MEASURING STUDENT SUCCESS SKILLS: A REVIEW OF THE LITERATURE ON STUDENT AGENCY

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COMPETENCIES OF THE FUTURE

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MEASURING STUDENT SUCCESS SKILLS: A REVIEW OF THE LITERATURE ON STUDENT AGENCY

INTRODUCTION

Student agency—the ability to exercise control over one's own thought processes, motivation, and action—is a central skill in today's information age. As technology continues to accelerate learning expectations and change, it is essential that one can make independent decisions, self-regulate, and adapt to complex, changing environments. The World Economic Forum (2023) highlights such skills as "resilience, flexibility, and agility," and "motivation and self-awareness"—key skills associated with student agency—as vital for success in the workforce.

Student agency is an ability that fluctuates throughout a student's educational journey as they engage with, and take control of, their learning (Bandura, 2020; Martin, 2004; Organization for Economic & Cooperative Development [OECD], 2018). Definitions of agency also include the concepts of autonomy, free will, voice and choice, and mastery over oneself (Reath, 2012). These varied definitions highlight both the complexity of the student agency construct and its evolving nature.

The concept of student agency has been shaped by cognitive-constructivist, sociocultural, and social-cognitive theories of learning. Each theory contributes shared and distinct perspectives on student agency, which has influenced a variety of definitions and conceptualizations to inform how student agency develops and can be cultivated in school-based contexts.

From a ***cognitive-constructivist*** perspective, a student actively constructs knowledge through interaction with their environment (Berkeley Graduate Teaching & Resource Center, 2024; Piaget, 1968). From this point of view, learning is an internal cognitive process that occurs between the student and the outside world through a self-directed learning process. Agency is defined as the student's cognitive capabilities to assimilate and accommodate new information through meaning-making, experimentation, problem-solving, and discovery.

From a ***sociocultural*** perspective, agentic potential is situated within a social and cultural context (Vygotsky, 1978). Rather than being purely individual, agency is co-constructed with peers, teachers, and other cultural influences. Here, agency is defined as "the socio-culturally mediated capacity to act" (Ahearn, 2001, p. 112). A sociocultural definition of agency emphasizes the role of social interaction, dialogue, and collaboration, where agency is framed as a product of participation in language, social practices, and communities.

Social cognitive theory integrates aspects of both cognitive-constructivist and sociocultural perspectives. From a social cognitive perspective, agency is seen as a product of reciprocal interactions between personal (cognitive), behavioral, and environmental factors (Bandura, 2006). Here, student agency is defined as an individual's capacity to control their learning through self-regulation, motivation, and self-efficacy. Moreover, it involves the ability to set goals, plan actions, and adjust strategies to navigate challenges. As such, student agency highlights the student's active role in shaping their own learning experiences.

This literature review (a) provides a working definition of student agency, (b) describes how student agency develops, (c) discusses specific instructional practices that support the development of student agency, and (d) analyzes how student agency has been assessed. The review concludes with implications for the design and use of student agency assessments in primary and secondary schools.

DEFINITIONS

What is Student Agency?

Table 1A in Appendix A presents definitions of agency from standard dictionaries and prominent academic sources. Our proposed definition of student agency is adapted from Albert Bandura (1989) and incorporates essential elements of agency definitions across these sources.

> ***Student agency*** *is the ability to exercise control over one's own thought processes, motivation, and action.*

According to Bandura (2006), individual human agency has four core properties representing a multitude of subskills.

Intentionality refers to the capacity of individuals to imagine a desired future state, establish a goal or outcome, and plan a course of action to achieve it.

Forethought is the ability to anticipate, plan, and adjust for future events. It enables individuals to set goals, anticipate the likely outcomes of their actions, and guide their behavior in a purposeful manner. Exercising forethought provides direction, coherence, and meaning as an individual formulates plans, reorders priorities, and adjusts toward achieving a goal.

Self-regulation is the process whereby an individual controls their own behavior, thoughts, and emotions to achieve a goal. An individual exercises agency when they can monitor their thoughts and behaviors, manage their emotions, invite alternative possibilities, and act intentionally and with balanced judgment. Notably, motivation plays a key role in self-regulation: It is the driving force behind initiating and sustaining the self-regulation process.

Self-reflectiveness is the ability to consciously consider one's own thoughts, actions, and motivations. It allows individuals to evaluate their own capabilities and effectiveness, and the meaning of their actions. Through self-reflection, individuals gain insight into their behavior and, in turn, make adjustments to improve their decisions and behaviors as they progress toward their goals.

These four core properties are inextricably linked. In any given scenario, a student may decide to act or withhold action. What the student chooses to do is a function of their ability to regulate thought, emotions, and action; reflect on similar scenarios; consider the consequences of various choices of action; and make choices intentionally with a desired future state in mind. A student's agency develops as they develop the will and ability to control these properties.

Additionally, student agency is bound by the individual's schematic representations of the past, present, and future. That is, their ability to set intentions or self-regulate in any given moment is influenced by past experiences, existing conditions, and imagined possibilities for the future.

Finally, whether and how one chooses to act is contextually bound and socio-culturally mediated (Ahearn, 2001). An individual's ability to act and make choices is shaped by the social, political and cultural dynamics of their environment. Moreover, an individual does not operate autonomously. Rather, human decision-making reflects an interplay of intrapersonal, behavioral, and environmental factors (Bandura, 1989).

What Concepts are Associated with Student Agency?

Many inter- and intrapersonal cognitive skills overlap with student agency, which can confuse experts and practitioners alike. The propensity to conflate terms is called the jingle-jangle problem (Duckworth et al., 2019). Jingle-jangle happens when a related term is used to describe student agency or when student agency is used to represent one or more of these other skills. Below, we define terms that are closely related to student agency and, in turn, discuss their similarities and differences.

Many inter- and intrapersonal cognitive skills overlap with student agency, which can confuse experts and practitioners alike.

Student autonomy reflects a learner's ability to take charge of their own learning (Holec, 1981). Both autonomy and student agency involve a sense of control over one's learning, and both emphasize the student's ability to initiate purposeful action toward achieving a goal (Nieminen et al., 2022). However, student agency and autonomy differ in at least two important ways. First, autonomy emphasizes *independence* in action whereas agency emphasizes *interdependence* in action. Autonomy entails the assumption that individuals have free will; they independently make choices and take actions on their own volition, free from external influences (Reath, 2012). In contrast, agency incorporates the notion that "people do not operate as autonomous agents" (Bandura, 2006, p. 165). Rather, agency is a product of the interplay, or interdependence, of intrapersonal, behavioral, and environmental factors.

Agency recognizes that action is socially situated, a dynamic interplay between an individual and their environment as they work toward a goal or desired outcome. So while autonomy focuses on an individual's personal freedom or independence, agency focuses on the process of navigating and shaping one's environment (Bandura, 2006).

> Neither structural constraints nor enabling resources foreordain what individuals become and do in given situations. By exercising self-influence, [student] agents operate generatively and proactively, not just reactively, to shape the character of their social systems. (Bandura, 2001, p. 15)

The second way student agency and autonomy differ is that the former construct is broader. Autonomy represents the personal freedom to take charge and initiate action. In contrast, agency also incorporates such skills as the ability to act intentionally (e.g., establish and focus on a clear goal), develop and execute a plan of action, self-reflect, and regulate progress toward achieving a goal. In this way, autonomy is an important personal factor that facilitates agency by initiating the will to act (Poon, 2019).

- Agency focuses on the student's ability to decide and act as they progress toward a goal.
- Self-regulation focuses on the internal processes (i.e., maintaining focus, self-control, and motivation to choose and persist) that, in turn, facilitate a student's ability to progress toward the goal (Martin, 2004).

Self-regulation[1] is the ability to monitor one's thoughts and behaviors, manage their emotions, invite alternative possibilities, and act intentionally and with balanced judgment (Bandura, 2006). This ability allows the individual to proactively navigate a larger social system.

Self-regulation is an essential component of student agency (Bandura, 2020). However, self-regulation can easily be

[1] Many terms have been associated with self-regulation, including self-management, conscientiousness, self-control, self-discipline, willpower, effortful control, ego strength, and inhibitory control (Brandt, 2020).

confused with student agency insofar as both terms refer to the ability to "control one's thoughts, emotions, and behaviors." The key difference is this:

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Metaphorically speaking, one might say that agency represents a Formula One race *car's ability* to perform optimally; for example, to accelerate, brake, grab the road, navigate sharp turns, and sustain high rates of speed. Self-regulation would represent the *engine's ability to facilitate* the car's optimal performance: to spark the ignition, move oil through the engine, maintain steady revolutions (rpm), and cool itself. In a similar way, a student's capability to exercise agency in each moment depends upon their ability to remain focused and centered on the task at hand, think and act according to plan, and stay cool under pressure.

Self-efficacy is a person's perceived ability to successfully complete a task or achieve a goal (Bandura, 1977). Self-efficacy lies at the core of personal agency (Bandura, 1989, 1997). That is, it is not enough for individuals to possess the necessary knowledge and skills to perform a task; rather, they also must believe they can successfully perform the task, under both typical and challenging circumstances. Thus, success in any task requires knowledge and skill and a belief that one can apply that knowledge and skill to successfully complete a task and achieve a goal.

Self-efficacy is also a primary mechanism that motivates action. As suggested above, a student with high self-efficacy is motivated to act in part because they believe their actions will bring success. Moreover, their action will result in feedback from the environment that, in turn, motivates and shapes future behavior. Thus, whether an individual develops knowledge and skill and uses it to achieve their full potential depends on their belief that the consequences—e.g., setbacks, roadblocks, failures—will provide the necessary information to improve and eventually realize success.

Motivation is associated with numerous definitions and frameworks. For example, motivation has been defined as engaging in an activity because of inherent enjoyment or a sense of obligation (Ryan & Deci, 2000); as the processes that instigate and sustain goal-directed activities (Schunk, Meece, & Pintrich, 2014); or as the energy influencing behavior in pursuit of a goal (Simpson & Balsam, 2016). The multitude of definitions makes it difficult to present a clear definition and explain the core underlying mechanisms that create and sustain motivation. What is clear is that motivation influences, and is influenced by, student agency. It has been widely used to explain why individuals choose or persist in a course of action over others (Hattie et al, 2020).

