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John Henryism, psychological labor, and control-value theory: Race, ethnicity, and situational coping for student success

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This study explored the integration of John Henryism—defined as effortful, active coping in response to environmental stress—into control-value theory. Specifically, we were interested in how this process differed among identity groups. We used measures of John Henryism (JHAC-12), control-value theory, and momentary engagement (Record of Experience) on a school-based task. Results demonstrated the following: identifying as a first-generation college student predicted John Henryism; value significantly predicted cognitive engagement and positive emotion; and perceived control lowered negative emotions. Identifying as a first-generation college student corresponded to higher levels of John Henryism and control. Identifying as female led to a decrease in positive emotions, but an increase in value. Similarly, identifying as a Black student was associated with a decrease in control, but also a decrease in negative emotions. Indirect effects showed that identifying as a first-generation college student led to an increase in John Henryism followed by (1) an increase in value, (2) an increase in perceived control, or (3) an increase in value with attendant positive emotions. Findings indicate that John Henryism integrates into control-value theory and contributes to momentary engagement on a school-based task.

Introduction

The failure of some students to succeed and flourish remains a conundrum for educational researchers studying motivation within educational psychology. Some researchers have called for integrating and examining the role of race/ethnicity within educational theories on motivation (see DeCuir-Gunby and Schutz, 2014; Matthews and López, 2020; Schutz, 2020; Wigfield and Koenka, 2020), while others focus on exploring

learner motivation at a situational level (Eccles and Wigfield, 2020; Nolen, 2020; Dietrich et al., 2022). Currently, there is scant research integrating the two; however, researchers are beginning to turn their attention to this problem (see Schmidt et al., 2015; Xie et al., 2019a). In this quest (Goetz et al., in press) for understanding, educational research, broadly, and educational psychology research, more specifically, can fall victim to reductive, straightforward theories, missing potential paradoxes that are prevalent in educational settings (e.g., assuming high levels of motivation and engagement are solely adaptive, only lead to positive educational outcomes, and do not have associated costs). As researchers build models to account for these complex systems, theories such as *John Henryism*—defined as a behavioral predisposition for effortful, active coping in response to environmental threats or stressors (James, 1994, 2019)—often fail to gain traction due to the preference for readily understood and applied frameworks. Therefore, our goals for this paper are twofold: (1) a broader goal of bringing awareness about John Henryism to the education and educational psychology literature; and (2) a more specific goal of responding to the call to integrate theories and concepts with a focus on diversity into contemporary motivation/educational psychology theory.

John Henryism is a construct lifted from the epidemiology literature. In four decades of research (see James, 2019 for a full review), John Henryism has demonstrated that high-effort coping is, in fact, paradoxical and more akin to a "skin-deep resilience" (Miller et al., 2016; Brody et al., 2020). That is, a person's observable achievement-related behaviors may be deemed positive or "resilient," but to that same degree, negative unseen health-related outcomes may be occurring or beginning to emerge. We refer to this steep cost of success as *success with stress*. This paper uses the concept of John Henryism to elucidate the limitations of current motivational theory and begin to challenge the narrative of popular contemporary educational psychology theories—for example, resilience (an individual's capacity to adequality respond to disturbances that threaten their human [e.g., psychological] systems; Southwick et al., 2014), grit (passion and perseverance for long-term goals; Duckworth et al., 2007; McGee, 2016; Ponnock et al., 2020), and growth mindset (an individual's beliefs their personal characteristics can be develop over time; Yeager and Dweck, 2020; King and Trinidad, 2021)—to add a dimension that is meaningful, especially for underrepresented minorities (URM), first-generation students, and low socioeconomic status (SES) students. Unlike grit, for example, which implies a deficient psychological attribute (Adams et al., 2019) and assumes that students of color, especially Black students, need to "toughen up" (McGee, 2016, p.1630), John Henryism assumes success is paradoxical; that is, behaviors that lead to success come at the expense of a *coping response* to negative environmental stressors, that if gone unchecked, can lead to negative health outcomes. Therefore, John Henryism might be a more appropriate construct when thinking about how URMs succeed against all odds compared to a construct like grit.

Specifically, we have chosen to focus our research on John Henryism for three reasons. First, we believe John Henrysim takes a more asset-based (not deficit) approach to studying underrepresented students of color (DeCuir-Gunby and Schutz, 2014). For example, concepts like social support underpin an individual's use of John Henryism (Bronder et al., 2014), suggesting that positive social relationships may simultaneously encourage and buffer John Henryism. Second, we also believe that concepts like resilience, grit, and growth mindset may actually be damaging or potentially dangerous to underrepresented students of color; that is, the burden is placed on an individual's psychology, not the system that nests the individual (McGee, 2016; KPBS, 2017; Adams et al., 2019). Third, John Henryism refers to a coping strategy that is inherently situational (i.e., a high-effort coping that emerges in context). Having a theoretical framework specifically focusing on *in situ* cognitive and behavioral activity is critical. Furthermore, John Henryism fits with calls from the field of educational psychology to study student engagement more situationally (Nolen, 2020), while considering racial differences (Wigfield and Koenka, 2020).

Much of the current research on John Henryism in educational contexts focuses on increased negative health outcomes as John Henryism, as measured by the JHAC-12 (see Jackson and Adams-Campbell, 1994; Volpe et al., 2020; Lamb et al., 2021). What has yet to be explored is how John Henryism (i.e., coping), as emerging momentarily as part of the psychological process during schoolwork, leads to high levels of motivation and engagement (i.e., patterns of behavior). Examining key psychological components influenced by John Henryism, such as increased value and control and subsequent levels of engagement during an activity, is essential to understanding student success in an educational setting. This study suggests that John Henryism serves as a coping strategy for overcoming environmental stress—e.g., lack of culturally competent teaching, thus underpinning the "go-getter" personality profile characterized by high levels of extroversion and conscientiousness (Stanton et al., 2010)—leads to the broad question: *How and to what extent does John Henryism activate the motivational process once environmental stress has been perceived?*

An approach to exploring how John Henryism emerges in context is to examine the coping strategy situationally during a task (Nolen, 2020; Symonds et al., 2021; Dietrich et al., 2022) as a response to stressors elicited by the environment. In the epidemiological literature, John Henryism has been typically examined as a trait, e.g., longitudinal health outcomes (Brody et al., 2020). Because John Henryism is inherently situational, studying it in context *during* a task is a new approach. By integrating John Henryism into a motivation theory—in our case, control-value theory (CVT; Pekrun, 2006)—we explored how John Henryism activates the control/value/engagement process for learners, especially those from marginalized backgrounds. We used the following research question to ground our study: *To what extent does John Henryism, as it relates to a student's identity, predict control and value on a task and subsequent situational emotional and cognitive engagement?*

