

## Preparing Students to Take Responsibility for Learning: The Role of Non-Curricular Learning Strategies

Jeffrey Paul Carpenter  
Elon University

Jennifer Steinberger Pease  
Independent Scholar

### Abstract

Standardized test-based accountability measures often result in overemphasis on knowing facts and cast students into passive roles. Such schooling yields neither the learning nor the learners the modern world requires and can exhaust and demoralize teachers. We assert that students must assume greater responsibility for their learning in order to attain deep understanding and transferable skills that benefit them throughout their lives. Curriculum and instruction must therefore pay greater attention to developing skills that allow students to take such ownership of their learning. We identify and discuss three foundational skills that enable students to assume more responsibility for learning: self-regulation, collaboration, and academic mindsets. After reviewing current research on factors contributing to these non-curricular learning skills and exploring their importance within school contexts and beyond, we discuss the need for more classroom-based research on interventions aimed at their development.

We believe schools should be focused on creating *learners*. Too much current educational policy and practice, however, appears to cultivate students acclimated to participating in a form of school that usually fails to yield deep learning and personal growth (Committee on Defining Deeper Learning and 21<sup>st</sup> Century Skills of the National Research Council (CDDL), 2012; Fried, 2005; Pope, 2003). In the past two decades, brain research has reinforced that students need opportunities to engage with content in meaningful ways in order to retain, apply, and transfer what they are learning (Bransford, Brown, & Cocking, 2000). During this same period, however, accountability measures have pressured teachers to cover content and prepare students for standardized, end-of-course tests. Educators try to fill heads with the discrete bits of knowledge that they guess will make it onto the next high-stakes exam while students look on, often passively. This approach to curriculum and instruction fails to produce the learning and transferable skills that students need to thrive in the modern world (CDDL, 2012).

Students learn more when they are active participants in their own learning (Bonwell & Eison, 1991; Intrator, 2005; Vygotsky, 1978); therefore, teachers must require that students take on more of the intellectual work of the classroom (Carpenter & Pease, 2012). We assert that students must assume more responsibility for their learning to move past superficial levels of comprehension and find success beyond the

classroom. This is particularly important now as the Common Core State Standards being implemented in many states emphasize college and career readiness (National Governors Association Center for Best Practices and Council of Chief State School Officers [NGAC and CCSSO], 2010). Although these standards correctly emphasize the importance of critical thinking and analysis, they could also include other key learning skills.

Part of the core work of educators must be to teach or facilitate the development of the skills foundational to active, deep, lifelong learning that transcend specific content or curricula. These skills have been given an awkward assortment of labels, including *character strengths*, and *noncognitive, interpersonal and intrapersonal*, and *soft skills* (CDDL, 2012; Farrington et al., 2012; Peterson & Seligman, 2004). They include qualities such as self-regulation, collaboration, persistence, grit, and academic mindsets. Although there is debate over what phrase best captures their essence (Borghans, Duckworth, Heckman, & ter Weel, 2008; Farrington et al., 2012), we opt for the term *non-curricular learning skills*. Not directly tied to curriculum as it is traditionally defined, these skills instead deal with how students approach learning of any type or in any environment. Such skills are essential to true college and career readiness.

In this article, we argue that classroom-based, curriculum-embedded interventions to develop and reinforce non-curricular learning skills are needed to help students become more active, successful, lifelong learners. The article is divided into three sections. First, we discuss the imperative to prepare students to assume more responsibility for their learning and argue that the development of non-curricular learning skills is critical to this shift. Then we describe three skills that can help students become more successful learners: self-regulation, collaboration, and academic mindsets. Finally, we propose areas for further research and underline the importance of non-curricular learning skills for success in school and life.

### **Preparing Students for Greater Responsibility**

Students should share responsibility for their own learning. This is not a new assertion. Dewey (1900, 1902) argued the importance of students taking part in their learning, with Tyler (1949) echoing him almost a half-century later: "It is what [the student] does that he learns, not what the teacher does" (p. 63). There is a limit to what understanding the teacher alone can foster. The importance of student responsibility for learning is, however, particularly important now because many reforms and accountability measures of the past two decades have had the effect of narrowing curriculum and instruction (Gunzenhauser, 2003; Meyer, 2005; von Zastrow & Janc, 2004) in ways that can result in teachers assuming counterproductive levels of control over learning. A renewed focus on student responsibility is also timely as the widespread implementation of the Common Core State Standards (NGA & CCSSO, 2010) and the possible reauthorization of federal No Child Left Behind legislation offer opportunities to reexamine this element of teaching and learning.

Deep comprehension requires the active participation of the learner, and while teachers cannot simply will comprehension to occur, they play a fundamentally important role in the development of a classroom community that supports learning and in the design and delivery of classroom experiences that lead to understanding. Thus, we seek a healthy middle ground in which both teachers and students appropriately share responsibility for learning. Developing students who take more responsibility for their own learning requires a set of skills that many schools do not systematically develop. For learning to be shared, however, both teachers accustomed to controlling the learning process and students used to a certain status-quo passivity will have to adjust to new roles.