According to Bandura (1989), motivation is a primary driver of an individual's ability to exercise the properties of student agency: initiation, forethought, self-regulation, and self-reflection. Moreover, the relationship between motivation and agency is reciprocal. Agency, motivation and self efficacy (described below) are interconnected; they rise and fall through a dynamic process that involves a person's behavior, the outside world's feedback (the environment), and how the person processes that response (person cognition). For example, a person's deliberate action that moves them toward a goal will likely motivate similar action later.

According to Bandura (1989), motivation is a primary driver of an individual's ability to exercise the properties of student agency: initiation, forethought, self-regulation, and self-reflection.

Self-directed learning is defined as taking the initiative, with or without the help of others, in (a) diagnosing one learning needs, (b) formulating learning goals, (c) identifying human and material resources for learning, (d) choosing and implementing appropriate learning strategies and (e) evaluating learning outcomes (Brandt, 2020; Knowles, 1975, p. 18).

Self-directed learning and student agency are closely related concepts. Both emphasize a student's active role in the learning process; both include properties of initiation, forethought, self-regulation, and self-reflection; and both include motivation and self-efficacy as key concepts influencing, and influenced by, their function. Self-directed learning has been conceptualized as a process through which agency is expressed and observed (e.g., Imamudeen, 2020; Carre et al., 2011). More specifically, self-directed learning can be viewed as the practical steps that an individual takes as they assume responsibility and ownership over their learning. Agency, on the other hand, is the underlying ability that empowers a student to engage in the self-directed learning process. Evidence of agency is therefore demonstrated through the self-directed learning process.

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Self-determined learning is related to self-directed learning and share similar definitions. A key difference is that self-determined learning extends the self-directed learning continuum by placing the learner at the center of the learning process and allowing them to determine what, how, and why to learn. Self-directed learning tends to be used in a school-based environment where students can assume various levels of control over the learning process. Self-determined learning often is considered to be more relevant in informal learning environments, where minimal constraints exist to direct what content must be learned and how it should be taught.

How Does Student Agency Develop?

Figure 1 presents a developmental theory of agency based on research literature (Bandura, 1989, 2006; Montroy et al., 2016). As indicated above, agency develops through a reciprocal relationship that occurs across environmental factors, personal factors, and observed behaviors. *Environmental factors* represent the social influences, cultural norms, and situational contexts that influence behavior. In a school-based setting, positive environmental influences include social and emotional support from adults and peers, robust pedagogy, access to high-quality instructional materials, and a positive school culture and climate. For example, teachers foster student agency by meeting students' emotional and psychological needs and, further, allowing students to exercise voice and choice in their learning process.

Personal factors include student cognition: the internal processing mechanisms, such as working memory, mental flexibility, and self-control, that support the learning process. Other personal factors are a student's knowledge and skills, and their ability to self-regulate. For example, a student with well-developed self-regulation skills may be better equipped to set and achieve learning goals in challenging situations. When a student encounters a difficult mathematics problem, they might effectively manage their frustration, review the problem several times, apply their prior knowledge, and experiment with various approaches for finding a solution. While these processes are internal, the behaviors associated with such processes represent evidence of student agency.

Observed behaviors represent the observable choices and practices students engage in to demonstrate agency. These actions are tangible manifestations of a student's ability to exercise control over their learning experiences. Behavioral actions may include goal-setting, seeking feedback, initiating collaboration with peers, or reflecting on their own performance. For example, a student who sets a goal to improve their essay writing skills might create a writing schedule, seek guidance from their teacher, and revise their work based on feedback. These deliberate and observable actions demonstrate how the student takes ownership of their learning and contributes to the iterative development of their agency.

Environmental and personal factors collectively shape and influence a student's sense of self-efficacy. Self-efficacy and motivation are important mediators of student agency. These concepts play an intermediary role in shaping whether, how, and under what conditions a student will exercise agency. Extending the previous example, a teacher may create conditions to foster student agency, and a student may have the necessary skills and abilities to succeed in a task. But absent the belief that success is possible—self-efficacy—the student lacks the necessary motivation to act, which, in turn, constrains their inclination to take action toward a goal.

With sufficient self-efficacy and motivation, a student can practice and cultivate agency, especially when prompted by activities that promote agentic practice (Bandura, 1986; de la Fuente et al., 2022). A student practices agency as they engage in behaviors that reflect its core properties: intentionality, forethought, self-regulation, and self-reflection. These "output" behaviors circle back and impact the malleable personal and environmental factors from which they originated. That is, content knowledge and skills develop, focused environmental support is provided, and the iterative cycle begins again. As this cycle gets repeated, agency, along with the personal and mediating factors that support it, gradually improves as the student is supported through positive, purposeful, and sustained environmental support.

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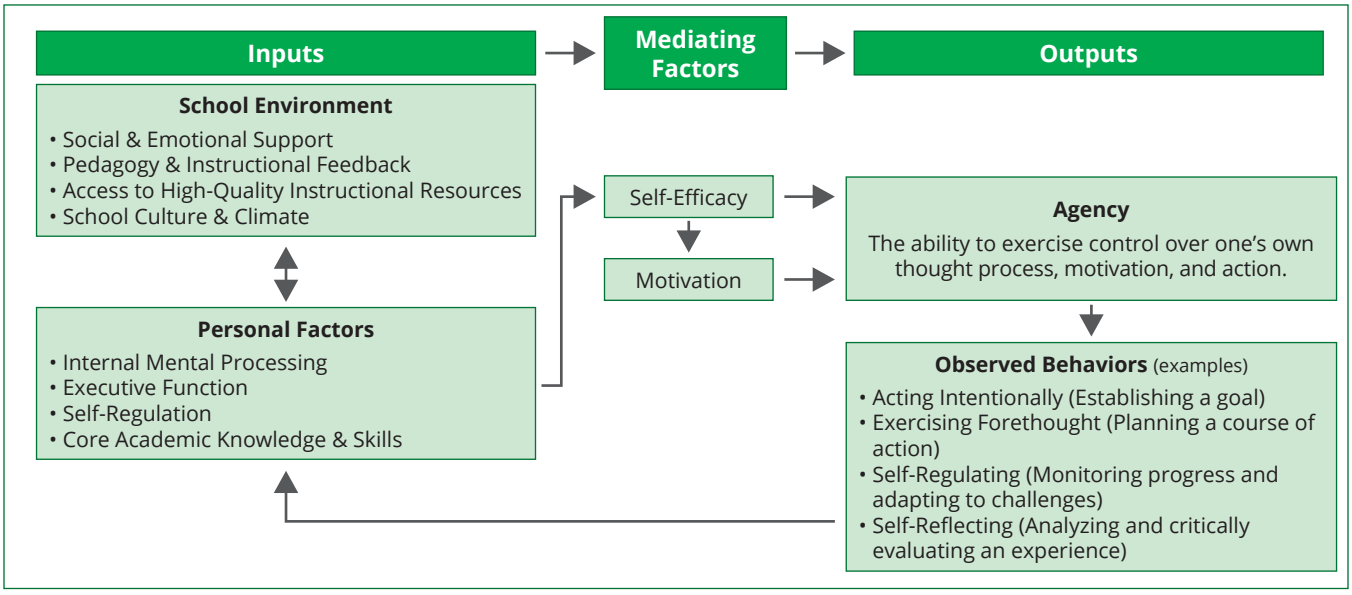
The sections below summarize current research about how personal and environmental factors interact to develop a student's sense of agency.

Figure 1: Theory of Student Agency Development



Internal Mental Processing

Internal mental processing refers to the brain's internal function. The brain controls many functions in the body. Examples include senses, movement, thoughts and emotions, memory, and language and communication. A comprehensive review of brain function is beyond the scope of this paper. However, three essential brain functions are worth mentioning because they represent two key internal processing skills that, in turn, support student agency development: executive function and self-regulation (Harvard Center on the Developing Child, 2023).

Executive Function and Self-Regulation

Executive function reflects the skills that enable a person to control impulses, stay focused, prioritize, and achieve goals (Australian Educational Research Organization, 2023). As shown in Figure 2, three core properties of executive function are working memory, mental flexibility, and self-control (Howard et al., 2021).

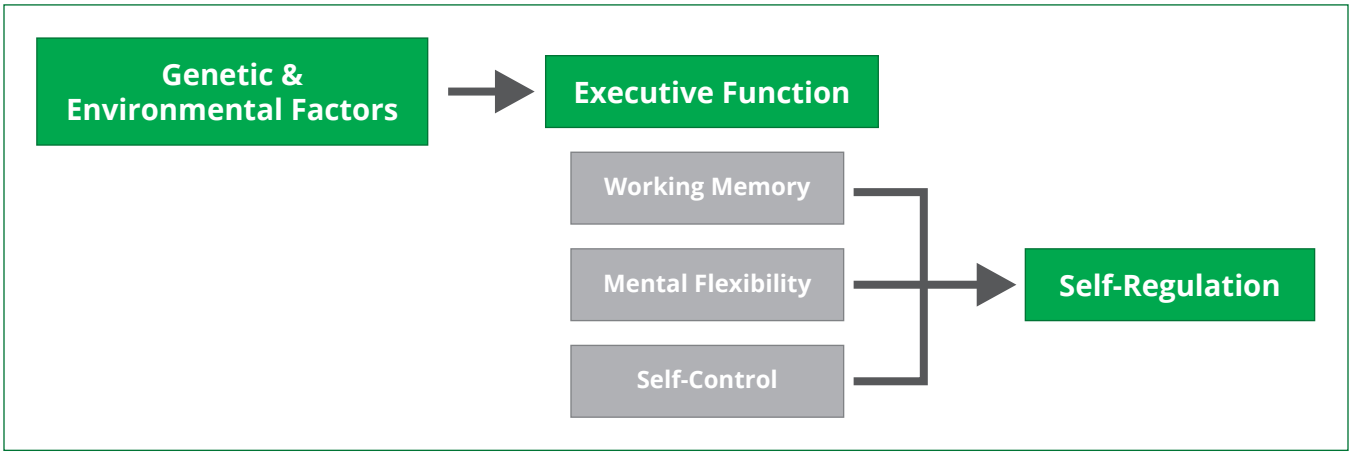
- **Working memory:** the ability to hold and manipulate distinct pieces of information over short periods of time.
- **Mental flexibility:** the ability to sustain or shift attention in response to changing circumstances.
- **Self-control:** the ability to set priorities and resist impulsive actions and responses.

