

Role of Hope in Academic and Sport Achievement

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Hope is the sum of goal thoughts as tapped by pathways and agency. Pathways reflect the perceived capability to produce goal routes; agency reflects the perception that one can initiate action along these pathways. Using trait and state hope scales, studies explored hope in college student athletes. In Study 1, male and female athletes were higher in trait hope than nonathletes; moreover, hope significantly predicted semester grade averages beyond cumulative grade point average and overall self-worth. In Study 2, with female cross-country athletes, trait hope predicted athletic outcomes; further, weekly state hope tended to predict athletic outcomes beyond dispositional hope, training, and self-esteem, confidence, and mood. In Study 3, with female track athletes, dispositional hope significantly predicted athletic outcomes beyond variance related to athletic abilities and affectivity; moreover, athletes had higher hope than nonathletes.

A typical dictionary definition of hope as “a desire and the confident expectation of its fulfillment” captures one of the fundamental reasons that humans enjoy sporting activities (Osteroth, 1978). From the First Olympiad in 776 B.C. to neighborhood basketball games to next year’s Super Bowl, the athletes’ hopes for desired sport goals are pivotal to understanding these activities. Nevertheless, the role of hope has remained unexplored among personality researchers interested in individual differences in motivation, as well as by sport psychologists, largely because a theoretical model of hope and the associated measurement instruments have not been available. Accordingly, on the basis of the recent development of a theory of hope and measurement indices related to this construct, the present series of studies was performed to provide initial information about the role of hope in the academic and sport achievements of college students.

Previously, scholarly writings have defined hope as a unidimensional construct involving an overall perception that goals can be met (French, 1952; Lewin, 1935; Stotland, 1969). Expanding on this unidimensional model, Snyder and his colleagues (Snyder, 1994a, 1994b; Snyder, Harris, et al., 1991;

Snyder, Sympson, et al., 1996) have suggested that goal-directed thinking is made up of two necessary components. First, there is pathways thinking, which reflects the person’s capacity to conceptualize one or more avenues by which to arrive at the desired goal. Second, there is agentic thinking, which taps thoughts aimed at initiating and sustaining movement along one’s chosen pathways toward a desired goal. In turn, hope reflects the iterative sum of pathways and agentic thinking. More specifically, Snyder, Harris, et al. (1991, p. 571) defined hope 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).”

It does not suffice in terms of hope to have just pathways or agentic thinking. Consider, for example, Athlete A who can think of many differing moves to get free and shoot the basketball (i.e., high pathways thinking), but who is not motivated to practice these moves (i.e., low agentic thinking). Without the necessary agentic thinking, she cannot be said to have high hope. Conversely, Athlete B is highly motivated to become an outstanding basketball player (i.e., high agentic thinking), but cannot think of moves to get free to launch her shots (i.e., low pathways thinking). For all her agentic thoughts, her lack of pathways thinking precludes her having high hope. In these examples, a high-hope basketball player needs both pathways and agentic thought.

Hope theory differs from three other related models. First, there is goal-setting theory in the sport achievement literature (Burton, 1992, 1993; Hall & Byrne, 1988; Kylo & Landers, 1995; Locke, 1991; Weinberg, 1994), where the emphasis is on the outcome expectancies related to how one attains the desired goal. This may be similar to the pathways component of hope theory. Second, there is sport achievement self-efficacy, or situational sport confidence (Lerner & Locke, 1995; Vealey, 1986; Weinberg, Gould, & Jackson, 1979; Wurtele, 1986), which is related to Bandura’s (1977) self-efficacy theory. Third, there is

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sport performance positive and negative affectivity (Crocker & Graham, 1995a, 1995b; Gould, Eklund, & Jackson, 1992a, 1992b; Martin & Anshel, 1995; Renger, 1993; Terry, 1995), where one's derived sense of positive and negative emotions are related to perceptions of success or failure in a given situation. Although these latter two models do include notions about a person's outcome expectancies (i.e., knowledge of the appropriate contingencies in a given situation), the emphasis is on one's situational thoughts and emotions related to perceptions of goal success and failure as being the major determinant of sport achievement behavior. As such, these two approaches may be similar to the agency component in hope theory. Differing from the three aforementioned theories, hope theory posits that it is crucial to tap both the cognitive processes related to pathways goal-directed thinking and the associated agentic thoughts about the use of those pathways (see Snyder, Irving, & Anderson, 1991, for further discussion of the distinctions between hope, goal-setting, self-efficacy, and positive and negative affectivity theorization).

Using this theory of hope, Snyder and his colleagues have developed and validated self-report instruments tapping dispositional hope for children (see Snyder, Hoza, et al., 1997) and adults (see Snyder, Harris, et al., 1991), as well as a state index that measures ongoing hope in adults (see Snyder, Sympton, et al., 1996). Each of these self-report instruments has items reflecting pathways thinking, as well as agentic thinking toward goals. These scales have surpassed psychometric standards regarding internal and temporal consistency, and the items consistently yield a two-factor solution (pathways and agency), as well as a summation factor (hope). In a series of confirmatory factor analyses, the agency and pathways components were found to be related but distinct constructs; further, these analyses have revealed that the agency and pathways components should be considered as an aggregate reflecting the theorized overarching, goal-directed thinking construct of hope (Babyak, Snyder, & Yoshinobu, 1993). Because hope is conceptualized as the sum of pathways and agentic thinking, and factor analyses have borne out such aggregation, the hope scores on these scales reflect the sum of the agency and pathway items. To date, research has shown that hope as measured by both the dispositional and state scales is an effective predictor of various academic and coping activities (for reviews, see Snyder, 1994b; Snyder, Irving, & Anderson, 1991), and that hope makes such predictions beyond variance due to other related psychological or achievement indices.

