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Dimensions of hope in adolescence: Relations to academic functioning and well-being

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Abstract

Hope—a multidimensional positive motivational state—is particularly salient with adolescents in the school setting. Cognitive hope focuses on goal attainment cognitions whereas behavioral hope focuses on actions required for goal attainment. Studies rarely examine the contribution of each type of hope to adolescents' academic functioning and well-being. The present study examines the contributions of cognitive and behavioral hope to academic functioning (i.e., achievement and school engagement) and well-being (i.e., stress and anxiousness) across adolescence among 5th- through 12th-grade students ($n = 643$). When modeled concurrently, cognitive hope significantly predicted achievement, school engagement, anxiousness, and stress (high school only); however, aspects of behavioral hope only predicted school engagement. Findings provide evidence regarding the unique contribution of both types of hope in school settings and possible areas for intervention to foster hope in developmentally appropriate ways, depending on the age of the students and outcomes of interest.

KEYWORDS

academic functioning, hope, intentional self-regulation, stress, well-being

1 | INTRODUCTION

One critical task for positive development during adolescence is the need to think about and be “hopeful” for one's future. To be hopeful—a multidimensional positive motivational state—requires that an adolescent focus on future

goals and goal attainment (Callina, Snow, & Murray, 2017). Specifically, hope includes both cognitions regarding one's own perceived motivation and approach to attain desired goals (i.e., cognitive hope; Snyder, 2002) and the ability to demonstrate appropriate regulatory approaches to explicitly work toward the desired goals (i.e., behavioral hope; Freund & Baltes, 2002; Gestsdóttir & Lerner, 2008). Across the research literature, both cognitive and behavioral hope have been positively associated with academic functioning—including achievement and engagement in school—and have been negatively associated with stress and psychological distress—including anxiety and depression (Gestsdóttir, Bowers, von Eye, Napolitano, & Lerner, 2010; Marques, Lopez, & Pais-Ribeiro, 2011; Snyder, Irving, & Anderson, 1991; Van Ryzin, 2011). Although researchers acknowledge the importance of both cognitions and behavior for goal attainment, they often only include either the cognitive or the behavioral approach in studies examining how hope predicts outcomes (Tennen, Affleck, & Tennen, 2002). Failure to concurrently measure cognitive and behavioral hope precludes our ability to understand if and how these different types of hope uniquely contribute to studied outcomes.

Knowledge as to how cognitive and behavioral hope are concurrently related to youth academic functioning and well-being may serve as a foundation for the development of interventions for youth as hope is highly malleable (Lopez, Agrawal, & Calderon, 2010). To better understand hope's unique contributions to positive outcomes, we need more data that speaks to how cognitive and behavioral hope concurrently manifest within adolescents and how they are predictive of academic functioning and well-being across adolescent development (Gallagher & Lopez, 2009). In the present study, we examined levels of cognitive hope, as defined by Snyder's (2002) hope theory, and behavioral hope, operationalized as intentional self-regulation, among 10- to 18-year-olds and how these predicted children's academic functioning and psychological well-being.

1.1 | Cognitive and behavioral hope as measures of goal attainment

As noted, hope is a multidimensional positive motivational construct that includes both cognitions and behaviors. Cognitive hope has typically been measured and conceptualized using Snyder's (1995) hope theory. This theory assumes that human action is goal-directed (Snyder, Rand, & Sigmon, 2018) and that goals become the targets of mental action sequences that revolve around "agency" and "pathway" thinking. Snyder (1995) defined hope as "the process of thinking about one's goals, along with the motivation to move toward those goals (agency), and the ways to achieve those goals (pathways)" (p. 355). As such, Snyder's hope theory characterizes hope not as an emotion or behavior, but rather as the underlying cognitive processes that drive goal pursuit.

Agency refers to an individual's belief in their abilities to reach goals. Indeed, people with high levels of hope have been found to embrace positive self-talk, using phrases such as "I can do this" and "I am not going to be stopped" (Snyder, 1998). Agentic thinking reflects continual self-referential thought and supplies the goal-directed energy to subsequently engage in pathways thinking, which refers to an individual's ability to identify how they will reach their goals as workable routes must be generated to channel the energy that agency thinking supplies (Snyder, Feldman, Shorey, & Rand, 2002a). Ideally, individuals will initially identify multiple usable pathways to a goal so that they have the best chance of reaching their goal. In this regard, pathways thinking may be cognitively taxing. Yet, should youth face adversity or unexpected challenges with their first approach to goal achievement, they will be more successful moving forward if they are able to utilize a different route or identify a completely new pathway in pursuing their goals.

Agency and pathways thinking are both additive and reciprocal. The likelihood of reaching goals increases as both the amount of goal-directed energy and number of pathways increases (Snyder et al., 1991). Likewise, agentic thoughts allow an individual to overcome obstacles and generate new pathways if needed. In turn, creating new pathways incites renewed energy to progress toward a goal. This process iteratively moves the individual's cognitions past impediments and toward the desired outcome. Although hope theory aids researchers in understanding the cognitions underlying hope, it does not explicitly identify or measure the behaviors required for goal attainment (i.e., behavioral hope).

Behavioral hope can be measured via intentional self-regulation (ISR; Lerner, Freund, De Stefanis, & Habermas, 2001). ISR is often defined as the aspects of conscious behavioral regulation that are critical for the attainment of goals; that is, ISR is an explicit measure of one's ability to make active, regulatory decisions about one's behavior that are guided by goal pursuit (McClelland, Geldhof, Cameron, & Wanless, 2015). ISR is characterized as a self-regulatory concept as it requires that individuals identify behaviors that not only align with one's goals, but also requires the execution of those behaviors. Researchers posit that ISR can be categorized as an "action theory" given that ISR focuses on one's active participation in development via control over both the decision and execution of actions (Napolitano, Bowers, Gestsdóttir, & Chase, 2011). Understanding adolescent hope as an agentic, developmental process requires a grasp of the main components that comprise ISR.

ISR can be broken into three related but distinct behavioral regulation constructs: selection, optimization, and compensation (Baltes, 1997; Napolitano et al., 2011). *Selection* refers to one's choice of goals. Specifically, one must concert her/his energies to planning and choosing a specific goal among all other alternative goals; thus, investing in a specific, chosen goal (Napolitano et al., 2011). Importantly, as one makes progress toward the chosen goal, it is possible that the goal becomes unreachable due to obstacles that were unknown before selecting that goal. As such, *selection* includes an individual's ability to restructure their initial goal, or choose a different goal when unable to attain their initial goal (e.g., goal disengagement); the selection process may occur multiple times when one is pursuing a goal (Gestsdóttir, Urban, Bowers, Lerner, & Lerner, 2011).