Theoretical framework

The John Henryism hypothesis

Named after the late 19th-century American folk hero who died of exhaustion after an epic contest with a mechanical steam drill, John Henryism is defined as a behavioral predisposition for effortful, active coping as a response to contextual stressors (James, 1994, 2019). Eccles and Wigfield (2020), Nolen (2020), and Dietrich et al. (2022) have called for motivation theories to change their focus from general to situational measures of motivation, given that motivation emerges momentarily. John Henryism responds to this call as a form of coping, defined as cognitive and behavioral strategies that reduce negative emotions *in context* [our emphasis] (American Psychological Association, 2022), which is underpinned by increased levels of control, motivation, and engagement. Furthermore, John Henryism was conceptually and operationally designed to assess health outcomes as they relate to differences in motivation and engagement among racial groups to cope with systemic oppression. Because John Henryism examines racial differences in high-effort coping—i.e., the psychological labor that accompanies physical labor by URMs, specifically Black and Latinx people—it is thus a novel, necessary addition to the field of educational psychology. John Henryism answers the challenge to educational psychologists and educational researchers to include motivational constructs that specifically include race as a core component.

John Henryism accounts for heroic levels of control, motivation, and engagement for people under environmental/contextual stress. On the surface, this psychological profile can seem beneficial and adaptive. While high levels of John Henryism may indicate positive psychological health and behavioral outcomes (see Kiecolt et al., 2009; Stanton et al., 2010; Brody et al., 2020; Robinson and Thomas Tobin, 2021) and mirror other motivation-resilience theories (e.g., grit; Duckworth, 2016), these positive psychological and behavioral outcomes are only part of the story and could come with a significant physiological cost. Research has indicated that physiological costs tend to be associated with long-term reliance on John Henryism without sufficient economic support (Brody et al., 2020). Brody et al. (2020) showed that despite increased graduation rates (i.e., positive behavior) and more adaptive psychological adjustment, people relying on John Henryism to climb out of poverty were more likely to show higher levels of metabolic syndrome, which includes increases in blood pressure, excess body fat, and high blood sugar (Mayo Foundation for Medical Education and Research, 2021) accompanied by insulin resistance. Again, Brody et al. (2020) and Miller et al. (2016) refer to this paradox as "skin-deep resilience," a common analog for John Henryism (James, 2019). It is troubling, however, that the skin-deep resilience associated with John Henryism impacts members of historically marginalized and URM communities to a greater extent than it does Whites (James, 1994; Gaydosh et al., 2018). An analysis of developing health issues is outside of the scope of this paper,

which focuses on related psychological mechanisms that lead people, especially those in URM and low SES groups, to be motivated and engaged in their schoolwork and to achieve success.

Why John Henryism? A new approach to understanding resilience

While the concepts of resilience and grit are well-known in the literature of educational psychology, especially motivation and student success, John Henryism adds an additional layer of complexity to this research. John Henryism may explain how an individual, particularly someone of color from a lower socioeconomic background (James, 1994), copes in the face of environmental stress, including systemic racism. John Henryism resembles resilience, which describes adaptation to context (Southwick et al., 2014), in that one's observable behavioral could be deemed resilient. That observable "resilience," however, may actually be constant coping in the face of environmental stress, which, for some marginalized identity groups never ceases (James, 1994, 2019). Whereas resilience is about adapting to and assimilating with a foreign or threatening context, John Henryism, is actually coping *masquerading* as resilience (see Brody et al., 2020).

Coping and resilience are differentiated by their conceptual definitions: coping is a state (situational), while resilience is often considered a trait (Fletcher and Sarkar, 2013); however, both predict patterns of behavior (Troy et al., 2022). Similarly, the concept of grit explains that persevering through stress toward a goal requires toughness (McGee, 2016) gained by possessing a particular psychological attribute for persisting through difficulty (Adams et al., 2019). Concepts such as resilience and grit take the onus off the system and place it on individual. John Henryism refers to situational coping, however. Context bound, it describes a coping response that intersects with resilience and grit and explains why some people, e.g., URMs, succeed under intense stress. This response is part of a "compensatory process that protects them from the pain associated with need deficits but also in goal processes and contents…" (Ryan and Deci, 2000, p: 249). Put most simply, resilience is adaptation; grit is a psychological attribute; and John Henryism is a context-bound, protective coping strategy that may help psychologically in the short term and physiologically hurt in the long term. John Henryism, then, adds an important dimension to our understanding of motivation for URM and first-generation college students.

John Henryism goes to college

This study examined John Henryism situationally as it emerges during schoolwork. Studies of John Henryism in a college of university context have offered fruitful insight into how URMs cope with environmental stress; however, they tend to treat John

Henryism as if it were a static student trait rather than as the impetus for something manifesting in real time, i.e., while engaging in an activity. Some noteworthy studies incorporating John Henryism to describe learning at the college level include Gaydosh et al. (2018), who found that while college completion predicted lower rates of depression for all racial groups, Black and Latinx (compared to their White counterparts) people from lower socioeconomic backgrounds showed higher levels of metabolic syndrome. Using a sample of rural Black participants, Brody et al. (2020) found that living more years in poverty during adolescence while having higher rates of self-control led to a stronger likelihood of graduating from college and having lower depressive symptoms, but paradoxically a stronger likelihood of developing metabolic syndrome and insulin resistance. Volpe et al. (2020) found that attending a predominantly White institution (PWI) led to higher diastolic blood pressure, which left untreated could lead to heart disease in Black students. Last, in a study examining only psychological outcomes, Bernard et al. (2020) found that Black students attending PWIs demonstrated higher levels of social anxiety and imposter syndrome compared to Black students who attended historically Black colleges and universities (HBCUs).

These studies demonstrated that both identifying as Black or Latinx and context are important for understanding the role of John Henryism in postsecondary education. These studies also showed that John Henryism can be paradoxically both adaptive and maladaptive, allowing for a more nuanced perspective of achievement compared to better known educational psychology theories. These studies, however, examined John Henryism as trait, not as a momentary psychological strategy for coping with environmental stress. In the present study, we integrate and examine John Henryism within the context of control-value theory (CVT; Pekrun, 2006), adding an important momentary psychological focus to the study of John Henryism while also considering the implications of a student's identity.

