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Skills for the Future

Keep Calm and Carry On: A Conceptual Framework for Perseverance

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Keep Calm and Carry On: A Conceptual Framework for Perseverance

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Abstract

Perseverance is a highly valued durable skill—a set of constructs also referred to as socioemotional skills, noncognitive constructs, transferrable skills, and 21st century skills, among other terms—as it describes one's ability to manage challenges and obstacles in academic, workplace, and other life areas. As part of a new critical skills taxonomy designed to include academic and employability skills beyond traditional academic content knowledge, our novel conceptual framework of perseverance addresses the ambiguities of previous perseverance definitions. Specifically, our perseverance definition includes two subskills: emotional resilience and effortful persistence. We approach conceptualization with an eye towards relevance for youth settings (e.g., pre-kindergarten–Grade 12). We also compare this conceptual framework to previous definitions and distinguish it from overlapping constructs. We then describe each subskill's relevance to outcomes across various settings. Additional implications of our conceptual framework, including measurement considerations and malleability, are discussed.

Keywords: perseverance, persistence, resilience, durable skills, competency-based education, portrait of a graduate, socioemotional skills

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Preface

This manuscript represents part of a larger initiative called Skills for the Future (SFF; Liu et al., 2023), in which we aim to expand beyond academic content knowledge to generate a holistic profile of prekindergarten through Grade 12 (PreK–12) students' skills and facilitate effective teaching and learning of these skills. The SFF initiative also aims to supplement traditional academic credentials with assessments and insights, aligning with competency-based education systems at the state level (e.g., Levine & Patrick, 2019). This initiative involves

identifying noncognitive constructs, or *durable skills*, that are valued by various stakeholders in educational settings. This value is reflected in frameworks such as states' Portrait of a Graduate, as well as by their prediction of postsecondary success. Recognizing PreK–12's role in preparing students for the workforce, the SFF project is also designed to support recent shifts toward skills-based hiring (Peterson et al., 2024). The skills-based hiring movement deprioritizes traditional educational degree (e.g., college degree) requirements in the hiring process, generating greater demand for valid and operationalized skills frameworks as the essential guiding tools (Society for Human Resource Management, 2024). In this paper, we focus on the durable skill of perseverance by summarizing a thorough literature review and offering a new conceptual framework. This framework addresses gaps and confusion in the perseverance literature, with the goal of guiding myriad theoretical, research, and practical applications.

Introduction

Perseverance is a valuable durable skill in various settings across the lifespan. Durable skills are constructs often referred to as socioemotional skills, transferable skills, noncognitive constructs, 21st century skills, or other terms to describe constructs beyond traditional academic knowledge or skills that are relevant to academic and workplace performance. Informally, perseverance describes the extent to which individuals endure various challenges and obstacles. Thus, perseverance is a critical skill for overcoming inevitable difficulties individuals face at school, on the job, or in their personal lives to achieve both short-term and long-term goals. Empirically, researchers have linked perseverance to significant life outcomes for both youth and adults (see review by Khindri & Rangnekar, 2022). For example, self-reported perseverance predicts academic success outcomes such as grade point average (GPA) for middle school and high school students (Thorsen et al., 2021). Other outcomes related to high perseverance vary from entrepreneurial ventures to sports participation, whereas low perseverance is associated with addictive behavior, risk-taking, and poor decision-making (Khindri & Rangnekar, 2022).

These empirical results inform initiatives in the U.S. education system. For example, the importance of perseverance and other durable skills are recognized widely in prekindergarten to Grade 12 (PreK–12) students' development, as noted in various Portrait of a Graduate (PoG) frameworks and other research efforts spanning several decades (e.g., Humphrey et al., 2011; Merrell, 1996; Yang et al., 2018). PoGs are developed at the state level by PreK–12 educators to standardize expectations for the competencies students should possess to succeed in education,

work, and life (see Barr Foundation, 2018). These frameworks represent expanded, holistic profiles of successful students that go beyond basic academic or technical skills. Perseverance's status as a critical construct is illustrated in a recent review of 22 state PoGs, in which over half included perseverance (Wang et al., 2024).

The value of perseverance also extends beyond students' academic careers and into the workforce, as noted by expert ratings of their importance to various occupations. For example, the Occupational Information Network (O*NET) is maintained by the U.S. Department of Labor to describe the skills, education, and other competencies typically needed for over 800 job titles. The importance of various durable skills[1] is rated by experts in specific workplace industries. These experts rank *persistence*—a term often used interchangeably with *perseverance*—as highly valuable (an average rating of 80 or higher out of 100) for 232 occupations (National Center for O*NET Development, 2024). These occupations include various critical and high-growth fields including STEM (e.g., biochemists, mathematicians, neurologists, pediatricians), education (e.g., postsecondary and secondary teachers), and leadership positions (e.g., chief executives, managers). Perseverance is also highly valued internationally, where it was rated as one of the top three most important core skills in a global employer survey conducted by the World Economic Forum (2023). Thus, developing perseverance skills for PreK–12 students is critically important to prepare them for future academic success and eventually career success.

Addressing Issues With Perseverance Conceptualization

Unfortunately, as noted by researchers (e.g., Khindri & Rangnekar, 2022), the relevant literature suggests a lack of clarity in providing a distinct definition of perseverance. This confusion is exacerbated by inconsistent terminology, where terms such as *perseverance*, *persistence*, *resilience*, *flexibility*, *adaptability*, *grit*, and others are often used interchangeably (Khindri & Rangnekar, 2022; Määttänen et al., 2021; Peterson & Seligman, 2004). For example, the aforementioned PoGs include terms such as resilience/resiliency, grit, work ethic, and "hard work" under the same grouping of perseverance-related skills (e.g., Wang et al., 2024). Researchers have described this issue as the "jingle/jangle" phenomenon, when the same term is used to describe different constructs ("jingle") or when different terms are used to describe the same construct ("jangle"; e.g., Reschly & Christenson, 2012). Notably, researchers have

[1] O*NET uses the term "work styles" to refer to what we call "durable skills".

specifically identified this problem within the perseverance literature (SRI International, 2018). Without a clear operational definition of perseverance that overlaps minimally with other skills, it is difficult to employ various critical research and practical applications such as assessment or training efforts in academia, the workplace, and other settings.

In this paper, we aim to address this issue by introducing a new conceptual framework for perseverance, informed by a systematic process in which we synthesize the existing literature and other relevant information. Our goal is to articulate a definition of perseverance that is logical, intuitive, and amenable to various research and practical applications such as assessment and training. We also distinguish perseverance from other similar skills as a critical step in this process. This foundational work is necessary to inform applications such as measurement and intervention. For example, a clear conceptualization of perseverance may be used to guide precise item development for formal assessments.

Methodology

We engaged in a systematic process to gather and synthesize relevant information from various sources to develop our perseverance framework. First, we conducted a thorough literature review to identify previous definitions of perseverance, recognizing the inconsistent terminology that has been adopted in previous research. Specifically, we began by entering the search term "perseverance" into Google Scholar, which encompasses other databases (e.g., PsycInfo). Relevant articles were identified through this process, which were supplemented with forward and backward snowball searches. Specifically, relevant articles were ones that explicitly articulated a definition of trait perseverance or perseverance as a process. Conversely, articles that provided context-specific operationalizations of perseverance or defined perseverance as an outcome (e.g., college completion; Ethington, 1990) were excluded, as they were considered examples of the "jingle" fallacy. Prominent relevant noncognitive construct taxonomies such as the Big Five (e.g., McCrae & Costa, 2008) and HEXACO (e.g., Ashton & Lee, 2007) personality models were also reviewed at this step, given that we are conceptualizing perseverance as a noncognitive construct. We also reviewed documents such as states' Portrait of a Graduate (PoG) frameworks to evaluate how perseverance is currently described by states. Specifically, we documented how these PoGs defined perseverance and any relevant subskills or behavioral examples they provided. Finally, we also considered articles that used alternative terms such as "persistence" and "resilience." These articles were considered to identify those that may be

relevant to perseverance but referring to it under a different term (i.e., the "jangle" fallacy). For example, many of these articles refer to individuals' responses to challenges or obstacles, and are therefore relevant in shaping a perseverance conceptualization.