These functions operate in coordination with each other to support self-regulation.

Children are not born with executive function skills; rather, they are born with the potential to develop them. Children also vary in their genetic predispositions, suggesting that some children may need more support than others to develop executive function skills. These skills are cultivated through healthy relationships with adults and positive conditions in their environments. Children who grow up in adverse environments (e.g., neglect, abuse, violence) may require substantial support to improve brain function (Fishbein et al., 2019).

As these underlying executive functions develop, they in turn support self-regulation: the ability to monitor thoughts and behaviors, manage emotions, invite alternative possibilities, and act intentionally (Bandura, 2006). Importantly, development of executive function and self-regulation is most flexible and adaptable in infants and young children. Therefore, environmental support to cultivate these skills should begin early in a child's life (Montroy et al., 2016).

Figure 2: Mental Processes that Support Executive Function and Self-Regulation



Environmental Supports for Executive Function and Self-Regulation

Executive function and self-regulation skills develop through co-regulation and structured learning environments. Co-regulation occurs when a child receives warm, responsive support from an adult to bridge the gap between a child's current and potential capacity to self-regulate in a particular task or situation. Adult caregivers enact co-regulation by responding to a child at their level, empathizing, and using language to descriptively connect events to the thoughts and feelings these events elicit. Caregivers also play an important role in modeling how to respond to emotional or stressful situations, and by working with a child to problem-solve potential solutions. Through consistent and responsive co-regulation experiences, executive function and self-regulation skills develop (Harvard Center on the Developing Child, 2024).

Structured learning environments also support executive function and self-regulation development. Examples of tasks to support a structured learning environment include turn-taking, problem-solving, goal-setting, guided practice, and opportunities to exercise voice and choice. These tasks are especially helpful for supporting school readiness and academic performance (Education Endowment Fund, n.d.).

Typical Trajectories for Developing Executive Function and Self-Regulation Skills

Co-regulation with a caregiver, when enacted in structured learning environments, supports normal development of children's executive function and self-regulation skills. Between the ages of three and seven, children typically progress from reactive or co-regulated behaviors to more advanced forms of self-regulation. Examples of more advanced demonstrations of self-regulation are identifying and labeling complex emotions, employing strategies to manage frustration, using internal dialogue to self-soothe, considering multiple perspectives, and seeking solutions to problems (Montroy et al., 2016).

Additionally, executive function and self-regulation tend to develop in tandem with language skills, particularly in a child's early years. For example, by age four or five, most children can typically express themselves verbally, control their emotions, and regulate behavior. They can control emotional outbursts, delay a response until they are called upon, inhibit inappropriate behaviors, and follow directions (Montroy et al., 2016).

Working and short-term memory both accelerate quickly from three to seven and then begin to level off in adolescence. By age five, many children can work with multiple bits of information and perform skills like patting their heads and rubbing their bellies simultaneously. By age seven or eight, most children develop transitive inference (e.g., if A=B and B=C, then A=C), seriation (e.g., arranging objects from shortest to longest), and conservation (e.g., recognizing that a clay object's mass remains the same when its shape changes). By the ages 10 to 12, they begin to think abstractly, analyze situations, think metacognitively, engage in complex reflection, play out complex scenarios, and systematically plan and solve problems involving multiple factors (Santrock et al., 2022).

Core Academic Knowledge and Skills

Content knowledge is a personal factor that supports student agency, especially once students enter school. Core academic knowledge and skills are foundational components for building content knowledge. Core academics include the ability to read fluently and comprehend a variety of texts, quickly perform basic computations, and easily retrieve basic content-based facts and concepts from memory.

Core academic knowledge and skills are critical prerequisites for developing deeper learning skills such as metacognition, critical-thinking, problem-solving, and student agency (Farrington et al., 2012). For example, when students know their basic facts and can read fluently, working memory is freed up and cognitive load decreases. Students thus have more space to use working memory for comparing, analyzing, and manipulating bits of information, generating ideas, and critically evaluating ideas. Moreover, strong

knowledge of core skills and concepts increases self-efficacy (e.g., one's belief that they can successfully solve a problem or identify a solution), which strengthens the student's ability to exercise agency during the learning process. This is especially true when students have choice and flexibility to execute a learning plan for demonstrating what they know and can do.

Self-Efficacy

A detailed developmental trajectory from birth through adulthood does not exist for self-efficacy. This is in part because self-efficacy is dynamic: Once developed, it can grow or decline as an individual has different life experiences. Additionally, self-efficacy changes as a function of a specific area or domain of life. A person may have high self-efficacy in relation to academics but not in sports, or in playing the piano but not the guitar (Jakobsen & Fischer, 2023).

Self-efficacy development is influenced through four major forces: mastery experiences, vicarious experiences, verbal persuasion, and physiological and affective states (Bandura, 197l; Usher et al., 2023). These can be manipulated across the age span to cultivate self-efficacy as an individual works toward achieving a goal. Each is briefly explained below.

- **Mastery Experiences:** When individuals successfully accomplish a task, they gain increased confidence in their ability to replicate that success in the future. Repeated successes thus enhance self-efficacy, while failures, especially in early stages, can weaken it. Notably, mastery experiences have the strongest effect on self-efficacy because they are the most authentic indicators of one's capabilities.
- **Vicarious Experiences:** Observing others successfully complete a task can bolster an individual's belief in their own abilities, particularly when one perceives themselves to be similar to the person observed. This process, often referred to as social modeling, allows individuals to see the possibility of success through the actions of others.
- **Social Persuasion:** Encouragement from others can play a significant role in strengthening self-efficacy. Positive verbal feedback or persuasion can help individuals overcome self-doubt and push through challenges, although its impact is generally weaker when compared with direct experience.
- **Emotional and Physiological States:** The physical and emotional states that individuals experience can influence their self-efficacy. For instance, feelings of stress, anxiety, or fatigue might lower self-efficacy, while positive emotions and a state of relaxation can enhance it. Accurately interpreting these physiological cues is crucial for maintaining a strong sense of efficacy.

Self-efficacy begins to develop in early childhood, and parents' self-efficacies play a critical role in this process. Research has shown that high parental self-efficacy is associated with positive parenting behaviors, which in turn foster children's perceptions of parental responsiveness to their needs (Gondoli & Silverberg, 1997; Jones & Prinz, 2005). Additionally, studies suggest that parental self-efficacy indirectly supports children's self-regulation skills through its influence on effective parenting strategies.

At the ages of 12 through 16, one's friends become an important source of self-efficacy beliefs. Adolescents who have peer groups that are not academically motivated tend to experience a decline in academic self-efficacy, while those who watch their peers succeed in school experience a rise in this attribute (Schunk & Miller, 2002; Wentzel et al., 2004). Moreover, the effects of self-efficacy that develop in adolescence are long-lasting. For example, Vecchio et al. (2007) found that greater social and academic self-efficacy measured in people ages 14 to 18 predicted greater life satisfaction five years later.

Motivation

The role of motivation in learning has been studied extensively over the past 30 years, particularly as it relates to self-determined learning. According to Ryan and Deci (2020), motivation develops along a continuum from amotivation—a lack of motivation—to extrinsic motivation and, ultimately, intrinsic motivation. Extrinsic motivation pertains to behaviors that arise for reasons other than inherent satisfaction—e.g., to achieve external rewards such as status or wealth or to avoid punishment. Intrinsic motivation pertains to engaging in activities "for their own sake or for their inherent interest and enjoyment" (Ryan & Deci, 2020, p. 3), such as reading a book out of curiosity, playing a musical instrument for fun, or solving a puzzle for the challenge it provides.

Notably, a student often behaves in ways that are both externally and internally motivated (e.g., studying for a math exam because I want a good grade and because I want to pursue a career in engineering). As students internalize external goals, they may be driven by personal values or the importance of a task, even though their motivation is still extrinsic.

Autonomy, competence, and relatedness are three essential factors of self-determination that influence a student's progression from amotivation to pure intrinsic motivation (Ryan & Deci, 2000). As a student develops a sense of autonomy, competence, and meaningful connection to others, they are more likely to internalize extrinsic motivations (e.g., shifting from a need for power to a sense of empowerment) and gradually develop more intrinsic forms of motivation. This shift is most likely to occur in supportive contexts where a student's psychological needs are met (Ryan et al., 2019). That is, when teachers and parents provide for a child's basic psychological needs—e.g., a sense of safety, love, belonging—extrinsic motivation becomes more integrated into a students' sense of self. The student whose psychological needs are met begins to internalize a sense of self-confidence and self-esteem. The student's motivation to seek validation from external sources is gradually replaced with intrinsic validation, or a knowing that "I am inherently worthy." A student who no longer needs to validate their sense of worth is then free to pursue activities for their own sake or for personal fulfillment.

Research suggests that student motivation remains high in the primary grades (K-3) when motivation to learn is predominantly intrinsic. A gradual shift occurs as students become less intrinsically motivated and more extrinsically motivated to learn in school from grade 4 to grade 9 (Harter, 1996). School-based factors associated with this shift include an emphasis on grades and performance goals, large class sizes, narrow curriculum, teacher-centered instruction, and high-stakes tests (Ryan & Deci, 2020).

What is the Strength of the Evidence for How Student Agency Develops?

A large research base establishes that executive function skills, self-regulation skills, and self-efficacy correlate with higher levels of student agency (Bandura, 2006; Montroy et al., 2016). Moreover, research suggests that higher levels of these skills and beliefs are related to a multitude of academic and social-emotional outcomes. For example, studies over the past 30 years link high levels of self-regulation early in life with kindergarten readiness, higher academic achievement in primary grades, adult educational attainment, feelings of higher self-worth, and an increased ability to cope with stress (Montroy et al., 2016). While most of the studies in this

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research base are correlational and cannot establish causality, the plethora of studies associating (a) executive function skills, self-regulation, and self-efficacy with (b) student agency makes the evidence compelling.