After goal selection, one must plan to ensure goal success. *Optimization* refers to one's ability to determine the needs for goal achievement, including identifying resources and strategies for goal attainment, harnessing resources in the environment, and refining said strategies as necessary during the process with an emphasis on the process of working toward goal attainment (Lerner et al., 2001; Napolitano et al., 2011). *Optimization*, along with selection, can be highly variable by individual, and by goal, as it requires that individuals choose personalized strategies for their goal attainment. Further, individuals must continuously attend to and determine if their strategies are productive in working toward goal attainment, refining such strategies as necessary if there is a mismatch between the two (Gestsdóttir et al., 2011).

Lastly, *compensation*, employed after selection and optimization, refers to an individual's ability to identify alternative routes to goal attainment when faced with obstacles to prevent or minimize the loss of goal attainment (Gestsdóttir et al., 2011; Zimmerman, Phelps, & Lerner, 2007). Importantly, compensation is employed in relation to the original goal that was chosen during the selection stage of goal attainment. The idea underlying *compensation* is that the individual will be able to identify and implement new and different strategies to reach the original goal when faced with obstacles, maintaining the pursuit of the original goal rather than choosing a different goal (Napolitano et al., 2011). Combined, selection, optimization, and compensation represent an action-oriented theoretical approach to goal attainment, requiring that individuals demonstrate strong ISR skills to identify a goal, the strategies required to attain that goal, and alternative approaches to goal attainment when necessary.

Taken together, hope theory and ISR provide a complementary and fuller approach to understanding hope by acknowledging the importance of both cognitive and behavioral hope. Furthermore, both youths' cognitions and behavior as related to hope have been shown to be malleable (Lopez, Robinson, Marques, & Pais, 2009; Weiner, Geldhof, & Gestsdóttir, 2015), thus allowing for the development of strategies and programming that can foster hope and related positive outcomes. Given that cognitive and behavioral hope are distinct but complementary, it is surprising that researchers have not examined how these two constructs manifest themselves across adolescence. The present research is designed to fill this gap as well as to examine how hope constructs concurrently predict important adolescent academic and adjustment outcomes.

1.2 | Hope and academic functioning

Several studies have shown that both cognitive and behavioral hope are related to adolescents' academic functioning (Marques et al., 2011; Weis & Speridakos, 2011; Zimmerman et al., 2007). Researchers propose that

having high cognitive hope provides individuals with the motivation to both identify multiple approaches to academic goal attainment and execute those plans, resulting in better academic functioning (Snyder, 2002). Similarly, having high behavioral hope ensures that individuals have the necessary behavioral regulation skills to attain their goals as they relate to academic functioning (Gestsdóttir et al., 2010). Academic functioning is an overarching construct used to categorize many different aspects of youths' academic experiences. Within the present study, we chose to focus specifically on academic achievement, operationalized as grade point average (GPA), and cognitive and psychological school engagement.

Students' learning and academic experience are affected by their cognitive and psychological school engagement. Cognitive school engagement encompasses adolescents' beliefs about school and future academic aspirations. Adolescence is an important time to examine cognitive engagement as youth have developed the cognitive capabilities to begin to plan for and regulate their behavior in the pursuit of academic goals (Appleton, Christenson, Kim, & Reschly, 2006; Li & Lerner, 2013). Psychological school engagement refers to individual's sense of belongingness and identification with teachers (Appleton et al., 2006). Further, psychological engagement can provide a better understanding of how connected to the academic environment students perceive themselves. Research has shown that, in general, school engagement is a highly malleable construct (Fredricks, Blumenfeld, & Paris, 2004). As such, understanding how adolescents' cognitive and behavioral hope influence their engagement provides a possible target for intervention as promoting student hope may lead to improved cognitive and psychological school engagement, thereby increasing academic achievement and performance.

Existing literature has identified relations between cognitive and behavioral hope and both achievement and school engagement. A meta-analysis focusing on students from elementary school through college showed that cognitive hope, as defined by hope theory, was a significant predictor of achievement, and those with high hope had better achievement than those with low hope (Marques, Gallagher, & Lopez, 2017). Further, cognitive hope has also been positively linked to academic achievement in elementary through high school (Snyder et al., 1991; Snyder et al., 1997; Padilla-Walker, Harper, & Jensen, 2010). Less work has examined the relation between behavioral hope and achievement among adolescents. Among 10th-grade students, aspects of behavioral hope including optimization, compensation, and loss-based selection (i.e., goal adjustment after a loss in ability to achieve goals) were positively related to a composite measure of academic competence, which included self-reported grades (Gestsdóttir et al., 2010). In a sample of college-aged engineering students, a composite measure of behavioral hope, including the three ISR scales, positively predicted GPA (Hynes et al., 2011). Relatedly, aspects of self-regulated learning encompassed by ISR, such as selection of goals and planning for goal attainment, were positively associated with achievement among 10th- and 11th-grade students (Zimmerman & Pons, 1986).

As related to school engagement, among 7th–12th graders, cognitive hope significantly predicted adolescents' psychological engagement one year later, even after accounting for their behavioral (i.e., attention, participation) and emotional engagement (i.e., positive feelings toward school; Van Ryzin, 2011). Among university students, cognitive hope positively predicted student engagement, measured via a latent variable including a measure of psychological engagement (Yoon et al., 2015). Less research has examined the relations between behavioral hope and cognitive and psychological school engagement. Longitudinal research has shown a reciprocal relation across 9th and 10th grade, such that behavioral hope positively predicted cognitive school engagement in the following grade level (Stefansson, Gestsdóttir, Birgisdóttir, & Lerner, 2018). In addition, research has shown that 5th-grade students' behavioral hope, measured as a mean composite of the three ISR subscales, was positively correlated with 6th-grade psychological school engagement (i.e., feelings about connections with teachers and peers; Li, Lerner, & Lerner, 2010).

1.3 | Hope and well-being

Developmentally, adolescence is a period of change in terms of both academic experiences and psychological functioning. Beginning in early adolescence, students have increased interactions with multiple teachers as they begin to change classrooms for different subjects and they begin to interact with an extended peer group.

Additionally, youth are encouraged to begin planning for postsecondary school and sometimes need to reframe either their goals or their behaviors for successful goal attainment throughout this process (McClelland et al., 2017). Given the interpersonal and structural changes within the school context and the increasing expectations to become more self-directed, adolescents may have feelings of stress around their interpersonal interactions and about planning for their future (LaRue & Herman, 2008). In addition, adolescents may have physiological feelings of anxiousness that coincide with their psychological stress (Camara, Bacigalupe, & Padilla, 2017).