Overall, perseverance definitions that were located through this step are listed in Table 1. These sources provided definitions for perseverance as a standalone skill or trait as opposed to a subskill within a larger construct (e.g., grit). At least one example (Meyer et al., 2021) adopted the Oxford dictionary definition of perseverance: "the quality of trying to achieve a particular aim despite difficulties" (Oxford University Press, 2020; see also Meyer et al., 2021, p. 29). Notably, building off this description, all of the perseverance definitions located in our literature review directly or indirectly referenced working through obstacles of some nature. This trend extends to the Organisation for Economic Cooperation and Development's (OECD) Programme for International Assessment (PISA), which defined perseverance as "willingness to work on problems that are difficult, even when [students] encounter problems" (OECD, 2012, p. 65).

Table 1. Research Literature Definitions of Perseverance

Quote	Source
"a disposition to overcome obstacles, so as to continue performing intellectual actions, in pursuit of one's intellectual goals"	Battaly, 2017, p. 6
"initiating and sustaining, and re-initiating and re-sustaining, in-the-moment productive struggle in the face of one or more obstacles, setbacks, or discouragements"	DiNapoli & Miller, 2022, p. 2
"steadfastness on mastering a skill or completing a task"	Gutman & Schoon, 2013, p. 17
"sticking with things despite challenge"	Kern, 2017, p. 75
"a behaviourally measurable ability and willingness to persist and continue to pursue an adverse, difficult, or unpleasant task"	Määttänen et al., 2021, pp. 2–3
"willingness to work on problems that are difficult, even when [students] encounter problems"	OECD, 2012, p. 65
"the quality of trying to achieve a particular aim despite difficulties"	Oxford University Press, 2020, as cited by Meyer et al., 2021, p. 29
"voluntary continuation of a goal-directed action in spite of obstacles, difficulties, or discouragement"	Peterson & Seligman, 2004, p. 229
"continued goal striving in spite of adversity"	van Gelderen, 2012, p. 630

Note. The Battaly (2017) definition describes "intellectual perseverance." Määttänen et al. (2021), and Peterson & Seligman (2004) utilize the terms perseverance and persistence interchangeably.

This literature also provided helpful guidance in establishing appropriate scope for a perseverance definition. In other words, this literature was useful in identifying other constructs that may overlap with but remain distinct from perseverance. These overlapping constructs include conscientiousness, emotional stability, grit, flexibility, adaptability, growth mindset, coachability, and problem solving (Table 2). In some cases, researchers explicitly described similarities and differences between perseverance and these other constructs (e.g., Farrington et al., 2012; Khindri & Rangnekar, 2022; SRI International, 2018). State PoG documentation also generally fell into these categories. For example, some states (e.g., Georgia, Vermont, Wisconsin) described perseverance within the context of broader skill categories (e.g., "act responsibly," "learner agency"), whereas others (e.g., Utah) replace perseverance with terms such as "hard work and resilience" in their frameworks (see Wang et al., 2024). We further elaborate on these differences in the "Distinguishing SFF Perseverance: Other Relevant Durable Skills" section of this manuscript.

Second, we articulated a preliminary conceptual framework of perseverance based on the common themes in the literature. This step involved applying a process similar to thematic analysis (e.g., Braun & Clarke, 2012) in which commonalities such as definitions, examples, or subskills are summarized and synthesized. We then refined this preliminary framework using logical judgment, removing or adding conceptual aspects as warranted by related literature. The literature that specifically provided perseverance definitions (Table 1) provided minimal guidance in identifying subskills. However, these definitions implied that individuals' reactions to obstacles, difficulties, or unpleasantness could provide a logical basis for articulating perseverance subskills. Specifically, we posit that individuals' effortful and emotional responses to these obstacles could represent meaningful perseverance subskills.

This step also involved identifying relevant behavioral skill indicators representing these subskills. One focus in this step is to apply a behaviorist perspective, which emphasizes objective, standardized, and overt indicators over more covert, subjective ones (e.g., Kell et al., 2017). This strategy facilitates the assessment of perseverance from external observers while recognizing that perseverance may manifest in various ways. As a result, we developed behavioral indicators for each of the subskills. We finalized our overall conceptual framework for perseverance, including its subskills and exemplar behavioral indicators, following the steps described above.

Table 2. Perseverance and Overlapping Durable Skills

Construct	Overlap with perseverance	No overlap with perseverance
Conscientiousness (Big Five, e.g., McCrae & Costa, 2008/HEXACO, Ashton & Lee, 2007)	Refers to one's general effort level, which may be conflated with effortful persistence	One's effort level is described in the absence of specific challenges or obstacles (e.g., work ethic); construct includes other irrelevant subskills (e.g., Order, Achievement Striving)
Emotional stability (Big Five, e.g., McCrae & Costa, 2008/ HEXACO, Ashton & Lee, 2007)	Refers to one's general level of emotionality, which may be conflated with emotional resilience	One's emotionality is described in the absence of specific challenges or obstacles (e.g., anxiety); construct includes other irrelevant subskills (e.g., Sentimentality; Impulsiveness)
Grit (e.g., Duckworth et al., 2007)	Includes "perseverance of effort" as a subskill	Includes "consistency of interest" as a subskill; no reference to one's emotional response to challenges
Flexibility/ adaptability (see Hamtiaux et al., 2013)	Refers to one's skill in responding to changes, which may be conflated with one's response to challenges	Changing circumstances are not always challenges; adapting one's strategy when faced with change is not synonymous with maintaining effort or emotional composure
Growth mindset (e.g., Yeager & Dweck, 2020)	Describes individuals who are "more likely to thrive in the face of difficulty" (Yeager & Dweck, 2020, p. 1270)	Reflects one's covert attitudes and self-beliefs, not overt behaviors (e.g., effort, emotional response)
Coachability (e.g., Ober et al., 2024)	Describes individuals who respond well to criticism	Does not include other types of challenges beyond criticism; criticism may not be inherently negative
Problem solving (e.g., XQ Institute, 2024)	Perseverant individuals may be described as "problem solvers"	Perseverance is only one way to solve a problem; problem solving is arguably an outcome, not a skill

Results: A New Conceptual Framework for Perseverance

Fundamentally, our conceptual framework situates perseverance as a durable skill. Alternative terms for durable skills include transferable skills, noncognitive constructs, employability skills, 21st-century skills, socioemotional skills, and soft skills, among others. An example definition of noncognitive constructs describes them as "demonstrable personality, motivational, attitudinal, self-regulatory, and learning approach constructs for which there are differences among people, which standardized tests of cognitive ability are not primarily designed to measure, and the behavioral expression of which is considered useful" (Klieger et al., 2015, p. 3; see also Duckworth & Yeager, 2015; Kautz et al., 2014; Kyllonen, 2012). This

type of definition differentiates noncognitive constructs from foundational academic skills like numeracy and literacy, cognitive constructs such as memory, spatial awareness, and other traditional "intelligence" concepts, and technical skills that are generally discipline or industry specific (coding, welding, engineering, etc.). Examples of noncognitive constructs include leadership, curiosity, teamwork, creativity, ethics, and perseverance, among many others. We also clarify that our definition of perseverance as a durable skill distinguishes it from other conceptualizations in which perseverance is described as an outcome variable. For example, in academic literature, perseverance is sometimes operationalized as course completion, retention, or graduation in PreK–12 or postsecondary settings (e.g., Ethington, 1990).

Our conceptual framework defines *perseverance* as one's emotional and effortful response to common challenges or obstacles. In developing our conceptual framework of perseverance, we utilized intuitive logic underlying common definitions of the construct as a starting point (see Table 1). Typically, the obstacles referenced in the context of perseverance work in opposition to the completion of a task, such as increased task difficulty (objective or perceived) or direct competition or interference from other individuals or environmental forces. Our definition of perseverance acknowledges that this skill may be moderated by factors such as extrinsic rewards or the individual's intrinsic level of interest in a task. However, we consider these factors to be extraneous to the perseverance construct. That is, an individual who perseveres consistently regardless of the nature of the obstacle or their level of interest in the task would be considered more perseverant than someone who only perseveres through certain obstacles or when their interest level is high. Moreover, obstacles may vary in their degree of subjectively perceived difficulty. Thus, we focus more on behaviors directly associated with one's perseverance.

Consistent with dictionary definitions of perseverance and our literature review, there are two primary types of reactions in response to such obstacles. As such, our perseverance definition includes two subskills (Table 3).