Precursors to engagement: Integrating John Henryism into CVT

CVT has been operationally defined as an appraisal, i.e., an individual's perceived sense of control and value of a learning activity or task where emotions (positive/negative, activating/deactivating), and the subsequent cognitive engagement that emerges as outcomes of the perceived control and value of that task (Pekrun et al., 2007; Cavanaugh, 2016). Perceived control has been previously explored alongside John Henryism, with researchers investigating how sense of control and John Henryism influence mental health (Kiecolt et al., 2009). In this study, researchers found that sense of control and John Henryism, as coping resources and styles, respectively, benefit mental health equally across SES and race/ethnicity. Value has not been studied directly (see Bernard et al., 2020 and Lamb et al., 2021 for a brief discussion). Previous research both informs our focus on CVT and John Henryism and suggests the need for further exploring

the overlap among control, value, and John Henryism by updating the current conceptual model underpinning CVT.

This study attempts to add nuance to CVT so that it may better address situations related to race and diversity. Because popular motivation theories such as CVT do not generally include components that reflect levels of social power (Crenshaw, 1989, 1990) and historically underrepresented populations (DeCuir-Gunby and Schutz, 2014; Matthews and López, 2020; Schutz, 2020; Wigfield and Koenka, 2020), they fail to address how aspects of racial identity activate perceived control and value. We posit that John Henryism, as a coping strategy in a learning environment in which race and ethnicity influence context and *vice-versa*, activates control and value. Specifically, we are using James (1994, 2019) hypothesis that John Henryism is a critical precursor to engagement and subsequent action for underrepresented minorities in contexts where they may perceive environmental stress (Torsney et al., 2022). *Therefore, we believe that as control and value are activated by John Henryism, increases in positive activating emotions* (e.g., excitement or activity) *and decreases in negative activating emotions* (e.g., irritation or anxiety) *can be expected. High positive emotions may then predict deeper levels of cognitive engagement*, i.e., problem solving and skill use (Chong et al., 2018).

Our goal is to integrate John Henryism into the CVT framework to bring awareness to racial identity as part of the learning context and the motivation system. With that focus, we expect that John Henryism will activate the motivational process, i.e., value and control, described by CVT, leading to higher levels of control/value, positive emotions, and cognitive engagement. This study explores this dynamic.

Momentary engagement as outcome

In the model for this study, we chose to use momentary engagement (Symonds et al., 2022) as our outcome, i.e., momentary cognitive engagement and momentary emotions, for two reasons. First, engagement as a broader construct is essential for positive learning outcomes (Fredricks et al., 2004). Sinatra et al. (2015) went so far as to say, "Engagement could be described as the holy grail of learning" (p.1). Second, engagement, i.e., action/activity in context, is the step directly following an individual's intention or willingness to act (Ajzen, 1991). CVT and John Henryism, then, act precursors (i.e., mediators) to engagement or action. Specifically, momentary engagement, defined as brief fluctuations of interactions among behavioral, cognitive, and affective dimensions during a task, is a response to the complexity, i.e., interaction of environmental challenge and support, within the learning environment (Shernoff et al., 2016). This response can significantly impact students' achievement and learning (Greene et al., 2004; Xie et al., 2019b). The emergence of engagement is underpinned by the dynamic interplay between an individual's psychological processes and the task and/or school context (Symonds et al., 2022). A complex, multidimensional

construct, engagement requires assessment at multiple levels within the unit of analysis, i.e., grain sizes (Sinatra et al., 2015). Recent work on the dynamic nature of engagement has proposed a grain size incorporating three dimensions: time spent on task, the task itself, and the psychological processes occurring within the individual (Symonds et al., 2022). We are studying participants in context, i.e., person-in-context grain size, and are mostly concerned with the psychological processes occurring within the individual during the task. According to Xie et al. (2019a), using measurements *in situ* is "particularly well-suited for person-in-context studies of engagement" (p. 2). We chose to examine this level of engagement because students will still be in the task context, allowing them to recall their levels of engagement more accurately than they could in longer-term retrospective studies of engagement (Meyer and Turner, 2002; Sinatra et al., 2015). Momentary engagement, then, is a new, more theoretically aligned outcome for studying the psychological effects of John Henryism.

Momentary emotions as a mediator

Emotions are defined as short-term positive or negative affective responses to environmental stimuli (Goetz et al., in press). In this study, we posit that momentary emotions will fluctuate during a task/activity, which may have implications for how cognitive engagement is positively or negatively activated (Pekrun and Linnenbrink-Garcia, 2012). Specifically, depending on the direction, i.e., positive or negative, and valence, i.e., activating or deactivating, cognitive engagement will vary (Pekrun and Linnenbrink-Garcia, 2012; Pekrun and Marsh, 2022). For example, it is reasonable to predict that students who show more excitement and greater levels of activity during a task (positive activating emotions), along with more agency, will also have greater levels of cognitive engagement, e.g., greater skill use, and sense of control over their engagement and learning (Patall et al., 2022). Alternatively, it is reasonable to predict that students who show greater levels of stress and anxiety during a task (negative activating emotions) will have lower levels of cognitive engagement because they will be attending to their stress and anxiety.

In this study, we operationalize emotions as part of the momentary cognitive process, which is directly related to antecedents associated with the individual in context (Skinner et al., 2022). Emotions are relevant to this study because positive or negative emotions, when repeated, may impact students' long-term motivation, achievement, and health (Linnenbrink-Garcia et al., 2016; Pekrun, 2017; Immordino-Yang et al., 2018). Therefore, coping in order to regulate these emotions may be an inherent part of schooling for some historically underrepresented students, making it imperative that John Henryism be examined in the context of momentary emotions on a school-based task/activity.

Momentary cognitive engagement as outcome

Momentary cognitive engagement is defined as an individual's momentary use of problem-solving and reasoning skills to recall information during a learning activity (Chong et al., 2018). Greater levels of momentary cognitive engagement have been seen to increase psychological factors required for academic achievement, such as increases in knowledge in a domain (Torsney and Symonds, 2019), motivation (Guthrie et al., 2004), self-regulation (Cleary and Zimmerman, 2012), and self-efficacy (Schunk and Mullen, 2012). By studying cognitive engagement momentarily *in situ*, researchers can observe brief periods of concentration, effort, and skill use. In this study, we propose adding John Henryism to the exploration of momentary cognition, emotion, control, and value to account for the demands of coping for students with marginalized identities in learning environments.

Current study

The current study sought to answer the following research question: *To what extent does John Henryism, as it relates to a student's identity, predict control and value on a task and subsequent situational emotional and cognitive engagement?* This study will assess the relationships among variables in the model to explore whether John Henryism, i.e., effortful, active coping underpinning high levels of value and control (James, 1994, 2019), will spark the motivational process described by CVT (Pekrun, 2006), leading to deeper cognitive engagement during a school-based task (see Figure 1). Based on our prior research (Torsney et al., 2022) and the theoretical underpinning of John Henryism as a precursor for engagement, we hypothesize that John Henryism will activate the CVT and momentary engagement system. That is, John Henryism will mediate relationships among specific demographics by increasing control (Brody et al., 2020; Patall et al., 2022) and value, increasing positive emotions and lowering negative emotions (Gaydosh et al., 2018; Robinson and Thomas Tobin, 2021), and increasing cognitive engagement (Torsney et al., 2022).

