difficult for the layperson to define, scholars have consistently anchored this process in people's perception that goals can be met. We have built on this premise in the present model by suggesting that there are two fundamental goal-directed components to the cognitive set of hope. First, there is the agency component, which involves a sense of successful goal-directed determination; second, there is the pathways component, which involves a sense of successful goal-directed planning. Higher levels of hope, therefore, involve greater reciprocally derived perceptions of agency and pathways as people consider goals. Implicit in our reasoning has been the assumption that hope is not a dichotomous motive in which the person either does or does not have hope. Rather, our guiding view has been that there are individual differences involving degrees of hope; as such we have developed a scale to tap this process. Likewise, we have generated hypotheses about the role that hope, as we have defined it, should play in the general process of goal-directed behavior.

The studies involving the psychometric characteristics of the Hope Scale suggested that it possesses acceptable internal consistency and temporal stability. These results support our contention that the present model and measure of hope form a cohesive structure; moreover, support emerges for the assumption that hope is relatively stable across time.

The descriptive data of the Hope Scale demonstrated that people in psychological treatment, in relation to college students, exhibited a lower (albeit toward the hopeful end of the response continuum) level of hope. The somewhat surprising finding was that no sex differences in level of reported hope emerged in any of the samples. Given the effects of traditional sex roles in America, one may have expected men to produce higher levels of hope. Because the possible explanations for the lack of sex differences are multiple and as yet uninterpretable, a definitive explanation for this intriguing lack of sex differences must await further research. One interesting possibility is that gender differences in hope may emerge when different goals are explored in subsequent research.

Factor analyses revealed that the theory-based components of agency and pathways were distinguishable. Thus, one premise of the hope model is supported in that there is evidence for the separation of the agency and pathways components. Further-

[1] The reader may recognize that the appraisal data are part of the larger Anderson (1988) study in which subjects reported number of mental health symptoms. In this regard, it is possible to perform an omnibus test of the discriminant utility of Hope Scale scores in predicting mental health symptoms beyond all the other self-report individual-differences variables measured in the study. Using mental health symptoms (taken at the end of this study) as the criterion variable in a hierarchical regression and forcing in Hope Scale scores at Step 13 after success/failure focus for 1-month goals, success/failure focus for 6-month goals, probability of attaining the 1-month goals, probability of attaining the 6-month goals, positive affect related to the 1-month goals, positive affect related to the 6-month goals, negative affect related to the 1-month goals, negative affect related to the 6-month goals, negative life stress, positive life stress, optimism, and locus of control, $\Delta R^2 = .04$, $p < .01$. Thus, Hope Scale scores contributed variance in relation to reported mental health symptoms that was not shared by a host of other dispositional individual-differences measures (e.g., Life Orientation Test, Locus of Control) and situational goal-related appraisal items taken during the study (e.g., success/failure foci, affects).

more, the intercorrelations of the agency and pathways components indicated that they are indeed related, but not synonymous. For the present scale-development article, we have not attempted any analyses examining the separate contributions of the agency and pathways components to other criterion variables. The only prerequisite that we used for the present series of studies was that the content of the agency and pathways items had face validity. Thus, the components per se have not been validated in the present studies. This is because of our view that these two components are iterative and additive and because the underlying basis of the present theory and construct of hope is to combine agency and pathways. Therefore, our efforts have focused on the combined agency and pathways components. Future research may unravel differential correlates of agency and pathways and may yield information pertaining to their separate construct validity and utility.

The various studies on convergent validity reveal a pattern of predicted correlations with concepts that are similar to the theorized process of hope. The nomological network of hope shares variance with other individual-differences measures that are conceptually related to goal-directed behaviors; as such, there is corroboration for the convergent validity of the Hope Scale. Furthermore, in accordance with theoretical predictions, the discriminant validity study indicates that the Hope Scale does not share consequential variance with another selected scale. Turning to what we have called discriminant utility, the relevant data suggest that the relationship of Hope Scale responses to coping strategies and mental health are not totally explicable in terms of positive and negative affectivity, life stress, optimism, generalized outcome expectancies, or locus of control. The Hope Scale thus provides additional predictive power in comparison to other individual-differences measures of cognitive and emotional dispositions. Hope, as we have discussed it here, is a dispositional cognitive set; it is therefore important that it contributes some unique predictive variance in relation to other cognitive- and emotion-based dispositional measures. These findings should not be interpreted, however, as suggesting that these other constructs are not useful in predicting and understanding various coping- and mental health-related responses. Indeed, these previous constructs and their associated individual-differences measures have each provided important and extensive literatures relating individual-differences processes and coping more generally. Given the power of these other concepts and the associated measures, however, the present studies are all the more encouraging in supporting the robustness of the Hope Scale.