Emotional Resilience

First, obstacles may influence one's emotional state, we call this subskill *emotional resilience*. This subskill is defined as "one's emotional response to common challenges or obstacles." The rationale for including this subskill in our perseverance conceptualization is drawn from the vast literature describing the impact that stressors may have on individuals'

mood, emotional state, well-being, and psychological health (e.g., Aburn et al., 2016; Chmitorz et al., 2018; Herrman et al., 2011; Joyce et al., 2018; Wu et al., 2013). This research typically describes the relevant durable skill as "resilience," hence our reasoning for adopting that term for our subskill. Individuals with a high level of emotional resilience maintain a calm, composed, or otherwise positive demeanor when faced with obstacles. These individuals may express excitement in addressing challenging tasks, actively seek out challenges for emotional satisfaction, and remain confident and optimistic when faced with setbacks.

Conversely, individuals with low emotional resilience levels are likely to become angry, frustrated, anxious, or experience other negative emotions upon encountering obstacles. These negative emotions may drive such individuals to avoid challenging tasks, and setbacks may have a more detrimental impact on less emotionally resilient individuals' self-esteem or self-confidence. In turn, behavioral indicators of emotional resilience include outward expressions of emotion such as verbal utterances, facial expressions, body language, or other relevant physical actions.

One's emotional response to obstacles is conceptually significant because it may impact an individual's effort level or the quality of their efforts, as well as their general well-being. Research has demonstrated that challenges such as task failure reliably induce negative affect (Nummenmaa & Niemi, 2004) and that the affect associated with task failure impairs outcomes involving memory (Hostler et al., 2018; Pereira et al., 2023), entrepreneurial performance (Fodor & Pintea, 2017), and various types of job performance including task performance, organizational citizenship behavior, counterproductive work behavior, withdrawal, and even occupational injury (Kaplan et al., 2009). Additional outcomes that are relevant to emotional resilience include job satisfaction, organizational commitment, and task engagement, which themselves are relevant to other job performance outcomes involving productivity (e.g., Salas-Vallina et al., 2018). In postsecondary settings, low emotional stability—one's susceptibility to experiencing negative emotions—is meta-analytically associated with low academic satisfaction (Trapmann et al., 2007), which may lead to poor scholastic performance or even dropout. These findings suggest that one's emotional response to obstacles should be considered in a framework conceptualizing perseverance.

Effortful Persistence

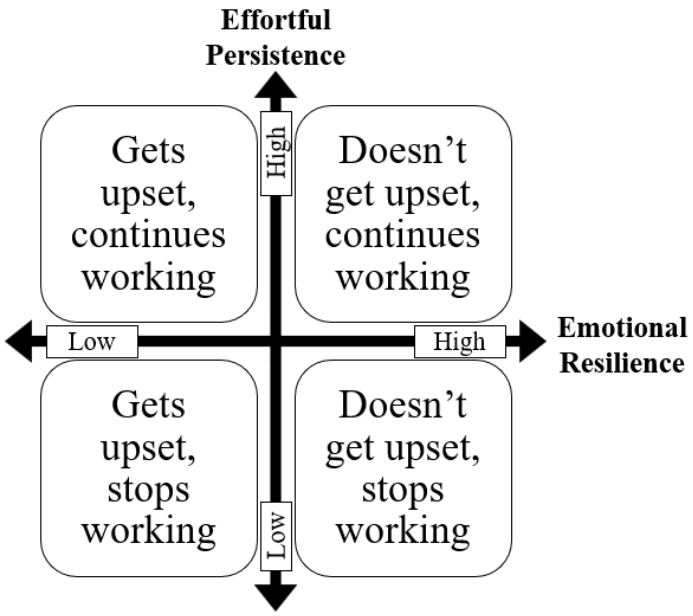
Second, obstacles may impact one's effort level toward various tasks. One's tendency to continue working through difficult tasks was a common theme identified in our literature review of perseverance definitions (Table 1). Thus, our second subskill is called *effortful persistence*, defined as "one's effortful response to common challenges or obstacles." Individuals with high effortful persistence levels maintain or increase their effort on tasks when faced with challenges or obstacles. At very high levels, these individuals may actively pursue challenges as opportunities to develop their skills and interpret failures as learning opportunities. Conversely, individuals with low effortful persistence levels are more likely to disengage with tasks when they experience difficulties. These individuals may not perceive any practical value in experiencing failure or in overcoming obstacles and, thus, actively avoid challenging tasks. Based on this definition, relevant behavioral indicators of effortful persistence include the degree to which an individual continues working on a task when faced with obstacles such as failure, increasing difficulty levels, or challenging conditions, among others. Outcomes that are most relevant to effortful persistence include goal attainment, problem-solving, and productivity. In turn, effortful persistence significantly influences various life outcomes, including economic mobility and physical and psychological health (see review by Khindri & Rangnekar, 2022). These findings suggest that one's effortful response to challenges should be included as a subskill of a perseverance conceptual framework.

Table 3. Perseverance Conceptual Framework

Skill (definition)	Perseverance One's emotional and effortful response to common challenges or obstacles	
Subskill (Definition)	Emotional resilience *One's emotional response to common challenges or obstacles*	Effortful persistence *One's effortful response to common challenges or obstacles*
Behavioral indicators	Remains calm when faced with obstacles	Interprets failures as learning opportunities
	Is excited to address challenging situations	Maintains effort when faced with obstacles
	Seeks out challenging tasks for emotional satisfaction	Works harder when faced with challenges
	Remains confident/optimistic when faced with setbacks	Seeks out challenging tasks to develop their skill set Interprets obstacles as opportunities rather than setbacks

Figure 1 provides a graphical depiction of our perseverance conceptual framework, including theoretical representations of individuals who may possess high or low levels of each subskill. Note that this figure represents a simplification of how our perseverance subskills may manifest in individuals. In reality, it may be inappropriate to categorize individuals as dichotomously low or high on each subskill. Instead, like most noncognitive constructs, it is likely that individuals fall somewhere on a spectrum from low to high levels of each subskill.

Figure 1. Graphical Depiction of Perseverance Conceptual Framework



Note. Behaviors describe individual reactions when faced with challenges or obstacles.

Based on our definition, when faced with obstacles, individuals with high levels of both emotional resilience and effortful persistence do not experience potentially counterproductive emotions and maintain their level of effort toward tasks. This response pattern is ideal for an individual's well-being and productivity. Alternatively, individuals with high levels of emotional resilience but low levels of effortful persistence may disengage from tasks when faced with challenges, but do so with a calm demeanor. For example, these individuals may adopt a coping strategy that is more rational than emotional when deciding to cease efforts on a challenging

task. This type of response may promote well-being but hamper productivity. Conversely, individuals with high levels of effortful persistence and low levels of emotional resilience may become frustrated or otherwise emotional when faced with an obstacle but maintain their level of effort. For these individuals, maintaining effort may represent a negative reinforcement strategy in which task completion provides relief from negative emotions. Put differently, the distressing emotions these individuals may be experiencing may serve as motivation for task effort. However, as previously mentioned, the negative emotional response may hamper task output through poorer quality performance or other suboptimal outcomes. It is also possible that this combination may be detrimental to one's well-being and other areas such as academic engagement or job satisfaction, which may subsequently impact performance. Finally, individuals with low levels of both emotional resilience and effortful persistence experience negative emotions when faced with obstacles and withdraw their efforts toward the task. In our framework, this pattern represents the least desirable profile of perseverance subskill levels.

Distinguishing SFF Perseverance: Other Relevant Durable Skills

It is worthwhile to articulate the similarities and differences between our perseverance definition and those that appear in the literature, as well as other potentially overlapping noncognitive constructs. This exercise addresses the "jingle/jangle" issue that is pervasive in the perseverance literature, as noted by other authors (e.g., SRI International, 2018). Proposing a standardized perseverance definition and terminology is necessary to facilitate consistency across conceptualization, assessment, and training efforts. One of the more relevant and thorough reviews of the perseverance literature was conducted recently by Khindri and Rangnekar (2022). These authors noted challenges in isolating research that focused on perseverance specifically because it is often explored alongside other constructs. Most of the perseverance definitions the authors provided—including "a voluntary continuation of goal-directed action despite difficulties and challenges" (Khindri & Rangnekar, 2022, p. 271) and "the degree to which people will make lasting efforts while facing challenging circumstances" (Khindri & Rangnekar, 2022, p. 271) — align with ours and those of others we identified in the literature (Table 1).