Materials and methods

Participants

The sample consisted of 294 students from four institutions of higher education across the United States: (1) an urban university from the mid-Atlantic (75%); (2) a university from the West (15.1%); (3) a college from the Midwest (5.5%); and (4) a university from the Southwest near the U.S./Mexico border (4.5%). Female composed a majority of the sample (68.5%), with 31.5% identifying as male. The mean age for students was 22.8 years old.

The racial and ethnic composition of the sample consisted of White (non-Latinx; 56.5%), Black (17.8%), Latinx (11.6%), two or more races (7.9%), Asian (4.5%), students who did not wish to identify (0.7%), Middle Eastern (0.3%), and Alaskan/American Indian (0.7%). Last, 23.9% of the sample identified as being a

FIGURE 1
Study logic.
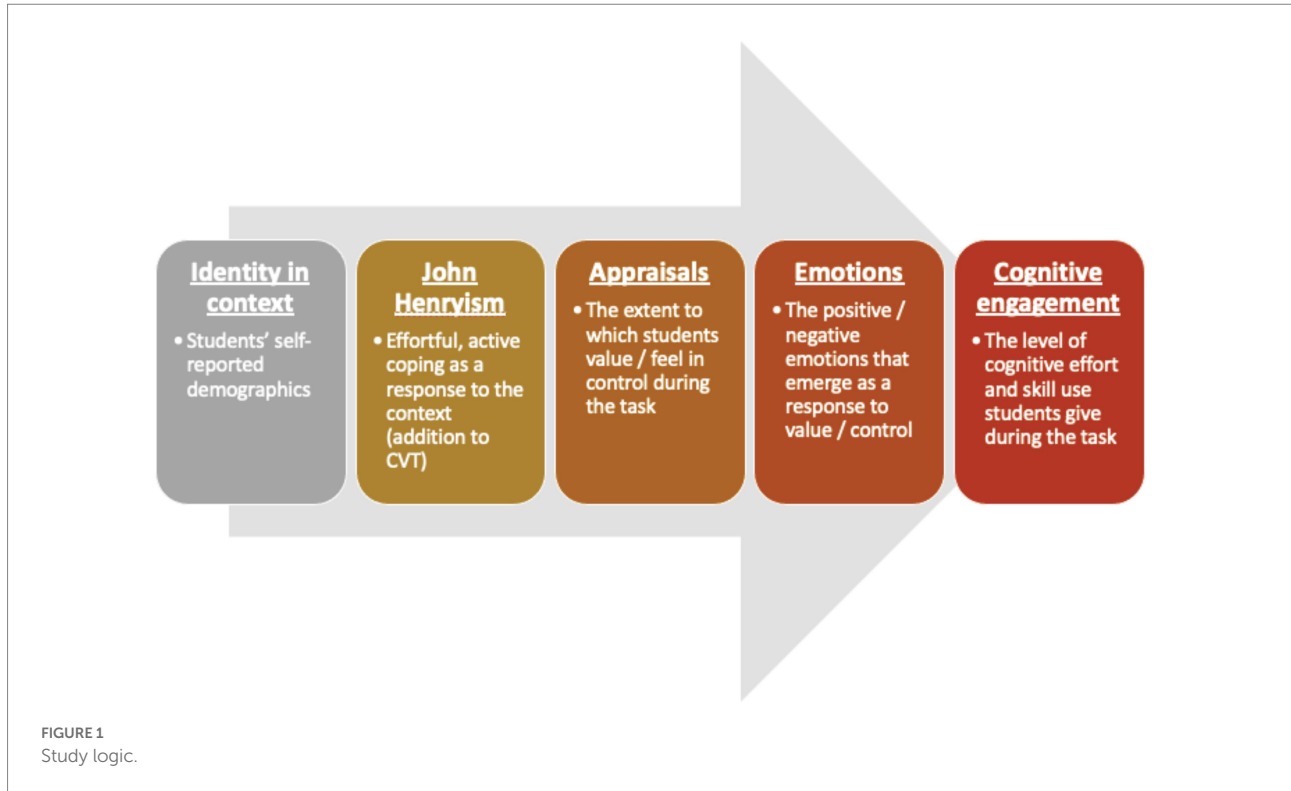
first-generation college student, a proxy for low SES (Factsheets. PNPI, 2021; Startz, 2022), defined as neither caregiver nor parents having earned a four-year college degree (Whitley et al., 2018; Stebleton and Jehangir, 2020). According to Startz, first-gen students tend to come from lower-income families (average family income of $58,000) than continuing-generation students (average family income of $120,000). Identifying as a first-generation college student, then, aligns with the potential to use John Henryism during schoolwork. This sample was purposefully drawn across four unique settings to obtain a more racially diverse sample of students.

The study was approved by the Temple University Institutional Review Board (protocol #25962).

Measures

For this study, we used three measures: (1) a demographic questionnaire; (2) the 12-item John Henryism Active Coping Scale (JHAC-12; James et al., 1987); and (3) the Record of Experience (RoE; Shernoff et al., 2016).

First, to collect demographic data, we asked students prior to the task to identify their race/ethnicity, gender, and first-generation status.

Second, students completed the JHAC-12, which consists of 12 items measuring the extent to which an individual relies on their John Henryism, and is anchored (1) completely false to (5) completely true. A sample item in the JHAC-12 included: *I've always felt that I could make of my life pretty much what I wanted*

to make of it. We noticed that seven of the 12 items in the scale were oriented towards *intra-personal* factors, e.g., *Very seldom have **I** been disappointed by the results of my hard work*, and five items were oriented towards *inter-personal* factors, e.g., *It is important for me to be able to do things the way I want to do them rather than the way **other people** want me to do them*. We examined both sets of items using only the seven intra-personal items in the analysis for two reasons: (1) those items had stronger internal consistency ($\alpha = 0.78$), and (2) they fit with the theoretical underpinning for this study, i.e., mapping the intra-individual psychological dynamics of individual's engagement on a school-based task.

