

Hope, Optimism and Self-Efficacy: A System of Competence and Control Enhancing African American College Students Academic Well-Being

Cecil Robinson

Karla Snipes

University of Alabama

Competence and control beliefs are central constructs in understanding student motivation. However, most research has examined competence and control beliefs in isolation from each other, and little is known about how these beliefs function as a system in relationship to one another. Using Huberty's (2003) recommendation, multiple correlation analyses were used to examine the relationship of hope, self-efficacy, optimism and pessimism, as a cognitive set of competence and control beliefs, to the academic well-being of African-American college students at a historically black university in the Southeastern United States. Results suggest that the cognitive set was significantly related to multiple measures of academic well-being including increased academic achievement, positive emotion, adaptive coping strategies and life satisfaction, and decreased negative emotion and maladaptive coping strategies. Although the cognitive set was predictive of measures of academic well-being, the individual measures of hope, self-efficacy, optimism and pessimism predicted different aspects of academic well-being.

One goal of schooling is to motivate students to do well, where *doing well* usually translates into academic achievement. However, focusing solely on academic achievement overlooks *being well* academically. Academic well-being includes academic achievement, but expands the idea of doing well to also include adaptively coping with life's daily challenges, experiencing positive emotions and increasing life satisfaction.

Focusing on the larger issue of academic well-being expands measures of academic success from the acquisition and recall of knowledge (National Research Council, 2005) to the development of students' personal sense of agency that motivates them to take control of their life, challenge themselves and persevere through difficulties (Bandura, 1986; Snyder, Shorey, Cheavens, et al., 2002; Scheier & Carver, 1985). A personal sense of agency develops through an evolving system of competence and control as individuals begin to discover who they are by identifying their capabilities and realizing their potential to achieve goals (Little, Snyder, & Wehmeyer, 2006; Schunk & Zimmerman, 2006).

This system of competence and control is based on the dual theory of motivation, which links competence and control beliefs to actions and outcomes (Schunk & Zimmerman, 2006; Snyder, Harris, Anderson, et al., 1991; Snyder et al., 2002). Competence beliefs link to actions as perceptions one has about their ability to achieve goals. Control beliefs link to actions and outcomes as perceptions one has about available means and processes to pursue goals. Together, action and outcome perceptions interact to increase the energy to initiate goal pursuit (because of competence beliefs) and to utilize different means to sustain goal pursuit when obstacles arise (because of control beliefs), therefore increasing the likelihood of persevering and attaining one's goals.

Previous research has established that competence and control beliefs are related, but distinct constructs (Arnau, Rosen, Finch, Rhudy, & Fortunato 2007; Brouwer, Meijer, Weekers, & Baneke, 2008; Bryant & Cvengros, 2004; Magaletta & Oliver, 1999; Steed, 2002). Previous research has also demonstrated that competence and control beliefs are powerful predictors of student achievement (Onweugbuzie & Snyder, 2000; Parjares, 2002; Snyder et al., 2002), coping, and well-being (Chang, 1996, 1998; Pajares, 2002). However, most research highlights single constructs that are focused on either competence or control beliefs; more research is needed to examine how competence and control beliefs function in relationship to each other (Schunk & Zimmerman, 2006). Additionally, most competence and control beliefs research has used predominantly White Americans as research participants. As such, "there is a need to test the influence of competence and control beliefs with diverse student populations" (Schunk & Zimmerman, 2006, p. 362).

In this paper, we address both gaps in the literature. Specifically, we examine how three measures of competence and control beliefs—hope (Snyder et al., 2002), optimism (Scheier & Carver, 1985), and self-efficacy (Bandura 1977, 1986)—function as a cognitive set to form a system of competence and control beliefs that influences academic well-being among African-American college students.

Hope.

Hope is a motivation construct that initiates and sustains one's progress in goal pursuit through the combination of pathways and agency perceptions (Snyder, 2000). The pathways component of hope is a control belief defined as the perception that one can plan and strategize various routes needed to progress toward a goal (Snyder, 2002; Snyder, et al., 1991). The agency component of hope is a competence belief defined as the perception that one has the energy and ability to successfully utilize viable pathways during goal pursuit. The joint effect of agency and pathways is necessary for goal attainment, and it is through the reciprocal interaction of the two hope subcomponents that goal-directed thinking is sustained. Once goals are achieved, positive emotions cycle back to increase pathways and agency perceptions.