Because they face both positive and negative situations, focusing on how hope relates to adolescents' stress and feelings of anxiousness can provide a more detailed understanding of the relation between cognitive and behavioral hope and student stress/anxiousness, and how educators can support adolescents during this time. Hope is important for promoting adolescents' well-being, such as managing stress and feelings of anxiousness, as individuals who are more hopeful likely focus on things around them that are positive, and face fewer actual or perceived barriers than are those who are less hopeful (Lopez et al., 2009). Furthermore, adolescents who can work intentionally toward future goal attainment may have an internalized sense of agency and control in promoting their own positive development, which in turn prompts better coping and stress management strategies (Gestsdóttir & Lerner, 2008).

There is only a limited amount of research that has examined the relation between hope and normative adolescent stress. Among 6th through 8th graders, cognitive hope has been shown to be negatively correlated with self-reported stressful life events, calculated as a count of the number of stressful life events that occurred (Otis, Huebner, & Hills, 2016); however, once the researchers accounted for demographic variables, hope did not predict self-reported stressful life events. Importantly, in this study, the stressful life events focused on uncontrollable life events such as the death of a family member and parental divorce, which are likely more extreme and pervasive instances of stress than the stress of everyday interpersonal relationships and/or planning for one's future. To our knowledge, researchers have not explicitly examined the relation between behavioral hope and adolescent stress. However, researchers have shown that adaptive self-regulation, including one's ability to change behaviors when goals are no longer attainable and reengage in new goals, was related to college students' general stress levels; higher levels of adaptive self-regulation were related to lower levels of stress (Wrosch, Scheier, Miller, Schulz, & Carver, 2003).

Previous research has examined the relation between cognitive and behavioral hope and physiological arousal associated with anxiousness. In a longitudinal study by Ciarrochi, Parker, Kashdan, Heaven, and Barkus (2015), students were followed from 7th through 12th grade and asked to report on their feelings of cognitive hope and anxiousness/fear (i.e., nervous, jittery, shaky); higher hope predicted lower anxiousness across the participants' high school careers. Additionally, cognitive hope has been shown to be related to composite measures of internalizing behavior that include measures of anxiousness. Specifically, cognitive hope was negatively correlated with internalizing behavior among adolescents 10–18 years old (Valle, Huebner, & Suldo, 2006), and cognitive hope negatively predicted a latent internalizing behavior variable among 9- to 14-year-olds (Padilla-Walker & Christensen, 2011). To our knowledge, researchers have not specifically examined the relation between behavioral hope and physiological arousal associated with anxiousness. However, researchers have found a negative relation between “long-term” self-regulation, which requires that one modulates behavior to reach a long-term goal, and internalizing behavior problems (i.e., distress; Moilanen, 2007). Similarly, researchers have found that adolescents' self-regulation, with a focus on regulation as related to future planning, avoiding distraction, and exerting control over one's impulses, was negatively correlated with a measure of internalizing behavior that included anxiety, during early adolescence (Padilla-Walker et al., 2010).

1.4 | The present study

As outlined above, although researchers have examined how cognitive and behavioral hope are related to academic functioning and well-being separately, there is still a need to better understand the relation between cognitive and

behavioral hope as well as how each uniquely contributes to adolescent outcomes when included in the same model (Schmid & Lopez, 2011). Moreover, there is a need for more research that elucidates the relation between hope and youth outcomes (Schmid & Lopez, 2011), which can include adolescents' psychological and cognitive school engagement, and feelings of stress related to interpersonal relationships and their future. There also is a lack of information regarding how hope manifests across adolescent development, although a few large, cross-sectional studies have found that hope scores decrease across adolescence, with a slight uptick before high school graduation (Ciarrochi et al., 2015; Schmid & Lopez, 2011).

Middle school represents a time when adolescents begin to navigate increases in responsibility, shifts in relationships, and changes in physical development. In middle school, students often begin to have multiple classes and teachers throughout the day, with an increasing emphasis on grades, and these academic changes coincide with pubertal developmental changes. By high school, the school day schedule is likely more familiar and the peer group has less impact on adolescent socialization (Goodwin, Mrug, Borch, & Cillessen, 2012). Furthermore, depression, which is negatively associated with hope (Snyder et al., 1991), sharply increases in early and middle adolescence but then declines in later adolescence (Saluja et al., 2004). For these developmental reasons, we felt it was necessary to investigate youth hope and its associated outcomes separately for middle and high school students.

The purpose of the present study was to address the existing gaps in the cognitive and behavioral hope literature. Specifically, the goals of the present study were threefold: (a) to cross-sectionally examine how levels of cognitive and behavioral hope differ from middle school to high school; (b) to examine how, when modeled independently, cognitive and behavioral hope predict adolescent academic functioning (i.e., achievement and cognitive and psychological engagement) and well-being (i.e., interpersonal and future-oriented stress and physiological arousal associated with anxiousness) during middle school and high school; and (c) to examine, when modeled concurrently, the unique contributions of cognitive and behavioral hope to academic functioning and well-being.

Given the limited existing research, our examination of cognitive and behavioral hope levels across adolescence (Goal 1) was exploratory and heuristic, with no a priori hypotheses. For our second goal, we hypothesized that both types of hope would be positively related to academic functioning (i.e., achievement and cognitive and psychological engagement). Conversely, we expected that both cognitive and behavioral hope would be negatively related to indicators of negative well-being, including interpersonal and future-oriented stress and physiological arousal associated with anxiousness. For our third goal, we hypothesized that models that included both cognitive and behavioral hope concurrently would better predict the outcomes of interest than the models that included only one of the predictors, given that each of these constructs measures a theoretically different conceptualization of hope. The second and third study goals were examined within school levels (i.e., middle and high school) to better understand if the pattern of hypothesized relations were different across development, and because the academic environment is different in middle and high school.

2 | METHOD

2.1 | Participants

Data were collected from 643 5th- through 12th-grade students (52.4% male) from three schools who participated in an ongoing district-wide data collection in the southwestern United States. Two of the schools were kindergarten through 8th-grade schools and the third school was a high school with 9th through 12th grades. Overall, 55.7% of the students identified as White, 40.1% identified as Hispanic, 2.7% identified as African American, 1.3% identified as Asian American, and 0.3% identified as Native American or Alaska Native. Over half of the students (56.5%) students qualified for free-and-reduced lunch, 10.3% were designated as English language learners, and 12.5% qualified for special education (see Table 1 for demographics by school level).