Many adolescents arrive at school lacking non-curricular learning skills that could help them succeed academically. The absence of such strengths can disproportionately impact youth from disadvantaged backgrounds who have experienced stressful childhoods and may have had fewer opportunities to form the healthy attachments with caring adults that promote resilience and self-confidence. Affluent students may also lack these traits if they have been too sheltered from risk and error (Tough, 2012). Teachers can misdiagnose poor performance and lack of perseverance as indicators that students are unmotivated, when in reality, the students may not have developed the skills necessary for school success.

Students expected to take more ownership of their learning must have opportunities to develop requisite skills and they should be supported to gradually assume more active roles as learners (Fisher & Frey, 2008). They can be explicitly taught the skills necessary to be better learners (Duckworth, Grant, Loew, Oettingen, & Gollwitzer, 2011) and also engage in academic activities that simultaneously develop content knowledge and build learning skills (Farrington et al., 2012). Research findings suggest that attention to non-curricular learning skills can be positively related with preparation for and performance on standardized tests (Berkowitz & Bier, 2004; Brock, Nishida, Chiong, Grimm, & Rimm-Kaufman, 2008; Duckworth et al., 2011) and lead to better academic outcomes (CDDL, 2010; Duckworth & Seligman, 2005; Durlack, Weissberg, Dymnicki, Taylor, & Schellinger, 2011).

Students may be enthusiastic about opportunities to assume more responsibility for their learning, particularly if they perceive that their teachers are going to help them develop the skills needed to do so. Some adolescents, however, may offer at least token resistance to change (Boud, 1981; Dembo & Seli, 2004; Sizer, 2004). Older students who have been successful in one version of *doing school* may not be enthused by new rules of the game, and as they may see it, rules that require more effort and engagement on their parts. Even students who want to embrace a more active role in their learning may likely need help developing the requisite skills.

Many teachers will also need to redefine themselves, giving up some comfortable practices that may have appeared to work in the past. Research has shown that

teachers sometimes need to be convinced of the indirect academic benefits of programs that focus on non-curricular learning skills (Durlack et al., 2011). Even for those more open to teaching these skills, it may be a challenging transition. It is arguably easier to teach and assess learning of traditional academic content than it is to instruct and measure progress with non-curricular learning skills (Johnson, Penny, & Gordon, 2009). Sometimes teachers' past experiences as students have not provided them with models for effective teaching of non-curricular learning skills.

When students fail to initially grasp academic content, teachers may try to reteach or explain the content in a different way. In the case of non-curricular learning skills, however, teachers give up if students do not appear to possess these qualities. For example, when students struggle with group work, a common response is to limit group work, instead of teaching the collaboration skills students apparently need (Cohen & Benton, 1998). This is despite evidence that such skills can indeed be taught and developed through practice (Mercer, 1996). As difficult as cultivating and assessing non-curricular learning skills may be, students must have opportunities in school to develop them. Educators should be as purposeful and persistent in teaching these skills as they are in teaching academic content.

There is a general consensus that schools should prepare students for future learning as well as their lives beyond school (e.g., CDDL, 2012; NGA & CCSSO, 2010). Given the demands of our changing society, it stands to reason that students should develop skills with value outside of the classroom. Too much of what students learn in school is narrowly focused academic content of uncertain applicability (Gunzenhauser, 2003). One problem with this content-heavy approach is that the expansion of access to and production of knowledge confounds attempts to predict which bits of knowledge will be relevant in the future. Teachers should instead model how learners find information when they need it and try to make sense of how the new fits with what they already know. It is such non-curricular learning skills that will serve students well when they find themselves working in jobs that have not yet even been invented.

Learning academic content maintains an important place in classroom. We assert, however, that our students will be better off in the long run if more energy than is currently the norm is directed to helping them develop as learners. A balanced approach is needed. Graduates with effective learning skills and dispositions will be able to adapt to rapidly changing environments and acquire specific knowledge when they need it. In contrast, limited learning skills and a stagnant reservoir of knowledge do not produce a formula for success in college, career, or life. Thus, non-curricular learning skill development that enables students to take greater responsibility for learning must become part of the core work of schools.

## Non-Curricular Learning Skills to Promote Success in School and Beyond

Over the last several decades, theorists and researchers have postulated more than 20 different non-curricular learning skills and character strengths. Emerging literature suggests that, contrary to earlier beliefs that such traits were fixed, many non-curricular learning skills are malleable and open to modification throughout early adulthood (Farrington et al., 2012). It has become increasingly clear that environmental factors, including those that inhabit K-12 classrooms, can influence students' personality traits, among them the development of non-curricular learning skills (Blonigen, Carlson, Hicks, Krueger, & Iacono, 2008; Plomin & Nesselrode, 1990). In light of the potential impact of such influences, we focus on three high-leverage non-curricular learning skills that can be taught and developed in the classroom and that may enable students to take greater responsibility for their learning. These are self-regulation, collaboration, and academic mindsets. Each skill is defined, related research is reviewed, and opportunities for educators to help cultivate the skills are considered.