Hopeful perceptions positively affect multiple life domains. Hope is positively related to healthy outcomes in patients coping with psychological (Snyder, 2004) and physical health problems (Moon & Snyder, 2000). Adults with high hope utilize more adaptive problem solving and coping behaviors (Chang, 1998). Hope is predictive of student achievement across all educational levels (Curry, Maniar, Sondag & Sandstedt, 1999; Curry, Snyder, Cook, Ruby & Rehm, 1997; Lopez, Bouwkamp, Edwards & Teramoto-Pedrotti, 2000; McDermott & Snyder, 2000; Snyder et al., 1991; Snyder, Hoza, Pelham, et al., 1997). Hope also predicts better study skills (Onweugbuzie & Snyder, 2000) and the maintenance of goals in adverse academic situations (Yoshinobu, 1989). Although the relationship between hope and academic achievement is well established, research examining hope theory beyond white populations is largely non-existent and requires additional research (c.f., Chang & Banks, 2007; Danoff-Burg, Prelow, & Swenson, 2004).

Optimism.

Optimism is a control belief involving thought processes associating positive thinking and maintaining a positive attitude to life events and situations (Scheier & Carver, 1985, 1992; Seligman, 1991). Optimists have a general expectancy of positive results that is associated with greater success in attaining goals (Shepperd, Maroto, & Pbert, 1996), and optimism is viewed as a cornerstone for well-being across life domains (Peterson, 2000). Optimistic thinkers strategize differently than pessimists and prepare for the best outcome verses preparing for the worst. The role of expecting positive outcomes is associated with greater mental and physical health (Scheier & Carver, 1985, 1988). It is also influential in educational, occupational, and psychological adjustment (Chang, 1998), and is related to positive outcomes in achievement, coping strategies, and adjustment in college (Chang, 1996; Aspinwall & Taylor, 1992). As with hope, more research is needed to understand the role of optimistic thinking and African-Americans (c.f., Baldwin, Chambliss, & Towler, 2003; Jones, O'Connell, Gound, Heller, & Forehand, 2004).

Self-Efficacy.

Self-efficacy is a competence belief about one's "judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura, 1986, p. 391). There are multiple sources of self-efficacy beliefs, but mastery experiences—how one interprets, evaluates, and judges their competence—is the most powerful source (Bandura, 1997). Self-efficacy is an essential thought referencing process for students' success in the academic environment (Bandura, 1997). Efficacy beliefs are highly predictive of academic goal setting and achievement (Bandura, 1997; Zimmerman, 2000; Zimmerman et al., 1992), and self-regulatory coping strategies and effort (Pajares, 2002). Although more research is needed (Schunk & Zimmerman, 2006), existing research suggests the importance of self-efficacy among African American students for achievement and well-being (Jonson-Reid, Davis, Saunders, Williams, & Williams, 2005).

Hope, Self-Efficacy, and Optimism as a System of Competence and Control.

We propose that hope, optimism, and self-efficacy are expectancy beliefs that form a cognitive set because each focuses on different aspects of competence and control. Self-efficacy is the perception one has about their capability to perform certain tasks, and is a competence belief characterized by the statement "I think I can" (Bandura, 1977, 1986, 1997). Control beliefs are important within self-efficacy theory, but are conceptualized as an outcome of competence beliefs (Bandura, 1986). Optimism is a general disposition to expect positive, rather than negative, results in circumstances and situations (Scheier & Carver, 1985). Optimism is a control belief characterized by the statement "good things

happen to me.” Competence beliefs are important within optimism theory, but are conceptualized as an outcome of control beliefs (Scheier & Carver, 1985). Hope represents competence and control beliefs, but in different ways than self-efficacy or optimism. Hope agency is a competence belief characterized by the statement “I will achieve my goals.” Self-efficacy focuses on the belief that goals can be achieved, but hope agency focuses on the belief that goals will be achieved. Hope pathways is a control belief characterized by the statement “I can think of many ways to achieve my goals.” Optimism focuses on the general positive outcome beliefs, but pathways identify specific routes to achieve the outcomes.