TABLE 1 Descriptive statistics for the full sample and by school level

	Middle school	High school	Full sample
% Female	48.60	45.40	47.60
% FRL	55.40	59.00	56.30
% ELL	13.60	3.40	10.30
% SPED	14.30	9.30	12.60
<i>n</i>	438	205	643
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Cognitive hope	4.38 (1.06)	4.39 (1.12)	4.37(1.08)
Behavioral hope			
Selection	3.63 (0.90)	3.80 (0.79)	3.69 (0.87)
Optimization	3.80 (0.81)	3.94 (0.70)	3.85 (0.78)
Compensation	3.85 (0.86)	3.81 (0.75)	3.84 (0.83)
GPA	3.07 (0.62)	3.09 (0.71)	3.08 (0.65)
Cognitive engagement	3.41 (0.55)	3.34 (0.55)	3.39 (0.55)
Psychological engagement	3.12 (0.64)	2.95 (0.66)	3.07 (0.65)
Anxiousness	1.63 (1.13)	1.93 (1.21)	1.72 (1.17)

Note: Middle school included 5th–8th grade; high school included 9th–12th grade.

Abbreviations: ELL, English language learner; FRL, free-and-reduced lunch; GPA, grade point average; SPED, special education; *M*, mean; *SD*, standard deviation.

2.2 | Procedures

Students completed an online survey in the middle of the spring semester as a regular part of the school district's annual data collection. Teachers oriented the students to the survey and informed students that they were not required to participate and could skip any questions they did not wish to answer. Student demographic information, including gender, free-and-reduced lunch, special education status (SPED), English-Language Learner status (ELL), and GPA were obtained via school records.

2.3 | Measures

2.3.1 | Cognitive hope

Using the 6-item Children's Hope Scale (CHS; Snyder et al., 1997), students rated their perceived hopefulness on a 6-point Likert-type scale (1 = *none of the time* to 6 = *all of the time*). Examples of items included "I can think of many ways to get the things in life that are most important to me" and "I am doing just as well as other people my age." The CHS had good reliability in the current study (Cronbach's α s = .85 to .92 for middle and high school, respectively) and previous research (α s ranging from .72 to .86; Valle, Huebner, & Suldo, 2004). A mean composite was created where higher scores indicated more hopefulness.

2.3.2 | Behavioral hope

To assess adolescent's behavioral hope, students completed the 9-item intentional self-regulation questionnaire (Gestsdóttir & Lerner, 2007) using a 5-point Likert-type scale (1 = *not at all like me* to 5 = *very much like me*). Specifically, students reported on their goal *selection* (2 items; e.g., "At school, when I decide upon a goal, I stick to it"), *optimization* (4 items; e.g., "At school, I think about exactly how I can best realize my plans [make my plans happen]"), and *compensation* (3 items; e.g., "At school, when things don't work the way they used to, I look for other

ways to achieve them"). The scale was adapted for the academic context by including the phrase "at school" at the beginning of each item. Previous research has shown good internal consistency among the subscales (α s ranging from .67 to .75; Freund & Baltes, 2002). Upon examination of internal consistency, two of the items had low item total correlations (r s = .15 and .24). As such, these two items were removed from the scales (optimization and compensation) before creating the composite scores. In the present study, mean composites were created for selection, optimization, and compensation, where higher scores indicated higher self-regulation (α s ranged from .62 to .78).

2.3.3 | Achievement

Cumulative GPA was reported via student records by the school district as of the end of the spring semester. As part of the district procedures, 8th grade students' GPA is removed before starting high school. As such, the cumulative GPA for 8th-grade students was not available. However, we were able to obtain the first semester of high school GPA for the 8th-grade participants and included that in the present study.

2.3.4 | Cognitive and psychological school engagement

To assess their persistence in the pursuit of academic goals (i.e., cognitive engagement) and sense of social belongingness with teachers (i.e., psychological engagement), students also completed the Student-Engagement Instrument (SEI; Appleton et al., 2006). Students reported perceived cognitive engagement (4 items; e.g., "School will help me to achieve my future goals") and psychological engagement (4 items; e.g., "Overall, adults at my school treat students fairly") using a 4-point Likert-type scale (1 = *strongly disagree* to 4 = *strongly agree*). The SEI has demonstrated good internal consistency (alphas ranging from .72 to .92) in previous studies (Appleton et al., 2006; Reschly, Huebner, Appleton, & Antaramian, 2008). The SEI in the present study also showed good internal consistency for cognitive engagement (α s ranged from .80 to .83) and psychological engagement (α s ranged from .81 to .84). Mean composite scores were created for cognitive and psychological engagement in which higher scores were indicative of higher levels of engagement.

2.3.5 | Interpersonal and future-oriented stress

Students completed 4 items from the Adolescent Stress Questionnaire (ASQ; Byrne, Davenport, & Mazanov, 2007). Students reported on their feelings of stress as related to peers and teachers (i.e., interpersonal stress) within a school setting (4 items; e.g., "Getting along with your teachers") and about their future (3 items; e.g., "Concern about your future") using a 4-point Likert-type scale (1 = *strongly disagree* to 4 = *strongly agree*). The ASQ has previously demonstrated good reliability (Byrne et al., 2007) and had good internal consistency within the present study (α s = .73 to .88). Mean composites were created for both types of stress where higher scores indicated higher stress levels.

2.3.6 | Physiological feelings of anxiousness

Using two items from the Generalized Anxiety Disorder scale (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006), students reported their physiological arousal associated with anxiousness in the past month ("felt anxious, nervous, or worried" and "felt tense muscles, felt on edge or restless, or trouble sleeping") on a 5-point Likert scale (0 = *never* to 4 = *all of the time*). This scale has demonstrated good internal consistency (Cronbach's α = .92) and had adequate reliability in our sample (α s = .69 and .79 for middle and high school, respectively). A mean composite was created where higher scores were indicative of more physiological arousal associated with anxiousness.

2.3.7 | Covariates

All covariates were obtained via school records and included gender (1 = male), free-and-reduced lunch status (1 = eligible), SPED (1 = eligible SPED), and ELL (1 = ELL).

2.4 | Analytic plan

Utilizing SPSS 25, we first analyzed descriptive statistics for all study variables and Pearson correlations among hope measures both within school level (i.e., middle and high school) and across the full sample. Then to examine if there were differences by school level, we utilized analysis of covariance (ANCOVA) for cognitive hope and a multivariate analysis of covariance (MANCOVA) for behavioral hope levels. Next, utilizing Mplus 8 (Muthén & Muthén, 1998-2017) we conducted multiple regression models to examine the role of cognitive and behavioral hope on achievement (Model 1) and cognitive and psychological engagement (Model 2). In addition, we utilized a structural equation model (SEM) to examine the role of cognitive and behavioral hope on interpersonal and future-oriented stress (measured as latent variables), and physiological arousal associated with anxiety (Model 3). To better understand these processes during early- versus late-adolescents, and to maximize statistical power given small sample sizes for some school levels, Models 1–3 were run separately for middle and high school students. Model fit for the SEM was evaluated as a $\chi^2 p > .05$, the comparative fit index (CFI close to or >0.95), the standardized root mean square residual (SRMR close to or <0.08), and root mean square error of approximation (RMSEA close to or <0.06 ; Hu & Bentler, 1999). Models were retained if they met three of the four aforementioned guidelines.