Before leaving the topic of discriminant validity, some comments are warranted about the relationship of hope to achievement and cognitive ability. Higher Hope Scale scores correlated $-.10$, $.17$, and $.49$ with better reported high school performance. Thus, for these three correlations, higher hope related to (a) somewhat lower high school performance ($r = -.10$), (b) somewhat better high school performance ($r = .17$), and (c) much better high school performance ($r = .49$). For college academic achievement, on the other hand, note that the results consistently suggest that the higher in relation to the lower hope people did better. Therefore, academic achievement appears to be related to higher hope. It would be inaccurate, however, to conclude that the Hope Scale taps nothing but academic-

achievement-related variance. Indeed, the present studies show that Hope Scale scores predicted goal setting and academic achievement beyond projections attributable to previous academic achievement. Recall also that the magnitude of the correlation between intelligence scores (the Shipley) and the Hope Scale scores for the inpatient sample was negligible. Although one must be cautious in drawing conclusions too quickly on the basis of these scant data, such findings suggest that hope is something more than one's cognitive/intellectual abilities and record of academic achievement.

The various construct validitional studies of the Hope Scale reveal pictures of higher as compared with lower hope people that are consistent with the underlying model. For example, higher hope relates to more agency- and pathways-related responses in several life arenas; moreover, the agency and pathways are maintained under circumstances in which the person is stressed. In future research involving laboratory or real-life stressors, it will be important to examine whether higher hope people manifest their agency and pathways behaviors as they actually encounter the impediments to their goals. Assuming that such research corroborates our initial findings, there are a host of interesting developmental studies that should follow to find out how people learn hopeful responses when encountering circumstances in which their goals are blocked.

Because of their facility and heightened motivation in dealing with the goals in their lives, higher in relation to lower hope people would be expected to undertake a larger number of goals across life arenas and to select tasks that are more difficult. Data from studies addressing hope and goal-directed behaviors support both of these predictions. In regard to the more difficult goals that higher hope people select, however, they do not perceive their goals as being more difficult. The present data suggest that higher hope people appraise their goals in terms of challenges, success potential, and positive emotions. These findings are similar to the differences that Lazarus and Launier (1978) have described in regard to people who make challenge versus threat appraisals:

> The difference seems to be a matter of positive versus negative tone, that is whether one emphasizes in the appraisal the potential harm in the transaction [threat], or the difficult-to-attain, possibly risky, but positive mastery or gain [challenge] (p. 304).

Beyond the fact that higher hope people appear to set more difficult goals (by objective but not phenomenological standards) and that they evidence a more positive, challengelike set as they pursue these goals, the present results indicate that higher hope people are more certain that they will attain their goals. However, note that higher and lower hope people in the present studies were equally likely to attain their goals. This latter conclusion must be placed in the context of the fact that the lower hope people attained their lower goals and the higher hope people attained their higher goals. Thus, higher hope is associated with superior performance. When Lazarus and Launier (1978) speak of "the difficult-to-attain, possibly risky" aspect of challenge appraisals, therefore, higher hope people may not experience this sense of risk because they tend to report being more certain of reaching their goals while working toward them, and thereafter they actually appear to achieve those goals. In understanding the cognitive set and emotional

sequelae that higher as compared with lower hope people have as they establish and work on their goals, one senses that the goals are experienced in a qualitatively more positive fashion by higher hope people. Indeed, higher hope people appear to embrace their goals.

Having provided initial evidence for the validity and potential usefulness of the Hope Scale, we would like to close with an extrapolation of the present hope model and scale to various arenas. Perhaps it is best to start at the most general level. It is our view that the analysis of goal-directed behavior undergirds an enormous range of human activities. This view is echoed by other writers (see Pervin, 1989, for review). The point here is a simple one. When a careful analysis of almost any sequence of human behavior is performed, it is unusual to find that some sort of goal-directed sequence is not involved. This is in large part because of the developmental and survival necessity of developing goals and behaving in accordance with those goals. As such, the Hope Scale may provide a useful instrument for understanding how people relate to their goals in several different life arenas.

