

**Mawi Learning – Florida Virtual School**

**How Non-Cognitive Skills Drive Student  
Achievement:**

***The Research Behind the  
Leadership Skills Development Course***

*The Educational Research Institute of America (ERIA) is an independent research, evaluation development, and consulting firm specializing in education. ERIA is based in Bloomington, Indiana.*

# Introduction

Since the *No Child Left Behind Act of 2001* and other accountability mandates at federal, state, and local levels, educators—researchers, policy makers, school administrators, and teachers—have been focused largely on students’ content knowledge and performance as outlined by standards and measured by test scores. During that same period, there has been an accumulation of evidence related to U.S. students’ lack of social and behavioral skills necessary for success in school, along with continually increasing concerns about violence and bullying in schools (Jones & Bouffard, 2012). Now, a new movement is underway to better understand and cultivate non-cognitive factors that impact academics and the practices and programs schools should engage in to best prepare students for success in the 21<sup>st</sup> century.

“Non-cognitive factors” are a person’s emotional, psychological, and social attributes; attitudes; habits; and skills. The factors are distinct from a person’s intellect but significantly influence it—and combined, cognitive and non-cognitive abilities, are a predictor of a person’s future success and stability (Heckman, 2008). “While the nature of the relationships and various pathways between academic behaviors and other non-cognitive factors is not yet entirely clear, the connection between academic behaviors and academic performance is strong.” (Farrington et al, p. 16)

“Non-cognitive factors” is just one term for—or one way of viewing—this set of competencies. Some see these factors as more as traits than skills, or as part of “character development” or “values education.” Long ago, non-cognitive factors might have been called “virtues.” Non-cognitive factors might be taught as part of “social/emotional learning,” as part of intervention programs, or embedded within a curriculum with the aim to help students manage their emotions, attain greater self-awareness or self-control, reduce stress, resolve conflicts, establish and maintain positive relationships, or set and attain goals. Non-cognitive factors may also be a focus of professional development for staff.

Nomenclature aside, these intrapersonal and interpersonal traits are the subject of the current work of a number of prominent individuals and organizations collaborating on research and initiatives funded by public agencies and private foundations. Interdisciplinary in its draw across fields—from economics to neuroscience to psychology to health, as well as, of course, education—the movement has garnered attention in TED talks, academic journals, professional conferences, and best-selling books, including Paul Tough’s *How Children Succeed: Grit, Curiosity, and the Hidden Power of Character*, which, following its publication in 2012, spent 12 weeks on *The New York Times* best seller list. And now this movement is driving policy and directions for further research.

Nobel Prize winning economist James Heckman spawned the burgeoning research into non-cognitive factors that impact education. His research in the 1990s of the GED program led him to questions regarding the personality traits that contribute to success, and then in the early 2000s, collaborations with social scientists that examined the effects of early childhood interventions. Heckman found that non-cognitive skills had a lasting impact on the children’s lives. Several prominent psychologists, including Carol Dweck and Angela Duckworth, have also contributed greatly, via their research, writings, and speeches, to the increased attention and understanding of non-cognitive traits.

Up until a decade ago, most teaching and assessment of non-cognitive skills ended in preschool; 49 states have standards for the social-emotional development of its youngest citizens. However, informed and inspired by new research findings, education policymakers at state and national levels have more recently adopted and expanded Kindergarten-12 social-emotional learning standards and programs to

better support students and prevent academic and behavioral problems. Currently three states—Illinois, Kansas, and Pennsylvania—have Kindergarten -12 standards for social emotional learning. Additionally, social-emotional learning is integrated into the Common Core State Standards, which have been adopted by 45 states and the District of Columbia. (Dusenbury et al., 2014; Jones & Bouffard, 2012)

Recent reports of research findings and recommendations by high-profile committees have also focused on the significance of these non-cognitive factors in positive educational, career, and health outcomes and how the educational community can best foster students' development of the factors. Such reports have included *Education for Life and Work: Developing Transferable Knowledge and Skills in the 21st Century* from the Committee on Defining Deeper Learning and 21st-Century Skills, and published by the National Research Council in 2012 as well as the U.S. Department of Education Office of Education Technology's "Promoting Grit, Tenacity, and Perseverance: Critical Factors for Success in the 21st Century" in 2013.