We argue that the overlap and difference between these constructs form a system of competence and control (McBride, Robinson, Rose, & Turner, 2007). Specifically, we argue that students who think they can achieve goals (self-efficacy); have the will to achieve goals (hope agency); identify alternative routes when obstacles arise during goal pursuit (hope pathways); and are generally positive that things work out the way they plan (optimism) have an interactive system of beliefs that lead to actions which result in increased academic achievement, greater positive emotions, more adaptive coping strategies, and higher overall life satisfaction. In short, we predict that hope, optimism and self-efficacy form a system of competence and control that is related to increased academic well-being among African-American college students.

Method

Participants.

Two hundred five (122 females, 83 males) self-identified African Americans from a public historically black university in the southeast United States participated in this study. All students were enrolled in an Introductory Psychology course and received no incentive to participate. The students ranged in age from 17 to 28, with a mean of age 19.6 and a standard deviation 1.8.

Materials.

Demographic Information. Students were asked to provide information about their ethnicity, age, gender and academic achievement. Academic achievement was measured using the scale adapted from Dombusch, Ritter, Leiderman, Roberts and Fraleigh (1987), which asked participants to respond whether they make mostly As, Bs, or Cs in different subject areas. Dornbusch et al., (1987) indicate that this method provides valid responses and the tendency to inflate grades is typical only when one is near the bottom of the distribution, having grades below a C.

Hope. The Academic Hope Scale (AHS; Campbell & Kwon, 2001) is one measure within the Domain Specific Hope Scale-Revised, a 48 item scale that assesses hope in six life domains (academics, family life, leisure, romantic relationships, social relationships, and work). The AHS is a 6-item measure of hopeful thinking, and consists of three agency items (e.g., “I actively pursue my school work”) and three pathway items (e.g., “I can think of many ways to make good grades”). Students are asked to rate items across an 8-point Likert-type scale ranging from 1 (*definitely false*) to 8 (*definitely true*). AHS scores can range from 6 to 48, with higher scores reflecting greater agency and pathways to obtain a goal. The AHS demonstrates moderately high reliability, with Cronbach’s alpha reliability coefficients of .89 and higher, and a mean score of 39.8 (Campbell & Kwon, 2001, McBride et al., 2007).

Self-efficacy. The Academic Self-Efficacy Scale (ASES) is one measure within the Multidimensional Self-Efficacy Scale (Zimmerman, Bandura, & Martinez-Pons, 1992). It is a 13-item scale that measures student perceptions of ability to perform various academic tasks (e.g., “How well can you learn science?” “How well can you participate in class discussions?”). Students rate their response to each item on a 6-point Likert-type scale ranging from 1 (*definitely not well*) to 6 (*definitely very well*). ASES scores can range from 13 to 78, with higher scores reflecting greater ability to successfully perform academic tasks. The ASES has moderately high reliability, with a reported Cronbach’s alpha reliability coefficient of .89, and reported mean score of 60.5 (Zimmerman et al., 1992).

Optimism. Optimism was assessed using the Life Orientation Test-Revised (LOT-R; Scheier, Carver, & Bridges, 1994), a 10-item measure consisting of three optimism items (“In uncertain times, I usually expect the best”), three pessimism items (“If something can go wrong for me, it will”) and four filler items. Students rated their response to each item on a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The three pessimism items were negatively worded and thus reverse coded to attain the total scale score. LOT-R scores can range from 6 to 42, with higher scores reflecting greater optimism. The LOT demonstrates moderate reliability, with a reported Cronbach’s alpha

reliability coefficient of .78, test-retest reliability ranging from .56 to .79 over 28 months, and a reported mean score of 25.1 (Scheier & Carver, 1985; Scheier, Carver, & Bridges, 1994).

Coping. Coping was assessed using the Brief Cope Scale (Carver, 1997), a 28-item measure consisting of fourteen subscales (two items per subscale) that assess different adaptive (e.g., active coping, planning, positive reframing) and maladaptive coping strategies (e.g., venting, substance use, denial). Students rated items that asked how they cope when confronted with difficult or stressful events across a 4-point Likert-type scale ranging from 1 (*I usually don't do this at all*) to 4 (*I usually do this a lot*). Brief Cope Scale scores can range from 2 to 8 within each subscale, with higher scores reflecting greater adaptive or maladaptive coping, depending upon the context of the subscale. The limited number of items in each subscale is evident with the low to moderate reliabilities of each subscale; reported Cronbach's alpha reliability coefficients range from .50 to .90 (Carver, 1997).