Motivation also has a robust evidence base, particularly as it relates to self-determination theory. Indeed, "hundreds of studies, at every level of development, and across varied learning contents and cultural contexts" (Ryan & Deci, 2020, p. 4), consistently support two important developmental claims related to student agency: (a) more intrinsic forms of motivation lead to an enhancement of students' engagement, learning, and wellness; and (b) basic psychological need-support from both teachers and parents facilitates such motivation.

Notably, research studies over the past 30 years emphasize the role of positive environmental conditions in cultivating agency. That is, self-regulation, self-efficacy, and motivation develop when students' psychological needs are met, and when support for autonomy plays a central role in fostering an inclusive school environment (Ryan & Deci, 2020). Autonomy-supportive environments encourage students to express their unique perspectives and take ownership of their learning. Moreover, when teachers are trained to provide autonomy-support via their interactions with students, and when students feel that their needs, identities, and personal goals are recognized and valued, students' skills and beliefs associated with student agency are more likely to flourish (Vaughn, 2020).

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What are the Key Gaps in the Literature on the Development of Student Agency, and What Areas Require Further Investigation?

Despite a substantial body of research on agency as a general construct, knowledge gaps remain regarding the development of student agency in educational contexts. First, there are no developmental trajectories describing how student agency emerges or how it develops across the grade span (Buchmann & Steinhoff, 2017). Moreover, although research has established strong links between self-regulation, self-efficacy, motivation, and student agency, questions remain about how these concepts interact to influence student agency development, particularly in educational contexts and across the K-12 grade span (Buchmann & Steinhoff, 2017; Montroy, 2016). For example, do self-efficacy and student agency develop together or separately? Does a causal relationship exist between executive function/self-regulation and intentionality, and if so, which comes first? These questions have instructional implications regarding the subskills associated with student agency.

Additionally, there is a dearth of empirical research on instructional and environmental factors influencing student agency. More research is needed to understand the types of (a) teacher-student interactions and instructional strategies that promote agency and (b) policies and environmental conditions that cultivate student agency (Reeve & Tseng, 2011; Vaughn, 2018; Zeiser et al., 2018). For example, how can educators design learning environments to foster student agency? What types of teacher-student interactions are necessary, and what types of instructional approaches promote agency? To what extent do promising instructional strategies and environmental conditions vary by the student's cultural background and demographic characteristics?

Finally, valid measures of student agency are needed to support student agency development across the grade span. Few measures of student agency currently exist, and mitigating the bias in student agency measurement is challenging (Mameli & Passini, 2019). For example, most measures of student agency are self-report, subject to social desirability bias. Additionally, definitions of agency vary in the literature, especially across such fields as sociology, psychology, and education (Mameli & Passini, 2019). For example, related concepts like self-regulation or autonomy are often confused with, or substituted for, student agency, which is an instance of the aforementioned jingle-jangle problem. This conflation of definitions can lead to the misuse and misinterpretation of research findings. Additionally, measures that narrowly examine distinct aspects of student agency, such as the ability to self-regulate, reflect, make difficult decisions, or set goals, may be misinterpreted as measures of student agency. More research is needed to develop valid, reliable, and fair measures of student agency.

CULTURAL VARIATION

Does the Concept of Student Agency Vary Across Contexts, Regions, and Cultures?

Concepts of student agency vary across contexts, regions, and cultures. There is no global consensus on the definition of student agency (OECD, 2019; Poon, 2019), especially when applied to educational contexts. Although research studies have attempted to group definitions and frameworks of agency into conceptual categories, such as instrumental agency and effortful agency (e.g., Hitlin & Elder, 2007; Matusov et al., 2016), a shared understanding of student agency does not yet exist (Inouye et al., 2022).

In their attempt to develop and validate a cross-cultural definition of student agency, OECD (2019) found that a direct translation of the term *student agency* did not exist in some languages, such as Portuguese and Korean. And where this term could be translated, there often were cultural differences in its interpretation. In many Asian cultures, for example, self-regulation was applied for the purpose of maintaining societal harmony (Abiko, 2017; Xiang et al., 2018), whereas Western cultures applied this concept for the purpose of attaining personal goals.

Different conceptualizations of student agency across Eastern and Western cultures reflect how these cultures define harmony and conformity, and the priority they give to values such as individualism and personal autonomy. OECD concluded that, although a universally applicable definition of student agency is unlikely, the concept of agency plays an important role in shaping students' educational experiences across the globe.

Different conceptualizations of student agency across Eastern and Western cultures reflect how these cultures define harmony and conformity, and the priority they give to values such as individualism and personal autonomy.

Despite important cross-cultural differences, shared features of student agency definitions may exist. In their literature review of international students in higher education, for example, Inouye et al. (2022) found that these students' descriptions of agency included self-regulation and self-reflection. Inouye et al. also found that international students described student agency through a sociocultural lens. More specifically, these students referred to common sociocultural factors such as communicative competencies, social interactions with teachers and students, and cultural capital (e.g., personal knowledge, skills, dispositions) that influenced their ability to actively control various outcomes.

Although the Inouye et al. review focused only on international students in higher education, it is a potential starting point for developing and adopting more common definitions and frameworks to inform research on student agency. Doing so is a prerequisite for learning how student agency develops and can be effectively taught across various contexts and cultures.

INSTRUCTION

What Whole-School and Classroom-Based Interventions Have Been Used to Enhance Student Agency, and What Evidence Supports Their Effectiveness?

There are many instructional interventions theorized to support student agency, which vary by grade level. Table 1 summarizes some common practices that high school teachers in the U.S. reported using to support student agency (Zeiser et al., 2018). Practices are grouped in three categories: (a) student opportunities to exercise agency, (b) teacher-student collaborative activities to support agency, and (c) teacher-led approaches to support agency. A systematic review of these strategies is beyond the scope of this report; however, many of these practices are used in problem- and project-based learning approaches, which is discussed in more detail below.

Table 1: Practices Used to Support Student Agency[2]

Student Opportunities	• *Choice:* Students have choices about the content and process of work • *Group work:* Students exercise agency to promote group success • *Harnessing outside opportunities:* Students identify how they use agency outside of school and make connections to apply it in school. • *Revision:* Students revise assignments based on teacher/peer feedback • *Self-reflection:* Students self-reflect using journals, logs and other tools • *Student-led instruction:* Students lead instruction on a skill or concept.
Student-Teacher Collaboration	• *Developing relationships:* Teachers develop personal relationships with students; individualize feedback to support student agency • *Feedback:* Teachers provide feedback and scaffold the process of students asking for feedback • *Goal Setting:* Teachers integrate goal-setting into their instruction • *Individual Conferences:* Teachers meet individually with students to discuss aspects of student agency and its relationship to academic work • *Student voice:* Teachers provide opportunities for students to contribute feedback on key decisions in the classroom
Teacher-Led Approaches	• *Assessment:* Teachers design formative and summative assessments to support and evaluate agency • *Direct instruction:* Teachers provide explicit instruction to develop skills related to student agency • *Modeling:* Teachers model agency in meaningful contexts • *Positive reinforcement:* Teachers positively reinforce students when they use agency effectively • *Scaffolding:* Teachers provide explicit instruction to describe how students exercise agency in productive ways.

[2] Table adapted from Zeiser et al., 2018

Problem-and Project-Based Learning Interventions

Problem- and project-based learning (PBL) enable teachers to incorporate many of the practices listed in Table 1. Moreover, research literature suggests that PBL can foster student agency when implemented with fidelity (Darling-Hammond et al., 2024). Specifically, PBL approaches integrate opportunities for students to practice agency by requiring them to identify an authentic problem or goal (e.g., conduct research and present findings; answer a complex question); develop and execute plans to address this problem or goal; and, at the conclusion, reflect on and evaluate their process and student work. Also, well-scaffolded PBL activities provide ample opportunity for students to practice agency with support from teachers and peers. Finally, PBL leverages student voice, choice, and authenticity as key mechanisms to encourage intrinsic motivation for learning.

Social-Emotional Learning Interventions

Social and emotional learning (SEL) interventions support student agency by teaching such skills as self-awareness, self-management, and decision-making. SEL interventions can be grouped into two types. The first involves instructional strategies to develop the personal and behavioral factors that influence agency. Examples are interventions that help students identify and label their emotions, practice mindfulness, and collaborate with others. These interventions also often aim to eradicate negative behaviors such as substance use, violence, and bullying. For example, RULER and Second Step are popular school-based programs that incorporate reflective practices to help students take control of their emotions and actions in learning environments (Brackett, 2019).

The second type of SEL intervention focuses on environmental factors influencing agency. These interventions often involve both in- and out-of-school programs for improving safe and caring learning environments or increasing student participation in school activities and decision-making. Examples are peer and family initiatives, community-building activities, and classroom management strategies (Berti et al., 2023; Durlak, 2011).

Executive Function and Self-Regulation Interventions

The Harvard Center for the Developing Child (n.d.) identified several evidence-based activities that support executive function and self-regulation across the grade span. In infancy and early childhood, sample activities are conversations and role play, interactive games, and imaginary play. In late childhood, we see such activities as brain teasers, games, music, singing, and dance. And in high school, there are activities to improve goal setting, planning, and self-monitoring.

Common school-based interventions to improve self-regulation fall into five categories: (a) curriculum-based programs, (b) mindfulness and yoga programs, (c) family-based programs, (d) exercise-based activities, and (e) other social and skills-based intervention strategies (Pandey et al., 2018). *Curriculum-based programs* are the most common (Pandey et al., 2018). These programs include a combination of teacher professional development activities and classroom-based activities based on a predefined curriculum to improve students' self-regulation. Most curriculum-based interventions are designed for preschool and primary school settings. Intervention strategies include circle-time games, storytelling, book reading, and self-talk. Interventions for older children include role play, cognitive modeling (e.g., teachers' thinking aloud) and psychoeducational group therapy lessons.