Designed to measure momentary, *in situ* engagement during a school-based task, the RoE addresses intra-psychological, inter-personal, and affective aspects of engagement. It is anchored (1) not at all to (5) very much. For this study, we used items from the RoE that theoretically aligned with five dimensions of CVT: (1) one item measuring *control*, (2) four items measuring *value* ($\alpha = 0.79$), (3) four items measuring *positive activating emotions* ($\alpha = 0.73$), (4) three items measuring *negative activating emotions* ($\alpha = 0.75$), and (5) three items measuring *cognitive engagement* ($\alpha = 0.70$). For control, we used the item *Did you feel in control* [during the activity]*?* For values, a sample item consisted of *Did you enjoy what you were doing?* For positive and negative emotions, participants rated emotions that occurred during the task, such as feeling *active* and *excited* for positive emotions and *anxious* and *irritated* for negative emotions. For cognitive engagement, a sample item consisted of *How hard were you concentrating?*

FIGURE 2
Structural equation model with significant direct effects.
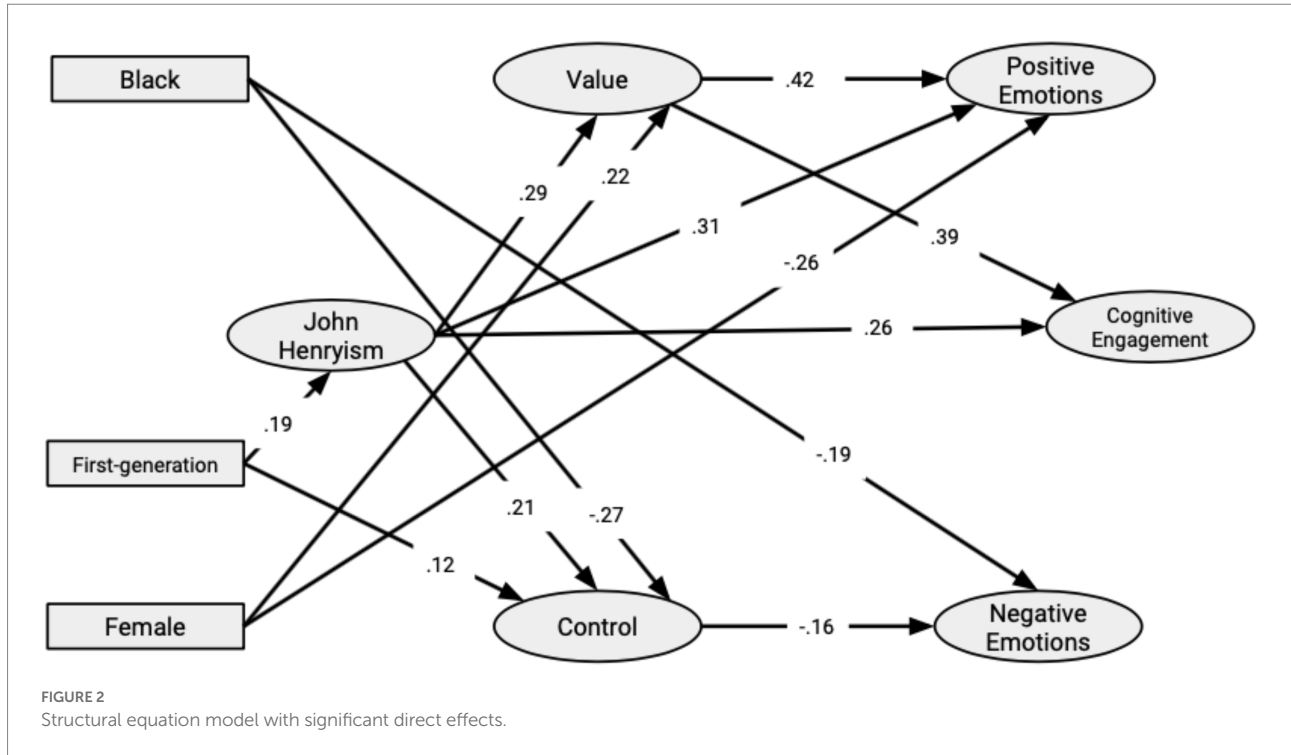
Procedure

Participants were identified through their instructors. Participants were then given a link randomly selecting them into an online task (Fergusson, 2016). Before engaging in the study, students consented to participate and supplied the demographic information described above. We asked students to indicate demographic information prior to the study to make it more salient (Williams et al., 2008). For the task, participants read about either active learning or mindsets and responded to follow-up questions (see Torsney et al., 2021 for specific information regarding the activities). These activity conditions were created for an adjacent study, not specifically for this study. An example of a similar research design is Parrisius et al. (2021), where statistical differences between activities were outside the scope of the study and relationships among variables were the focus. Following the task, participants completed the JHAC-12 and RoE. The study took approximately 30 min to complete.

Data analysis plan

To answer our research question, we used a structural equation model (SEM) to examine relationships among observed, i.e., demographic, and latent variables, e.g., John Henryism. See Figures 2, 3 for significant paths. We also sought to explore the construct validity of the seven-item JHAC-12 and the values, affective, and cognitive dimensions of the RoE using a confirmatory factor analysis (CFA).

We dummy coded demographic variables within the model, with White (non-Latinx) males who did not identify as first-generation college students as the reference group. Race and ethnicities beyond White, Black, Latinx, and two or more races were coded as missing as they did not provide adequate numbers to be included in the model, e.g., Asian students, $n = 13$. Using White students as the reference group is a theoretically sound approach when studying John Henryism because it allows URM groups to be interpreted more directly in the model.

Results

Means and standard deviations for latent constructs ranged from 2.47 (SD = 1.01) for negative emotions to 3.84 (SD = 0.60) for John Henryism. Correlations ranged from −0.22 (Black and control) to 0.43 (value and cognitive engagement). See Tables 1 and 2 for more detailed information.

For the CFA, all items loaded on latent factors as hypothesized (see Table 3). The SEM demonstrated a good fit for the data (Kline, 2015): X^2 (276) = 377.37, p = <0.001, RMSEA = 0.04 (90% CI 0.03–0.04), CFI = 0.94, SRMR = 0.05 (see Table 4).