What has not been explored to date, however, is the predictive capability of hope when applied to either the academic or sport activities of student-athletes. The general purpose of the present studies, therefore, was to begin investigations into the role of hope in two areas that are important to student-athletes—their academic and sport achievements. More specifically, the present three studies were conducted to test the hypotheses that higher hope in student-athletes should relate positively to their academic and sport achievements. In the process of examining these general questions, other variables that may provide counterexplanations for the hypothesized hope results also are explored. That is to say, although hope should relate positively to academic and sport achievements, there are a variety of other motivational, emotional, and ability-related constructs that also may provide

explanations for such achievement advantages. Therefore, constructs related to hope also are examined in these studies.

At a time when researchers are searching for new psychological constructs to help explain sport achievement variability (Burton, 1993; Greenspan & Feltz, 1989; Hall & Byrne, 1988; Kirschenbaum, 1984; Martens, Vealey, & Burton, 1990; Raglin, 1992; Vealey, 1992; Whelan, Mahoney, & Meyers, 1991), the present series of studies sought to explore one such new concept, hope, and its potential positive role in athletes' academic and sport achievements. Beyond the potential implications that hope may have for researchers focused on sports achievements, this hope construct also may offer insights for personality researchers who are examining motivational factors that may be common to high achievers in other performance settings.

Study 1: Dispositional Hope and Academic Achievement

The first purpose of Study 1 was to ascertain how hopeful college athletes are in comparison to nonathletes. Because college athletes must be very goal oriented in their thinking, and because sports represents an arena that is important and highly valued in their lives, it was predicted that they should score higher in dispositional hope than a comparison group of college students. This is not meant to suggest, however, that such athletes would be higher in hope than other highly goal-oriented college students who excel in various arenas of college achievement (e.g., music, academics, politics, debate, etc.), but rather that they should have higher hope than the typical college student.

The second purpose of Study 1 was to examine whether higher hope among athletes relates to better classroom achievement. Given that previous research shows that hope significantly predicts high-school and college academic achievement among nonathletes, it was hypothesized that among athletes, higher hope should relate positively and significantly to academic achievement. Lastly, because self-worth or esteem may provide an alternative explanation for any hope results in regard to the two aforementioned hypotheses, a measure of self-worth also was taken in Study 1 to examine this counterexplanation.

Method

Participants

Participants in Study 1 came from two student populations. The first population consisted of all undergraduate National Collegiate Athletic Association (NCAA) Division I student athletes enrolled at the University of Montana ($N = 370$); the second population, of nonathletes, consisted of all undergraduate students, excluding student athletes and nontraditional students, enrolled at the same university ($N = 7,378$). Stratified random samples were taken from each population so as to recruit roughly equal numbers of athletes and nonathletes by year in school (1, 2, 3, and 4) and gender. For each of the 16 cells formed by an Athletic Status (yes, no) \times Year in School (1, 2, 3, and 4) \times Gender (male, female) design, the modal final number of participants was 11 per cell. The goal was to have approximately equal cell sizes, but some participants were discarded because they (a) were no longer participating in athletics, (b) had dropped out of school (no differential dropout rates related to athletic status, year in school, or gender), or (c) did not complete major portions of the questionnaires (no discernible pattern to this process in terms of athletic status, year in school, or gender). As

such, a quasi-experimental design resulted in Study 1. Prospective participants were called and given a brief description of the study, and their participation was solicited; if they agreed, an appointment was made. The final counts of participants were as follows: 41 male athletes, 45 female athletes, 44 male nonathletes, and 40 female nonathletes. The mean age for athletes and nonathletes was 20.5 years, with less than 5% being African Americans and Native Americans.

Measures

Dispositional Hope Scale. The dispositional Hope Scale (Snyder, Harris, et al., 1991) contains four agency items (e.g., "I energetically pursue my goals," and "I meet the goals that I set for myself"), four pathway items (e.g., "There are lots of ways around any problem," and "I can think of many ways to get the things in life that are most important to me"), and four distractor items. Respondents rate how accurately each item describes them generally on an 8-point Likert scale (1 = *definitely false*, 2 = *mostly false*, 3 = *somewhat false*, 4 = *slightly false*, 5 = *slightly true*, 6 = *somewhat true*, 7 = *mostly true*, 8 = *definitely true*), and the index is conceptualized as an enduring, dispositional one. On the basis of the theory positing that hope reflects both agentic and pathway thinking together (Snyder, Harris, et al., 1991), as well as confirmatory factor analyses supporting this supposition (Babyak, Snyder, & Yoshinobu, 1993), the hope score reflects the sum of the agency and pathways items. The Hope Scale has demonstrated adequate internal and test-retest reliabilities, as well as concurrent construct validity in terms of its correlations with other related measures (Snyder, Harris, et al., 1991); moreover, it has discriminant utility in predicting goal-related outcomes beyond variances attributable to other measures (Snyder, 1994b). Cronbach's alpha of the Hope Scale in Study 1 was .73.

Self-Perception Profile for College Students (SPPCS; Neeman & Harter, 1986). Given that an individual's self-worth has been theorized to influence future goal-related behaviors (Burns, 1979; Rosenberg, 1979), an index of global self-worth was included in Study 1 to rule this out as a counterexplanation for any hope-related effects. In this regard, Neeman and Harter's SPPCS was used to measure global self-worth. The SPPCS allows the researcher to discern differences in college students' evaluations of global self-worth by aggregating responses to six self-report items. Previous results with the scale support its internal and retest reliabilities, as well as construct validity (Crocker & Ellsworth, 1990; Neeman & Harter, 1986). Cronbach's alpha for this global self-worth index in Study 1 was .87.

Procedure

The participant arrived at a quiet room, and the male experimenter gave him or her an overview of the study. After signing the consent form, the participant completed the Hope Scale and the global self-worth index. Upon completion of these instruments, the participant was given an overview of the purposes of the study, thanked, and dismissed. The grades of the athletes are public record because of the NCAA regulations; accordingly, the athletes' grades for the subsequent semester and cumulative grade point averages (GPAs) were secured. For the nonathletes, however, the Committee on Human Subjects did not approve the request to have these students sign a release of their grade information; accordingly, grades were not available from the nonathlete students.