Mindfulness and yoga programs typically are delivered by trained professionals at the upper primary, middle, and high school levels. These programs teach mindfulness and yoga as primary strategies for regulating emotions.

Family-based programs commonly are delivered by school staff or external community-based organizations in both primary and secondary schools. Here, intervention strategies include group meetings among teachers, parents, and their child; skill-building activities with parents and children; after-school programs; mentoring programs; and individual parent consultations.

Exercise-based activities typically are implemented with primary and secondary students. They include alternating high- and low-intensity activities, martial arts, and team games delivered by trained professional staff either during or after school. And finally, *other interventions* focus on building students' social and personal skills by explicitly teaching such skills as personal responsibility, appropriate behavior, and conflict resolution.

Mastery Learning

Mastery learning is a common approach for teaching basic core academic knowledge and skills (Education Endowment Fund, n.d.). It has a long history, the core aspects of modern approaches to mastery learning emerging in the 1960s (Bloom, 1968; Glaser, 1966). Mastery learning assumes that learning outcomes should be the same for all students, but the time needed to become proficient in these skills varies across students (Guskey, 2015). Subject matter is broken into smaller units with specific objectives and targeted outcomes, and students must demonstrate mastery on unit assessments. Mastery learning programs typically incorporate three major components:

- Explicit learning goals;
- Instruction that is responsive to individual differences among students and, further, gives students opportunities to practice in demonstrating the requisite knowledge and skills; and
- Assessments that provide specific and timely feedback for students to address misconceptions and/or learning difficulties.

Self-Efficacy Interventions

Self-efficacy interventions incorporate strategies and behavioral change techniques that focus on its four major determinants (Bandura, 1997): mastery experiences, vicarious experiences, social persuasion, and emotional and physiological states. Table 2 summarizes common strategies and techniques that have been applied and empirically studied in education, health, and workforce-based contexts (Warner & French, 2020).

Table 2: Strategies to Promote Sources of Self-Efficacy[3]

SOURCES OF SELF-EFFICACY	EXAMPLE STRATEGIES
Mastery Experiences	
Providing direct opportunities for performance	Skill-building exercises; repeated exposure (e.g., student is given many opportunities to read or present to a group).
Incremental mastery	Setting goals with increasing difficulty (e.g., student is given slightly more difficult exercises each week).
Mental imagery	Imagining success or process; visualizing task performance (e.g., student imagines successfully giving a speech).

[3] Table adapted from Warner & French's (2020) review of self-efficacy interventions.

SOURCES OF SELF-EFFICACY	EXAMPLE STRATEGIES
Preparation for setbacks	Teaching students to anticipate, and plan for, challenges (e.g., teacher discusses common challenges that students face when completing a task and suggests strategies to address them).
Self-monitoring behavior	Periodically reflecting and evaluating progress toward a goal (e.g., student keeps a reflection journal as they work with a group to develop a creative product or solve a problem).
Reflection on past successes	Writing down or retelling mastery situations (e.g., student retells experience when they succeeded in a similar project).
Learning orientation	Promoting curiosity and openness for challenging tasks (e.g., student engages in an activity to learn something new).
Vicarious Experiences	
Life/symbolic modeling	Observing role models perform the behavior successfully (e.g., student watches a peer deliver an effective speech).
Self-modeling	Pictures or videos of oneself performing a target behavior (e.g., student watches a video recording of their performance).
Social Persuasion	
Encouragement from an expert or professional	Credible source states that success is likely (e.g., teacher tells a student they are likely to do well on a test).
Instructional or motivational self-talk	Motivational self-guidance (e.g., student repeats "I can do this"; mentally reiterates steps to complete a difficult routine).
Emotional and Physiological States	
Psychoeducation	Mind-body associations (e.g., student learns to interpret nervousness as a signal that they are prepared for a test).
Coping skills	Practicing relaxation or stress management strategies (e.g., student practices breathing or meditation exercises)
Opportunities to test coping skills	Providing corrective information to improve self-regulation (e.g., teacher explains to students that being nervous is a normal reaction; and reminds student to breathe deeply).

What Do We Know About the Effectiveness of These Interventions to Improve Student Agency?

The relevant research evidence here focuses on outcomes that

- are related to student agency (academic performance, attitudes toward school, and social-emotional skills);
- represent the core components of agency (self-regulation); or
- represent prerequisite skills that mediate agency (self-efficacy, motivation).

Studies show that these interventions improve outcomes known to correlate with student agency, such as student academic performance, collaboration, and attitudes toward schooling (Cipriano et al., 2023; Condliffe, 2017; Education Endowment Fund, n.d). Moreover, these studies show promising evidence that associates PBL, social-emotional learning, and self-regulation interventions with these outcomes. However, few if any of these studies examined student agency as a distinct outcome in school-based settings.[4] Studies that examine the effects of school-based interventions on student agency in primary and secondary schools are scarce (Ng, 2024).

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Studies of student agency also are scarce at the postsecondary level. A recent literature review of student agency interventions in higher education found that most studies of student agency are qualitative or descriptive; they focus on small samples and distinct contexts, limiting the ability to generalize findings across contexts and settings (Stenalt & Lassesen, 2022). The education field would benefit from more empirical evidence that establishes the causal relationship between interventions theorized to improve student agency and the construct of student agency as defined in this report.

The education research community can take the following actions to strengthen evidence about the effectiveness of instructional practices and interventions for improving student agency.

- A common holistic definition should be established for student agency. Studies can then address the impact of these instructional practices and interventions on student agency as a holistic and commonly understood construct.
- Popular school-based interventions purported to improve student agency require more clearly understood design principles. For example, PBL and SEL include many instructional components, and the associated interventions lack a cohesive set of principles and resources that inform reliable implementation (Cipriano et al., 2023; Condliffe et al., 2017). This lack of cohesion makes it difficult to understand how the intervention is in fact designed to improve student agency, or how the intervention's core components can be implemented with fidelity across a variety of classroom contexts.
- Other measures of student agency need to be developed, validated, and used alongside existing self-report measures to strengthen the evidence in this area of inquiry.
- More quasi-experimental and experimental studies are needed so that causal—not merely anecdotal, descriptive, or correlational—conclusions are warranted regarding putative effects on student agency. Further, these more robust studies need to be replicated across a variety of

[4] Given the overlap in some definitions of self-regulation and student agency, one could argue that self-regulation is a proxy of student agency.

contexts—different grade levels, subject areas, geographical regions, student and community demographics, and so on.

- More research is needed to understand how (not just whether or not) and under what conditions these interventions/practices may develop student agency (Mameli et al, 2023).

How Does Participation in Professional Development Programs Focused on Student Agency Impact its Development?

Research-based evidence remains scarce that explicitly links professional development programs to the development of student agency (Robertson et al., 2020, 2024). Many of the research suggestions for building the evidentiary basis of student interventions also apply to research on teacher professional development to cultivate student agency.

That said, a large corpus of research studies has examined the general effectiveness of various teacher professional development programs (Darling-Hammond et al., 2017; Sims et al., 2023; Villegas-Reimers, 2003; Yoon et al., 2007). A recent meta-analysis of 104 randomized controlled trials of teacher professional development programs found that effective programs shared 14 strategies, which can be organized within four overarching purposes (Sims et al., 2023):

- **Instill insights:** Provide teachers with a deeper understanding of how students learn and how this connects to new instructional practices.
- **Motivate change:** Build teachers' willingness to adopt new practices.
- **Develop techniques:** Support teachers in experimenting with new practices in their classrooms.
- **Embed in practice:** Encourage teachers to integrate new practices into their regular teaching routines.

As described in Table 3, professional development programs that incorporated strategies addressing all four purposes tended to be more effective. Although theses strategies have not been explicitly linked to improved student agency outcomes, they may provide a helpful starting point for practitioners who want to design professional development programs that do.

Table 3: Purposes and Strategies in Effective Teacher Professional Development Programs[5]

PURPOSE	DESCRIPTION	STRATEGIES	DESCRIPTION
Instill Insight	Provide teachers with a deeper understanding of how students learn and how this connects to new instructional practices.	Manage Cognitive Load	Focus on one idea or task at a time to avoid overloading working memory.
		Revisit Prior Learning	Strengthen memory by reteaching or prompting recall of key ideas on separate occasions.
Motivate Change	Build teachers' willingness to adopt new practices.	Goal Setting	Agree on specific, actionable objectives to direct attention and effort toward change.
		Credible Sources	Provide evidence-based support for the change from a reliable source.
		Praise and Reinforcement	Use positive feedback to increase motivation for adopting new teaching practices.

[5] Table adapted from Sims et al. (2023).

PURPOSE	DESCRIPTION	STRATEGIES	DESCRIPTION
Develop Techniques	Support teachers in their application of new practices.	Instructional Advice	Offer clear, directive advice on implementing new teaching methods.
		Social Support	Facilitate collaboration and advice among peers to aid implementation of new practices.
		Modeling	Provide examples of effective teaching practices to guide replication.
		Feedback	Deliver evaluative guidance based on observations of teaching practices.
		Rehearsal	Enable structured practice of teaching techniques outside the classroom setting.
Embed in Practice	Encourage teachers to integrate new practices into their teaching routines.	Prompts/Cues	Use environmental triggers to encourage desired teaching behaviors.
		Action Planning	Create detailed plans specifying how and when to apply new practices.
		Self-Monitoring	Help teachers track and reflect on their own teaching behaviors to improve consistency.
		Context-Specific Repetition	Practice new techniques repeatedly in realistic classroom scenarios to solidify habits.

DOMAIN-SPECIFIC VS. DOMAIN-GENERAL NATURE

How Does Student Agency Manifest Across Different Domains?

Student agency manifests across different domains in both generic and domain-specific ways. The research literature suggests that aspects of student agency transfer across academic disciplines. Moreover, the core components of student agency—intentionality, forethought, self-regulation, and self-reflection—can be practiced and strengthened across a range of subject domains and learning environments (Mameli et al., 2018; OECD, 2019).