3 | RESULTS

3.1 | Preliminary analyses

To maximize power, and to be consistent with how the schools are structured within this district, the analyses for middle-school students included those in 5th through 8th grades. For the analyses for the high-school students, those in 9th through 12th grades were grouped together. Descriptive statistics are presented within the whole sample and by school level (middle and high school) in Table 1. All study variables met normality assumptions (Tabachnick & Fidell, 2012).

To better understand the relation among cognitive and behavioral hope, Pearson correlations were conducted within the full sample and by school level. When examined within the full sample and by school type, cognitive hope was significantly positively related to all three behavioral hope subscales (selection r s ranged from .62 to .70, optimization r s ranged from .57 to .72, and compensation r s ranged from 0.56 to 0.65). Given the magnitude of the correlations, tests for multicollinearity were examined before study analyses. The variance inflation factor (VIF) was less than 10 for all variables indicating that multicollinearity was not of concern.

3.2 | Cognitive and behavioral hope levels across school level

To determine if there were significant school-level differences in cognitive hope, we conducted a one-way ANCOVA (controlling for gender, free-and-reduced lunch, SPED, and ELL). For hope, there were no a significant school-level differences on hope scores, $F(1, 632) = 0.08, p = .77, \eta^2 < 0.01$. To determine if there were significant school-level differences in behavioral hope, we conducted a MANCOVA that included all three behavioral hope scales as the dependent variables. There was a significant difference in behavioral hope between the students in middle- versus high-school students, $F(3, 631) = 4.54, p < .01$; Wilk's $\Lambda = 0.98, \eta^2 = 0.02$. However, follow-up univariate analyses did not show any significant differences by school level, although two of the analyses were

marginally significant (with high-school students scoring higher than those in middle school; see Table 1 for means, selection $F(1, 633) = 3.01, p = .08, \eta^2 < 0.01$; optimization $F(1, 633) = 3.69, p = .06, \eta^2 < 0.01$; compensation $F(1, 633) = 0.52, p = .47, \eta^2 < 0.01$).

3.3 | Cognitive and behavioral hope predicting study outcomes

Analyses examining the relation between cognitive and behavioral hope to the outcomes of interest (achievement, cognitive and psychological engagement, interpersonal and future-oriented stress, and physiological arousal associated with anxiousness) were modeled separately for middle- and high-school students to examine if cognitive and behavioral hope predicted the outcome of interest differently across adolescence. Information regarding students' primary teachers was available for students in 5th through 8th grades. To determine if students were nested within primary teacher, we examined the intraclass correlations (ICCs) and design effects for all predictors and outcome study variables. A design effect that exceeds the value of one indicates that the data are not independent and the researcher should account for this nonindependence (McCoach & Adelson, 2010). In the present study, there were 18 primary teachers, with an average cluster size of 24.17. ICCs ranged from 0.02 to 0.10, and design effects ranging from 9.68 to 44.40. Given the large design effect, we accounted for nonindependence of primary teacher in all middle-school analyses. Type = Complex with the MLR estimator, which is default in Mplus, was used to account for nesting by primary teacher. Covariates in these models included school, gender, free-and-reduced lunch, SPED, and ELL. In the high-school models, we could not account for any nesting within teacher because the students did not have a primary teacher. The ML estimator was used for all high-school models and included SPED, ELL, free-and-reduced lunch and gender as covariates.

We first examined a model that included only cognitive hope and covariates as predictors. Then, we examined a model that included only the three behavioral hope subscales and the covariates as predictors. Lastly, we examined a model that included all measures of cognitive and behavioral hope and the covariates as predictors. Parameter estimates for all models are presented in Table 2.

3.4 | Cognitive and behavioral hope predicting achievement

3.4.1 | Middle school

Cognitive hope significantly, positively predicted middle-school students' achievement when modeled independently ($R^2 = .25$). In the model including the three measures of behavioral hope, none of the behavioral hope measures significantly predicted middle-school students' achievement ($R^2 = .18$). In the final model including both cognitive and behavioral hope, only cognitive hope significantly predicted achievement ($R^2 = .26$); including the behavioral hope measures only increased the proportion of variance accounted for by 1% as compared with the model that included only cognitive hope as a predictor.

3.4.2 | High school

Cognitive hope was a significant predictor of high-school students' achievement when modeled both independently ($R^2 = .28$) and with the behavioral hope measures ($R^2 = .28$). The behavioral hope measures were not significant predictors in any model ($R^2 = .21$).

3.5 | Cognitive and behavioral hope predicting cognitive and psychological engagement

Descriptive findings revealed that cognitive and psychological engagement were significantly correlated for both middle- and high-school students ($r = .52$ and $.43$, respectively). As a result, we included both as outcomes in a single model, and allowed them to covary.