Results

The Hope Scale scores were entered as the dependent variable in a 2 (athletic status: yes, no) \times 4 (year in school: 1, 2, 3, and 4) \times 2 (gender: male, female) analysis of variance (ANOVA), and the only significant finding was a main effect of athletic

status, $F(1, 154) = 15.76, p < .0005$ (one-tailed, given a priori hypotheses), such that the athletes had higher Hope Scale scores ($M = 54.61, SD = 5.75$) than the nonathletes ($M = 51.65, SD = 4.60$). There also was a slight trend for a year-in-school main effect, $F(3, 154) = 2.20, p = .090$; the means for Years 1–4 were 53.20 ($SD = 4.92$), 51.76 ($SD = 6.83$), 53.00 ($SD = 4.68$), and 54.66 ($SD = 4.76$), respectively, with only the Years 2 and 4 difference approaching significance ($p = .075$; these and subsequent post hoc tests are Tukey honestly significant difference tests).

The global self-worth scores were entered as the dependent variable in the same 2 \times 4 \times 2 ANOVA, and the only significant finding was a main effect of year in school, $F(3, 154) = 3.06, p < .030$; the means for Years 1–4 were 3.39 ($SD = 0.57$), 3.12 ($SD = 0.62$), 3.32 ($SD = 0.62$), and 3.48 ($SD = 0.53$), respectively, with only Years 2 and 4 differing significantly ($p < .03$).

Hope and global self-worth correlated positively for athletes, $r(82) = .35, p < .0005$, and nonathletes, $r(84) = .56, p < .0005$ (one-tailed). Because of the positive relation between hope and self-worth, the question arises as to whether the aforementioned main effect of hope (i.e., athletes having higher Hope Scale scores than nonathletes) remains when the shared variance related to global self-worth is covaried. In this regard, when global self-worth was covaried in the 2 (athletic status: yes, no) \times 4 (year in school: 1, 2, 3, and 4) \times 2 (gender: male, female) ANOVA the global self-worth covariate was significant, $F(1, 153) = 28.50, p < .0005$, and the only other significant effect was the athletic status main effect, $F(1, 153) = 17.72, p < .0005$ (one-tailed), such that the athletes again were higher in hope than the nonathletes.

For the athletes, hope significantly predicted semester GPA, $R^2 = .08, p = .0009$, but global self-worth did not, $R^2 = .02, p = .107$ (one-tailed). To ascertain whether hope augmented the global self-worth and semester GPA relation, a hierarchical regression was performed in which global self-worth was entered in the first step and hope at the second step. In this latter regard, hope contributed significant and unique variance to the semester GPA beyond global self-worth, $\Delta R^2 = .06, p < .0005$ (one-tailed).

In a stringent test of the predictive capabilities of the Hope Scale for athletes' semester GPAs, a hierarchical regression tested whether Hope Scale scores provided additional predictive variance beyond both cumulative GPA and global self-worth.¹ Using semester GPAs as the criterion, in the first step, cumulative GPA was a significant predictor, $R^2 = .70, p < .0005$; when global self-worth was entered in Step 2, it did not augment the prediction, $\Delta R^2 = .00, ns$; finally, Hope Scale scores entered at Step 3 significantly augmented the prediction, $\Delta R^2 = .02, p = .025$ (one-tailed).

Discussion

The sampled college athletes were higher than the nonathletes in hope, but not global self-worth. Further, whereas hope corre-

¹ This is a conservative test of the predictive capabilities of Hope Scale scores for the present semester because Hope Scale Scores, as measured in two previous studies, have been shown to be positively and significantly ($R^2 = .04$) predictive of cumulative college grades (Snyder,

lated positively with self-worth, the covariance analyses indicate that the higher hope of athletes in comparison to nonathletes was not related to the shared variance of esteem. Given that hope reflects an adaptive, goal-directed type of thinking, such thoughts are important to all college students, but especially to athletes who face the additional arenas of goal activities related to their sports.

Both the self-worth and, to a lesser degree, the hope results suggested that sophomores were at a lower level than college seniors on these variables. Although these findings are not germane to the focus of Study 1, they are consistent with a phenomenon known as the "sophomore slump."

The most important findings of Study 1 relate to the capability of the Hope Scale scores for predicting semester GPA, even when shared variance related to cumulative GPA is removed. Obviously, as based on logic and the results of Step 1 of the regression, cumulative GPA is a robust predictor of subsequent semester GPA. Although dispositional Hope Scale scores augment the prediction of semester grades, and do so significantly, it should be noted that only 2% of the additional variance is accounted for. This finding with athletes replicates earlier findings with nonathlete college students, wherein Hope Scale scores have predicted academic achievement beyond previous markers of academic achievement (Snyder, Harris, et al., 1991).

Study 2: Dispositional and State Hope, Related Indices, and Sport Achievement

Having established a positive relation between Hope Scale scores and academic achievement in Study 1, the first and major question in Study 2 is whether hope is predictive of actual sport achievement. Specifically, given the advantages that higher hope persons have had in goal-pursuit activities in previous research (see Snyder, 1994b, for review), it was predicted that higher hope would relate to better sport achievement.

A second set of questions in Study 2 pertains to the unique predictive sport achievement capabilities of hope that are beyond other psychological markers, as well as amount of sport practice, that are taken on the week before actual performances. These latter questions pertain to the ruling out of counterexplanations related to any hope results that are obtained. Coaches and their athletes naturally are focused on actual sport outcomes, as well as on any psychological markers that may help to understand and predict better achievement. Additionally, personality researchers interested in motivation may find it useful to better understand the relation of hope to an actual physical performance marker. For these reasons, Study 2 was performed.