Significant direct effects

Our model offered 13 significant direct effects (see Table 5). Direct paths predicting *cognitive engagement* included value ($\beta = 0.39$, $p < 0.001$) and John Henryism ($\beta = 0.26$, $p = 0.004$). Direct paths predicting *positive emotions* include value ($\beta = 0.42$, $p < 0.001$), John Henryism ($\beta = 0.31$, $p < 0.001$), and identifying as
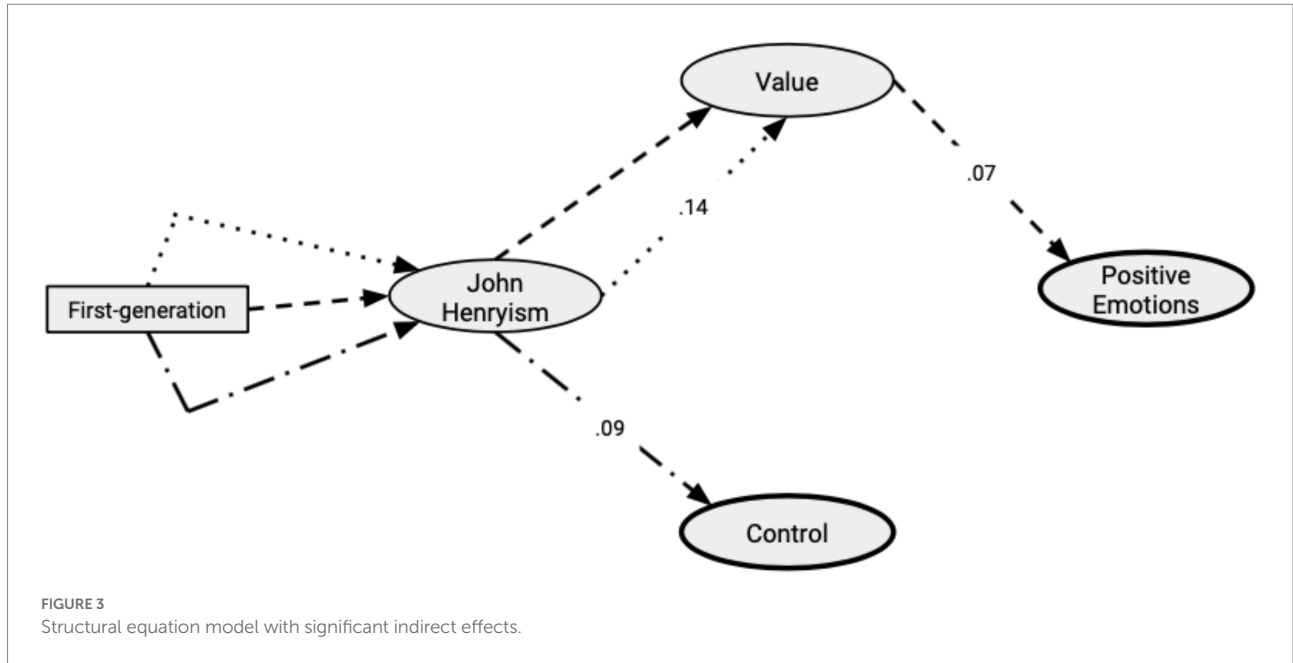
FIGURE 3
Structural equation model with significant indirect effects.

TABLE 1 Means and standard deviations.

Latent construct	Mean	SD	Alpha
JH	3.84	0.60	0.78
Control	4.05	0.98	N/A
Value	3.73	0.78	0.79
Negative emotions	2.47	1.01	0.75
Positive emotions	3.24	0.85	0.73
Cognitive engagement	3.16	0.82	0.70

N/A, ns applicable.

female ($\beta = -0.26$, $p < 0.001$). Direct paths predicting *negative emotions* include control ($\beta = -0.16$, $p = 0.019$) and identifying as Black ($\beta = -0.19$ $p = 0.006$). Direct paths predicting *value* include John Henryism ($\beta = 0.29$, $p < 0.001$) and identifying as female ($\beta = 0.22$, $p < 0.001$). Direct paths predicting *control* include John Henryism ($\beta = 0.21$, $p = 003$), identifying as a first-generation college student ($\beta = 0.12$, $p = 0.029$), and identifying as Black ($\beta = -0.27$, $p < 0.001$). Last, direct paths predicting John Henryism include identifying as a first-generation college student ($\beta = 0.19$, $p = 0.003$).

Significant indirect effects

We observed three significant indirect effects (see Table 6). First, there was an indirect path from identifying as a first-generation college student → John Henryism → value → positive emotions ($\beta = 0.07$, $p = 0.053$). Second, there was an indirect path from identifying as a first-generation college student → John Henryism → control ($\beta = 0.09$, $p = 0.039$). Last, there was an indirect path from identifying as a first-generation college student → John Henryism → value ($\beta = 0.14$, $p = 0.020$).

Discussion

In this study, we sought to examine how *John Henryism, as it relates to a student's identity, predicts control and value on a task and subsequent situational emotional and cognitive engagement.* We explored John Henryism within the CVT framework using cognitive engagement during a school-based task as the outcome. Findings demonstrated several significant relationships and pathways within the model.

Summary of findings

We learned that John Henryism predicted four of five dependent variables: *cognitive engagement* during a task, *positive emotions* about a task, *value* associated with a task, and sense of *control* felt during a task. We also found that identifying as a first-generation college student, with a higher probability for being lower income (Factsheets. PNPI, 2021; Startz, 2022), predicted John Henryism. Second, other critical paths within the model were related to the control and value components of CVT. Value was shown to significantly predict cognitive engagement and positive emotions, whereas control was shown to lower negative emotions. Last, several demographic variables showed significance within the model. Identifying as a first-generation college student, a majority Latinx and Black students in the sample (54%; 33 out of 61), corresponded to higher levels of John Henryism and control. Identifying as female had varied associations: a decrease in positive emotions with a concomitant increase in value. Similarly, identifying as Black was associated with both a decrease in control and a decrease in negative emotions. Furthermore, three significant indirect effects, each linked to identity as a

TABLE 2 Bivariate correlations.

	Black	Latinx	Two or more races	First-generation	Female	John Henryism	Value	Negative emotion	Positive emotion	Cognitive engagement	Control
Black	1										
Latinx	−0.18**	1									
Two or more races	−0.15*	−0.11	1								
First-generation	0.10	0.25**	−0.07	1							
Female	0.01	0.05	0.07	0.05	1						
John Henryism	0.09	0.12*	−0.11	0.18**	0.09	1					
Value	−0.08	0.15*	−0.04	0.12*	0.24**	0.27**	1				
Negative emotion	−0.15*	−0.01	0.10	−0.05	0.01	−0.09	−0.03	1			
Positive Emotion	0.03	0.10	−0.07	0.07	−0.11	0.33**	0.37**	0.14*	1		
Cognitive engagement	−0.01	0.12	−0.05	0.07	0.15*	0.31**	0.43**	0.06	0.29**	1	
Control	−0.22**	0.09	−0.04	0.14*	0.09	0.20**	0.37**	−0.12*	0.23**	0.25**	1

$**p < 0.01$; $*p < 0.05$.

TABLE 3 Confirmatory factor analysis.