Positive and negative affect. Positive and negative emotion was assessed using the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988), a 20-item measure with 10 items assessing positive affect ("Excited") and 10 items assessing negative affect ("Irritable"). Students rated the extent to which they have felt positive and negative emotional affects over the past week for each item on a 5-point Likert-type scale ranging from 1 (*very slightly*) to 5 (*extremely*), with higher scores reflecting higher positive and negative affect. Previous research reports mean scores of 32.4 for positive affect and 20.4 for negative affect, and moderately high reliability, with a reported Cronbach's alpha reliability coefficient of .85 and higher among college students (Watson & Clark, 1994).

Life satisfaction. The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) is a five-item measure that assesses general life satisfaction ("In most ways my life is close to my ideal"). Students rated items across a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). SWLS scores can range from 5 to 35, with higher scores reflecting greater overall satisfaction with life. Previous research reports mean scores of 20.67 to 24 and moderately high reliability, with a Cronbach's alpha reliability coefficient of .82 and higher among diverse college students (Diener et al., 1985; Utsey, Ponterotto, Reynolds, & Cancelli, 2000).

Procedures.

Student participants were recruited from an Introduction to Psychology course and received no incentive to participate. Course instructors administered the survey packets in class. Students read and signed the informed consent forms, completed the survey and returned the survey packet to their instructor. After completing the survey, students received a debriefing statement. Survey packets were collected from the course instructor by the primary researcher.

Analysis

The purpose of the study is to explain the relationship of hope, optimism and self-efficacy—as a system of competence and control—with measures of academic well-being among African-American college students. As such, we conducted multiple correlation analyses (MCA) because it is ideal for explanatory research that seeks to explain a *Y* variable using a set of *X* variables that go together to form a linear composite system based on relevant substantive theory (Huberty, 2003). To do so, we employed the following analytic strategy.

All data were entered into and analyzed using SPSS 17.0. All records were inspected for missing data and outliers. Records with missing data and outliers were deleted from the analysis, reducing the initial sample size from 242 to the reported *N* of 205. Descriptive statistics (mean, standard deviation, Cronbach's alpha reliability coefficients, correlations) were computed and compared to previous research studies to establish the reliability and validity of the measures.

Next, estimations of the correlations between the *Y*s and the linear composite of the *X*s, ρ , were computed. As recommended by Huberty (2003), ρ was estimated using an adjusted R^2 formula proposed by Ezekiel (1930) to control for the positive estimation bias of the derivation of the weights of the *X*s: $R^2_{adj} = R^2 - [p / (N - p - 1)](1 - R^2)$, where *p* denotes the number of *X* variables and *N* denotes the sample size. The resulting estimations were then examined whether they were greater than chance outcomes using effect size indices calculated as: $ES = R^2_{adj} - p / (N - 1)$ (Huberty, 1994).

If the estimators and effect sizes indicated a relationship between the *Y*s and the linear composite of the *X*s, then the next step was to define the construct underlying the composite of the *X*s. To do so, we considered the *p* structure *r*s, where the structure *r* for *X_j* is the correlation between *X_j* and the linear

composite of the p X s (which includes X_j) (Courville & Thompson, 2001; Thompson & Borrello, 1985, as cited in Huberty, 2003). X variables with high structure r s were jointly considered in labeling the construct underlying the linear composite.

Finally, since multiple Y variables were measured to assess academic well-being, multiple regression analysis (MRA) was used to compute the strongest X predictor from the linear composite to develop a better understanding of how hope, optimism and self-efficacy function as a system across a different measures.

Results

Descriptive Data.

The reported mean scores and standard deviations of hope and self-efficacy were consistent with previous research, and each measure had adequate reliability (see Table 1). The measure of optimism, Life Orientation Test-Revised (LOT-R), had a higher mean scale score and low reliability when compared to previous research (Scheier & Carver, 1985, 1994). Other researchers have argued the LOT-R may not represent the single construct optimism; instead, they argue the LOT-R should be treated as two orthogonal constructs, positively worded items representing optimism and negatively worded items representing pessimism (Bryant & Cvengros, 2004). A principle components factor analysis with varimax rotation indicated that the two-factor solution was preferable over the single factor solution, accounting for 58% of the total variance. Using two scores for optimism and pessimism, the means were consistent with previous research, and Cronbach's alpha reliability coefficients demonstrated adequate reliability (see Table 1). Given these findings, and based on previous research, the two-factor solution is used for the remainder of the paper.