Method

Participants

Nine female cross-country runners at the University of Montana signed a consent form in which they volunteered to record their thoughts and feelings, as well as their practice training volume throughout the 11-week season.

Measures

Dispositional Hope Scale. This is the same dispositional measure described in Study 1. Cronbach's alpha for the dispositional Hope Scale in Study 2 was .78.

State Hope Scale (Snyder, Sympson, et al., 1996). The State Hope Scale was included because of its theoretical relation to dispositional hope, and because ongoing reports of state hope scores previously have related positively to intellectual and motor-skill achievements (Snyder, Sympson, et al., 1996). That is to say, persons who report an ongoing state level of hope that is elevated also are likely to perform well on achievement tasks related to cognitive and physical skills. As such, state hope was included so as to document how it augments the prediction of cross-country achievement beyond dispositional hope. This 6-item measure of state hope comprises three agency items and three pathways items (Snyder, Sympson, et al., 1996). The items are reworded from the dispositional Hope Scale so as to tap the present tense (e.g., two agency items are "At the present time, I am energetically pursuing my goals," and "At this time, I am meeting the goals that I have set for myself;" two pathways items are "There are lots of ways around any problem that I am facing now," and "I can think of many ways to reach my current goals"). Participants are asked to select the number (from 1 = *definitely false*, to 8 = *definitely true*) that best describes "how you think about yourself right now." The total State Hope Scale score is the sum of the six item scores. The State Hope Scale has high internal reliability, as well as concurrent validity in relation to other related state measures and discriminant utility in that it is sensitive enough to capture the variability in level of hope at particular points in time and does so beyond projections due to other state indices (Snyder, Sympson, et al., 1996). The average (across the weeks of Study 2) Cronbach's alpha for the State Hope Scale was .70.

State Self-Esteem Scale (Heatherton & Polivy, 1991). A measure of self-esteem was included in the present study because one's ongoing esteem may reflect a temporally accurate appraisal of athletic goal pursuits. In other words, it may be that the athlete's state esteem is a more robust predictor of achievement than either dispositional or state hope, and as such it was important to examine this self-esteem counterexplanation. Heatherton and Polivy developed the 20-item State Self-Esteem Scale to measure esteem at a given point in time. The State Self-Esteem Scale is internally consistent and has received construct validation support in several studies. The average (across the weeks of Study 2) Cronbach's alpha for the State Self-Esteem Scale was .69.

State Sport Confidence Scale (Vealey, 1986). A measure of self-efficacy was included in Study 2 because hope, in part, reflects perceptions of personal agency. In particular, the agency component relates to the efficacy component of the larger self-efficacy concept. Vealey conceptualized and developed a sport-specific and time-specific individual-differences measure of sport confidence that is based on self-efficacy, perceived competence, and expectancy research. Defined as "the belief or degree of certainty individuals possess about their ability to be successful in sport" (Vealey, 1986, p. 222), sport confidence in the present study was measured as a state construct tapping agentic thoughts aimed at initiating and sustaining movement toward success in sports. Psychometric testing of the 13-item State Sport Confidence Scale has supported its internal and retest reliabilities, as well as concurrent and construct validity (Vealey, 1986). The average (across the weeks of Study 2) Cronbach's alpha for the State Sport Confidence Scale was .96.

State Profile of Mood States (POMS; McNair, Lorr, & Doppleman, 1971). It may well be that mood provides a more parsimonious alternative explanation for any differential cross-country running achievement that is attained rather than hope per se. Therefore, an index of mood was included. The POMS has been extensively used in sport and personality research to measure psychological mood states (Auweele, DeCuyper, van Mele, & Rzewnicki, 1993; Terry, 1995). The POMS is a self-report questionnaire consisting of 65 adjectives designed to reflect six mood

Harris, et al., 1991). Further, in Study 1, Hope Scale scores significantly predicted overall GPA, $r(84) = .19, p < .04$, one-tailed.

states (tension, depression, anger, fatigue, confusion, and vigor). These factors can be combined to measure total mood disturbance by adding the five negative mood states and subtracting the one positive factor of vigor, and this overall index was used in the present study. The POMS has four possible instructions, and the "last week including today" was utilized in this study. Previous research indicates that the POMS has acceptable internal reliability and construct validity (McNair, Lorr, & Doppleman, 1971). The average (across the weeks of Study 2) Cronbach's alpha for the total POMS was .86.

Weekly training mileage report. Another obvious potential predictor of cross-country achievement is the amount of practice put in by athletes each week prior to their meets. Therefore, in Study 2, we wanted to ascertain whether hope predicted achievement beyond weekly practicing. A questionnaire measuring exercise mileage (training volume) was administered to the participants for each of the 11 weeks. Weekly training mileage was cross-checked with the training schedule that was monitored by the women's cross-country coach, and in this sense the weekly practice reports were verified.

Procedure

The female athletes completed the dispositional Hope Scale at the beginning of the study; moreover, on a weekly basis throughout the course of Study 2, they completed the following measures (in the same order): State Hope Scale, State Self-Esteem Scale, State Sport Confidence, POMS, and the weekly training mileage report. These latter indices were taken weekly because of the desire to measure the ongoing states of the female athletes during a time period that was relatively close to their actual achievements.

Results

Due to the varied nature of the cross-country courses and changing weekly weather conditions, individual meet results were standardized to *z* scores based on times recorded in relation to the other participants in each race. There were seven sanctioned meets held during the time of Study 2, with a total of 51 meet results accrued across the nine runners.

To examine the unique contribution of the various variables to meet achievement, two hierarchical maximum likelihood regressions with autocorrelated error were performed on the criterion of running achievement. Because of correlated error resulting from the fact that each athlete participated in several meets, autoregression procedures for autocorrelated errors were used (see SPSS, 1993).