### Self-Regulation

Self-regulation refers to an individual's ability to control his or her responses to different situations in order to pursue and realize goals (Peterson & Seligman, 2004). Specifically, self-regulation processes include setting goals, controlling impulses, monitoring progress towards goals, and engaging in self-evaluation and reflection. If students are expected to assume more responsibility for their learning, these skills are crucial because they support more autonomous work. Self-regulation skills have been correlated with higher academic achievement and performance on standardized tests (Farrington et al., 2012; Zimmerman & Martinez-Pons, 1986), and they may be even more important than intelligence in terms of student success within and beyond school (Duckworth & Seligman, 2005). Additionally, students who have self-control skills are less likely to smoke, drop out of school, and become parents during adolescence (Duckworth, 2011).

In academic literature, the terms *self-control* and *self-regulation* are often used synonymously (Peterson & Seligman, 2004); both refer to the means by which students achieve short-term goals, such as completing projects or earning a particular grade in class. *Persistence* and *grit* refer to ways individuals work toward more focused, longer-term goals (Peterson & Seligman, 2004); there is a general consensus that crossover exists between these skill sets. Farrington and colleagues (2012) group self-control with grit, tenacity, delayed gratification, and self-discipline under the larger umbrella term, *academic perseverance*. No matter how these skills are classified, researchers and educators agree that self-regulation and self-control benefit students within the classroom and in their lives beyond school.

In academic settings, learners might demonstrate self-regulatory competencies through actions such as reading test instructions to clarify expectations, paying attention

rather than daydreaming, choosing to complete homework over watching television, and working on a long-term assignment despite boredom or frustration (Duckworth & Seligman, 2005). These latter actions speak to delay of gratification, which is correlated with self-control (Mischel, Shoda, & Rodriguez, 1989). A strong connection exists between self-efficacy and self-regulation: when individuals believe they are competent and will be successful at a certain task, they are more likely to control impulses and maintain momentum in order to achieve goals (Schunk & Ertmer, 2000; Zimmerman, 2002).

Setting goals and working toward them appears to be an important aspect of self-regulation. Pintrich (2000) explains that the pursuit of goals is comprised of planning, resource assessment, self-monitoring, and self-evaluation and reflection. Metacognition is particularly important in this context. To be able to successfully engage in goal setting and pursuit, students must be aware of and knowledgeable about their own thinking processes and how to break down a task in order to achieve a particular goal (Pintrich, 2000; Zimmerman, 2002). Thus, multiple elements come together in order for students to demonstrate self-regulation: they must feel self-efficacious; engage in goal setting, planning, and reflection; and be able to dissect particular tasks and how best to complete them given the available resources. Considering the necessity of these different elements, it is unsurprising that many students do not come to school already possessing the full set of competencies necessary to demonstrate self-regulation skills.

Is it possible to cultivate and develop such skills in adolescent learners when they are lacking? Encouragingly, evidence suggests self-regulatory skills can be learned, although more research is needed in this area, particularly regarding the development of these skills in a classroom setting (Randi & Corno, 2000). Persistence and grit are thought to be relatively stable personality traits (Peterson & Seligman, 2004); however, it is possible to encourage self-regulating behaviors even when these may not be aspects of an individual's nature. With enough practice, self-regulatory skills become automatic and the likelihood of experiencing a failure of self-control or persistence is reduced (Peterson & Seligman, 2004). One aspect of cultivating and maintaining such skills appears to be related to academic mindsets, discussed in a later section.

Context plays a role in the development of self-regulatory skills: Classrooms must be environments that promote active learning and student choice and control (Zimmerman, 2002). Schunk and Ertmer (2000) note, "Students have little opportunity for self-regulation when teachers dictate what students do, when and where they do it, and how they accomplish it" (p. 632). When they are only passive receptors of content knowledge, students have few occasions to practice self-regulatory skills. Authentic, problem-based learning can play a role in helping students self-regulate. Because such tasks are often more inherently engaging and intrinsically motivating than traditional instruction, students are more willing to persist at these tasks (Sousa & Tomlinson, 2010).

In addition to creating a learning environment that promotes student choice and control, it appears that teachers can help students gain self-regulatory skills through scaffolding and support structures. Research suggests that modeling, coaching, and explicit strategy instruction provide beneficial guidance to learners and allows them to become more self-regulated learners (Farrington et al., 2012; Randi & Corno, 2000). As Schunk and Ertmer (2000) note, providing feedback on strategy use is also powerful. Thus, teachers who are committed to helping their students develop self-regulatory skills must integrate learning strategies into instruction, provide explicit feedback on strategy use, and encourage students to reflect on their own strategy use. The development of self-regulation skills is complex and multifaceted, but promising practices and approaches exist for helping students learn and improve such skills within school settings.

## Collaboration

The ability to work effectively with others is increasingly important in our ever smaller and more interdependent world (Klaus, 2008; Strom & Strom, 2011; Tapscott & Williams, 2010). Because of the diversity characterized by schools and societies, students must learn to collaborate with people from many different cultures and backgrounds. Collaboration is one of the four essential skills for students identified in the “Framework for 21st Century Learning” developed by the Partnership for 21st Century Skills (2009). The Common Core State Standards also indicate the importance of collaboration skills for college and career success (NGA & CCSSO, 2010). The impetus to build our students’ collaboration skills is clear.