However, these authors also noted that perseverance reflects one's ability to "work continuously without getting affected by tiredness or boredom" (Khindri & Rangnekar, 2022, p. 271). This feature suggests that fatigue and lack of interest may be discrete obstacles that an individual must persevere through to accomplish their goals. Conversely, we do not consider

fatigue or boredom as discrete obstacles. Instead, we consider one's ability to maintain effort through fatigue or boredom to be associated with one's work ethic, which is a distinct construct from perseverance. One's ability to persevere through fatigue may also represent a physiological construct, suggesting it may not be appropriate for our noncognitive conceptualization of perseverance. Additionally, persevering through boredom more likely reflects one's interest level, which may represent a distinct set of noncognitive constructs such as career interests (e.g., Holland, 1985) that moderate perseverance. Finally, another goal of our study is to articulate a single, clear, consolidated, and distinct definition of perseverance, which Khindri and Rangnekar (2022) do not appear to provide.

Other challenges in perseverance conceptualization involve its overlap with similar constructs. For example, although terms such as perseverance and persistence are sometimes used interchangeably, some authors have posited that these are subtly distinct constructs. Specifically, researchers have argued that perseverance differs from persistence in that perseverance involves making adjustments towards one's approach to achieving a goal whereas persistence does not (see review by Khindri & Rangnekar, 2022). However, we would argue that this argument represents the "jangle" fallacy, as one's tendency to make adjustments typically aligns more closely with other non-perseverance constructs such as flexibility or creativity. Therefore, to avoid the "jingle" issue of using the terms perseverance and persistence interchangeably, as well as the "jangle" problem of using the term persistence to refer to an alternative construct, we position persistence as a subskill of perseverance. We also use the term "effortful persistence" to clarify that this subskill refers to students' effortful response to challenges, as opposed to students' skill in making adjustments. Similarly, it has been argued that perseverance and resilience are not synonymous in that resilience tends to refer to "equanimity and a balanced perspective" (Khindri & Rangnekar, 2022, p. 272). This distinction is reflected in our conceptualization of emotional resilience as a subskill of perseverance, including the explicit inclusion of emotion in the subskill name.

Beyond these studies, there are many other durable skills that may overlap with perseverance. Articulating the distinctions among these durable skills is critical for avoiding "jangle" fallacies and facilitating practical applications (e.g., assessment, training). We elaborate on these distinctions in the following sections, which we also previously summarized in Table 2.

Personality Models

Personality represents one significant noncognitive construct domain. The most well-researched personality models are the Big Five (e.g., McCrae & Costa, 2008) and HEXACO (e.g., Ashton & Lee, 2007). Each of these models was developed through lexical studies of personality-related adjectives to identify fundamental personality characteristics and has been validated in both youth and adult samples (see McCrae & Costa, 2008; Mottola et al., 2023). Thus, these models overlap heavily but are not identical. The Big Five traits are Conscientiousness, Emotional Stability, Agreeableness, Openness to Experience, and Extraversion, whereas the HEXACO traits are Conscientiousness, Emotionality, Agreeableness, Openness to Experience, Extraversion, and Honesty-Humility.

These models include partial representations of our perseverance subskills: effortful persistence and emotional resilience. Under each of these models, effortful persistence most closely aligns with the general personality factor Conscientiousness (C). Big Five Conscientiousness is synonymous with "'dependability,' 'constraint,' or 'will to achieve'" (McCrae & Costa, 2008, p. 274) and describes individuals who are "hardworking, purposeful, and disciplined" (McCrae & Costa, 2008, p. 274). Thus, at an abstract level, these descriptions may be conflated with perseverance. The six Conscientiousness subskills are Competence, Order, Dutifulness, Achievement Striving, Deliberation, and Self-discipline. Similar to that of its Big Five counterpart, HEXACO C's definition includes Organization, Diligence, Perfectionism, and Prudence as its subskills (Ashton & Lee, 2007).

In the context of perseverance, several Conscientiousness subskills such as Self-discipline and Diligence are susceptible to "jingle/jangle" fallacies (SRI International, 2018). Note, however, that none of the Big Five or HEXACO Conscientiousness subskills explicitly and exclusively describe one's effort level when faced with challenges or obstacles. For example, the term "persistence" is not used as a Conscientiousness subskill name, suggesting that Conscientiousness subskills such as Diligence, Dutifulness, or Achievement Striving refer more so to one's general work ethic or "default" effort level in the absence of any obstacles. Thus, while both Big Five Conscientiousness and HEXACO Conscientiousness appear highly relevant to effortful persistence, they do not represent perfect encapsulations of effortful persistence. Empirical research supports this assertion. For example, Costa and McCrae (1998) noted that the Big Five Achievement Striving factor correlates .47 with the Interpersonal Style Inventory (ISI;

Lorr & Youniss, 1985) measure of effortful persistence. Quantifiably, this finding suggests a significant overlap between persistence and perseverance as measured by these assessments but is arguably not large enough to imply redundancy.

Other personality factors capture the emotional resilience subskill within our perseverance definition. The most relevant Big Five factor is Emotional Stability, originally named Neuroticism. The six Emotional Stability subdimensions are Anxiety, Angry Hostility, Depression, Self-consciousness, Impulsiveness, and Vulnerability. Given that personality models employ trait-based conceptualizations, these subdimensions describe one's general level of emotionality across time and situations. Thus, they generally characterize individuals beyond their discrete emotional responses to challenges or obstacles. However, of these subdimensions, Vulnerability would appear most relevant to perseverance's emotional resilience subdimension, as Vulnerability describes one's level of stress tolerance. Similarly, individuals who score low on the Vulnerability subdimension may be described as resilient. Meta-analytically, measures of Neuroticism correlate negatively with measures of trait resilience (Oshio et al., 2018).

Alternatively, the HEXACO counterpart of Big Five Emotional Stability is called Emotionality. Emotionality differs from Emotional Stability in that Emotionality excludes anger-related components located in Emotional Stability. Emotionality also includes sentimentality-related traits found in Big Five Agreeableness. The HEXACO Emotionality subdimensions are Fearfulness, Anxiety, Dependence, and Sentimentality. Although none of these subdimensions explicitly reference emotional resilience, the HEXACO authors use "vulnerable" as an adjective to describe low Emotionality scorers (Ashton et al., 2014, p. 140). Thus, although the Emotionality subdimension Fearfulness seems most relevant to resilience, it should also be noted that items used to measure Fearfulness describe one's response to situations involving physical danger or other extreme conditions (see Ashton & Lee, 2009). Moreover, fear is not the only emotional response to challenges as conceptualized in emotional resilience, and is not likely the most relevant response.

In sum, although our perseverance definition overlaps with the personality constructs Conscientiousness and Emotional Stability (Big Five)/Emotionality (HEXACO), it is not redundant with these constructs. Unlike our effortful persistence definition, conceptualizations of Conscientiousness tend to consider one's "default" work ethic or effort level in the absence of any explicit challenges. Additionally, our emotional resilience definition captures one's discrete

emotional responses to common "everyday" challenges. Conversely, Emotional Stability/Emotionality tends to describe one's general tendency to feel anxious, angry, sad, and so on without reference to any specific stressors or describes one's response to extreme and uncommon stressors. Thus, our perseverance definition appears to include unique conceptual and assessment-related elements relative to prominent personality models.

Additional Factors

Grit

The recently popularized concept of *grit* is described as "perseverance and passion for long-term goals" (Duckworth et al., 2007, p. 1087) and "resilience in the face of failure" (Perkins-Gough, 2013, p. 16). As such, it might appear that grit overlaps significantly with our perseverance definition. However, scholars have been highly critical of the grit concept on multiple grounds (e.g., Credé, 2018; Credé et al., 2017), and these critiques highlight the differences between grit and perseverance. Specifically, researchers have argued that grit is too redundant with the concept of Conscientiousness, which had already been established in personality psychology (i.e., Big Five/HEXACO models) several decades prior to the introduction of grit as a debatably distinct construct. Indeed, a meta-analytic correlation of $\rho = .84$ has been reported between measures of grit and Conscientiousness (Credé et al., 2017). Moreover, only one of grit's two lower-order facets—perseverance of effort—is consistently associated with outcomes such as academic performance (Credé et al., 2017). Even then, however, measures of grit often provide no incremental validity over measures of Conscientiousness in predicting these outcomes (Credé et al., 2017). Conversely, the other grit facet—consistency of interest, also known as "passion"—is largely irrelevant in predicting various outcomes. These results suggest that grit's most relevant component may simply be Conscientiousness renamed.