A first autoregression hierarchical regression involved the incremental contributions of dispositional hope, weekly training practice, and weekly state hope in predicting faster running times. The variables were entered in this order so as to test the a priori hypothesis that dispositional hope would predict better running times, and that, in turn, subsequent weekly practice time and state hope would increase the predictions. When the dispositional Hope Scale scores were entered at Step 1, they significantly predicted performance, $R^2 = .50, p < .0003$ (these and subsequent tests in this section were one-tailed because of a priori hypotheses). When weekly training mileage was entered at Step 2, it tended to augment the prediction, $\Delta R^2 = .06, p = .056$. Lastly, State Hope Scale scores entered at Step 3 tended to augment the prediction, $\Delta R^2 = .06, p = .081$. Together, dispositional and state hope accounted for 56% of the predictive variance related to faster running performances.

A second autoregression involved an a priori hypothesis that state hope should positively increment the prediction of faster running times after dispositional hope and all other affect- and efficacy-related variables had been entered. Accordingly, in this stringent hierarchical regression, the dispositional Hope Scale scores were entered at Step 1, and they significantly predicted better performance, $R^2 = .50, p < .0003$. When State Self-Esteem was entered at Step 2, it did not augment the prediction, $\Delta R^2 = .00, p = .319$; State Sport Confidence entered at Step 3 did not augment the prediction, although it approached significance, $\Delta R^2 = .05, p = .117$; State Total POMS entered at Step 4 did not augment the prediction, $\Delta R^2 = .01, p = .156$; and lastly, State Hope Scale scores entered at Step 5 tended to augment the prediction, $\Delta R^2 = .02, p = .059$.²

The hierarchical autoregression results indicate that only dispositional hope was a significant predictor of performance, and that there were trends for weekly practice and state hope to add to the prediction. Using simple correlations to tell a similar story, the correlations of these three variables with faster running performances were as follows: dispositional hope, $r(49) = -.61$; weekly training mileage, $r(45) = -.50$; and state hope, $r(42) = -.43$, all $ps < .005$. Thus, higher dispositional and state hope, as well as weekly practice, related to quicker running times. Among the motivational and emotion-related indices, dispositional hope, and to a small degree, state hope, augmented the predictions of faster running times.

Discussion

The results of Study 2 expand those of Study 1 so as to suggest that both dispositional and state hope are robust predictors of actual sport achievement. Together, dispositional and state hope accounted for 56% of the variance in predicting sport performance. What is equally noteworthy, however, is that while dispositional and state hope predicted a sizable portion of variance, the other psychological state indices related to self-esteem, confidence, and mood did not contribute significant variances to these predictions.

Although one should not generalize from the results of one study, if these results are replicated, they would suggest that hope may provide a useful predictive tool for coaches in gauging how their athletes will do in sport achievement settings. This latter inference is bolstered by the fact that State Hope Scale scores actually tended to predict sport achievement beyond the amount of time that the athletes reported practicing each week. In other words, although practice tends to predict sport performance outcomes, both state and dispositional hope give researchers, coaches, and their athletes additional insights into actual sport performance.

² Although hope reflects the sum of agency and pathways on the basis of previous theoretical (see Snyder, 1994b) and empirical analyses (see Babyak, Snyder, & Yoshinobu, 1993), it is of interest to enter these separately through autoregression procedures with autocorrelated errors (SPSS, 1993), using running achievement as the criterion variable. Therefore, separate autoregressions also were performed using the agency and pathways components of the dispositional and State Hope Scales. Results consistently showed that roughly half of the predictive variance was related to each component. These findings lend support to the aggregation of agency and pathways.

Study 3: Dispositional Hope, Natural Ability, Affectivity, and Sport Achievement

Study 2 provides strong evidence that Hope Scale scores predicted the running performances of the female cross-country runners; moreover, the performance predictions stemming from hope transcend those related to athletes' practice, as well as other state indices of emotion and esteem. Additional important and stringent tests remain, however, in relation to the predictive properties of hope to sport achievement. First, do scores on the dispositional Hope Scale predict athletic achievements beyond projections due to natural athletic talent? In regard to this question, it was predicted that higher dispositional hope would positively augment the prediction of actual track performance beyond projections related to natural ability.

Second, personality theorists and researchers in the last decade have emphasized the importance of positive and negative affectivity in relation to understanding a variety of human actions (see Clark & Watson, 1991, for review). On this point, affectivity may serve as an alternative variable that drives the hypothesized relationship of dispositional hope and superior athletic achievement. Related research suggests that ongoing positive and negative affectivity play mediational roles in the relations of other variables in general (Costa & McCrae, 1987), as well as hope-related ones in particular (e.g., optimism, see Smith, Pope, Rhodewalt, & Poulton, 1989). In sport research, positive affectivity reflects a challenge-like, energetic engagement, along with a pleasurable concentration (Jackson, 1995; Jackson & Roberts, 1992). Moreover, negative affectivity reflects negative thoughts and dissatisfaction with oneself, along with anxiety and worry (Crocker & Graham, 1995b; Gould et al., 1992a, 1992b). An index of positive and negative affectivity was included in Study 3 to examine these constructs as possible counterexplanations for the predicted positive relation between hope and athletic performance.

A third purpose of Study 3 was to test the replicability of Study 1 findings in regard to athletes having higher hope than nonathletes. Thus, the Hope Scale scores of the female athletes were examined in relation to a comparison group of nonathlete women.

Method

Participants

Data were collected on a total sample of 106 female NCAA Division I outdoor track and field student athletes representing all eight Big Eight Conference schools in the 1993 season. Participation in the survey was based on the availability to complete a questionnaire on the assigned day. Student athletes participating in field, sprint, distance, and decathlon or heptathlon events were sampled. The student athletes not represented in this survey mainly had class conflicts on the day of the survey, or were not informed of the survey by the head coach. The sample of 106 represented approximately 70% of the Big Eight Conference female track student-athletes. Demographic breakdown by race indicated that 73% were Caucasian, 25% African American, and less than 3% were Asian Americans, Hispanics, and Native Americans.