Learners who engage in effective cooperative activities with their peers can benefit from better academic results, stronger relationships, and greater individual psychological well-being (Johnson & Johnson, 1989; Roseth, Johnson, & Johnson, 2008; Slavin, 1994). Researchers have demonstrated that the collective intelligence of groups is not simply the average of individual group member’s intelligences; rather, group members’ collaboration skills matter (Wooley, Chabris, Pentland, Hashmi, & Malone, 2010). Furthermore, classroom collaboration is necessary for students to take more ownership of their learning. Students expected to become more active learners are less likely to become frustrated or stuck if they are accustomed to using their peers as supports and resources. If students are to extend their learning beyond the classroom and the school, they must develop the collaboration skills that will allow them to learn when they do not have access to a teacher.

But just because teachers decide learners should work together more does not mean they are ready to do so. Collaboration is not easy. Although Remedios, Clarke, and Hawthorne (2012) have noted, “Collaboration is often spoken of in idealistic terms” (p. 334), students may not find it easy to interact with peers from different backgrounds (Schmidt, 1998), may avoid collaboration in some cases, and may feel unsupported by the teacher during collaborative tasks (Williams & Sheridan, 2006). Educators must

explicitly teach students a variety of collaboration skills, including group process, leadership, decision-making, trust-building, communication, conflict-management, reflection, and basic social skills. Instruction should focus on those skills that are appropriate for the particular students in their classes. Given different groups of learners, teachers could spend time initially on skills as simple as addressing classmates by name and offering praise, or they could work on skills as challenging as how to paraphrase the ideas of others or deal with frustrated peers.

In addition to the explicit teaching of collaboration skills, teachers can design experiences that support the development of those skills. For example, the jigsaw approach (Aronson, 1978) and other tasks that feature various responsibilities and require interdependence have the potential to enhance collaboration skills. Mercer (1996) found that by setting ground rules for collaborative tasks, teachers could improve the quality of collaboration. Teachers can assign students roles such as *group process manager*, and regularly require simple cooperative learning assessments such as filling in a pie chart that indicates how a group's work was divvied up among students. Students who become proficient at collaborating with others through such scaffolded activities will be better equipped to take ownership of their learning in school and beyond.

### Academic Mindsets

In addition to utilizing approaches that encourage growth of discrete skills or strengths such as self-regulation and collaboration, educators can shape students' overall attitude towards and beliefs about school. These *academic mindsets*, as Farrington and colleagues (2012) have labeled them, strongly influence student behaviors, and thus, academic outcomes. They include students' beliefs about the value of school and how much they feel they belong, succeed, and grow there. Mindset is an area in which, compared to individual non-curricular learning skills, there is more of a research base describing successful interventions. Academic mindsets might not at first sound skill-related, but these mindsets can be taught and developed. Furthermore, programs that target academic mindsets have encouragingly been shown to not only improve academic performance, but also to indirectly contribute to the growth of other non-curricular learning skills. For example, mindset interventions have been shown to result in increased persistent behavior (Farrington et al., 2012).

How students perceive school matters. Although we can compel young people to attend schools, we cannot force them to learn. A National Academies (2003) report on student engagement summarized the challenge powerfully: "Adolescents are too old and too independent to follow teachers' demands out of obedience, and many are too young, inexperienced, or uninformed to fully appreciate the value of succeeding in school" (p. 2). Even some students who are outwardly compliant and successful by the measure of grades are simply playing the school game rather than seeking to truly learn (Fried, 2005; Pope, 2003). Academic performance is not simply a matter of raw talent;



students' intelligence and skills are mediated by their beliefs and emotions about the academic task at hand.

It is, therefore, of paramount importance that educators cultivate the mindsets in students that will help them take full advantage of opportunities to learn. Mindsets play a key role in determining what knowledge, skills, and habits students acquire in the classroom (National Academies, 2003). The effort students dedicate to school is intimately related to their perceptions of the nature of school (Fine, 1991; Wentzel, 1998) and of their likelihood of succeeding there (Eccles et al., 1983; Skinner, Wellborn, & Connell, 1990).

Students with a greater sense of belonging have higher levels of intrinsic motivation and invest more in the learning process (Bryk, Lee, & Holland, 1993; Connell & Wellborn, 1991; Newmann, Welhage, & Lamborn, 1992; Ryan & Deci, 2000). When learners see a connection between academic tasks and their goals for the future, they are more likely to demonstrate persistence and exhibit academic behaviors that support academic success. Also, how students feel about intelligence, effort, and their own potential to learn in school affects their level of investment. When students feel their ability grows with effort, they are more likely to be self-motivating and persistent (Cury, Elliot, Da Fonseca, & Moller, 2006; Dweck, 2000). Students' beliefs about their potential for success are associated with perseverance and the likelihood of bouncing back from adversity. Research has shown that "beliefs about intelligence and attributions for academic success or failure are more strongly associated with school performance than is actual measured ability (i.e., test scores)" (Farrington et al., 2012, p. 29). Clearly, students' academic mindsets matter.