In comparing grit to our conceptualization of perseverance, grit appears most pertinent to our effortful persistence subskill. This assertion is supported by meta-analytic findings demonstrating that, compared to grit's consistency of interest facet, grit's perseverance of effort facet correlates more strongly with separate measures of perseverance (Credé et al., 2017, p. 8). However, there does not appear to be any conceptual overlap between grit and our emotional resilience subskill. Although meta-analyses have demonstrated that grit demonstrates a relatively strong association with measures of Emotional Stability, researchers suggest this association is

due to negative affect such as boredom and disinterest that are captured by grit's consistency of interest facet (Credé et al., 2017). Similarly, subjective well-being—an outcome relevant to perseverance's emotional resilience subskill—is meta-analytically more strongly associated with grit's perseverance of effort facet than its consistency of interest facet (Hou et al., 2022). Other researchers have demonstrated that passion moderates the relationship between perseverance (i.e., grit) and performance (Jachimowicz et al., 2018). This finding aligns with our conceptual framework in that one's interest levels are likely to influence the relationship between perseverance and various outcomes, but interest and perseverance are distinct concepts that we do not combine into a higher order construct.

Overall, these results support a theoretical conceptualization of perseverance being more closely aligned with the personality constructs of Conscientiousness and Emotional Stability/Emotionality than with grit. Although grit and perseverance share a common thread with Conscientiousness, emotional resilience is not considered in grit conceptualizations, nor is consistency of interest included in our perseverance definition. Thus, our perseverance definition should not be considered interchangeable with that of grit.

Flexibility and Adaptability

Conceptually, constructs such as flexibility and adaptability may be related to perseverance but are distinct. Traditionally, flexibility and adaptability are defined as one's ability to adapt to changing circumstances (see Hamtiaux et al., 2013). Based on our definition, perseverance would only be synonymous with flexibility and adaptability if changing circumstances were inherently and universally detrimental to one's ability to maintain task effort and emotional composure. However, it is possible for changing circumstances to generate a positive or neutral influence on one's effort level or emotional state. Similarly, many changes in circumstances may be relatively mundane and unchallenging. Moreover, although it is likely that most perseverant individuals are also flexible, the opposite may not be true. Put differently, when faced with changing circumstances, maintaining one's effort level and positive emotional state do not necessarily require one to adapt their approach toward completing a task. For example, even if a specific changing circumstance represented a potential hindrance toward one's task completion, increasing one's effort and altering one's tactics represent two qualitatively distinct responses.

Personality models also support the distinction between flexibility and perseverance. For instance, the Big Five personality model categorizes flexibility under the Openness to Experience trait and more specifically, the Tolerance facet (see Woo et al., 2014). This facet name reflects the notion that individuals with high levels of Tolerance can easily adapt to changing circumstances, whereas individuals with low Tolerance levels prefer routine and predictability. Conversely, recall that the Big Five categorizes perseverance under a combination of Conscientiousness and Emotional Stability factors. The relevance of Openness to adaptability is also empirically supported through meta-analyses. Although based on a small number of primary studies, these meta-analyses demonstrate small positive correlations between adaptive workplace performance and Openness, particularly the Ingenuity, Curiosity, and Tolerance facets (Woo et al., 2014). Overall, the theoretical and empirical literature suggest that perseverance and flexibility should be considered distinct constructs.

Growth Mindset

Growth mindset describes one's belief that skills such as intellectual ability can be improved either in oneself or in general (e.g., Yeager & Dweck, 2020). Conversely, a fixed mindset describes one's belief that these skills are inflexible. Growth mindset research tends to focus on youth samples and educational settings (Yeager & Dweck, 2020). Experts have scribed that individuals with a growth mindset are "more likely to thrive in the face of difficulty" (Yeager & Dweck, 2020; p. 1270) whereas those with a fixed mindset "may shy away from challenges" (Yeager & Dweck, 2020; p. 1270). Thus, growth mindset and perseverance are both relevant to one's response to and approach to challenging situations. Indeed, research has demonstrated that growth mindset and perseverance each predict similar outcomes such as task persistence and academic achievement (see Khindri & Rangnekar, 2022).

However, these similarities are insufficient to suggest that growth mindset is identical to perseverance. One significant difference between these two concepts is that growth mindset represents an attitudinal construct and is thus largely covert, whereas we have defined perseverance through observable behavioral indicators. This distinction is reflected in growth mindset assessments, which are typically self-report and include items such as "You can always substantially change how intelligent you are" (Dweck, 1999). Additionally, unlike perseverance, the growth mindset conceptual framework does not inherently include behavioral or emotional components. Thus, outcomes such as task persistence or emotional responses are likely

inappropriate as behavioral indicators of growth mindset, as these outcomes may reflect alternative skills. Instead, mediation or moderation models may elucidate the relationship between growth mindset, perseverance, and these outcomes. Regardless, based on these differentiating features, we posit that growth mindset and perseverance are distinct constructs.

Coachability

Coachability is a construct that has received renewed attention in workplace settings (Johnson et al., 2021; Ober et al., 2024). Coachability describes how one seeks, engages with, processes, and reacts to feedback and other learning opportunities. As the name implies, coachability research originated in athletic settings (e.g., Ogilvie & Tutko, 1966) and eventually expanded to workplace contexts (e.g., Larson & Comstock, 1994; Weiss & Merrigan, 2021). Highly coachable individuals tend to demonstrate curiosity, are interested in learning, and get along well with superiors, teachers, and mentors. Like perseverance, coachability predicts various positive outcomes such as job performance (e.g., Ober et al., 2024). Coachability and perseverance may also overlap in that coachability describes one's ability to respond well to criticism. Thus, coachable and perseverant individuals should each maintain good effort levels and a calm demeanor when criticized. However, perseverance differs from coachability in that the former describes one's response to challenges beyond criticism. Moreover, criticism may not be inherently negative (e.g., constructive criticism). Coachability also includes social and attitudinal components (e.g., growth mindset) that are not included in our perseverance definition. Thus, coachability and perseverance likely correlate but remain distinct constructs.

Problem-Solving

Problem-solving is another construct frequently mentioned as important by various workplace and education stakeholders. For example, 86% of state PoGs reviewed by Wang et al. (2024) included problem-solving. A recent survey identified problem-solving as the most important core skill based on both employer feedback and student perceptions of employer expectations (Quacquarelli Symonds, 2019). Unfortunately, problem-solving is another skill with a highly ambiguous conceptual framework. One of the more obvious definitions for problem-solving is tautological (i.e., "one's ability to solve problems"), to the point where stakeholders may not provide an elaborate, formal conceptual framework of the skill. This lack of clarity greatly hinders practical applications such as assessment development and training.

Yet, problem-solving is frequently described in the context of perseverance because perseverant individuals may also be described as problem solvers. However, a variety of other noncognitive constructs such as collaboration, creativity, leadership, and many others may be utilized to solve the same problem. For example, problem-solving has been described as one's ability to "generate creative solutions" (XQ Institute, 2024, p. 20), suggesting that creativity is the primary feature. Construct drift then becomes apparent when skills such as collaborative problem-solving (e.g., Sun et al., 2020) and creative problem-solving (e.g., Treffinger et al., 2006) are explicitly introduced. These issues suggest that problem-solving may be most appropriately operationalized as an outcome rather than a skill (cf., XQ Institute, 2024). Thus, we emphasize that perseverance and problem-solving are conceptually distinct.

Summary of Durable Skills that Overlap With Perseverance

The previous section outlines several durable skills that overlap with perseverance. Identifying these durable skills and articulating how they are similar and distinct from perseverance is a critical step in avoiding the jingle/jangle problem and promoting a standardized conceptualization across various PreK–12 contexts. Although stakeholders may perceive academic or occupational value in these overlapping durable skills, clear communication of their respective features should help reduce confusion and conflation. In turn, efforts to assess and develop these durable skills should be facilitated.

Discussion

The phrase "Keep calm and carry on" was introduced by the United Kingdom government in 1939 to raise the population's morale in the face of the impending World War II (Lewis, 2018; Slocombe, 2010). This slogan reflects the importance of perseverance in response to hardships. Little has changed in the subsequent decades with respect to perseverance's value, as educators and employers continue to prioritize this skill for learners and workers. Coincidentally, our perseverance conceptual framework aligns with the 1939 U.K. slogan based on our subskills emotional resilience ("keep calm") and effortful persistence ("carry on"). By outlining a perseverance conceptual framework that is logical, clear, and based on a thorough and systematic review and synthesis of the existing literature, we aim to advance both science and practice by reducing conceptual ambiguities that have thus far hindered this work. While we hope that the students and employees of today will not endure crises as extreme as World War II,

other significant hardships such as job loss, college dropout, financial debt, health issues, and caretaking stress, among others, are likely inevitable for most. The COVID-19 pandemic is a stark and recent reminder that drastic, large-scale events can occur and cause significant disruption to our daily lives.