Non-cognitive skills have also entered the realm of large-scale testing. In August 2013, the U.S. Department of Education approved an Elementary and Secondary Education Act (ESEA) waiver application from the California Office to Reform Education (CORE), authorizing eight participating schools districts to design and implement a new accountability and continuous improvement system called the School Quality Improvement Index, which will be used with a million students to assess school performance as a function of academic outcomes (60 percent), school climate and culture measures (20 percent), and social-emotional measures (20 percent). The social-emotional domain of the assessment will comprise administrative data, such as attendance and suspensions, and measures of students' social-emotional skills (Fensterwald, 2014; McNeil, 2013). This shift in testing policy reflects the views of the Director of the Department of Education Institute of Educational Sciences, John Easton: "The test score accountability movement has pushed aside many of these so-called 'non-cognitive' or 'soft' skills, and they belong back on the front burner." (U.S. Department of Education Office of Information Technology, 2013, p. 1)

At the federal level, as of this time, The Academic, Social, and Emotional Learning Act of 2013 (H.R. 1875) has been introduced as bipartisan legislation to expand the availability of evidence-based programs that teach students social and emotional skills such as self-control, goal-setting, collaboration, conflict resolution, and problem-solving. Bill co-sponsors cite the more than two decades of scientific research demonstrating how these skills improve academic achievement and promote positive school climate. "Social and emotional competencies aren't 'soft skills,'" explained Rep. Tim Ryan (D-Ohio), who introduced the bill currently co-sponsored by Representatives Dave Loebsack (D-Iowa), Tom Petri (R-Wis.), and Matt Cartwright (D-Pa.). "They are essential skills. They are the foundation for all the other skills young people need to be successful in school and in life." (Collaborative for Academic, Social, and Emotional Learning, 2014)

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In accounting for the integral role of non-cognitive factors, it is critical to acknowledge the malleability of these traits. From the Duckworth Lab's research statement: "words like 'character' or 'personality trait' -- may connote to some immutability. However, it is now well-established that traits change across the life course...children and adults change their habitual patterns of interacting with the world as they accumulate additional life experience."

As established by the decades of work conducted by Dr. Duckworth and other researchers—work that is driving the policies cited above—social-emotional-psychological traits can be taught effectively and can be cultivated and nurtured within students of all backgrounds. Indeed, in a meta-analysis of the outcomes of 213 social and emotional learning (SEL) interventions, Durlak and colleagues (2011) found the following positive effects in students who participated in such SEL programs versus peers who did not:

- increased pro-social behaviors and decreased conduct problems;
- improved academic performance (averaging scores of 11 percentile points higher on standardized tests);
- improved attitudes about the self and satisfaction within school community; and
- decreased emotional distress.

Further, citing other researchers as well, Durlak et al. concluded: “through systematic instruction, SEL skills may be taught, modeled, practiced, and applied to diverse situations so that students use them as part of their daily repertoire of behaviors.” (p. 406)

In their review of the research literature on social-psychological interventions, Yeager and Walton (2011) found long-term positive effects that change students’ academic trajectories – and that the most effective and impactful programs:

- actively engage students’ direct participation;
- personalize students’ responses to program content so that the experience is directly relevant and meaningful;
- affirm values and employ a positive persuasive appeal rather than a corrective approach that may instead stigmatize and yield negative outcomes; and
- target multiple social and psychological barriers to learning, as combining interventions can have an additive effect.

## Key Non-cognitive Factors

The non-cognitive umbrella encompasses a wide range of social, emotional, psychological and academic competencies and skills. As many researchers in this area have noted, it can be challenging to separate one or another individual traits as there is a great deal of interconnectedness and influence among them, and the impact such traits have on one another, both positive and negative, is recursive (Farrington et al, 2012) –or what Yeager & Walton (2011) describe as a complex field of forces, a “tension system,” in which behaviors and attitudes interact, promoting some and restraining others. There are a variety of different ways that non-cognitive skills are classified. Some researchers make a distinction between “interpersonal” skills – those needed for positive relationships, such as compliance, cooperation, communication, self-regulation, and “work” skills – those needed for positive learning outcomes, such as planning, organizing, and completing tasks (Jones & Bouffard, 2012).

However, six non-cognitive traits have received particular attention from researchers and policymakers – and are key components within the *Mawi Learning/Florida Virtual School Leadership Skills Development* course. These include growth mindset, locus of control, goal setting, grit, social intelligence, and delayed gratification – and each is profiled below.

## **Growth Mindset**

Growth mindset, a concept pioneered by renowned psychologist Carol Dweck, is a belief that a person's intelligence, competence, and talents can be developed through dedicated efforts and hard work. In contrast to a "fixed mindset" in which people see their abilities as immutable, the idea is also linked to attitudes and perceptions regarding success and failure—and the amount of control one thinks he or she has in experiences with either throughout life.