Measures

Dispositional Hope Scale. The Hope Scale has been described in the previous studies. Cronbach's alpha in Study 3 was .75.

Positive and negative affectivity. To tap affectivity, five words reflecting positive affect (*confident, inspired, energized, eager, and challenged*), and five words reflecting negative affect (*worried, fearful, anxious, shaky, and threatened*) were used. The instructions said to "Indicate how you feel generally," and persons used a 5-point Likert-type scale to indicate applicability of the content words, from 1 (*not at all*) to 5 (*a great deal*). These affect word associations have been used by others (Folkman & Lazarus, 1985) and in previous hope research (see Snyder, Harris, et al., 1991). The five positive affect items and the five negative affect items have factored together appropriately and each has displayed high internal consistency. In this study, Cronbach's alpha for positive affectivity was .78 and was .81 for negative affectivity. The 10 affectivity items are analogous to those used in the Positive and Negative Affectivity Scale (Watson, Clark, & Tellegen, 1988).

Physical ability rating scale (PARS). A measure of individual differences in natural physical ability was developed expressly for Study 3. Head coaches were asked to assess the athletic giftedness of their student-athletes participating in this study. All Big Eight Conference track and field head coaches agreed to participate. Specifically, directions asked the coach to "Answer each question about how physically gifted your athlete is. Please do *not* attend to this athlete's psychological makeup or work ethic, but focus upon your estimate of her *pure natural ability*. Please take a moment to think about _____." At this point, the coach was asked to rate the natural ability of the athlete on a 10-point scale (1 = *the least physically gifted athlete I have ever known*, 10 = *the most physically gifted athlete I have ever known*). This format was repeated with the name of each school's student-athlete written by Lewis A. Curry and given to the respective school's head coach.

Season achievement measurement. NCAA Division I Women's College Track and Field has a standard time (running event), distance (field event), or point total (decathlon or heptathlon) that qualifies an athlete surpassing that event mark to automatically qualify for the yearly NCAA National Championship Outdoor Track and Field Meet. This national qualifying mark (NQM) is set anew each year by an NCAA-sanctioned track and field committee. Accordingly, from the 17 individual event championships in the 1993 outdoor track and field season of the Big Eight Conference, the female athlete's best performance was used to produce the criterion variable. More specifically, the best achievement was entered as the numerator, and the NQM for that event was entered as the denominator, thereby providing a consistent and equal standard of achievement across events (Raglin, 1992; Turner & Raglin, 1991). As such, the achievement index could vary from under 1.0 for those athletes whose best achievements were below the NQM to over 1.0 for those athletes whose best achievements exceeded the NQM.³

Procedure

Two to three weeks into the outdoor track and field season, and 8–10 weeks prior to the National Championship Meet, appointments were scheduled with each outdoor track and field team in the Big Eight Conference. One of the authors traveled to each school to meet with the team, usually prior to a weekday practice. Following a brief introduction, athletes signed an informed consent statement and completed the Hope Scale and the affectivity measure. A few days after meeting with student athletes at a given school, the PARS was partially filled out by Lewis A. Curry with each participant's name. Subsequently, via mail, head coaches received an informed consent statement soliciting their participation, the partially completed PARSs, and self-addressed, stamped return envelopes. Head coaches were assured as to the confidentiality of

³ All individual results from NCAA-sanctioned track and field meets that involved a measurement of time were converted to seconds, and measurements of distances were converted to feet.

their answers and were asked to sign, complete, and return the PARSs along with one copy of the informed consent statements.

Season statistics were obtained from every school's sports information department following the completion of the track and field season. The Big Eight Conference Office also provided postseason statistics, as did the NCAA Office of Championship Administration. Meet results and season statistics provided by the Sports Information Departments were cross-checked for accuracy with those provided by the Big Eight Conference Office and the NCAA.

Results

Because the rating of natural ability by coaches was a new measurement approach developed for Study 3, some further attention needs to be given to these ratings. The mean rating on this natural ability measure was 5.72 on a 10-point scale (1 = *the least physically gifted athlete I have ever known*, 10 = *the most physically gifted athlete I have ever known*). On average, therefore, the coaches were rating their athletes somewhat toward the gifted end of the rating continuum, as would be expected for Division 1 athletes. Additionally, the standard deviation on this natural ability rating index was 1.65. Accordingly, when computing the coefficient of variability (Tabachnik & Fidell, 1989), which reflects the standard deviation divided by a scale mean score, a robust coefficient of .29 resulted. This suggests that the natural ability rating produced a wide range of scores, which is a desirable psychometric characteristic in a measure (see also footnote 5).

To test the Study 3 hypothesis that Hope Scale scores would augment the actual achievements beyond projections attributable to natural ability, as well as positive and negative affectivity, a hierarchical regression was performed. When the percentage of athletes reaching the NQM for that event was used as the criterion performance measure (i.e., best performance divided by NQM), natural athletic ability entered at Step 1 was a significant predictor, $R^2 = .35$, $p < .0001$ (this and subsequent tests are one-tailed given a priori hypotheses). When positive affectivity was entered at Step 2, it did not augment the prediction, $\Delta R^2 = .01$, $p = .204$. When negative affectivity was entered at Step 3, it tended to significantly augment the prediction, $\Delta R^2 = .01$, $p = .069$. When Hope Scale scores were entered at Step 4, however, they significantly augmented the prediction, $\Delta R^2 = .03$, $p = .019$.⁴ Dispositional hope correlated positively, $r(103) = .35$, $p < .001$, with positive affectivity, and negatively, $r(103) = -.26$, $p < .01$, with negative affectivity.

To ascertain whether the Hope Scale scores of the student-athletes differed from those of the nonathletes, the mean of the Big Eight Conference female athletes ($M = 52.81$, $SD = 5.16$) was compared with that of a sample of 120 female nonathletes taken during the same semester at the University of Kansas ($M = 49.68$, $SD = 7.17$); the athletes' hope was significantly higher than nonathletes, $t(224) = 6.74$, $p < .001$.