Fortunately, mindsets are not set in stone (Aronson, Fried, & Good, 2002; Dweck, 2000; Farrington et al., 2012). Educators across different grade levels and content areas can effect meaningful change in young people's attitudes and beliefs about school. Even relatively simple or short-term interventions can impact mindsets (Blackwell, Trzesniewski, & Dweck, 2007; Hulleman & Harackiewicz, 2009). Student choice and autonomy in academic work can positively affect mindsets (Stefanou, Perencevich, DiCintio, & Turner, 2004). Teachers who utilize transparent grading practices, provide frequent formative feedback, and define how and why different aspects of student work will affect achievement can increase learners' beliefs in their potential for success (Assessment Reform Group, 2002; Black & Wiliam, 2004; Popham, 2000; Tyler, 1949). Educators can employ approaches such as charting, compiling portfolios of works in progress, and self-assessments to help students track their growth and to recognize connections between their effort levels, persistence, and final performances.

Henry Ford reportedly said, "Whether you think you can, or you think you can't, you're right." This aphorism underscores the importance of the learner's mindset regarding a particular task. Time invested in shaping students' academic mindsets such

that they believe they can and should succeed in school will pay off as students take more responsibility for their learning. Students with strong academic mindsets may be less likely to give up on more demanding work at the first sign of struggle.

### **Non-Curricular Learning Skill Development: Next Steps**

The need to build non-curricular learning skills is apparent. These skills are necessary if students are to successfully assume greater responsibility for their learning. Now is a time of great change in education, and it is essential that non-curricular learning skills are a part of that change. Educators, however, need more actionable information about and examples of how skill development can occur in typical classroom environments. Although extant studies demonstrate the malleability of many non-curricular learning skills, the research to date does not always translate into clear steps for classroom teachers to enact. The literature has described interventions that occurred outside of classroom settings or in special academic programs. For example, Tough (2012) focused on highly-successful programs that were mostly extracurricular or supplementary in nature. Such activities play a vital role in many students' growth, but if non-curricular learning skills are as important as they appear to be, then they must not be addressed only through clubs or afterschool experiences, and they should not only be targeted for students deemed to be *at-risk*. Teachers of traditional academic content areas need to develop their students' non-curricular learning skills, as well. Given what we now know, there is a need for research that addresses classroom-based non-curricular interventions grounded in existing curriculum, instruction, and school budget realities.

In some cases, it is likely appropriate to directly teach a specific non-curricular skill (Duckworth et al., 2011); however, we also hypothesize that there are approaches that could allow for simultaneous development of content knowledge *and* non-curricular learning skills. Based on our review of the existing literature and our own experiences, we see promise in teachers and researchers of classroom interventions, focusing on four areas as they seek to strengthen students' non-curricular learning skills: creating a supportive learning environment (Tomlinson & Doughty, 2006); assigning authentic performance-based tasks (Wiggins & McTighe, 2005); enhancing the use of formative assessment (Black & Wiliam, 2004), including self- and peer-assessment (Topping, 2003); and implementing the flipped learning model (Bergmann & Sams, 2012).

In each of these areas, there is potential for the development and integration of non-curricular learning skills. For example, an authentic, performance-based task, such as student groups in a civics class creating recommendations regarding gun control policies to send to local politicians, could serve as an opportunity for teachers to help students develop several non-curricular learning skills. With teacher guidance, students could capitalize on intrinsic motivation, goal setting, and self-monitoring to cultivate self-regulation skills, while also meaningfully engaging with and demonstrating knowledge about the content. Students could develop goals for their own performance on the task

and mastery of the content, as well as a concrete plan to achieve their goals. Teachers could structure the task to cultivate collaborative skills by making it multifaceted and too complex to complete individually. Each group of students might collect statistical data regarding gun violence, determine how the data relate to the local area, and then work together to create a draft report of specific recommendations grounded in the data collected. Such an authentic, relevant task would likely cultivate the academic mindset that the work done in school has real value while providing students with multiple opportunities to take responsibility for their own learning and growth.

Flipped learning approaches (Bergmann & Sams, 2012) similarly offer the opportunity for concurrent development of several non-curricular learning skills. In flipped learning, information that might traditionally have been conveyed in an in-class lecture is moved out of the classroom. Students are responsible for covering this material themselves, often by watching a video or screencast. Students have opportunities to re-view portions of the out-of-class content that they find challenging, thus encouraging individual self-regulation more than is the case in a typical lecture where there is only one shot at comprehension. In the second element of flipped learning, the class time made available by moving lecture content outside of class is used for activities that include more student collaboration and higher-order thinking skills. Flipping appears to offer several opportunities for teachers to cultivate their students' non-curricular learning skills and encourages them to take more responsibility for their own learning. Research that delves into opportunities and challenges for non-curricular skill development through flipped learning will be beneficial to the field.

In the 21st century classroom, increasing student ownership of learning should be a key focus of curriculum and instruction. When students and teachers share responsibility for learning, students understand content more deeply and learn skills that will serve them well in a variety of endeavors. For this to happen, educators need to support learners as they experience greater autonomy and face new, inevitable challenges. Success in school and life demands a non-curricular skill set that provides a foundation for deep learning and personal growth. Educators who promote and teach skills in the areas of self-regulation, collaboration, and academic mindsets will help learners develop and thrive in school and beyond.