The mean scores and Cronbach's alpha reliability coefficients for positive and negative affect and life satisfaction were adequate and consistent with previous research (Chang & Banks, 2007; Diener et al., 1985; Watson, et al., 1988). Cronbach's alpha reliability coefficients for coping strategies were low, but consistent with previous research (Carver, 1997). Low reliability is not surprising given that each coping strategy is only measured with two scale items.

Correlation analyses provided evidence about the convergent validity of the measures (see Table 2). As expected, hope, optimism and self-efficacy were positively correlated with each other and with positive affect, life satisfaction, and academic achievement. Pessimism was not correlated with hope, optimism and self-efficacy, and was positively correlated with negative affect, lending evidence regarding the discriminant validity of optimism and pessimism.

Correlations among hope, optimism and self-efficacy with coping strategies were also as expected. Hope, optimism and self-efficacy were positively correlated with adaptive coping strategies: active coping, planning, positive reframing, acceptance, religion, emotional support, instrumental support, and self-distraction. Hope r s ranged from .21 to .39 (p s < .01). Optimism r s ranged from .16 (p < .05) to .31 (p < .01). Self-efficacy r s ranged from .17 (p < .05) to .44 (p < .01). The three measures were not correlated to maladaptive coping strategies: denial, venting, substance use, behavioral disengagement or self-blame, with the exception of hope and self-blame (r = -.15, p < .05), and self-efficacy and substance use (r = -.13, p < .05). Correlations among pessimism and coping strategies were also as expected. In contrast with the other measures, pessimism was not correlated to adaptive coping strategies, with the exception of religion (r = -.19, p < .01). Further, pessimism was positively correlated with maladaptive coping strategies: denial, substance use, behavioral disengagement and self-blame; r s ranged from .21 to .29 (p s < .01). These results lend additional evidence regarding the discriminant validity of optimism and pessimism.

Academic Achievement

Multiple correlation analysis indicates that the cognitive set explained a significant amount of the variance of academic achievement (R^2_{adj} = .17) beyond a chance outcome (ES = .15; see Table 3).

Table 1. Means, Standard Deviations, and Reliabilities of Competence and Control and Academic Well-Being Measures ($N = 205$)

	<i>M</i>	<i>SD</i>	α
Hope	39.0	5.9	0.86
Self Efficacy	61.6	10.0	0.89
Life Orientation	28.4	5.3	0.50
Optimism	16.6	3.3	0.64
Pessimism	12.2	4.4	0.70
Grade Point Average	3.4	0.5	---
Satisfaction with Life	26.4	6.0	0.82
Positive Affect	39.1	8.0	0.89
Negative Affect	23.8	8.3	0.85
Coping			
Active Coping	6.6	1.3	0.63
Planning	6.5	1.3	0.61
Positive Reframing	6.6	1.4	0.67
Acceptance	6.5	1.5	0.61
Humor	5.5	1.9	0.81
Religion	6.6	1.7	0.84
Emotional Support	6.2	1.6	0.70
Instrumental Support	6.3	1.6	0.80
Self Distraction	6.4	1.4	0.57
Denial	4.3	1.9	0.77
Venting	5.0	1.7	0.38
Substance Use	3.5	1.9	0.83
Behavioral Disengagement	4.0	1.8	0.64
Self Blame	4.6	1.9	0.64

Table 2. Correlations of Optimism, Pessimism, Hope, Self-Efficacy, Affect, Life Satisfaction, and Average Grade.

	Optimism	Pessimism	Hope	Self-Efficacy	Positive Affect	Negative Affect	Life Satisfaction	Average Grade
Optimism	1.00							
Pessimism	.04	1.00						
Hope	.51***	-.03	1.00					
Self-efficacy	.39***	.02	.60***	1.00				
Positive Affect	.46***	.00	.37***	.45***	1.00			
Negative Affect	-.09	.19**	-.21**	-.02	-.05	1.00		
Life Satisfaction	.54***	-.05	.56***	.35***	.41***	-.11	1.00	
Average Grade	.10	-.08	.36***	.37***	.14*	.10	.19**	1.00

Multiple regression analysis indicates that hope, self-efficacy, and optimism were significant predictors of academic achievement, and that hope was the strongest predictor within the cognitive set. An inverse relationship was found between optimism and academic achievement. Although not consistent with optimism research, in general, the relationship is consistent with previous research among African-American students (McBride, Robinson, Rose, & Turner, 2007).