Similarly, perseverance appears relevant to another significant question facing PreK–12 students and educators: How do we prepare today's students and job seekers for occupations that don't exist yet? As the name implies, the Skills for the Future framework is designed to encapsulate a variety of durable skills that will help individuals navigate an uncertain future. Durable skills complement traditional cognitive and technical skills to provide a holistic portrait of students' strengths. Many technical skills quickly become obsolete as technology evolves. Conversely, slogans such as "Keep calm and carry on," which have stood the test of time suggest that durable skills such as perseverance will continue to be valued by employers in the years ahead. Moreover, as workplace concerns regarding artificial intelligence and other technological advances continue, it is plausible that the importance of these "human" skills will endure as many technical skills and other rote job tasks become automated. Perseverance and other durable skills will be essential in helping students' and workers' continuous learning efforts so that they may navigate such workplace transformations.

In articulating a conceptual framework for perseverance, it is equally important to distinguish what perseverance is from what it is not. Thus, we have dedicated significant discussion to differentiating perseverance from constructs such as work ethic, grit, flexibility, problem-solving, and others. We argue that consistent terminology is critical for maintaining clarity in perseverance conceptualization and application. Using terms such as "persistence" and "resilience" interchangeably with perseverance may complicate these efforts. This issue explains why we apply the adjectives "emotional" and "effortful" to our resilience and persistence subskills, respectively. This naming convention reflects that persistence and resilience may overlap with perseverance, but are not redundant. Applying specific context to the terms persistence and resilience to refer to students' effortful and emotional response to challenges, respectively, is intended to clarify the distinction between these two terms and their relationship to a more global perseverance construct (see also Figure 1). Our hope is that this practice will provide appropriate context to these terms, clarifying the specific types of reactions to challenges that are captured in our perseverance conceptual framework.

Similarly, our framework may be considered in terms of contextual or other factors that may moderate behavioral demonstrations of perseverance. For example, our conceptualization of perseverance requires that students face obstacles or challenges for the skill to be observed. Classroom environments or curricula that do not provide such challenges to students offer fewer opportunities to observe perseverance behavioral indicators. Similarly, we have noted that factors such as students' motivation or interest level may influence perseverance. For instance, teachers observing the same student across different classrooms (i.e., subject areas) may perceive differing levels of perseverance if the student's interest level differs in each classroom. These factors must be considered when assessing students' perseverance levels.

We also acknowledge that our perseverance framework may continue to evolve, particularly through feedback from scholars, educators, and other relevant stakeholders. For example, systematically gathering feedback from these stakeholders helps ensure that our framework is logical and intuitive, and demonstrates clear conceptual distinctions from other durable skills. A critical aspect of this step is to integrate socioculturally responsive assessment principles (Bennett, 2023) to ensure that the conceptual framework of perseverance reflects the influence of diverse cultural norms. Our behavioral indicators were designed to be amenable to cultural influences, in that specific examples of perseverance may manifest differently depending on social or cultural norms, lived experience, or other factors.

We also developed our perseverance conceptual framework as a foundation for future research and practical applications, especially the development of assessments designed to measure perseverance in PreK–12. Our decision to apply a behaviorist perspective was made with this application in mind. This approach should facilitate standardized, objective measurement of perseverance through formats such as behaviorally anchored rating scales, surveys, situational judgment tasks, or observational methods (e.g., Kyllonen, 2012; Kyllonen et al., 2024). These strategies may include methods that do not involve testing, such as process data, transcripts, or other sources that capture perseverance behaviors demonstrated organically inside and outside of the classroom. Perseverance assessments should also be developed and implemented in the context of deliberate training efforts or in tracking natural longitudinal changes, particularly at the PreK–12 level, where perseverance is also highly relevant to academic success. However, although we have primarily discussed perseverance in PreK–12 constructs, our conceptualization likely applies to adults as well. Consistency between the

adolescent and adult conceptualizations would aid in evaluating long-term perseverance development. Overall, these measures are imperative for establishing empirical evidence relating to the nature of perseverance.

However, there are possible limitations in these applications based on our conceptual framework. For example, although emotional resilience may be observed through one's emotional expression, it is also possible that individuals may conceal their emotions from any obvious outward display. This possibility complicates accurate measurement from external observers. Moreover, we emphasize that our behavioral indicators may not be exhaustive since perseverance may manifest in many different ways. However, new behavioral indicators and assessment items must be written with careful consideration to ensure they do not reflect other constructs (i.e., construct drift). Actual assessment items should also adhere to these basic indicators in a culturally responsive manner. This strategy facilitates unbiased and inclusive measurement by incorporating perseverance indicators that reflect cultural norms, experiences, and other critical factors (Bennett, 2023).

Another central aspect of perseverance that requires further study is that of its malleability. We have conceptualized perseverance as a trait-like construct that is largely stable over time in the absence of targeted intervention. However, there has been renewed interest in durable skills' amenability to change (Martin-Raugh et al., 2020). Curricula such as socioemotional learning are based on the principle that durable skills like perseverance can be improved through deliberate training. Research has meta-analytically supported the efficacy of socioemotional learning more broadly (e.g., Boncu et al., 2017) and for perseverance specifically (see Khindri & Rangnekar, 2022). However, more targeted research is necessary to evaluate the malleability of our perseverance conceptualization. For example, it is possible that our two perseverance subskills demonstrate varying levels of malleability and that distinct strategies may be needed to maximize training effectiveness for each subskill. The conditions under which perseverance training may be most impactful will also require study. Factors such as training content, delivery method (online vs. in-person), training frequency/duration, instructor and student characteristics, and others may influence training outcomes. It is also possible that there are ideal levels of perseverance and that it is possible for someone to possess levels so high that they actually become detrimental. For instance, perseverance is often experimentally measured through tasks designed to be unsolvable (e.g., impossible anagrams; Mrazek et al., 2018). Thus,

recognizing appropriate circumstances for disengaging with a task may be a beneficial skill to be integrated into perseverance training efforts. Specific theories of action or theories of change (e.g., Williams et al., 2022) may be beneficial in guiding and evaluating malleability research. Longitudinal data is ideal to support this work, including the identification of age-appropriate benchmarks for perseverance resulting from natural developmental processes.

Concluding Comments

Perseverance is just one of many durable skills that can help students and workers navigate inevitable challenges at school, on the job, and in their personal lives. Meaningful perseverance assessment and effective relevant training require a foundation involving a strong conceptual framework. In this paper, we introduced a novel perseverance definition with the goal of addressing ambiguities in previous conceptualizations. Our definition considers how common obstacles impact one's emotional response and effort level, suggesting implications for one's well-being and productivity. We apply a behaviorist perspective to facilitate perseverance measurement by self-report or through observational data. Future research may advance these early efforts and contribute to holistic profiles of individuals' strengths and areas for development.

References

Aburn, G., Gott, M., & Hoare, K. (2016). What is resilience? An integrative review of the empirical literature. *Journal of Advanced Nursing*, *72*(5), 980–1000. https://doi.org/10.1111/jan.12888

Ashton, M. C., & Lee, K. (2007). Empirical, theoretical, and practical advantages of the HEXACO model of personality structure. *Personality and Social Psychology Review*, *11*(2), 150–166. https://doi.org/10.1177/1088868306294907

Ashton, M. C., & Lee, K. (2009). The HEXACO-60: A short measure of the major dimensions of personality. *Journal of Personality Assessment*, *91*(4), 340–345. https://doi.org/10.1080/00223890902935878

Ashton, M. C., Lee, K., & de Vries, R. E. (2014). The HEXACO Honesty-Humility, agreeableness, and emotionality factors: A review of research and theory. *Personality and Social Psychology Review*, *18*(2), 139–152. https://doi.org/10.1177/1088868314523838

Barr Foundation. (2018, December). *Development and use of a robust Portrait of a Graduate* [Webinar]. https://www.nextgenlearning.org/resources/webinar-development-and-use-of-a-robust-portrait-of-a-graduate

Battaly, H. (2017). Intellectual perseverance. *Journal of Moral Philosophy, 14*(6), 669–697. https://doi.org/10.1163/17455243-46810064

Bennett, R. E. (2023). Toward a theory of socioculturally responsive assessment. *Educational Assessment*, *28*(2), 83–104. https://doi.org/10.1080/10627197.2023.2202312