	β	SE	t	p
John Henryism				
I've always felt that I could make of my life pretty much what I wanted to make of it.	0.64	0.05	14.22	<0.001
Once I make up my mind to do something, I stay with it until the job is completely done.	0.77	0.03	22.84	<0.001
When things do not go the way I want them to, that just makes me work even harder.	0.66	0.05	13.61	<0.001
In the past, even when things got really tough, I never lost sight of my goals.	0.58	0.05	11.38	<0.001
Hard work has really helped me to get ahead in life.	0.65	0.05	13.53	<0.001
It is not always easy, but I manage to find a way to do the things I really need to get done.	0.50	0.06	8.61	<0.001
Very seldom have I been disappointed by the results of my hard work.	0.35	0.06	5.51	<0.001
Positive emotions				
Creative	0.60	0.06	10.92	<0.001
Excited	0.64	0.05	12.52	<0.001
Active	0.67	0.06	12.27	<0.001
Curious	0.62	0.06	11.33	<0.001
Negative emotions				
Stressed	0.75	0.05	13.83	<0.001
Anxious	0.87	0.05	18.04	<0.001
Irritated	0.49	0.06	8.64	<0.001
Value				
How important was this activity or topic to you? -	0.71	0.04	17.2	<0.001
Was it interesting?	0.82	0.03	26.9	<0.001
Did you enjoy what you were doing?	0.80	0.03	25.0	<0.001
Was this topic or activity relevant to life outside of class?	0.50	0.06	8.1	<0.001
Cognitive engagement				
How hard were you concentrating?	0.67	0.06	11.07	<0.001
Were you using a high level of skill?	0.56	0.06	9.42	<0.001
How hard were you trying?	0.76	0.05	14.95	<0.001

first-generation college student, led to an increase in John Henryism followed by an increase in either (1) value, (2) control, or (3) value and then positive emotions. From these paths, relationships are evident among identifying as a first-generation college student, John Henryism, and CVT variables. Overall, the results demonstrate how John Henryism integrates into students' psychological processes when engaging in schoolwork. *That is, the motivation process described by CVT as a response to schoolwork*

and to the learning context is influenced by situational effortful, active coping, especially for first-generation URMs.

General discussion

This study sought to examine three components of a student's momentary engagement system on a school-based task: (1) the student and their self-reported identity, (2) their level of John

TABLE 4 Model fit statistics.

X^2	377.374
df	276
p	< 0.001
RMSEA	0.04
90% CI	0.03–0.04
CFI	0.94
SRMR	0.05

TABLE 5 Significant direct effects.

Direct effects	β	SE	t	p
To cognitive engagement				
Value	0.39	0.11	3.69	<0.001
John Henryism	0.26	0.09	2.86	0.004
To positive emotions				
Value	0.42	0.08	4.94	<0.001
John Henryism	0.31	0.08	4.01	<0.001
Female	−0.26	0.07	−3.94	<0.001
To negative emotions				
Control	−0.16	0.07	−2.35	0.019
Black	−0.19	0.07	−2.76	0.006
To Value				
John Henryism	0.29	0.07	4.38	<0.001
Female	0.22	0.06	3.64	<0.001
To control				
John Henryism	0.21	0.07	3.02	0.003
First-generation	0.12	0.05	2.19	0.029
Black	−0.27	0.07	−4.08	<0.001
To John Henryism				
First-generation	0.19	0.06	2.99	0.003

TABLE 6 Significant indirect effects.

Indirect effects	β	SE	t	p
To positive emotions				
First-generation → John Henryism → Value →	0.07	0.04	1.93	0.053
To control				
First-generation → John Henryism →	0.09	0.04	2.07	0.039
To value				
First-generation → John Henryism →	0.14	0.06	2.33	0.020

Henryism during that task, and (3) the integration and impact of John Henryism into the CVT/momentary engagement system. Again, we learned that identifying as a first-generation student (predominantly Black and Latinx) led to greater levels of John Henryism and subsequent aspects of the CVT process, i.e., value/control and subsequent positive emotions. This confirmed the results of other studies (see Gaydosh et al., 2018; Brody et al., 2020; Torsney et al., 2022), demonstrating that John Henryism may be an important precursor to engagement and academic success for underrepresented students, especially minorities of color, who may have more competing goals (Neely et al., 2009), such as part- or full-time job, than continuing generation White students. This study showed that a student's identity and high-effort coping (i.e., John Henryism) seamlessly integrated into the CVT/momentary engagement system. Put another way, historically underrepresented students in our study were shown to rely on higher level of John Henryism to produce more adaptive psychological outcomes (e.g., more value for the task) that are necessary for academic achievement in institutions of higher education (Eccles and Wigfield, 2020).

Most important, perhaps, these results suggest that education theory more broadly and educational psychology theory specifically need to continue to consider a host of variables related to the intersection of race and socioeconomic status (James, 2019) in their theories and models. This is especially important in countries like the United States, where race underpins entire social and economic systems (Hannah-Jones, 2021). DeCuir-Gunby and Schutz (2014), Matthews and López (2020), Schutz (2020), and Wigfield and Koenka (2020) have initiated a call to integrate identity into educational psychology theory, arguing that nuanced theories are (a) more descriptive and (b) more equitable. Absent the integration of identity into theory, certain groups of students will remain on the margins (Crenshaw, 2016).

Specific implications for higher education

These exploratory findings speak to Wigfield and Koenka's (2020) call for integration of concepts related to race and diversity into contemporary motivational theories. In this study, we developed a model combining CVT (Pekrun, 2006) and John Henryism (James, 1994, 2019), which adds race and diversity

elements to the situational motivation and the engagement process (Eccles and Wigfield, 2020; Nolen, 2020). This study extends the parameters of CVT to incorporate a more comprehensive model that includes coping in context for students who have historically been excluded from educational psychology theory.

Practically, CVT coupled with John Henryism can and should be used in classroom settings in higher education. Applying these theories could help instructors to identify students who appear to be motivated and engaged during a task or activity, possibly as a result of high-effort coping. Ironically, it may be worth checking in with the students, especially students at the intersection of first-generation (low SES) and URM, who are highly motivated and engaged. Doing so may help to alleviate the emergence of high-effort coping John Henryism, which could negatively impact the health and well-being of certain students.

Many students, faculty, and staff have never heard of John Henryism or CVT, however, let alone how they interact. Diversity, equity, and inclusion (DEI) trainings rarely if ever discuss John Henryism or the relationship between John Henryism and CVT. If colleges and universities want to support the short- and long-term outcomes of students, especially first-generation college students who show higher levels of John Henryism, they need to recognize John Henryism and create programs to address it.