## References

- Aronson, E. (1978). *The jigsaw classroom*. Oxford, UK: Sage.
- Aronson, J., Fried, C. B., & Good, C. (2002). Reducing the effects of stereotype threat on African American college students by shaping theories of intelligence. *Journal of Experimental Social Psychology*, 38(2), 113-125. [CrossRef](#) [GS Search](#)
- Assessment Reform Group. (2002). *Testing, motivation, and learning*. Cambridge, UK: University of Cambridge Faculty of Education.
- Bergmann, J., & Sams, A. (2012). *Flip your classroom: Reach every student in every class every day*. Washington, DC: International Society for Technology in Education.
- Berkowitz, M., & Bier, M. (2004). Research-based character education. *The Annals of the American Academy of Political and Social Science*, 591(1), 72-85. [CrossRef](#) [GS Search](#)
- Black, P., & Wiliam, D. (2004) The formative purpose: Assessment must first promote learning. In M. Wilson (Ed.), *Toward coherence between classroom assessment and accountability: 103rd Yearbook of the National Society for the Study of Education* (pp. 20-50). Chicago, IL: University of Chicago Press.
- Blackwell, L. S., Trzesniewski, K. H., & Dweck, C. S. (2007). Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study and an intervention. *Child Development*, 78(1), 246-263. [CrossRef](#) [GS Search](#)
- Blonigen, D. M., Carlson, M. D., Hicks, B. M., Krueger, R. F., & Iacono, W. G. (2008). Stability and change in personality traits from late adolescence to early adulthood: A longitudinal twin study. *Journal of Personality*, 76(2), 229-266. [CrossRef](#) [GS Search](#)
- Bonwell, C., & Eison, J. (1991). *Active learning: Creating excitement in the classroom*. ASHE-ERIC Higher Education Report No. 1. Washington, DC: Jossey-Bass. [GS Search](#)
- Borghans, L., Duckworth, A. L., Heckman, J. J., & ter Weel, B. (2008). The economics and psychology of personality traits. *Journal of Human Resources*, 43(4), 972-1059. [CrossRef](#) [GS Search](#)
- Boud, D. (1981). *Developing student autonomy in learning*. London, UK: Kogan Page.

- Bransford, J. D., Brown, A. L., & Cocking, R. R. (Eds.). (2000). *How people learn: Brain, mind, experience, and school*. Washington, DC: National Academy Press.
- Brock, L. L., Nishida, T. K., Chiong, C., Grimm, K. J., & Rimm-Kaufman, S. E. (2008). Children's perceptions of the classroom environment and social and academic performance: A longitudinal analysis of the contribution of the Responsive Classroom Approach. *Journal of School Psychology, 46*(2), 129-149. [CrossRef](#)  
[GS Search](#)
- Bryk, A. S., Lee, V. E., & Holland, P. B. (1993). *Catholic schools and the common good*. Cambridge, MA: Harvard University Press.
- Carpenter, J. P., & Pease, J. S. (2012). Sharing the learning. *Phi Delta Kappan, 94*(2), 36-41. [GS Search](#)
- Cohen, E. G., & Benton, J. (1998). Making groupwork work. *American Educator, 12*(3), 10-17, 45-46. [GS Search](#)
- Committee on Defining Deeper Learning and 21st Century Skills of the National Research Council (CDDL). (2012). In J. W. Pellegrino & M. L. Hilton (Eds.), *Education for life and work: Developing transferable knowledge and skills in the 21st century*. Washington, DC: The National Academies Press.
- Connell, J., & Wellborn, J. (1991). Competence, autonomy, and relatedness: A motivational analysis of self-system processes. In M. Gunnar and L. Sroufe (Eds.), *Self processes in development: Minnesota symposium on child psychology*, (vol. 23, pp. 43-77). Hillsdale, NJ: Lawrence Erlbaum.
- Cury, F., Elliot, A. J., Da Fonseca, D., & Moller, A. C. (2006). The social-cognitive model of achievement motivation and the 2x2 achievement goal framework. *Journal of Personality and Social Psychology, 90*(4), 666-679. [CrossRef](#) [GS Search](#)
- Dembo, M., & Seli, H. P. (2004). Students resistance to change in learning strategies courses. *Journal of Developmental Education, 27*(3), 2-11. [GS Search](#)
- Dewey, J. (1900). *School and society*. Chicago, IL: University of Chicago Press.
- Dewey, J. (1902). *The child and the curriculum*. Chicago, IL: University of Chicago Press.
- Duckworth, A. L. (2011). The significance of self-control. *Proceedings of the National Academies of Science of the United States of America, 108*(7), 2639-2640. [CrossRef](#) [GS Search](#)