Boncu, A., Costea, I., & Minulescu, M. (2017). A meta-analytic study investigating the efficiency of socio-emotional learning programs on the development of children and adolescents. *Romanian Journal of Applied Psychology*, *19*(2), 35–41. https://doi.org/10.24913/rjap.19.2.02

Braun, V., & Clarke, V. (2012). Thematic analysis. In H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, & K. J. Sher (Eds.), *APA handbook of research methods in psychology: Vol. 2. Research designs: Quantitative, qualitative, neuropsychological, and biological* (pp. 57–71). American Psychological Association. https://doi.org/10.1037/13620–004

Chmitorz, A., Kunzler, A., Helmreich, I., Tüscher, O., Kalisch, R., Kubiak, T., Wessa, M., & Lieb, K. (2018). Intervention studies to foster resilience – A systematic review and proposal for a resilience framework in future intervention studies. *Clinical Psychology Review*, *59*, 78–100. https://doi.org/10.1016/j.cpr.2017.11.002

Costa, P. T., & McCrae, R. R. (1998). Six approaches to the explication of facet-level traits: Examples from conscientiousness. *European Journal of Personality*, *12*(2), 117–134. https://doi.org/10.1002/(SICI)1099–0984(199803/04)12:2%3C117::AID–PER295%3E3.0.CO;2–C

Credé, M. (2018). What shall we do about grit? A critical review of what we know and what we don't know. *Educational Researcher*, *47*(9), 606–611. https://doi.org/10.3102/0013189X18801322

Credé, M., Tynan, M. C., & Harms, P. D. (2017). Much ado about grit: A meta-analytic synthesis of the grit literature. *Journal of Personality and Social Psychology*, *113*(3), 492–511. https://doi.org/10.1037/pspp0000102

DiNapoli, J., & Miller, E. K. (2022). Recognizing, supporting, and improving student perseverance in mathematical problem-solving: The role of conceptual thinking scaffolds. *The Journal of Mathematical Behavior, 66,* 100965. https://doi.org/10.1016/j.jmathb.2022.100965

Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, *92*(6), 1087–1101. https://doi.org/10.1037/0022-3514.92.6.1087

Duckworth, A. L., & Yeager, D. S. (2015). Measurement matters: Assessing personal qualities other than cognitive ability for educational purposes. Educational Researcher, *44*(4), 237–251. https://doi.org/10.3102/0013189X15584327

Dweck, C. (1999). *Self-theories: Their role in motivation, personality, and development.* Psychology Press.

Ethington, C. A. (1990). A psychological model of student persistence. *Research in Higher Education*, *31*(3), 279–293. https://doi.org/10.1007/BF00992313

Farrington, C. A., Roderick, M., Allensworth, E., Nagaoka, J., Keyes, T. S., Johnson, D. W., & Beechum, N. O. (2012). *Teaching adolescents to become learners. The role of noncognitive factors in shaping school performance: A critical literature review.* University of Chicago Consortium on Chicago School Research.

Fodor, O. C., & Pintea, S. (2017). The "emotional side" of entrepreneurship: A meta-analysis of the relation between positive and negative affect and entrepreneurial performance. *Frontiers in Psychology*, *8*, Article 310. https://doi.org/10.3389/fpsyg.2017.00310

Gutman L. M., & Schoon, I. (2013). *The impact of non-cognitive skills on outcomes for young people: A literature review.* The Education Endowment Foundation.

Hamtiaux, A., Houssemand, C., & Vrignaud, P. (2013). Individual and career adaptability: Comparing models and measures. *Journal of Vocational Behavior, 83,* 130–141. https://doi.org/10.1016/j.jvb.2013.03.006

Herrman, H., Stewart, D. E., Diaz-Granados, N., Berger, E. L., Jackson, B., & Yuen, T. (2011). What is resilience? *The Canadian Journal of Psychiatry, 56*(5), 258–265. https://doi.org/10.1177/070674371105600504

Holland, J. L. (1985). *Making vocational choices: A theory of vocational personalities and work environments.* Prentice-Hall.

Hostler, T. J., Wood, C., & Armitage, C. J. (2018). The influence of emotional cues on prospective memory: A systematic review with meta-analyses. *Cognition and Emotion, 32*(8), 1578–1596. https://doi.org/10.1080/02699931.2017.1423280

Hou, X.-L., Becker, N., Hu, T.-Q., Koch, M., Xi, J.-Z., & Mõttus, R. (2022). Do grittier people have greater subjective well-being? A meta-analysis. *Personality and Social Psychology Bulletin, 48*(12), 1701–1716. https://doi.org/10.1177/01461672211053453

Humphrey, N., Kalambouka, A., Wigelsworth, M., Lendrum, A., Deighton, J., & Wolpert, M. (2011). Measures of social and emotional skills for children and young people: A systematic review. *Educational and Psychological Measurement, 71*(4), 617–637. https://doi.org/10.1177/0013164410382896

Jachimowicz, J. M., Wihler, A., Bailey, E. R., & Galinsky, A. D. (2018). Why grit requires perseverance and passion to positively predict performance. *Proceedings of the National Academy of Sciences*, *115*(40), 9980–9985. https://doi.org/10.1073/pnas.1803561115

Johnson, M. J., Kim, K. H., Colarelli, S. M., & Boyajian, M. (2021). Coachability and the development of the coachability scale. *Journal of Management Development*, *40*(7-8), 585–610. https://doi.org/10.1108/JMD-06-2020-0174

Joyce, S., Shand, F., Tighe, J., Laurent, S. J., Bryant, R. A., & Harvey, S. B. (2018). Road to resilience: A systematic review and meta–analysis of resilience training programmes and interventions. *BMJ Open*, *8*(6). https://doi.org/10.1136/bmjopen-2017-017858

Kaplan, S., Bradley, J. C., Luchman, J. N., & Haynes, D. (2009). On the role of positive and negative affectivity in job performance: A meta-analytic investigation. *Journal of Applied Psychology, 94*(1), 162–176. https://doi.org/10.1037/a0013115

Kautz, T., Heckman, J. J., Diris, R., ter Weel, B., & Borghans, L. (2014). *Fostering and measuring skills: Improving cognitive and non-cognitive skills to promote lifetime success* (Working Paper No. 20749). National Bureau of Economic Research. https://doi.org/10.3386/w20749

Kell, H. J., Martin-Raugh, M. P., Carney, L. M., Inglese, P. A., Chen, L., & Feng, G. (2017). *Exploring methods for developing behaviorally anchored scales for evaluating structured interview performance* (Research Report No. RR-17-28). ETS. https://doi.org/10.1002/ets2.12152

Kern, M. L. (2017) Perseverance, achievement, and positive education. In *Future directions in well-being: Education, organizations and policy* (pp. 75–79). Springer International Publishing.

Khindri, A., & Rangnekar, S. (2022). The trait of perseverance: A literature review and future research directions. *The American Journal of Psychology*, *135*(3), 271–285. https://doi.org/10.5406/19398298.135.3.02

Klieger, D., Ezzo, C., Bochenek, J., & Cline, F. (2015, April 16–20). *The predictive validity of non-cognitive skills for graduate and professional student success: Some initial findings* [Symposium]. Annual Meeting of the American Educational Research Association, Chicago, IL, United States.

Kyllonen, P. C. (2012, May 7–8). *Measurement of 21st century skills within the common core state standards* [Symposium]. Invitational Research Symposium on Technology Enhanced Assessments, Princeton, NJ, United States.

Kyllonen, P. C., Sevak, A., Ober, T., Choi, I., Sparks, J. & Fishtein. (2024). *Charting the future of assessments.* ETS Research Institute. https://doi.org/10.1002/ets2.12388

Larson, J. C., & Comstock, C. L. (1994). The high efficiency of evaluating candidates first by phone. *Journal of Career Planning & Employment*, *55*(1), 40–41, 55–57. https://eric.ed.gov/?id=EJ497319

Levine, E., & Patrick, S. (2019). *What is competency-based education? An updated definition.* Aurora Institute.

Lewis, B. (2018). *Keep calm and carry on: The truth behind the poster.* Imperial War Museums.

Liu, O. L., Kell, H. J., Liu, L., Ling, G., Wang, Y., Wylie, C., Sevak, A., Sherer, D., LeMahieu, P., & Knowles, T. (2023). *A new vision for skills–based assessment.* ETS.

Lorr, M., & Youniss, R. (1985). *The Interpersonal Style Inventory* [Test manual]. Western Psychological Services.