Discussion

Study 3 suggests that Hope Scale scores provide additional information beyond natural ability in regard to the prediction of actual athletic achievements.⁵ For researchers, coaches, and athletes alike, there is useful achievement-related information chronicled in the goal-directed thoughts of the athletes. Cer-

tainly, the natural ability data make a strong case for the importance of this factor as a predictor of sport achievement, but this comes as no surprise. What is new, however, is that hope helps to provide further predictive understanding of sport performance. Although the 3% increment in predictive variance is small in an absolute sense, it does suggest that at least one psychological factor is related to sport performance. The positive affectivity measure did not add to the prediction of athletic performance in Study 3, and as such is similar to the findings of Study 2, where other psychological variables did not add to the prediction of sport performance. In Study 3, however, there was a trend for those athletes who evidenced the worrying style that characterizes negative affectivity to also perform more poorly. Although dispositional Hope Scale scores correlated positively with positive affect, and negatively with negative affect, the regression analyses indicate that the hope-athletic performance relationship was not impacted by these affectivity measures. Lastly, Study 3 produced data indicating that the sampled athletes had higher hope than a comparison group of nonathletes. These latter results support the findings reported in Study 1.

General Discussion

Before discussing the findings, it is appropriate to explore the limitations of the present series of studies. First, these studies were conducted with college student athletes and nonathletes at state universities, and as such the findings may not generalize to other university settings, to younger or older athletes, or to professional athletes.

Second, both males and females were included in Study 1, but Studies 2 and 3 used samples of only female collegiate athletes. Accordingly, one must not apply the results to male college athletes until such studies are completed. In previous studies with over 5,000 college students, however, there has never been a gender difference in Hope Scale scores among college students (see Snyder, 1994b; Snyder, Harris, et al., 1991) or teenagers (Snyder, Hoza, et al., 1997). This lack of previous gender effects does not preclude, of course, the possibility of such differences occurring in future male and female samples of college athletes. Indeed, in subsequent research, it will be important to examine the patterns of how hope relates to other personality variables, and whether this varies for female and

⁴ In this regard, when agency is entered in Step 2 after entering the rating of natural ability at Step 1, it augmented the prediction, $\Delta R^2 = .025$, $p = .045$; moreover, when pathways is entered at Step 3, it did not significantly augment the prediction, $\Delta R^2 = .011$, $p = .176$. Conversely, when pathways was entered in Step 2 after entering the rating of natural ability at Step 1, it augmented the prediction, $\Delta R^2 = .025$, $p = .045$; furthermore, when agency was entered at Step 3, it did not significantly augment the prediction, $\Delta R^2 = .011$, $p = .178$. These regression findings also support the summation of the two components so as to tap the hope construct.

⁵ The fact that the natural ability ratings predicted 35% of the variance in regard to actual track achievement lends validation support to this index. Further, the .29 coefficient of variability suggests that the index produces a wide range of rated abilities, which should make it more likely to relate to other markers. Overall, therefore, there is some initial construct validation and psychometric support for this approach to rating natural athletic ability by coaches.

male athletes. In this regard, personality researchers may want to understand how successful female and male athletes, as well as successful students in other goal pursuit arenas, display their hope in relation to other individual-difference variables.

Third, Studies 2 and 3 were limited to cross-country and track athletes; accordingly, we do not know to what degree hope may predict the outcomes in other sport arenas. We selected track and field events because they offer unique opportunities for measuring achievement that may not be available in other sports. How does one quantify achievement across offensive linemen and defensive backs in football, for example? Assessment of sport achievement is often subjective, relative, and difficult to estimate. Nevertheless, it will be important in future hope research to develop objective markers of performance across a variety of sports.

With these limitations in mind, we would like to discuss the results of each study in further detail. Study 1 and Study 3 provide compelling evidence that the college athletes sampled had higher hope than did their nonathlete counterparts. What is it about athletes that may contribute to their higher hope? There is no way of determining the genesis of the student athletes' superior hope in the present studies, but there are at least four major possible scenarios that arise based on our interviews with athletes. First, because of their childhood caregiving backgrounds, pathways and agentic thinking toward goals may have been taught to athletes as an important means of coping. Second, because of their innate athletic skills, most athletes experience repeated successes at levels of intensity and clarity that may not often be attained outside of sports. In turn, these experiences may have spread to their thinking processes more generally. Third, high-hope persons, whatever the etiology of their elevated hope, may have gravitated to sports as an important outlet for their childhood activities. Integrated within such youth sports experiences, pathways and agentic thinking toward athletic goals may have been fostered as an important means of learning how to cope with adversity in general. Fourth, once athletes get heavily invested in their sports, as certainly is the case for Division 1 college athletes, they must learn to efficiently budget their thinking time in order to garner the goals that are related to their sports and classroom activities. For someone who is not familiar with major college, NCAA Division 1 athletics, for example, the sheer amounts of time put in by college athletes to their sports may seem surprisingly large (see Parham, 1993). In this regard, it takes organized and hopeful thinking to navigate the pressures of sports along with the normal academic load of college.

However, are such athletes truly different from other students who are talented and dedicated to their particular interests and aptitudes? As such, how athletes share characteristics with other highly talented college students is a topic worthy of subsequent investigation. In particular, are there similarities between stellar students who are scholars, debaters, politicians, and athletes, to name but a few possible comparisons? Future research obviously is needed to replicate the finding that athletes had higher hope than nonathletes in general, to trace the reasons underlying this elevated hope, and then to expand our understanding of hope-related similarities between athletes and other talented students.