One strategy to integrate John Henryism into the classroom and buffer its potential negative effects is by placing mentors with students who are high in John Henryism (Lamb et al., 2021). Lamb et al. (2021) explained that mentors, especially those of the same gender and ethnicity, may provide the psychological support needed by students with high levels of John Henryism. Additionally, James (1994, 2019) has shown that high levels of John Henryism are incredibly adaptive when supported by socioeconomic resources. When John Henryism is coupled with a lack of socioeconomic resources, however, it becomes maladaptive and can lead to negative health outcomes (Brody et al., 2020). Knowing that first-generation students mostly come from lower socioeconomic backgrounds than continuing generation students (Factsheets. PNPI, 2021), institutions of higher education should train and develop mentors to buffer high levels of John Henryism in students with lower economic resources. As this study shows, first-generation college students, who were majority Black and Latinx, showed greater levels of John Henryism and demonstrated greater value, positive emotions, and control. Mentors can support students by teaching strategies to make these positive motivational and emotional factors adaptive. For example, students can take a break from studying when needed or study with others to distribute the workload (Fullilove and Treisman, 1990; Steele, 2011). They should also be told that such breaks are OK, refuting not only the American work ethic (Adams et al., 2019) but also the now culturally embedded notion of grit (McGee, 2016). Such strategies may help these students achieve academically without the possibility of negative health outcomes.

Another potentially useful strategy posed by Rolle et al. (2021) posits a six-point system of neutralizing John Henryism among Persons Excluded from science because of Ethnicity and Race (PEERs), where each component of the system impacts the components that follow. This system includes (1) diversity training for non-PEERs, (2) programs that can prevent and help manage discrimination, (3) PEER allies, (4) embracing cultural differences, (5) normalizing excellence, i.e., showing representations of excellence within minority communities, (6) better stress management. Underpinning this six-point system are two critically important requirements: (1) a sense of belonging and (2) an abandonment of the neoliberal view of production and growth permeating higher education without acknowledging the human costs to the psychology and physiology of the individual.

Implications for John Henryism in education

John Henryism deserves greater attention in the educational psychology literature. As practitioners understand how John Henryism emerges, they can study and evaluate strategies to minimize and eliminate environmental stress for those high on the JHAC scale.

In a classroom, advising, or residential education setting, faculty and staff need to be aware of John Henryism so they can help students turn off or at least dial down their effortful, active coping. One way to accomplish this is by focusing on student belonging, both implicit (or ambient; Cheryan et al., 2009) and explicit (Gray et al., 2018). Implicit belonging refers to the environmental cues that students perceive unconsciously. What might be described as a "vibe" allows them to feel calm or at peace in a classroom/school context. Questions to consider are: How are the desks arranged? What is the lighting like? Is anything on the walls? Is the overall feel of the classroom inviting? Explicit belonging is the conscious perception of feeling accepted, respected, supported, and included in a certain context (Goodenow, 1993; Gray et al., 2018). In other words, how conducive is the class context for allowing all students, especially URMs at PWIs (Bernard et al., 2020) to feel like they are part of the class and contributing to contributing to the production of positive emotions (Sinatra et al., 2015). Some questions faculty wanting to promote belonging in their classes might ask themselves include: Am I using inclusive language? Do my assignments allow for all students to actively engage? Do my students have autonomy? Are all students encouraged to participate? Is my humor appropriate? Focusing on creating a classroom environment that centers belonging is essential because such a classroom climate may help to minimize John Henryism. Creating an emotionally safe learning environment for all students, as opposed to focusing on high-stakes performance that encourages a gritty, tough response (McGee, 2016), will serve URM and low SES students high in John Henryism more effectively.

Adams et al. (2019) explained that much of psychology is underpinned by neoliberalism, for which concepts such as grit (Duckworth, 2016) and growth mindset (Dweck, 2006) play a

significant role. Colleges and universities are also part of this system. If the current system elicits higher levels of John Henryism among URMs as a strategy for coping with environmental stress, then it is past time for institutions genuinely committed to justice and equity to reform the system. Suggestions for higher education reform are not within the scope of this paper, but because John Henryism describes a personal response to environmental issues, it could be a useful model for understanding how the larger higher education machine reinforces cultural norms and values that could be harmful for vulnerable populations.

Limitations and future research

First, it may have been beneficial to take multiple measures of engagement and the other constructs of interest during, not immediately following, the activity. To do so, however, we would have had to significantly reduce the number of items on the survey, which was not feasible for this study. For example, because a short-form version of the JHAC-12 does not currently exist, taking that measure multiple times during that task would have greatly increased the time for students to complete the inventory. Future research should consider creating a short-form measure of the JHAC-12 to be used in experience sampling studies.

Second, we used a convenient sample. We did not have Asian representation in our study due to a small subsample of Asian students who participated. Though underrepresented Asian students were not considered in the John Henryism theory, future research should consider including them in statistical models. We did, however, attempt to obtain a larger sample of Latinx students by surveying students from a large university in the Southwest.

The sample was also predominantly White and female. While it was not ideal, it was the population we had access to for this study. We were also not able to collect data specifically on SES. We did, however, collect data on first-generation college student status, which has been used as a proxy for SES, albeit a proxy with limitations (Goward, 2018). Our findings nonetheless follow the logic and hypotheses of John Henryism theory and CVT, especially with the relationship between first-generation student status, John Henryism, and control, value, and positive emotions. Future studies should continue to oversample more racial and ethnic minorities.

Third, for the analysis, we reduced the number of items on the JHAC-12 to seven. Although this was not how the inventory was conceptualized and operationalized, our analysis of the JHAC-12 showed intra- and inter-personal items. These seven intra-personal items were adequate for this study for two reasons: (1) they fit the logic of the study better than the five interpersonal items, as shown by our CFA and SEM, and (2) they showed adequate internal consistency compared to the interpersonal items, which could not be used for this purpose due to inadequate internal consistency. We also used only one item to measure control. Subsequent studies should include measures with multiple items for control.

Last, this study was specifically exploratory, correlational, and descriptive: findings should be considered in that context, without making causal inferences and judgments. Our results are nonetheless useful for future studies, where John Henryism is included in motivational frameworks.

Conclusion

In *John Henry Days,* Colson Whitehead (2001) writes, "He [John Henry] helped build this nation into what it is today, and his great competition with the steam drill is a testament to the human spirit" (p. 66). This quotation rings true for those students who are required to rely on John Henryism to achieve in school. Remaining engaged in a task as a result of increased control and value, which is activated by effortful, active coping is not something to be taken lightly. The first-generation predominantly Black and Latinx students who benefited from John Henryism in this study should be applauded for engaging in the activity and their psychological labor, especially since they are persisting, retaining, and graduating at lower rates compared to their continuing generation counterparts (Fry, 2021). Colleges and universities must support historically underrepresented students as they fight against the mechanical steam drill that is the United States higher education system.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by Temple University Institution Review Board—protocol #25962. The patients/participants provided their written informed consent to participate in this study.

Author contributions

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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