Määttänen, I., Makkonen, E., Jokela, M., Närväinen, J., Väliaho, J., Seppälä, V., Kylmälä, J., & Henttonen, P. (2021). Evidence for a behaviourally measurable perseverance trait in humans. *Behavioral Sciences, 11*(9)*,* 123. https://doi.org/10.3390/bs11090123

Martin-Raugh, M. P., Williams, K. M., & Lentini, J. (2020). *The malleability of workplace-relevant constructs: Empirical evidence from 39 meta-analyses and reviews* (Research Report No. RR-20-23). ETS. https://doi.org/10.1002/ets2.12306

McCrae, R. R., & Costa, P. T., Jr. (2008). Empirical and theoretical status of the Five-Factor Model of personality traits. In G. J. Boyle, G. Matthews, & D. H. Saklofske (Eds.), *The SAGE handbook of personality theory and assessment: Personality theories and models* (Vol. 1, pp. 273–294). Sage. https://doi.org/10.4135/9781849200462.n13

Merrell, K. W. (1996). Social-emotional assessment in early childhood: The preschool and kindergarten behavior scales. *Journal of Early Intervention, 20*(2), 132–145. https://doi.org/10.1177/105381519602000205

Meyer, S., Durning, S. J., Bader-Larsen, K. S., Hamwey, M., & Varpio, L. (2021). Perseverance: An essential trait of military interprofessional healthcare teams. *Military Medicine, 186*(3), 29–34. https://doi.org/10.1093/milmed/usab185

Mottola, F., Abbamonte, L., Ariemma, L., Gnisci, A., Marcone, R., Millefiorini, A., Perugini, M., Senese, V. P., & Sergi, I. (2023). Construct and criterion validity of the HEXACO Medium School Inventory Extended (MSI-E). *PLOS One*, *18*(10), e0292813. https://doi.org/10.1371/journal.pone.0292813

Mrazek, A. J., Ihm, E. D., Molden, D. C., Mrazek, M. D., Zedelius, C. M., & Schooler, J. W. (2018). Expanding minds: Growth mindsets of self–regulation and the influences on effort and perseverance. *Journal of Experimental Social Psychology, 79,* 164–180. https://doi.org/10.1016/j.jesp.2018.07.003

Nummenmaa, L., & Niemi, P. (2004). Inducing affective states with success-failure manipulations: A meta-analysis. *Emotion*, *4*(2), 207–214. https://doi.org/10.1037/1528-3542.4.2.207

Ober, T. M., Williams, K. M., Kell, H. J., & Holtzman, S. (2024). Measuring coachability by situational judgment task: Development and initial validation. *Personality and Individual Differences, 219,* Article 112503. https://doi.org/10.1016/j.paid.2023.112503

Ogilvie, B. C., & Tutko, T. A. (1966). *Problem athletes and how to handle them.* Pelham Books.

O*NET. (2024). *Persistence: Job requires persistence in the face of obstacles* [Table]. O*NET OnLine. Retrieved June 21, 2024, from https://www.onetonline.org/find/descriptor/result/1.C.1.b

Organisation for Economic Cooperation and Development. (2013). *PISA 2012 results: ready to learn. Students' engagement, drive and self-beliefs (Vol. III): Students' engagement, drive and self-beliefs.* OECD. http://dx.doi.org/10.1787/9789264201170-en

Oshio, A., Taku, K., Hirano, M., & Saeed, G. (2018). Resilience and Big Five personality traits: A meta-analysis. *Personality and Individual Differences, 127,* 54–60. https://doi.org/10.1016/j.paid.2018.01.048

Oxford University Press. (2020). Perseverance. In *Oxford Learner's Dictionary*.

Pereira, D. R., Teixeira-Santos, A. C., Sampaio, A., & Pinheiro, A. P. (2023). Examining the effects of emotional valence and arousal on source memory: A meta-analysis. *Emotion, 23*(6), 1740–1763. https://doi.org/10.1037/emo0001188

Perkins-Gough, D. (2013). The significance of grit: A conversation with Angela Lee Duckworth. *Educational Leadership, 71*(1), 14–20.

Peterson, C., & Seligman, M. E. P. (2004). *Character strengths and virtues: A handbook and classification.* Oxford University Press.

Peterson, E. K., Douglas, D., & Van Noy, M. (2024). *The growth of skills-based hiring: An exploration of evidence from six states.* Rutgers Education and Employment Research Center.

Quacquarelli Symonds. (2019). *2019 global skills gap report.*

Reschly, A. L., & Christenson, S. L. (2012). Jingle, jangle, and conceptual haziness: Evolution and future directions of the engagement construct. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 3–19). Springer. https://doi.org/10.1007/978-1-4614-2018-7_1

Salas-Vallina, A., Alegre, J., & Guerrero, R. F. (2018). Happiness at work in knowledge-intensive contexts: Opening the research agenda. *European Research on Management and Business Economics*, *24*(3), 149–159. https://doi.org/10.1016/j.iedeen.2018.05.003

Slocombe, R. (2010). *British posters of the Second World War.* Imperial War Museums.

Society for Human Resource Management. (2024). *2024 talent trends.*

SRI International. (2018). *Promoting grit, tenacity, and perseverance: Critical factors for success in the 21st century.*

Sun, C., Shute, V. J., Stewart, A., Yonehiro, J., Duran, N., & D'Mello, S. (2020). Towards a generalized competency model of collaborative problem-solving. *Computers & Education*, *143*, Article 103672. https://doi.org/10.1016/j.compedu.2019.103672

Thorsen, C., Hansen, K. Y., & Johansson, S. (2021). The mechanisms of interest and perseverance in predicting achievement among academically resilient and non-resilient

students: Evidence from Swedish longitudinal data. *British Journal of Educational Psychology*, *91*(4)*,* 1481–1497. https://doi.org/10.1111/bjep.12431

Trapmann, S., Hell, B., Hirn, J.-O. W., & Schuler, H. (2007). Meta-analysis of the relationship between the Big Five and academic success at university. *Zeitschrift für Psychologie, 215*(2), 132–151. https://doi.org/10.1027/0044-3409.215.2.132

Treffinger, D. J., Isaksen, S. G., & Stead-Dorval, K. B. (2006). *Creative problem-solving: An introduction.* Routledge. https://doi.org/10.4324/9781003419327

van Gelderen, M. (2012). Perseverance strategies of enterprising individuals. *International Journal of Entrepreneurial Behavior & Research, 18*(6), 630–648. http://dx.doi.org/10.1108/13552551211268102

Wang, Y., Ling, G., Brown, A., & Rochkind, J. (2024, April 11–14). *A review of state-level portraits of a graduate (PoG): What skills are captured?* [Conference presentation]. Annual Meeting of the American Educational Research Association, Philadelphia, PA, United States.

Weiss, J. A., & Merrigan, M. (2021). Employee coachability: New insights to increase employee adaptability, performance, and promotability in organizations. *International Journal of Evidence Based Coaching & Mentoring, 19*(1), 121–136. https://doi.org/10.24384/kfmw–ab52

Williams, K. M., Martin-Raugh, M. P., & Lentini, J. E. (2022). *Improving noncognitive constructs for career readiness and success: A theory of change for postsecondary, workplace, and research applications* (Research Report RR-22-04). ETS. https://doi.org/10.1002/ets2.12346

Woo, S. E., Chernyshenko, O. S., Stark, S. E., & Conz, G. (2014). Validity of six openness facets in predicting work behaviors: A meta-analysis. *Journal of Personality Assessment, 96*(1), 76–86. https://doi.org/10.1080/00223891.2013.806329

World Economic Forum. (2023). *Future of jobs report 2023.*

Wu, G., Feder, A., Cohen, H., Kim, J. J., Calderon, S., Charney, D. S., & Mathé, A. A. (2013). Understanding resilience. *Frontiers in Behavioral Neuroscience*, *7*, Article 10. https://doi.org/10.3389/fnbeh.2013.00010

XQ Institute. (2024). *XQ competency progressions* (v. 2.2).

Yang, W., Datu, J. A. D., Lin, X., Lau, M. M., & Li, H. (2018). Can early childhood curriculum enhance social-emotional competence in low-income children? A meta-analysis of the educational effects. *Early Education and Development, 30*(1), 36–59. https://doi.org/10.1080/10409289.2018.1539557

Yeager, D. S., & Dweck, C. S. (2020). What can be learned from growth mindset controversies? *American Psychologist*, *75*(9), 1269–1284. https://doi.org/10.1037/amp0000794

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