- Duckworth, A. L., & Seligman, M. E. P. (2005). Self-discipline outdoes IQ in predicting academic performance of adolescents. *Psychological Science*, 16(12), 939-944. [CrossRef](#) [GS Search](#)
- Duckworth, A. L., Grant, H., Loew, B., Oettingen, G., & Gollwitzer, P. M. (2011). Self-regulation strategies improve self-discipline in adolescents: Benefits of mental contrasting and implementation intentions. *Educational Psychology*, 31(1), 17-26. [CrossRef](#) [GS Search](#)
- Durlack, J., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82(1), 405-432. [CrossRef](#) [GS Search](#)
- Dweck, C. (2000). *Self-theories: Their role in motivation, personality, and development*. Philadelphia, PA: Psychology Press.
- Eccles, J., Adler, T., Futterman, R., Goff, S., Kaczala, C., Meece, J., & Midgley, C. (1983). Expectancies, values, and academic behavior. In J. T. Spence (Ed.), *Achievement and achievement motives: Psychological and sociological approaches* (pp. 75-146). San Francisco, CA: Freeman.
- Farrington, C. A., Roderick, M., Allensworth, E., Nagaoka, J., Keyes, T. S., Johnson, D. W., & Beechum, N. O. (2012). Teaching adolescents to become learners. The role of noncognitive factors in shaping school performance: A critical literature review. Chicago, IL: University of Chicago Consortium on Chicago School Research.
- Fine, M. (1991). *Framing dropouts: Notes on the politics of an urban public high school*. Albany, NY: State University of New York Press.
- Fisher, D., & Frey, N. (2008). Releasing responsibility. *Educational Leadership*, 66(3), 32-37. [GS Search](#)
- Fried, R. (2005). *The game of school: Why we all play it, how it hurts kids, and what it will take to change*. San Francisco, CA: Jossey-Bass.
- Gunzenhauser, M. G. (2003). High-stakes testing and the default philosophy of education. *Theory into Practice*, 42(1), 51-58. [CrossRef](#) [GS Search](#)
- Hulleman, C. S., & Harackiewicz, J. M. (2009). Promoting interest and performance in high school science classes. *Science*, 326(5958), 1410-1412. [CrossRef](#) [GS Search](#)

- Intrator, S. (2005). *Tuned in and fired up: How teaching can inspire real learning in the classroom*. New Haven, CT: Yale University Press.
- Johnson, D. W., & Johnson, R. T. (1989). *Cooperation and competition: Theory and research*. Edina, MN: Interaction Book Company.
- Johnson, R., Penny, J., & Gordon, B. (2009). *Assessing performance*. New York, NY: Guilford.
- Klaus, P. (2008). *The hard truth about soft skills: Workplace lessons smart people wish they had learned sooner*. New York, NY: Harper Collins.
- Mercer, N. (1996). The quality of talk in children's collaborative activity in the classroom. *Learning and Instruction*, 6(4), 359–377. [CrossRef](#) [GS Search](#)
- Meyer, L. (2005). The complete curriculum: Ensuring a place for the arts in America's schools. *Art Education Policy Review*, 106(3), 35–39. [GS Search](#)
- Mischel, W., Shoda, Y., & Rodriguez, M. L. (1989). Delay of gratification in children. *Science*, 244(4907), 933-938. [CrossRef](#)
- National Academies. (2003). *Engaging schools: Fostering high school students' motivation to learn*. Washington, DC: National Academies Press.
- National Governors Association Center for Best Practices and Council of Chief State School Officers [NGAC and CCSCO]. (2010). Common Core State Standards. Retrieved from <http://www.corestandards.org/>
- Newmann, F., Wehlage, G., & Lamborn, S. (1992). The significance and sources of student engagement. In F. Newmann (ed.), *Student engagement and achievement in American secondary schools* (pp. 11-39). New York, NY: Teachers College Press.
- Partnership for 21st Century Skills. (2009). P21 framework definitions. Retrieved from [http://www.p21.org/storage/documents/P21\\_Framework\\_Definitions.pdf](http://www.p21.org/storage/documents/P21_Framework_Definitions.pdf)
- Peterson, C., & Seligman, M. E. P. (2004). Persistence [Perseverance, industriousness]. In C. Peterson & M. E. P. Seligman, *Character strengths and virtues: A handbook and classification* (pp. 229-248). Oxford, UK: Oxford University Press.
- Pintrich, P. (2000). The role of goal orientation in self-regulated learning. In M. Boekarts, P. R. Pintrich, & M. Zeidner, (Eds.), *Handbook of self-regulation* (pp. 452-502). San Diego, CA: Academic Press. [CrossRef](#)

- Plomin, R., & Nesselroade, J. R. (1990). Behavioral genetics and personality change. *Journal of Personality, 58*(1), 191-220. [CrossRef](#) [GS Search](#)
- Pope, D. C. (2003). *Doing school: How we are creating a generation of stressed-out, materialistic, and miseducated students*. New Haven, CT: Yale University Press.
- Popham, W.J. (2000). *Modern educational measurement: Practical guidelines for educational leaders*, (3rd ed.). Boston, MA: Allyn and Bacon.
- Randi, J., & Corno, L. (2000). Teacher innovations in self-regulated learning. In M. Boekarts, P. R. Pintrich, & M. Zeidner, (Eds.), *Handbook of self-regulation* (pp. 651-685). San Diego, CA: Academic Press. [CrossRef](#)
- Remedios, L., Clarke, D., & Hawthorne, L. (2012). Learning to listen and listening to learn: One student's experience of small group collaborative learning. *Australian Educational Researcher, 39*(3), 333-348. [CrossRef](#) [GS Search](#)
- Roseth, C. J., Johnson, D. W., & Johnson, R. T. (2008). Promoting early adolescents' achievement and peer relationships: The effects of cooperative, competitive, and individualistic goal structures. *Psychological Bulletin, 134*(2), 223-246. [CrossRef](#) [GS Search](#)
- Ryan, R., & Deci, E. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68-78. [CrossRef](#) [GS Search](#)
- Schmidt, P.R. (1998). *Cultural conflict and struggle: Literacy learning in a kindergarten program*. New York, NY: Peter Lang.
- Schunk, D. H., & Ertmer, P. A. (2000). Self-regulation and academic learning: Self-efficacy enhancing interventions. In M. Boekarts, P. R. Pintrich, & M. Zeidner, (Eds.), *Handbook of self-regulation* (pp. 631-649). San Diego, CA: Academic Press. [CrossRef](#)
- Sizer, T. (2004). *Horace's compromise: The dilemma of the American high school*. Boston, MA: Houghton Mifflin.
- Skinner, E., Wellborn, J., & Connell, J. (1990). What it takes to do well in school and whether I've got it: The role of perceived control in children's engagement and school achievement. *Journal of Educational Psychology, 82*(1), 22-32. [CrossRef](#) [GS Search](#)