Mindsets—or core assumptions regarding them—have an enormous impact on students' academic behaviors and achievement and indeed their overall social-psychological well-being (Dweck, 2006; U.S. Department of Education Office of Educational Technology, 2013). According to Farrington et al, (p. 10): "Notably, across the empirical literature, one's beliefs about intelligence and attributions for academic success or failure are more strongly associated with school performance than is one's actual measured ability (i.e., test scores)." Mindsets drive how much time and energy and intensity students devote toward their education – and the outcomes of those efforts of course then have a recursive effect, perpetuating a positive or negative cycle as results affirm beliefs (Dweck & Leggett, 1988; Farrington et al, 2012; Snipes et al, 2012). Students with a growth mindset are much more likely to persist in their efforts and overcome challenges (Dweck, Walton, & Cohen, 2011).

There is a growing body of evidence spanning decades and fields of research that suggests that mindsets are malleable; that intervention programs can be effective at altering students' perceptions of their own success and failure, and fostering growth mindsets; and that when students are taught to have a growth mindset, they are more successful academically (Blackwell et al, 2007; Farrington et al, 2012; U.S. Department of Education Office of Educational Technology, 2013; Tough, 2012; Yeager & Dweck, 2012).

## **Locus of Control and Agency**

Locus of control relates to how people perceive the power they have over events affecting them (specifically, whether their control is internal, the result of an individual's behaviors and actions, or external, largely due to other forces). The concept was developed by psychologist Julian B. Rotter in the 1950s, and expanded in ensuing decades. Rotter saw that a person's locus of control is not an innate personality trait exclusively but instead interdependent upon experiences and environment – factors that also in turn reinforce the locus of control; past rewards and punishments, however perceived, shape future attitudes, expectations, and behaviors. Related to this concept is agency, or action taking. Albert Bandura, Rotter's contemporary and another widely influential psychologist of the latter 20<sup>th</sup> century, posited that a driver of one's actions is self-efficacy—a person's perceived abilities to learn, organize, and execute plans, and fulfill goals—and thereby exercise control over one's circumstances. Bandura saw in people's self-efficacy and sense of agency a similarly complex cycle of social and psychological influences working upon each other in either positive or negative ways. Bandura (2001) stresses how important agency has become in an increasingly socially, culturally, and technologically complex world.

Indeed, a sense of agency is part of the network of other non-cognitive skills impacting on students' academic success (Farrington et al 2012), and by building agency, students entering secondary level education in particular utilize effective strategies and cultivate positive attitudes that help them navigate common barriers to success in and outside the classroom (Raikes Foundation, 2012). Students who use problem solving skills to overcome obstacles and make responsible decisions about school and work do better academically (Zins & Elias, 2006 in Durlak et al, 2011). Conversely, students who lack self-

efficacy will often suffer decreased motivation and academic self-regulation, as well as devalue academic tasks (Cleary & Zimmerman, 2004).

## Goal Setting

For the past few decades, goal theory has been the focus of a number of influential researchers in the field of educational psychology, including Dweck, Pintrich, Schunk, Winne, and Zimmerman. While the topic is broad and complex, there is consensus that goal orientation drives outcomes. Especially when part of a process of self-regulated learning that both entails and encourages strategic thinking and metacognition, goal setting and monitoring have been linked to high levels of motivation and achievement (Farrington et al, 2012; Cleary & Zimmerman, 2004).

Embedding goal setting and ongoing monitoring of progress in meeting those goals as essential components in the learning process is an approach that educators can use to help students become more goal oriented, and better able to fulfill goals (Winne & Hadwin, 1998 in U.S. Department of Education Office of Educational Technology, 2013). Zimmerman (2002) advocates for—and sees great promise in modeling: “Each self-regulatory process or belief, such as goal setting, strategy use, and self-evaluation, can be learned from instruction and modeling by parents, teachers, coaches, and peers.” (p. 69)

## Grit

Psychologist Angela Duckworth, who in recent years has put “grit” on the public radar, defines it in her TED talk on the topic as “passion and perseverance for very long term goals...sticking with your future...and working really hard to make that future a reality.” Grit has been cited by researchers such as Dr. Duckworth and colleagues, policy makers, philanthropic foundations, educators, economists, and others concerned with the state of education and future prospects for the nation’s young people, as essential to success in school and beyond (Farrington et al, 2012). As mentioned earlier, in 2013 the U.S. Department of Education Office of Educational Technology issued a report titled “Promoting Grit, Tenacity, and Perseverance: Critical Factors for Success in the 21<sup>st</sup> Century” as part of an initiative to shift focus to the broader skills and attitudes on which achievement depends.