As shown in Figure 1, the domain-general components of agency are developed through a reciprocal relationship that

The core components of student agency—intentionality, forethought, self-regulation, and self-reflection—can be practiced and strengthened across a range of subject domains and learning environments (Mameli et al., 2018; OECD, 2019).

occurs between a person's behavior, the environmental feedback elicited, and how a person processes the information. The major environmental factors that influence agency include the learning environment and the opportunities a student is given to exercise agency (Bandura, 2006). For example, students are more likely to exercise agency when the learning environment encourages them to become active participants in school and classroom-based decision-making. Further, student agency increases when students have frequent opportunities to give and receive feedback from teachers and peers (Berti et al., 2023).

Content knowledge and task complexity also play key roles in how student agency is expressed. While students with limited knowledge in a subject may take the initiative by seeking out new information, they lack the deeper content understanding necessary to effectively integrate new concepts or make informed decisions. In this case, a student may have strong self-regulation skills; but without sufficient content knowledge, they nonetheless will be unable to complete the task. This highlights the importance of balancing opportunities for students to practice agency with sufficient instructional support to ensure that their independent learning leads to deeper understanding (Butcher & Sumner, 2011). Teachers must create environments where students can act independently while also receiving the guidance they need to build content-specific expertise.

Motivation and self-efficacy are personal factors that play a crucial role in shaping student agency across domains. Research shows that students with high self-efficacy—those who believe in their ability to succeed in specific tasks—are more likely to take initiative, set challenging goals, and persist in overcoming obstacles (Bandura, 1997). Similarly, motivated students, especially those with intrinsic motivation, are more likely to engage in learning activities and exhibit greater levels of agency across various content areas (Deci & Ryan, 2000). Conversely, students with low self-efficacy or motivation may hesitate to act autonomously, as they doubt their ability to control outcomes or succeed in more difficult subjects. Thus, fostering motivation and self-efficacy is key to enabling students to demonstrate agency across all learning domains.

Motivation and self-efficacy are personal factors that play a crucial role in shaping student agency across domains.

What Evidence Supports the Existence of Domain-Specific and Domain-General Student Agency?

There is a considerable body of research on how personal and environmental factors and subsequent behaviors interact to influence agency (Bandura, 2006; Reeve, 2013). However, evidence regarding how student agency specifically manifests across different academic domains is limited (Jaaskela et al, 2020; OECD, 2019).

Reciprocal relationships underpinning student agency have been studied in relation to specific subject areas, particularly mathematics, literacy, and science (Reeve, 2013). In science education, for example, researchers have examined how student agency (e.g., choice in learning tasks, self-regulation) can enhance inquiry-based learning, leading to deeper engagement and understanding of scientific concepts. At the same time, students' growing competence in science can reinforce their sense of agency, creating a positive feedback loop (Basu & Barton, 2007). And regarding literacy development, enabling students to make choices about reading materials or writing topics can foster motivation, autonomy, and ultimately improved literacy outcomes (Schunk & Zimmerman, 2007; Vaughn et al., 2020). Research in mathematics has also looked at how students' agency influences engagement and learning (Patrick et al., 2007).

Despite this progress, more research is needed to fully understand how student agency manifests differently across subject areas and, further, how fostering agency in one domain might transfer to others

(Vaughn, 2020). Studies also should explore specific pedagogical approaches that best support the development of agency in different academic contexts. For example, research could examine how such instructional strategies as student choice, teacher modeling, instructional scaffolding, and targeted feedback may differentially influence students' motivation and task completion across various domains (Schunk & Zimmerman, 2007).

MEASUREMENT/ASSESSMENT

How is Student Agency Typically Measured or Assessed in K-12 Educational Settings?

Student agency may be assessed in a variety of ways, such as standardized measures, performance tasks, portfolios of student work, behavioral checklists, anecdotal records, and self- and peer-assessments.

Standardized Measures

Standardized measures are constructed and administered so that participants receive the same (or comparable) questions and answer options, and responses are recorded and scored consistently. Common examples are standardized tests, self-report surveys, and scoring rubrics. Though standardized measures of student agency exist, most were designed primarily for research purposes and, therefore, are not widely used in K-12 educational settings for instructional or student learning purposes. These measures tend to study the effects of various interventions and strategies on student agency in school settings (see Table 4).

Related, self-report surveys of self-directed learning also are available. Prominent examples include the Self-Directed Learning Readiness Scale (SDLRS; Guglielmino, 1978), the Oddi Continuing Learning Inventory (OCLI; Oddi, 1987), and the Personal Responsibility Orientation Self-Directed Learning Scale (PRO-SDLS; Stockdale & Brockett, 2011). Although these instruments originally targeted adult populations, several studies support their use with high school and vocational education students (Morris, 2019). Additionally, the SDLRS-Elementary[6] is now available for children.

Schools assessing student agency often do so through broader school climate surveys. For example, some U.S. schools administer school climate surveys developed by the University of Chicago's Consortium on School Research.[7] Their student survey, Cultivate, gathers student perspectives on their learning experiences and sense of belonging in their classroom communities. This survey asks students to report on their beliefs about learning, opportunities to voice input and ideas, and the nature and quality of teacher feedback to improve student work. Similarly, the student survey Panorama[8] measures related aspects of student agency such as self-efficacy, self-management, grit, and classroom effort. Schools may use this survey's results by examining specific practices or the broader learning environment to cultivate skills and attitudes known to support agency.

Other stand-alone standardized measures assess distinct components or reciprocal constructs of agency, such as self-regulation, self-reflection, goal orientation (intentionality), self-efficacy, and motivation. Schools may decide to use one or more of these surveys for diagnostic purposes, or when they are interested in more deeply understanding students' perceptions of agency-related skills and attitudes.

[6] Information on the SDLRS-Elementary is available at https://www.lpasdlrs.com/
[7] The University of Chicago's Consortium on School Research has developed several surveys to support school improvement. Information on these surveys is available at https://consortium.uchicago.edu/surveys
[8] Information about Panorama's school climate surveys is available at https://www.panoramaed.com/products/surveys

Table 4: Examples of Student Agency Measures Typically Used For Research Purposes

ASSESSMENT TOOL	AGE RANGE	FORMAT	DIMENSIONS MEASURED
Student Agency Profile (StAP; Vaughn et al., 2020)	8-12	Self-Report	• Intentionality • Self-perceptions • Choice-making • Persistence • Interactiveness Designed for use in primary and lower secondary literacy contexts
Motivated Strategies for Learning Questionnaire (MLSQ; Pintrich et al., 1991)	18 and older	Self-Report	• Value (Goal Orientation & Task Value) • Expectancy (Control, Self-Efficacy) • Affective (Test Anxiety) • Cognitive and Metacognitive Strategies • Resource Management Strategies Designed to assess college students' motivational orientations and learning strategies for a college course.
Agentic Engagement Scale (AES; Reeve, 2013; Mameli & Passini, 2017)	14 and above	Self-Report	• Behavioral Engagement • Agentic Engagement • Cognitive Engagement • Emotional Engagement Designed to assess student agency in school-based contexts. Surveys use items from previously validated surveys of agency-related constructs (e.g., self-efficacy, self-regulation, future orientation).
Measures of Student Agency (Zeiser et al., 2018)	14-18	Self-Report	• Self-Efficacy • Perseverance of Interest • Perseverance of Effort • Locus of Control • Mastery Orientation • Metacognitive Self-Regulation • Self-Regulated Learning • Future Orientation Designed to assess high school students' agency in school-based contexts.

Performance Tasks and Portfolios of Student Work

Performance tasks and portfolios are useful for assessing students' application of knowledge and skills to new or novel situations. High-quality performance tasks require students to exercise agency, and this is typically done by allowing students some choice within the task—e.g., what topic they investigate, how they solve the problem, what data to collect, what information they use to solve the problem. Performance tasks can be designed to allow the teacher and peers to provide formative feedback to support the learning process Additionally, students can be given choices about which work best showcases their individual

learning and growth as they select pieces for a portfolio. Research suggests that performance tasks and portfolios, when implemented under ideal conditions, can increase self-motivation and authentic engagement and, in turn, further enhance student agency (Maier et al., 2020).

Behavioral Checklists

Behavioral checklists enable educators to convey to students hard-to-observe skills and attitudes associated with student agency, such as intentionality, adaptability, and emotional regulation. Checklists most often are used during, or immediately after, instruction to monitor progress and make instructional or behavioral adjustments. For example, teachers may develop—or ask students to develop—a list of behaviors that could be evidence of student agency, such as setting goals, staying on task, reviewing and revising work, finding alternatives when stuck, and editing with care. Teachers can use the checklists to provide feedback to students, or students can complete them as a self-assessment tool (Costa & Kallick, 2003).

Anecdotal Records

Anecdotal records are brief, qualitative descriptions of student behaviors. Teachers can systematically record evidence of student agency through self-directed learning tasks. For example, teachers might tab sections of a notebook with students' names and document when a student demonstrates various skills or attitudes. If done systematically, teachers will have a rich pool of data from which to write a summary of a student's sense of agency. Additionally, teachers can work with parents to collectively note when students demonstrate behaviors associated with agency at school and at home. Both behavioral checklists and anecdotal records assume that teachers have set up the learning environment such that students must demonstrate agency to solve, or figure out how to solve, a cognitively complex activity or task.

Self- and Peer Assessment

Student agency assumes that students are involved as active agents in and over their own learning. Self-reflection and feedback from others are necessary for students to know when improvement is needed. Self- and peer-assessments are useful feedback and reflection tools. Through interviews, for example, teachers and one's peers can help a student reflect on key skills and attitudes targeted for development. Interviews provide opportunities for teachers or peers to provide feedback or recommend strategies that students can try out to improve their motivation, persistence, and self-regulation. Journals and logs are another form of self-assessment for documenting behaviors when students are engaged in specific activities or content. Students can review logs to identify patterns of behavior that may emerge at certain times of day or during regular activities. They also can evaluate their success in using strategies to control their emotions or improve behaviors. Teachers can provide support by offering daily or weekly prompts for students to respond to and by setting aside time for meaningful student reflection. Other self-assessments, such as goal-setting worksheets or graphic organizers with process-oriented prompts, also can be useful tools for self-reflection.

How Do Assessments of Student Agency Differ When Targeting Domain-Specific vs. Domain-General Capabilities?