- Slavin, R. (1994). *Using student team learning* (4th ed.). Baltimore, MD: Johns Hopkins University, Center for Social Organization of Schools.
- Sousa, D. A., & Tomlinson, C. A. (2010). *Differentiation and the brain: How neuroscience supports the learner-friendly classroom*. Bloomington, IN: Solution Tree.
- Stefanou, C. R., Perencevich, K. C., DiCintio, M., & Turner, J. C. (2004). Supporting autonomy in the classroom: Ways teachers encourage student decision making and ownership. *Educational Psychologist*, 39(4), 97-110. [CrossRef](#) [GS Search](#)
- Strom, P. S., & Strom, R. D. (2011). Teamwork skills assessment for cooperative learning. *Educational Research and Evaluation*, 17(4), 233-251. [CrossRef](#)
- Tapscott, D., & Williams, A. (2010). *Macrowikinomics*. New York, NY: Penguin.
- Tomlinson, C. A., & Doughty, K. (2006). *Smart in the middle grades: Classrooms that work for bright middle schoolers*. Westerville, OH: National Middle School Association.
- Topping, K. J. (2003). Self and peer assessment in school and university: Reliability, validity and utility. In M. S. R. Segers, F. J. R. C. Dochy, & E. C. Cascallar (Eds.), *Optimizing new modes of assessment: In search of qualities and standards* (pp. 55–87). Dordrecht, The Netherlands: Kluwer Academic. [CrossRef](#)
- Tough, P. (2012). *How children succeed: Grit, curiosity, and the hidden power of character*. New York, NY: Houghton Mifflin Harcourt.
- Tyler, R. (1949). *Basic principles of curriculum and instruction*. Chicago, IL: The University of Chicago Press.
- von Zastrow, C., & Janc, H. (2004). *Academic atrophy: The condition of the liberal arts in America's public schools*. Washington, DC: Council for Basic Education.
- Vygotsky, L. (1978). *Mind in Society*. Cambridge, MA: Harvard University Press.
- Wentzel, K. (1998). Social relationships and motivation in middle school: The role of parents, teachers, and peers. *Journal of Educational Psychology*, 90(2), 202–209. [CrossRef](#) [GS Search](#)
- Wiggins, G., & McTighe, J. (2005). *Understanding by design* (2<sup>nd</sup> ed.). Alexandria, VA: ASCD.

Williams, P., & Sheridan, S. (2006). Collaboration as one aspect of quality: A perspective of collaboration and pedagogical quality in educational settings. *Scandinavian Journal of Educational Research*, 50(1), 89-93. [CrossRef](#) [GS Search](#)

Wooley, A. W., Chabris, C. F., Pentland, A., Hashmi, N., & Malone, T. W. (2010). Evidence for a collective intelligence factor in the performance of human groups. *Science*, 330(6004), 686-688. [CrossRef](#) [GS Search](#)

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory into Practice*, 41(2), 65-70. [CrossRef](#) [GS Search](#)

Zimmerman, B. J., & Martinez-Pons, M. (1986). Development of a structured interview for assessing students' use of self-regulated learning strategies. *American Educational Research Journal*, 23(4), 614-628. [CrossRef](#) [GS Search](#)

## ← About the Authors →



**Jeff Carpenter, PhD**, is an assistant professor of education at Elon University, in Elon, North Carolina. His research interests concern innovations in teaching, in particular, the ways by which collaboration and collaborative technologies facilitate teaching and learning. Currently, he is researching how social media can enhance student learning and teacher professional development. Email: [jcarpenter13@elon.edu](mailto:jcarpenter13@elon.edu)



**Jennifer S. Pease, PhD**, has worked as a public school teacher and teacher educator for the past fifteen years. She is currently an adjunct faculty member in teacher education at James Madison University and the University of Virginia's Curry School of Education, where she earned her doctorate. Her areas of interest include instructional design, adolescent learning and motivation, teacher development, and teacher recruitment and retention. She and Dr. Carpenter have written extensively on promoting students' responsibility for learning. Email: [peasejs@jmu.edu](mailto:peasejs@jmu.edu)