TABLE 2 Parameter estimates for regression and structural equation models

Outcomes	Cognitive hope model ^a		Behavioral hope model ^b		Cognitive and behavioral hope model ^c			
	Hope, <i>b</i> (SE)	<i>S</i> , <i>b</i> (SE)	<i>O</i> , <i>b</i> (SE)	<i>C</i> , <i>b</i> (SE)	Hope, <i>b</i> (SE)	<i>S</i> , <i>b</i> (SE)	<i>O</i> , <i>b</i> (SE)	<i>C</i> , <i>b</i> (SE)
GPA	0.19 (0.04) **/0.23(0.04)**	-0.03 (0.04)/ 0.09(0.09)	0.12(0.07)/ 0.14(0.11)	0.06(0.05)/ 0.05(0.09)	0.24(0.04) **/0.26(0.06)**	-0.09(0.05)/ -0.05(0.09)	0.02(0.06)/ -0.02(0.11)	-0.02(0.05)/ 0.02(0.08)
Cognitive engagement	0.30 (0.03) **/0.21(0.03)**	0.12(0.02) **/0.05(0.07)	0.25(0.04) **/0.19(0.08)*	0.04(0.03)/ 0.12(0.06)	0.19(0.03) **/0.11(0.05)*	0.07(0.02) **/-0.01(0.07)	0.17(0.04) **/0.10(0.09)	-0.03(0.03)/ 0.12(0.06)
Psychological engagement	0.26 (0.30) **/0.25(0.04)**	0.15(0.05) **/0.03(0.08)	0.19(0.06) **/0.34(0.10)**	0.05(0.05)/ 0.03(0.08)	0.13(0.04) **/0.16(0.06)**	0.12(0.06) */-0.04(0.09)	0.14(0.07) */0.24(0.11)*	0.01(0.01)/ 0.01(0.08)
People stress	-0.07 (0.04)/ -0.23(0.06)**	-0.07(0.05)/ -0.12(.12)	-0.08(0.07)/ -0.07(.14)	-0.01(0.08)/ -0.09(0.12)	-0.06(0.06)/ -0.26(0.12)*	-0.06(0.06)/ -0.25(0.18)	0.02(0.06)/ 0.29(0.23)	0.02(0.09)/ 0.05(0.17)
Future stress	0.06(0.09)/ -0.24(0.08)**	0.02(0.09)/ -0.37(0.17)*	0.16 (0.16)/ 0.10(0.21)	0.02(0.12)/ 0.02(0.17)	-0.07(0.10)/ -0.28(0.08)**	0.04(0.09)/ 0.01(0.10)	0.19(0.15)/ 0.17(0.13)	0.05(0.13)/ -0.05(0.10)
Anxiousness	-0.11(0.04) **/-0.31(0.07)**	0.01(0.09)/ -0.22(0.15)	-0.08(0.11)/ -0.12(0.19)	0.01(0.08)/ -0.03(0.15)	-0.18(0.07) **/-0.34(0.11)**	0.06(0.10)/ -0.06(0.16)	-0.01(0.11)/ 0.10(0.20)	.08(08)/ 0.01(0.15)

Note: Middle school unstandardized parameter estimates are presented first followed by high school unstandardized parameter estimates in bold. Model fit for the SEM model with stress and feelings of anxiousness are indicated by subscripts in each model column.

Abbreviations: C, compensation; CFI, comparative fit index; O, optimization; S, selection; RMSEA, root mean square error of approximation; SE, standard error; SRMR, standardized root mean square residual.

^aMiddle school: χ^2 (46) = 98.47, $p < .01$, RMSEA = 0.05, RMSEA 90% CI (0.04, 0.07), CFI = 0.95, SRMR = 0.04; high school: χ^2 (41) = 69.47, $p < .01$, RMSEA = 0.06, RMSEA 90% CI (0.03, 0.08), CFI = 0.97, SRMR = 0.04.

^bMiddle school: χ^2 (56) = 97.31, $p < .01$, RMSEA = 0.04, RMSEA 90% CI (0.03, 0.06), CFI = 0.97, SRMR = 0.03; high school: χ^2 (51) = 93.25, $p < .01$, RMSEA = 0.06, RMSEA 90% CI (0.04, 0.08), CFI = 0.95, SRMR = 0.04.

^cMiddle school: χ^2 (61) = 103.37, $p < .01$, RMSEA = 0.04, RMSEA 90% CI (0.03, 0.05), CFI = 0.96, SRMR = 0.03; high school: χ^2 (56) = 100.99, $p < .01$, RMSEA = 0.06, RMSEA 90% CI (0.04, 0.08), CFI = 0.95, SRMR = 0.04.

* $p < .05$.

** $p < .01$.

3.5.1 | Middle school

When examined independently, middle-school students' cognitive hope significantly predicted both cognitive engagement ($R^2 = .37$) and psychological engagement ($R^2 = .19$). In the behavioral hope model, selection and optimization significantly predicted cognitive ($R^2 = .36$) and psychological engagement ($R^2 = .22$). In the model that included all measures of hope, cognitive hope, selection, and optimization remained significant predictors of both cognitive and psychological engagement. The model that included all four hope predictors also accounted for more variance in middle-school students' cognitive engagement ($R^2 = .42$) and psychological engagement ($R^2 = .24$) than either model that included the hope measures independently.

3.5.2 | High school

Examined independently in their respective models for high-school students, cognitive hope and optimization significantly predicted both cognitive and psychological engagement. When included in the same model, cognitive hope and optimization remained significant predictors of high-school students' psychological engagement; however, for cognitive engagement only cognitive hope remained a significant predictor when all the hope predictors were included in a single model. The combined model with all measures of hope accounted for a somewhat larger proportion of variance in cognitive engagement ($R^2 = .26$) and psychological engagement ($R^2 = .22$) than the models that included the cognitive hope ($R^2 = .22$ and $.19$ for cognitive and psychological engagement, respectively) and behavioral hope ($R^2 = .24$ and $.18$ for cognitive and psychological engagement, respectively) predictors separately.

3.6 | Cognitive and behavioral hope predicting well-being

Before final analyses, we examined the measurement models of the two latent variable outcomes (interpersonal stress and future-oriented stress) for the middle- and high-school student samples. The model fit was good for both samples, middle school model $\chi^2(11) = 23.26$, $p = .02$, RMSEA = 0.05, RMSEA 90% CI (0.02, 0.08), CFI = 0.98, SRMR = 0.03; high school model $\chi^2(11) = 30.77$, $p < .01$, RMSEA = 0.09, RMSEA 90% CI (0.06, 0.13), CFI = 0.97, SRMR = 0.04. In both models, all factor loadings were significant and standardized loadings ranged from 0.33 to 0.93. In addition, because the two stress latent variables and physiological feelings of anxiousness were correlated (r s ranged from .50 to .58), we included all three outcomes in a single model and allowed the outcome variables to covary. The final SEM models included the predictors of interest (cognitive and behavioral hope), the covariates, and the three outcomes of interest (latent variable interpersonal stress, latent variable future-oriented stress, and the physiological feelings of anxiousness variable).

3.6.1 | Middle school

For middle-school students, cognitive hope did not significantly predict either type of stress ($R^2 = .03$ and $.07$ for future-oriented and interpersonal stress, respectively) but was significantly negatively related to physiological feelings of anxiousness when modeled independently ($R^2 = .03$) and with the behavioral hope measures ($R^2 = .03$). Behavioral hope did not significantly predict any of the outcomes in any model (R^2 ranged from $.02$ to $.08$). The model with all the hope predictors only slightly increased the proportion of variance accounted for in physiological feelings of anxiousness as compared with the model that included only cognitive hope.

3.6.2 | High school

When modeled independently, cognitive hope significantly, negatively predicted high-school students' interpersonal stress ($R^2 = .34$), future-oriented stress ($R^2 = .13$), and physiological feelings of anxiousness ($R^2 = .20$). In

the behavioral hope model, the only significant relation was from selection to future-oriented stress ($R^2 = .14$). When all the hope predictors were included in a single model, only cognitive hope remained a significant predictor of interpersonal stress ($R^2 = .35$), future-oriented stress ($R^2 = .15$), and physiological feelings of anxiousness ($R^2 = .20$). The model that included all four predictors accounted for more variance in future-oriented stress than either the cognitive hope model or the behavioral hope model.