As the reader can surmise from many of the criteria variables used in the present studies, our perspective often has emphasized coping and mental health responses. With the explosion of interest in health psychology, psychologists and other related professionals have increasingly explored adaptive human behaviors. Our view, and one that is shared by other writers (see Eiser & Gentle, 1988), is that health-related matters are easily conceptualized in terms of people's goals. Accordingly, hope appears to be a potentially useful construct for exploring health-related matters. For example, we would expect that higher as compared with lower hope people are more likely to have a healthy lifestyle, to avoid life crises, and to cope better with stressors when they are encountered. That the Hope Scale evidenced such robust predictive relationships in the present series of studies may reflect the fact that coping processes and the present conceptualization of hope are both closely tied to goal-directed behaviors (see Snyder, Irving, & Anderson, 1991).

One other specific arena to which the hope theory and the Hope Scale may be applied is psychotherapy. Psychotherapy researchers often have focused on two components: a nonspecific treatment factor and a specific treatment factor. Since the classic meta-analysis of the effectiveness of psychological treatment by M. L. Smith and Glass (1977), researchers have attempted to examine the relative effectiveness of nonspecific and specific treatments to no-treatment control groups, as well as to each other (i.e., nonspecific vs. specific treatments; see Barker, Funk, & Houston, 1988; Landman & Dawes, 1982; Prioleau, Murdock, & Brody, 1983; Shapiro & Shapiro, 1982). The general conclusion of such meta-analyses is that treatment results in significantly more positive outcomes in relation to no-treatment control and nonspecific factors groups.

In the aforementioned meta-analyses, as well as other studies examining nonspecific factors, a common view is that such nonspecific factors reflect the clients' generalized positive expectations for improvement through treatment (Frank, 1973; Frank, Hoehn-Saric, Imber, Liberman, & Stone, 1978; Kazdin, 1980). In the context of the present hope model, the nonspecific factors parallel the agency component, and the treatment groups parallel the agency and the pathways components combined. That is, the nonspecific factors reflect a generalized expectation of meeting one's goals (improvement in psychotherapy, in this case), and the specific treatment groups reflect people who have a comparable level of expectation in meeting their therapy goals and are delivered a specific treatment strategy to meet those goals. Results of such meta-analyses (for excellent example, see Barker et al., 1988) have shown that the nonspecific factors (agency) groups exhibit a significantly improved psychotherapy outcome in relation to no-treatment control groups; moreover, the treatment (agency + pathways) groups exhibit significant improvement in relation to the nonspecific factors (agency) groups. Additionally, the magnitude of the improvement for the treatment group (agency + pathways) in relation to the no-treatment group typically is twice that exhibited by the nonspecific factors (agency) group.

One implication of such meta-analyses is that the agency and pathways components of the present hope model may be conceptualized as mechanisms for understanding how psychotherapy works. The voluminous literature on treatment provides a menu of approaches for building a client's sense of agency and pathways. In this latter regard, the contribution of an individual-differences measure such as the Hope Scale may be multiple. Do low-hope people profit by particular interventions that are aimed at agency and pathways? More generally, what are the interactions between the dispositional variable of hope and the situational variable of treatment? The present model and scale for measuring hope obviously may open up many more important questions for which we can find answers. Perhaps this is the most fitting result of our attempt to lift the lid off the Pandorian box.

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Appendix

The Hope Scale

Directions: Read each item carefully. Using the scale shown below, please select the number that best describes YOU and put that number in the blank provided.

1 = Definitely False   2 = Mostly False   3 = Mostly True
4 = Definitely True

_____ 1. I can think of many ways to get out of a jam. (Pathways)

_____ 2. I energetically pursue my goals. (Agency)

_____ 3. I feel tired most of the time. (Filler)

_____ 4. There are lots of ways around any problem. (Pathways)

_____ 5. I am easily downed in an argument. (Filler)

_____ 6. I can think of many ways to get the things in life that are most important to me. (Pathways)

_____ 7. I worry about my health. (Filler)

_____ 8. Even when others get discouraged, I know I can find a way to solve the problem. (Pathways)

_____ 9. My past experiences have prepared me well for my future. (Agency)

_____ 10. I've been pretty successful in life. (Agency)

_____ 11. I usually find myself worrying about something. (Filler)

_____ 12. I meet the goals that I set for myself. (Agency)