Given that hope correlated with superior academic achieve-

ment among the athletes in Study 1, there is a utility to measuring hopeful thinking. It also should be noted that hope is a robust individual-differences variable in that it predicts semester GPA when the shared variance related to cumulative GPA is removed. There is something about hopeful thinking that enables college students to study better, and to show what they know on examinations. We repeatedly have found similar benefits of hope in predicting a variety of academically related achievement markers among nonathletes (see Snyder, 1994b; Snyder, Harris, et al., 1991), but Study 1 extends these findings to athletes. For coaches and the counselors working with athletes, hope may tap a type of goal-directed thinking that is positively related to college academic achievement. Certainly, achievement in the classroom often entails the students' establishment of pathways to goals, as well as the agentic motivation to initiate and sustain the use of these pathways. For counselors or advisors working with athletes, it may be helpful to give them the Hope Scale so as to find those who are especially low; in turn, these latter student athletes may need special classroom help. For personality and individual-differences researchers, whose interests may not previously have centered on understanding the academic achievements of athletes, the present results offer an invitation to study a group that sometimes has had a negative, "dumb jock" stereotype.

Study 1, along with Study 2, did not find any predictive power for self-esteem in regard to the outcome markers of interest. These findings echo previous findings in our program of research at the University of Kansas, where the effects of hope appeared to provide more predictive information than esteem in regard to a variety of outcome markers (Snyder, Harris, et al., 1991; Snyder, Hoza, et al., 1997; Snyder, Sympson et al., 1996). Indeed, according to hope theory, esteem or emotion-related responses generally should reflect sequelae of hopeful (or not so hopeful) thinking (Snyder, 1994b). For example, in the degree to which athletes perceive that they are successfully proceeding toward goal attainment (i.e., high hope), those athletes should experience an elevated sense of self-worth and esteem (and positive emotions); conversely, in the degree to which athletes perceive that they are unsuccessful in proceeding toward goal attainment (i.e., low hope), such athletes should experience a deflated sense of self-worth and esteem (and negative emotions). This is not to suggest that esteem or emotions more generally are unimportant concepts, but rather that parents and coaches should be more concerned about an athlete's (or child's) learning to think about how to successfully secure desired goals (i.e., have high hope) than having elevated esteem or positive feelings per se.

Considering these findings with a sample of athletes in the larger context of goal-pursuit activities more generally, there are potentially important implications for the underlying mechanisms that fuel feelings of self-worth. These findings, along with a previous series of studies in our research program (Snyder, Sympson, et al., 1996), build upon the theory and research of others who have reasoned that the pursuit of meaningful goals plays a key role in the development and maintenance of well-being (Diener, 1984; Emmons, 1986; Little, 1983; Omodei & Wearing, 1990; Palys & Little, 1983; Ruchman & Wolchik, 1988) and that the perceived progress toward important goals

is the cause of well-being rather than vice versa (Brunstein, 1993; Little, 1989).

Turning to the results of Study 2, the various psychological state measures were not heuristic in terms of predicting cross-country running performance. Ongoing mood did not predict how the women did in their running events. We already have discussed the lack of findings for self-esteem, and the same general set of concerns can be raised about mood. Additionally, the confidence index, which is similar to the self-efficacy notion, tended to predict athletic performance, but not significantly so. As we speculated in the introduction, it is not sufficient to tap only the efficacy portion of goal thinking (i.e., similar only to the agency component of the hope model). These data from Study 2 provide some support for this latter speculation.

The only psychological variables to predict cross-country track achievement in Study 2 were dispositional and state hope; together, they accounted for about 56% of the predictive variance. On the basis of these findings alone, coaches, athletes, and their counselors, as well as researchers attempting to better understand human performance, all should be very interested in measuring hope. What makes this finding even more noteworthy, however, is that state hope tended to augment the prediction beyond the amount of practice time reported by the female athletes. It is not just how much one practices, therefore, but the more enduring hope, as well as the hope experienced just prior to a race, that enhance the predictions regarding achievement.

What is it about hopeful thinking that produces such benefits? Again, returning to our interviews with athletes, we would offer some leads. First, any sport involves a focusing upon a desired goal, which in and of itself is motivating and serves to shut out possible outside interferences. Additionally, the thoughts about how one is going to produce the pathways to secure the coveted goal provide a mental plan of action that is focused upon to the exclusion of possible interfering forces. When interfering forces inhibit athletic success (injury, superior opponent, poor conditions, etc.), however, successful athletes quickly develop, or have previously developed, pathways strategies as part of an overall plan of action. Finally, the agentic thinking reinforces the pathways and the focusing on the goal. All of these three processes (goals, pathways, and agency) reflect the components of hopeful thinking. At this time, however, the aforementioned points are merely inferences based on our talks with athletes, and more systematic research is needed to follow up on these speculations.

Study 3 again shows that hope predicts successful track achievements among women, but the more important finding is that hope augments the projections beyond those related to positive and negative affectivity, and the coaches' ratings of the athletes' natural talents. In this latter regard, genetic endowments obviously play an enormous role in the athlete's achievement, but the present hope results tell us what we suspected—what is going on in the athlete's mind also plays an important part in successful sport outcomes. Study 3 suggests that the negative affectivity index does provide some predictive capabilities in regard to sport performance, but that hope provides additional, unique predictive variance. Given that the level of talent at the collegiate level is very high and somewhat uniform, the present hope results suggest that coaches, sports psychologists,

and the athletes themselves may want to measure hope and work on ways of increasing it.

In conclusion, the present studies suggest that hope relates to superior classroom achievements by the student athletes sampled. Further, hope predicted superior athletic achievements, and did so beyond projections related to various other state psychological measures (self-esteem, mood, and confidence), amount of time practiced, and natural athletic talent. Although these results are promising, we would suggest that they offer only a small first step in what may become an expanding field of research opportunities involving the application of a new theory and its measurement to sports. Sometimes the most beneficial aspect of research is that it leaves us with more questions than when we started. This is our impression after completing the present studies. In this regard, sports may offer the prototypical arena for studying the beneficial effects of hopeful thinking. This arena previously has been the turf of sport psychologists, but we would suggest that the questions are of equal interest and importance to personality researchers.

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