Assessments of student agency differ depending on whether they target domain-specific or domain-general capabilities. Domain-specific assessments focus on a student's ability to demonstrate agency as they apply content knowledge to solve a problem or complete a task in a particular subject area. Domain-specific assessments often are task-based, embedded in subject-specific learning, and provide feedback tailored to the content area. In contrast, domain-general assessments can be observed via the self-directed learning process. Examples include assessments that focus on a student's ability to formulate learning goals, choose and implement learning strategies, monitor and adapt to challenges, and evaluate learning outcomes.

While domain-specific assessments capture the nuances of agency in a particular field, domain-general assessments assess broader traits that transfer across subjects. Both types offer unique insights but differ in their emphasis on content knowledge, skill transferability, and generalizability. Moreover, like any assessment, the relative utility of domain-specific and domain-general assessments depends on the intended purpose and use of the particular assessment. For example, domain-specific performance assessments are especially useful for teachers who are interested in developing student agency (Maier et al., 2020) specific to a content area or the associated learning standards. When students take a content-based assessment, their teacher ideally can use the results to make specific claims about what students know and can do related to content-based standards. If the teacher wanted to make a more generalizable claim about a student's sense of agency across content areas, conditions, or settings, then much more evidence would be needed.

Domain-general assessments of student agency are less useful for instructional purposes. However, they have been shown to be useful for school-based evaluation and improving school climate and conditions for learning (Zeiser et al., 2018). Students may be asked to think about their school experience and then report how well they can, for example, set goals, control and regulate their emotions, stay on task, and reflect and apply what they learn to new situations.

What are the Measurement and Assessment Issues Related to Student Agency?

Definitions of Student Agency Vary

There is wide variation in how researchers theorize about, define, and study student agency.

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There is wide variation in how researchers theorize about, define, and study student agency. As suggested earlier, numerous terms and concepts are used to describe agency and its underlying components. For example, agency has been described as self-determination and self-regulation (Ryan & Deci, 2000), the ability to develop a growth mindset (Ferguson et al., 2015), and the ability to contest and push back (Vaughn et al., 2020). Such diverse conceptualizations impede a common understanding of student agency and, therefore, how to effectively translate theory into instructional and assessment practice.

Developmental Trajectories are Broad and Based Primarily on Theoretical Conjecture

Existing frameworks and models of student agency often emphasize broad developmental stages without providing detailed grade-level expectations to guide instruction (Nieminen et al., 2022; OECD, 2019).

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Research-based developmental continua for student agency do not yet exist. A developmental continuum for student agency would describe what students know and can do at specific grade levels, grade spans, or ages with respect to this construct. In contrast, existing frameworks and models of student agency often emphasize broad developmental stages without providing detailed grade-level expectations to guide instruction (Nieminen et al., 2022; OECD, 2019). This also is true for frameworks of self-directed learning (Brandt, 2020).

Much of the research on student agency tends to focus on the development of skills and dispositions underlying agency (such as self-regulation, goal-setting, and autonomy) rather than clearly defined, grade-specific, or grade-band appropriate benchmarks that account for the dynamic interactions among these skills and dispositions. Further research and development is necessary to establish empirically robust developmental progressions that inform student agency instruction and assessment across grade levels.

Assessments Should Account for Mediating Factors of Student Agency

Another issue affecting student agency measurement and assessment is that, like other complex skills, mediating factors often are difficult to control or isolate (Evans, 2020). The development of student agency is mediated by a host of other factors, such as content knowledge, the learning environment, motivation, and self-efficacy. For example, when a student struggles to demonstrate agency in a specific domain, it might be because they need

- more domain-specific instruction;
- more instruction on self-directed learning skills (e.g., practice setting goals, managing emotions, monitoring and evaluating progress);
- more instruction to improve such dispositions as self-efficacy and intrinsic motivation; or
- more opportunities to learn and practice agentic skills in the classroom.

Content knowledge and dispositional skills, as well as environmental and cultural considerations, all potentially confound student agency outcomes. Therefore, the design of student agency assessments and measures—and especially standardized measures—must account for the potential role of these factors.

Assessing Student Agency Holistically Requires Multiple Sources of Evidence

Standardized measures of student agency are almost exclusively self-report. Although important and useful, such measures cannot capture, with fidelity, the construct's range of knowledge, skills, and attitudes. This is particularly true for student agency, which comprises multiple components and is best measured through performance tasks, direct observation of interactions (simulated or authentic), and self-report assessments.

Balancing Sufficiency of Evidence with Generalized Ability Claims Requires Thoughtful Design

Sufficiency and generalizability are two important concepts in educational assessment and measurement. Sufficiency refers to the extent to which an assessment adequately covers the breadth and depth of the construct being measured within a specific context—whether the assessment task or items effectively capture the full range of skills and abilities associated with the targeted construct. Generalizability is the measurement analog to transfer in learning (Marion & Evans, 2018) and refers to the extent to which the assessment results can be applied, or generalized, to broader situations, contexts, and content areas. For any future competency, making valid and reliable inferences about what a student knows and can do requires attention to both sufficiency and generalizability.

Marion and Evans (2018) offered the following suggestions to determine how much evidence is needed:

- **Carefully consider the intended uses of the assessment(s).** Ensuring sufficiency is important in summative assessment, particularly when the stakes are high. In contrast, sufficiency is less important when the focus is on formative feedback.
- **Develop explicit student claims and include generalizability claims.** To claim that student competence extends beyond the performance on one or more assessments, one must carefully evaluate whether the assessments adequately represent the targeted inferences (e.g., analytic writing) and provide enough information to support any subsequent decisions.
- **Be clear about your tolerance for being wrong.** The higher the stakes—such as denying a student a chance to progress—the more important it is to have sufficient information to support the decision.
- **Carefully balance the tradeoffs of having too little information versus obtaining more information.** This balance is especially important when information comes from assessments that

are administered separate from instruction. Excessive reliance on tests that are isolated from instruction can strain resources and potentially miss the opportunity to provide timely, instructional feedback that supports student learning in context.

Achieving the right balance between sufficiency and generalizability is essential for valid interpretations of assessments of student agency. For example, if an educator wants to assess student agency in Algebra, they might design a series of tasks that not only test the student's Algebraic knowledge but also their ability to self-direct their learning process. Performance tasks could involve the student understanding a complex or ill-defined problem, clarifying goals, proposing and executing a plan, adapting the plan based on unforeseen challenges, and then reflecting on how they might approach the problem differently in the future.

This sequence of tasks would generate evidence of the student's agency in a mathematical Algebraic context. If the educator needs greater certainty about the student's skills, they could administer multiple tasks that require applying these same agentic skills in different situations. Over time, this would provide enough evidence of the student's agency in Algebra. However, there remains the question of whether these skills transfer to other subjects (e.g., English Language Arts) or to real-world situations (e.g., ethical decision-making). Generalizing the student's agency across different subjects and contexts requires gathering additional evidence from those varied settings. Thus, collecting adequate evidence to make general claims about a student's sense of agency, even within school-based contexts, is challenging at best and arguably infeasible.

What are the Implications of This Research for Assessment Design and Use?

These findings from research have several implications for assessment design and use. The section below provides general principles that apply to both large-scale and classroom-based assessments. Notably, the principles of assessment design are especially relevant for standardized assessments that require comparable administration, scoring, and reporting procedures, though they also apply to classroom-based assessments.

Assessment Design

The following design principles are important for ensuring valid interpretations of test results in any case, but particularly where students differ socio-culturally.

Base Assessment Decisions on a Clear Definition of Student Agency. Student agency is a complex and multidimensional construct that overlaps with many intra- and inter-personal skills, such as intentionality, forethought, self-regulation, and self-reflection. As a result, research-based definitions of student agency vary widely. Valid, reliable, and fair assessment begins with a clear understanding of the skills, attitudes, and dispositions that compose student agency. Moreover, overreliance on any subset of these components when developing the assessment will underrepresent the construct and, consequently, cause users to believe students have mastered student agency more than they actually have (Marion & Domaleski, 2024).

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Utilize Principles of Evidence-Centered Design. The most useful assessments allow students to demonstrate the highest forms of student agency, whether it be within a content area or a general learning context. Evidence centered design (ECD) is a process for developing assessments of hard-to-observe constructs like student agency. ECD incorporates validity arguments into the design process, rather than seeking validity evidence after administration. ECD views an assessment as an evidence-based argument, using things that students

say, do, or create to make inferences about the extent of their knowledge, skills, and abilities (Mislevy & Haertel, 2006). In this way, ECD is especially relevant when designing items or performance tasks that target student agency—and other complex competencies—as an outcome. Through the ECD process, assessment developers delineate types of evidence—an interrelated set of knowledge, skills, and abilities—known to reflect a construct or competency. This collection of evidence is then structured to reflect the relative importance for demonstrating each competency. Scoring rubrics can be designed to capture the desired evidence (e.g., intentional goal setting, self-regulation) as well as its weight for claims about a student's overall competency.

Ensure Assessments Align with Curriculum Goals and Learning Outcomes. Evidence suggests that student agency is a malleable construct that can be influenced through high-quality curriculum, instruction, and learning opportunities. Assessment results can be useful for addressing instructional or evaluative claims, such as providing immediate feedback to students or determining whether a program of study influenced higher levels of student agency. However, such claims assume that the curriculum, instruction, and assessment activities are aligned. That is, course-specific assessments should accurately measure knowledge, skills, and attitudes that were represented in course activities and identified as essential learning outcomes (Gregesen-Hermans & Pusch, 2012). For example, if the goal of a course is to develop students' ability to monitor, reflect, and iterate ideas or solutions, then an assessment should incorporate items that elicit evidence of these abilities. Similarly, if the goal is to improve intrinsic motivation and self-efficacy, then assessment activities should include items or tasks that elicit sufficient evidence of such dispositions and beliefs.

Account for Content and Context. Student agency—like many higher-order skills—requires both the ability to act and the contextual understanding to apply that action effectively in a given domain and context. This does not imply that student agency must be developed in specific content areas. As suggested by research, explicitly teaching student agency through self-directed learning steps can help students apply agency across a variety of situations and contexts. However, an individual's ability to demonstrate student agency will depend on their knowledge, past experiences, and capacity to navigate new challenges and environments.