4 | DISCUSSION

Cognitive hope, which encompasses motivation and approach to goal attainment, and behavioral hope, which includes regulation for goal attainment, both play critical roles in promoting youths' academic functioning and life outcomes. Furthermore, hope is highly malleable and may serve as a focus for interventions for students that can be implemented at their schools (Lopez et al., 2010). Although researchers have acknowledged the contribution of both cognitive and behavioral hope to adolescents' academic functioning and well-being, researchers have rarely examined these two types of hope concurrently. The present study contributes to the existing literature by descriptively examining cognitive and behavioral hope across adolescence, and by identifying them as important, malleable concurrent predictors of children's academic functioning and well-being. We found that mean level ratings of cognitive and behavioral hope did not vary across adolescence (although there were some trends favoring behavioral hope high-school students, see below). Furthermore, only cognitive hope emerged as an important predictor of almost all outcomes when modeled independently and concurrently with behavioral hope, apart from interpersonal and future-oriented stress in middle school. Behavioral hope was not a significant predictor of most of the study outcomes. These findings add important new information on the differentiated roles that these elements of hope play as predictors of important outcomes for youth.

4.1 | Cognitive and behavioral hope during adolescence

Levels of cognitive hope did not vary by school level. This finding is consistent with previous research that has failed to find a correlation between cognitive hope and age among a middle and high school sample examined in two separate studies (Valle et al., 2004), as well as a weak, negative correlation among 10- to 18-year-olds (Valle et al., 2006). To our knowledge, our study is the first to explicitly examine differences in behavioral hope across adolescence. As noted, although the multivariate test statistic was significant when examining differences by school level on behavioral hope, follow-up univariate analyses showed that the differences by school level were only marginally significant for selection and optimization (favoring high-school students). One might think that older adolescents would show higher levels of behavioral hope than younger adolescents given typical trajectories of increasing behavioral regulation with age (McClelland et al., 2015). Another possibility is that behavioral hope, as measured via ISR, is only beginning to emerge during adolescence; thus, it is not fully developed and we may not expect to see any significant age differences until adulthood (Bowers et al., 2011; Freund & Baltes, 2002). The present study adds to the limited, and somewhat inconsistent literature on cognitive and behavioral hope levels across adolescence by examining mean level differences by school level.

4.2 | Hope as a predictor of academic achievement and school engagement

4.2.1 | Academic achievement

We found that cognitive hope positively predicted youths' achievement in both middle and high school, and that this was true when modeled independently or concurrently with behavioral hope. Those students who have high cognitive hope likely have the motivation and ability to identify pathways for academic goal attainment thus

influencing their overall achievement. This finding is consistent with previous research that has examined cognitive hope as predictor of achievement (Marques et al., 2017; Snyder et al., 1997).

Conversely, behavioral hope, which emphasizes youth having the regulatory skills necessary to actively identify tenable routes for goal attainment, did not significantly predict their achievement. It may be that the relation between behavioral hope and achievement is driven by the direct applicability of courses toward one's career goal attainment. For example, behavioral hope, as measured via ISR, significantly predicted GPA within a sample of college engineering students (Hynes et al., 2011). It is possible that we did not replicate these findings because the purpose of college courses is to prepare students for specific career goals, whereas middle- and high-school courses tend to be broader, covering content that will set the foundation for the student to make future decisions regarding college majors.

It could also simply be that cognitive hope is more influential than behavioral hope on academic achievement during adolescence. Agentic thinking may be especially salient within the school context as educators strive to create a climate where students feel valued, excited about their future, and optimistic about their prospects. This empowerment and agentic thinking may propel youth toward academic achievement as a marker of their self-efficacy and abilities. Conversely, behavioral hope is characterized by step-by-step behavioral regulation and planning skills that may not fully develop until later in life as executive functioning develops, or may not be consciously utilized when it comes to getting good grades during middle and high school. Thus, the agentic aspect of cognitive hope may serve as the primary motivator for academic achievement, whereas behavioral hope becomes more salient for achievement in college or may be more applicable in other ways for middle and high school students, such as to promote school engagement.

4.2.2 | School engagement

As expected, hopeful cognitions were an important predictor of adolescents' school engagement. Among all students, cognitive hope positively predicted both cognitive and psychological engagement, a finding consistent with previous research (Van Ryzin, 2011; Yoon et al., 2015), even after accounting for behavioral hope. It is likely that youth who believe in their own ability for goal attainment are more persistent in determining and pursuing academic aspirations (i.e., cognitive engagement) and see the importance of connecting with their teachers and the academic environment (i.e., behavioral engagement) when working toward their goals. In terms of behavioral hope, selection appears to be important during early but not late adolescence for school engagement, whereas optimization plays an important role across adolescence in predicting youths' psychological engagement, even after accounting for cognitive hope. The finding that selection and optimization positively predicted cognitive and psychological engagement in middle school is consistent with previous research (Li et al., 2010), and they remained significant predictors when cognitive hope was added to the model, indicating the utility of both types of hope for middle-school students.

Selection skills are refined with age. As such, it may be that during early adolescence, students who are advanced in their ability to easily utilize selection skills (e.g., identifying goals and disengaging from a goal when necessary) within the classroom receive positive feedback from teachers about their abilities; in turn, this may help them feel more connected with their teachers and the classroom (Anderman & Anderman, 1999). Further, if a middle-school student can utilize selection skills, they may be able to better demonstrate forward planning, which is important for cognitive engagement with respect to future academic aspirations.

For all adolescents in the present study, optimization—the ability to utilize resources and strategies to achieve one's goals—was an important predictor of psychological engagement. Adolescents who possess optimization skills may be more likely to perceive their teachers as a resource and, as such, feel more connected with that teacher (Newman, 2002). The finding that in high school, optimization no longer predicted cognitive engagement once accounting for cognitive hope, lends support for the importance of individual's cognitions for this type of engagement. Although it is important to utilize optimization skills for academic aspiration attainment, it may be that

one's own feelings of possessing the required ability and knowledge of viable paths for goal attainment more closely align with cognitive engagement, as this type of engagement is highly rooted in one's cognitions about the future rather than behaviors that will support one's goals (Appleton et al., 2006).