Table 3. Summary of Multiple Correlation and Multiple Regression Analyses for Hope, Self-Efficacy, Optimism and Pessimism on Measures of Academic Well-Being ($N = 205$)

	R^2	R^2_{adj}	ES	β s			
				Hope	Self-Efficacy	Optimism	Pessimism
Grade Point Average	.19***	.17	.15	.31***	.24**	-.19*	-.04
Life Satisfaction	.40***	.39	.37	.35***	.01	.37***	-.02
Positive Affect	.29***	.28	.26	.03	.31***	.31***	.00
Negative Affect	.11***	.09	.07	-.29**	.17	-.09	.16*
Active Coping	.22***	.20	.18	.16	.29***	.11	-.06
Planning	.21***	.19	.17	.12	.33***	.08	-.02
Positive Reframing	.17***	.15	.13	.14	.18*	.18*	-.08
Religion	.13***	.11	.09	.04	.22*	.11	-.19**
Emotional Support	.09***	.07	.05	.07	.01	.24**	-.08
Instrumental Support	.10***	.08	.06	.03	.15	.21**	.02
Self Distraction	.08**	.06	.04	-.01	.13	.22**	-.02
Acceptance	.13***	.11	.09	.06	.20*	.16*	.14*
Humor	.07**	.05	.03	-.09	.15	.16	.18*
Denial	.11***	.09	.07	.03	-.08	.07	.32***
Substance Use Behavioral	.07**	.05	.03	-.02	-.11	.04	.23***
Disengagement	.09***	.07	.05	-.05	-.07	-.01	.27***
Self Blame	.12***	.10	.08	-.04	-.05	-.11	.30***
Venting	.02	.01	.00	-.05	.08	.02	.14

Note: *** $p < .001$; ** $p < .01$; * $p < .05$

Affect

The cognitive set explained a significant amount of the variance of positive affect beyond a chance outcome (see Table 3). Self-efficacy and optimism were significant predictors of positive affect, and both constructs contributed equally within the cognitive set. The cognitive set also explained a significant amount of the variance of negative affect beyond a chance outcome. Hope and pessimism were significant predictors of negative affect, and hope was the strongest predictor within the cognitive set. As expected, decreased hope was related to increased negative affect whereas increased pessimism was related to increased negative affect.

Life Satisfaction

The cognitive set explained a significant amount of the variance of life satisfaction beyond a chance outcome (see Table 3). Hope and optimism were significant predictors of life satisfaction, and both constructs contributed equally within the cognitive set.

Coping Skills

The cognitive set significantly explained thirteen of the fourteen coping strategies beyond a chance outcome. The only coping strategy that the cognitive set did not significantly explain was venting (See Table 3). Analyses of the significant predictors within the cognitive set indicate that self-efficacy and optimism were significant predictors of adaptive coping strategies. Although both constructs were significant predictors, each was predictive of a different set of adaptive coping strategies. Self-efficacy was the strongest predictor of active coping, planning, religion, and acceptance within the cognitive set. Optimism was the strongest predictor of emotional support, instrumental support, and self-distraction. Both were equally predictive of positive reframing. These results indicate that positive perceptions of academic performance capability and anticipation of positive outcomes increase positive coping among students when difficult or stressful situations occur. By contrast, pessimism was a significant predictor of maladaptive coping strategies within the cognitive set. Pessimism was the strongest predictor of humor, denial, substance use, behavioral disengagement, and self-blame. These results indicate that anticipation

of negative outcomes increases negative coping skills. Although hope is positively correlated with adaptive coping strategies, multiple regression analyses indicate it was not a significant predictor of any of the coping strategies within the cognitive set.

Hope, Optimism and Self-Efficacy as a System of Competence and Control

With the exception of venting, the cognitive set was significantly related to all outcome variables beyond a chance outcome. Therefore, the correlation structure of the linear composite of the cognitive set was computed to identify which constructs within the cognitive set should be considered when describing a system of competence or control. Results indicate that all constructs were significantly correlated to the linear composite of the cognitive set: hope ($r = .82, p < .001$), self-efficacy ($r = .89, p < .001$), optimism ($r = .62, p < .001$), and pessimism ($r = .29, p < .001$). Therefore, as predicted, all variables should be considered as a component of the cognitive set that forms a motivational system of competence and control related to African-American college students' academic well-being.