From an assessment perspective, claims about a student's agency are limited to the context in which any assessment occurred. Therefore, it is critical for assessment designers to clearly define the specific claims an assessment aims to support and the contexts in which agency is being demonstrated.

Review the Test Materials for Face Validity. In this context, face validity is the extent to which what is measured by a test, task, or item is understood similarly by students who speak different languages or represent different cultural groups. Ideally, the assessment should be reviewed by experts in the assessment of student agency who are familiar with the cultural groups being tested. This often happens through a committee in which groups of experts (including teachers) independently evaluate the assessment and then convene to compare judgments. This results in a set of judgments about the quality of the items or tasks and may also involve recommendations for improving the assessment's quality. The content review should focus on evaluating the assessment items and tasks to ensure that

- the assessment's language is understood similarly across groups,
- the assessment is unlikely to produce construct-irrelevant variance—score variance that arguably is unrelated to student agency—by virtue of its language or other design features, and
- the assessment is free of cultural bias.

It is infeasible for a teacher to ensure that all school-based or locally developed assessments are independently reviewed for face validity. However, given that face validity is important for any assessment, a teacher may conduct their own internal assessment review or ask their colleagues to review for bias. Doing so can promote a more fair and equitable assessment experience.

Conduct Cognitive Laboratories. "Cognitive labs" provide evidence of student response processes, which is a main source of validity evidence. Such labs, also known as "think alouds." involve providing a draft assessment to a student who then engages with the test materials out loud. For example, a teacher might tell the student, "Read the directions aloud and then talk through what you are thinking as you engage with the task." Cognitive labs are a valuable and efficient way to gather feedback from students about the quality and understandability of the tasks and items created. The information produced can help educators understand whether directions are clear, students are drawing on the knowledge and skills thought necessary to approach and complete the task, and students are calling on the cognitive processes that we believe the task requires.

Regarding student agency, for example, a cognitive lab might ask students to articulate how they are planning their approach to an ill-structured task, what decisions they are making independently, and how they might adapt to barriers that emerge as they carry out their plan. This would provide insight into how students exercise agency throughout a performance task. Educators can then determine if the task truly assesses the intended dimensions of student agency or, if not, adjustments are needed to better align the task with the goal of fostering agency.

Conduct Small-Scale Pilot Studies. Small-scale pilot studies in classrooms is an essential first step in designing large-scale assessments of student agency. An analysis of the results can reveal whether the assessment's items or tasks are performing as intended, both in general and for targeted groups of students. Any problematic items or tasks are then revised.

Conduct a Field Trial. A field trial, where the assessment is given to a larger, representative sample of the target population, serves to confirm that any problems identified in the pilot study were successfully addressed. This process provides the opportunity to conduct a comprehensive review of the assessment prior to administering it to the whole target population. Analysis of student data or annotations of student work can be undertaken to ensure that the assessment is measuring what it is designed to measure and, further, that the results support valid interpretations across racial, ethnic, and other cultural groups.

Assessment Use

Use Multiple Assessments to Evaluate and Cultivate Student Agency. Self-report measures can provide indirect evidence of students' skills, dispositions, and beliefs. And depending on how they are designed, self-reflective tasks can provide both indirect and direct evidence of student agency. To fully capture a student's competency in skills associated with student agency, however, simulated or authentic performance tasks are required, such as self-directed learning activities, which permit direct observation and yield pertinent evidence.

This latter implication is discussed in more depth below.

Incorporate Performance Assessments and Portfolios into Classroom Practices. While research evidence on student agency is still emerging, incorporating authentic assessment approaches—such as performance assessments and portfolios—can play a pivotal role in its development. Project-based learning shows promise for fostering student agency by allowing students to practice setting goals, developing plans, monitoring and adjusting plans, and evaluating progress. Additionally, research on social and emotional

learning highlights the importance of developing inter- and intra-personal skills closely tied to agency. With performance assessments and portfolios (especially e-portfolios) embedded into classroom activities, students have opportunities to demonstrate their ability to act intentionally, thoughtfully, and independently in real-world contexts. This, in turn, provides educators with authentic evidence of their students' sense of agency. Moreover, portfolios have been linked to greater self-efficacy and achievement, particularly when used for instructional purposes to capture students' learning achievements and encourage critical reflection and improvement (Lopez-Crespo et al., 2022).

By investing in formative assessment, educators foster environments in which students can develop their student agency through ongoing and targeted practice and reflection.

Provide Frequent Opportunities for Students to Practice and Demonstrate Student Agency. Formative assessment practices are important because they offer timely feedback, allowing students to reflect on their performance, identify areas for improvement, and refine their approaches to learning (Black & Wiliam, 1998). Educators can use such strategies as peer feedback, self-assessment, and structured reflection to support the skills, attitudes, and dispositions that student agency requires. By investing in formative assessment, educators foster environments in which students can develop their student agency through ongoing and targeted practice and reflection.

Use Assessment to Improve Environmental Conditions to Support Student Agency. Environmental factors play a major role in facilitating student agency. Assessment can play a critical role in understanding and improving school-based conditions that encourage students to exercise agency. For example, many schools annually implement school climate surveys. These surveys capture the extent to which students feel safe, supported, and cared for in school, among other things. School personnel can use survey reports to monitor these and other important conditions that influence student agency. By addressing gaps reported in these surveys, schools can create more supportive environments that encourage students to take initiative, set goals, and engage in self-directed learning.

CONCLUSION

The purpose of this paper was to define and describe student agency, synthesize research findings about how it develops and can effectively be taught and learned, and discuss implications for assessment design and use. Overall, findings suggest that student agency is a complex skill representing four core components: intentionality, forethought, self-regulation, and self-reflection (see Figure 1). The skills, attitudes, and dispositions associated with student agency are instructionally malleable: They can be explicitly taught and learned.

A wide range of interventions and instructional practices are theorized to support student agency. Studies generally show positive relationships between these instructional interventions and outcomes related to student agency, such as self-efficacy, motivation, academic performance, and positive attitudes toward learning. That said, studies examining the effects of interventions specifically on student agency are scarce; more research clearly is needed.

Research suggests that agency manifests across different domains in domain-general and domain-specific ways. Students develop agency as they engage in domain-general activities allowing them to set goals, develop plans, monitor progress, adapt to setbacks, reflect, and evaluate learning experiences. However, domain-specific knowledge interacts with the student's learning environment and other personal and social

factors to mediate student agency. More research is also needed to fully understand how student agency manifests differently across learning contexts and, further, how fostering agency in one domain might transfer to others.

Standardized self-report measures and performance-based assessments are commonly used to assess student agency. However, there are challenges in defining and assessing agency due to varying definitions, mediating factors, and questions about how the construct develops over time. Educators can mitigate these challenges by developing high-quality assessments of student agency using an evidence-based design process. Additionally, educators can cultivate student agency by providing frequent opportunities for students to practice and demonstrate agency, integrating formative assessment practices into instruction, and incorporating performance and portfolio tasks into authentic project-based assignments.

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APPENDIX A

Table 1A: Prominent Definitions of Student Agency and Related Terms[9]

SOURCE	REFERENCED TERM	DEFINITION
Ahearn, 2001	Agency	The socio-culturally mediated capacity to act (p. 112).
Alsaleh et al., 2023	Agency	Perceiving oneself as the cause of an action or its effects.
Cambridge Dictionary	Agency	The ability to take action or choose what action to take.
Hewson, 2010	Agency	Agency is the condition of activity rather than passivity. It refers to the experience of acting, doing things, making things happen, exerting power, being a subject of events, or controlling things. This is one aspect of human experience. The other aspect of human experience is to be acted upon, to be the object of events, to have things happen to oneself or in oneself, to be constrained and controlled: to lack agency.
Jaaskela et al., 2020	Agency	A student's experience of access to/having (and using) personal, relational (i.e. interactional), and context-specific participatory resources.
Martin, 2004	Agency	The capability of persons to make choices and act on these choices.
Merriam-Webster Dictionary	Agency	The capacity, condition, or state of acting or of exerting power.
Oxford Dictionary	Agency	The ability to act.
Schunk & DiBenedetto, 2020	Agency	The belief that [an individual] can exert a large degree of influence over important events in their lives.
Tran & Vu, 2017	Agency	An individual or collective capacity to act with 'intentionality' in line with 'rational' choices and in response to a given circumstance.
Alkire, 2008	Human agency	A person's ability to act on behalf of what he or she values and has reason to value.

[9] Definitions are organized alphabetically by term and author.

SOURCE	REFERENCED TERM	DEFINITION
Bandura, 1989, 1997, 2001	Human agency	Bandura also defined agency as the capacity to exercise control over one's own thought processes, motivation, and action (Bandura, 1989, p. 1175). The power to originate actions for given purposes (1997, 2001)
Emirbayer & Misch, 1998	Human agency	The temporally constructed engagement by actors of different structural environments—the temporal-relational contexts of action—which, through the interplay of habit, imagination, and judgment, both reproduces and transforms those structures in interactive response to the problems posed by changing historical situations (p.970).
Edwards, 2011	Relational agency	A capacity for working with others to strengthen purposeful responses to complex problems" (34).
Kim, 2021	Student agency	The ability of taking the responsibility and ownership of thinking, talking, and problem solving,
Moses et al., 2020	Student agency	Students' capacity to act in ways that exhibit their own choices in their learning, informed by their beliefs and careful consideration, self-regulation, and self-reflection about their ability to control and take ownership of their own learning (p. 214)
OECD, 2019	Student agency	The ability to frame a guiding purpose and identify actions to achieve a goal. It is about acting rather than being acted upon; shaping rather than being shaped; and making responsible decisions and choices rather than accepting those determined by others (p. 4).
Saarela et al., 2021	Student agency	Students' holistic judgement of how they can affect and direct their learning in instructive settings, work effectively, and utilize the assets that are accessible within the learning environment
Vaughn, 2018	Student agency	A student's desire, ability, and power to determine their own course of action (whether that means choosing a learning goal, a topic to study, an activity to pursue, or a means of pursuing it) (p. 63)

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