Both cognitive and behavioral hope were important predictors of engagement. Across all analyses, both cognitive and behavioral hope were only significant within the same model when school engagement was the outcome. This finding brings attention to the differential, yet simultaneous, role of a youth's goal attainment cognitions and behaviors in promoting school engagement. Importantly, more variance was accounted for when both types of hope were included compared with being modeled separately, which highlights the need for both cognitive and behavioral hope concurrently for school engagement. Because school engagement is a malleable, multifaceted construct that often requires students cognitively plan for and act on their goals, it would seem that students who possess high levels of cognitive and behavioral hope are well suited to engage at school. Additionally, understanding that cognitive hope, selection, and optimization are all related to school engagement may allow educators and researchers to better identify specific skills that can be further developed and refined to promote student outcomes.

4.3 | Hope as a predictor of student well-being

Although adolescents experience feelings of stress as a normative part of development, we found that hope predicted stress differently for middle- and high-school students. Specifically, in middle school, neither cognitive nor behavioral hope predicted interpersonal or future-oriented stress, a finding that is consistent with previous research that focused on uncontrollable, high-stress situations (Otis et al., 2016). In high school, cognitive hope negatively predicted both interpersonal and future-oriented stress, and selection negatively predicted future-oriented stress, although selection was no longer a significant predictor when cognitive hope was included in the model.

It is possible that although interpersonal and future-oriented stress begin to emerge in adolescence, these are exacerbated in older youth, given the increased focus on future planning, changing interpersonal relationships, and the heightened emphasis on academics and impending graduation (Anda et al., 2000). Given these (and other) differences, it may be that cognitive hope is a more important buffer, as compared with selection, against these types of stress as they become salient in high school. This could be because cognitive hope is based on individual agency and ability to push-through obstacles and persist despite difficulty. As such, our findings provide information regarding the importance of promoting youths' cognitive hope skills in high school, in an effort to help them feel more efficacious in their goal attainment abilities and identification of paths for goal attainment. In turn, these adolescents likely have less stress about their future because they are cognizant of their ability to overcome goal-related obstacles and navigate stress as related to interpersonal interactions (Folkman, 2010).

Among both middle- and high-school students, cognitive hope negatively predicted physiological feelings of anxiousness. These findings align with previous research that has examined cognitive hope as a predictor of composite measures of internalizing behavior (Ciarrochi et al., 2015; Padilla-Walker et al., 2010; Valle et al., 2006). More specifically, researchers propose that cognitive hope may act as a buffer during times and contexts when individuals may be more inclined to feelings of anxiousness (e.g., Folkman, 2010). We expanded upon this by focusing explicitly on adolescents' physiological feelings of anxiousness, as opposed to a more global approach using a composite internalizing behavior variable. When faced with an adverse situation, youth who have high levels of cognitive hope may be more likely to identify the adversity as being situational, rather than attribute it to their own inabilities, thereby decreasing subsequent feelings of anxiousness (Snyder, Lopez, Shorey, Rand, & Feldman, 2003). Because there is limited research in this area, more information is needed to understand how cognitive hope may buffer, or moderate, the relation between adolescents' experiences and physiological feelings of anxiousness, with direct implications to high stakes school contexts such as standardized testing (Snyder et al., 2002a). In addition, cognitive hope seems especially relevant given that we did not find that behavioral hope predicted physiological

feelings of anxiousness. This finding may not be too surprising given that physiological feelings of anxiousness are likely rooted in psychological rather than behavioral processes.

4.4 | Cognitive and behavioral hope: Implications and future directions

Cognitive and behavioral hope are malleable constructs that can be learned and developed within an academic context (Lopez et al., 2009). Targeting adolescents' hope through intervention can occur from the broadest context of the school environment to individual interactions between students and teachers. Ideally, the overall school climate, including all faculty and staff, will promote adolescents' hope by providing a welcoming environment in which students' cognitive hope is promoted through encouragement to set goals and support in pursuing them (McDermott & Hastings, 2000). Research has shown that having a positive relationship with an adult (i.e., psychological engagement) promotes behavioral hope skills in adolescents (Bowers, Wang, Tirrell, & Lerner, 2016). This can occur on a one-on-one basis when faculty and staff interact with students. Within the interactions between an adolescent and a caring adult, it is important the adolescent receives repeated reinforcement and scaffolding regarding their ability to identify appropriate goals (i.e., cognitive hope) and the skills necessary to reach those goals (i.e., behavioral hope). Students who view their teachers as mentors or role models may be more likely to learn goal-setting skills and work toward goal pursuit, as they internalize what they are learning from the adult with whom they have a safe, close relationship.

Interventions targeting cognitive hope have previously been shown to be effective in middle school children (see McDermott & Hastings, 2000 for approaches to intervention and Snyder et al., 2002a for techniques to promote agentic and pathways thinking). Broadly, teachers can integrate cognitive hope and aspects of behavioral hope (i.e., selection and optimization) into their daily lessons by having students work on recognizing their own abilities as related to goal identification, paths to goal attainment, and strategies and resources that will support their goals. In addition, goal identification can be integrated within lessons by providing students opportunities to understand how what they are learning can have real-life implications on their goals and future, across different life domains (Lopez et al., 2009; Snyder et al., 2002b). To fully nurture youths' cognitive hope, teachers should strengthen existing skills, as well as develop new skills to help students learn how to set realistic, attainable goals, and the routes to goal attainment, all of which can take time to develop and may require repeated reinforcement. As such, it is important that school administrators not only support students via direct interactions, but also support teachers as they work to infuse hopeful thinking skills into their lessons and everyday experiences with students, by acknowledging that development of cognitive and behavioral hope skills can be a time-consuming process (McDermott & Hastings, 2000).

Although the present study provides novel information regarding how both cognitive and behavioral hope are related to adolescents' academic functioning and well-being, it is not without limitations. First, data were collected from schools within a single district. As such there may be limitations to generalizability of findings and future research should attempt to replicate these findings among diverse populations. Second, because the data were cross-sectional, we are limited in our ability to determine causality or to examine how hope may be related to the outcomes over time. Future research should examine these relations longitudinally to explore causality and to better understand within-subject patterns of hope over time. Lastly, much of the data were collected via self-reports from the students. Given some of the limitations of self-reported data (e.g., self-presentational and demand pressures), future researchers could expand on our approach by including teacher, parent, and/or observational measures of children's behavioral hope and engagement.

Despite these limitations, the findings of the present study provide support for focusing on ways to increase youths' capacity for and feelings of hopefulness. Cognitive and behavioral hope are malleable constructs that can be easily targeted for intervention. Our findings highlight that educators should focus on cognitive hope specifically to bolster adolescent academic achievement and well-being. Teachers can help youth practice goal-setting skills, foster agentic thinking that can empower youth to work toward goals, and both model and promote

pathways thinking when students encounter roadblocks. Educators can also help youth identify behaviors required for goal attainment (behavioral hope), as these behaviors are important to promote school engagement. By fostering both types of hope within the classroom context, students are likely to experience increased academic success and well-being.

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