Discussion

Competence and control beliefs are central constructs in understanding student motivation (Schunk & Zimmerman, 2006). However, most research has examined competence and control beliefs in isolation from each other, and little is known about how these beliefs function as a system in relationship to one another. The results of this study suggest that hope, self-efficacy, optimism and pessimism form a robust cognitive set of competence and control that is significantly related to multiple measures of academic well-being. Specifically, increases to the cognitive set were related to increased academic achievement, positive emotion, adaptive coping strategies and life satisfaction, and decreases to the cognitive set were related to increased negative emotion and maladaptive coping strategies. These results confirm Schunk and Zimmerman's (2006) contention that measures of competence and control should be studied together as a cognitive set rather than individually, and that these cognitive sets can be used to inform educational activities. For example, educators could develop: goal-setting activities to create future mindedness to anchor hope, self-efficacy and optimism perceptions; curricular structuring that builds on demonstrated competence and attained skills to foster the development self-efficacy and hope-agency beliefs; learning strategies that are inclusive of metacognition, self-regulation, and time management skills to support the development of hope-pathways perceptions; and learning activities that require planning and leadership to foster self-efficacy and optimism and decrease pessimism.

The results of this study also confirm the importance of understanding how different constructs function within the cognitive set. Although the set, as a whole, was related to measures of academic well-being, the individual measures of hope, self-efficacy, optimism and pessimism predicted different aspects of academic well-being. Hope was a strong predictor of academic achievement and life satisfaction, and decreased negative affect. Self-efficacy was a strong predictor of positive affect and the adaptive coping strategies (active coping, planning, positive reframing, religion and acceptance). Optimism was a strong predictor of life satisfaction, positive affect, and adaptive coping strategies (emotional and instrumental support, and self-distraction). Pessimism was a strong predictor of maladaptive coping strategies (denial, substance use, behavioral disengagement, and self-blame). These results provide insight into the way these constructs function a system of competence and control. The results confirm Snyder's (2000) claim that competence and control beliefs interact to positively influence academic achievement, life satisfaction and positive emotion, and act as a buffer against negative emotion. But the results also suggest that competence and control beliefs differentially affect coping strategies. Whereas competence self-efficacy beliefs positively influence the active, cognitively oriented coping strategies of active coping, planning and positive reframing, control beliefs influenced the external strategies of emotional and instrumental support, substance use and behavioral disengagement.

Understanding how the measures within the cognitive set function allows educators to create more focused plans to foster positive student development. The results highlight that hopeful thinking, which consists of both competence (agency) and control (pathways) perceptions, may be sufficient to promote academic achievement and life satisfaction, and buffer against negative emotion. As such, activities that promote hopeful thinking may be incorporated most readily into learning environments. However, if a student is struggling to cope with difficult material or life events in general, then it may be more effective to focus on building self-efficacy beliefs to promote active coping strategies and optimistic beliefs to foster external coping strategies and buffer against pessimistic beliefs and maladaptive coping strategies.

In addition to adding to the achievement motivation literature, this paper also took up Huberty's (2003) recommendation to make a distinction between multiple correlation analysis (MCA) and multiple regression analysis (MRA), as explanation versus prediction methods. This paper demonstrated the methodological adjustments to R-squared and effect size indices needed for MCA when examining a theoretically driven group of variables that hang together to form a cognitive set. This paper also demonstrated how MCA and MRA could be used in conjunction with one another. MCA was utilized to examine whether the cognitive set was related to outcome measures of academic well-being. Once the relationship was established, MRA was utilized to identify which constructs within the set were most predictive of the different outcome measures to understand how the system of competence and control functioned within this population. Although these distinctions are subtle, this paper provides a practical example of the application of these methods.

Conclusions

The cognitive set of hope, self-efficacy, optimism and pessimism form a system of competence and control that is related to a diverse set of measures of African-American college students' academic well-being, including increased academic achievement and life satisfaction, enhanced adaptive and reduced maladaptive coping, and increased positive emotion and decreased negative emotion. Each of the constructs within the cognitive set uniquely contributed to these outcomes, which has implications for educators and researchers who want to foster positive student development. Although more research is needed to replicate these results within and across cultural groups, these findings point to a fertile line of future research that explores how existing constructs are related to, instead of better or worse than, each other and how these relationships can be used to foster students' academic well-being.

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Send correspondence to: Cecil Robinson
University of Alabama
Email: crobinso@bamaed.ua.edu