Duckworth and colleagues (2007, 2009) developed the Grit Scale, a brief self-reporting evaluation that the researchers found to be reliably predictive of success in endeavors as far ranging as the National Spelling Bee, high-level college GPAs at Penn, and intensive summer training at West Point—more reliably predictive, in fact, than a protracted military evaluation and IQ (Duckworth et al, 2010 and 2011; Tough, 2012).

And yet Duckworth— as proclaimed in the research statement on the Duckworth Lab website— and others have found that grit is a trait that, rather than being immutable within a person’s character, can be cultivated and increased through positive socio-cultural context as well as intervention initiatives (U.S. Department of Education Office of Educational Technology, 2013)

## Social Intelligence

It is universally accepted that social intelligence is essential for success in school and beyond. Some of the most influential thinkers in the field of education, such as Dewey (1938) and Vygotsky (1978), long ago established that learning is a social process and that students build understandings in significant

part from their interactions with others. In the 1990s, Howard Gardner identified a set of interpersonal skills as one of his game-changing “multiple intelligences” and Robert Slavin produced a body of evidence attesting to the benefits of cooperative learning for students of all ability levels. More recent research has shown that social skills are predictive of academic achievement, and that social-emotional competencies are vital for adults to enjoy positive and productive experiences in workplaces, communities, family and other relationships, and in general health and well-being (Durlak et al, 2011; Farrington et al., 2012; National Research Council, 2012; Simonsen et al, 2012; Jones & Bouffard, 2012).

Research also shows that social skills can be intentionally developed and generate positive results—with greater gains even more likely for at-risk students (Jones & Bouffard, 2012; Simonsen et al, 2012). In their widely cited 2011 meta-analysis of 213 social-emotional learning (SEL) intervention programs, Durlak et al found that social skills such as emotions recognition, stress management, empathy, problem solving, or decision making can be intentionally developed through effective programs. “Through systematic instruction, SEL skills may be taught, modeled, practiced and applied to diverse situations so that students can use them as part of their daily repertoire of behaviors.... Quality SEL instruction also provides students with opportunities to contribute to their class, school, community and experience the satisfaction, sense of belonging, and enhanced motivation that comes from such involvement.” (pp. 406-407)

## **Delayed Gratification and Self-Control**

Delayed gratification and self-control were perhaps most famously researched by Walter Mischel and colleagues (1983, 1989, 1990) in their “marshmallow studies” that found “the amount of time preschoolers could delay the impulse to eat a marshmallow placed in front of them was correlated not only with their SAT scores many years later, but also their emotional coping skills in adolescence” (in U.S. Department of Education Office of Educational Technology, 2013), and in a 2011 follow up, confirmed the stability of the resistance to temptation as a predictive measure of success – but additionally noted the importance of environmental cues, specifically social ones, in children’s enacted impulses versus delayed gratifications.

Along with grit, Angela Duckworth has found that self-control has a predictive power greater than talent on objectively measured success outcomes (Duckworth Lab Research Statement, 2011). Duckworth views the two traits as having critical time-scale distinctions: whereas grit enables people to pursue challenging goals over the long-term, self-control involves the conscious, voluntary regulation of behavioral, emotional, and attentional impulses—the deliberate delay of gratification—in the much shorter term (Duckworth, 2011; Duckworth, et al, 2007; MacCann, Duckworth, & Roberts, 2009). “A major reason for students falling short of their intellectual potential [is] their failure to exercise self-discipline.” (Duckworth and Seligman, 2005, p. 939)

Duckworth (2009) built upon Mischel’s work to show that children who could delay gratification in this way enjoyed a generally greater sense of well-being—they were happier, more relaxed, and handled stress more effectively; further longitudinal studies conducted by Duckworth and colleagues showed multiple correlations between self-control and positive social, emotional, and psychological conditions. Moffit et al (2011) found self-control as having implications for physical and psychological health—and a lack thereof correlating with substance dependence, personal finance, and criminal offenses. Diamond and Lee (2011) found that in young children, impulse control is central to the development of all executive functions.

# Connecting Research to Practice

In both approach and content, the *Mawi Learning/Florida Virtual School's Leadership Skills Development* course exemplifies the research principles discussed above.

## Instructional Approach

This online learning course utilizes a three-pronged process to teach students a range of non-cognitive skills.

1. *Engaging Content*: The course leverages the full power of technology using dozens of custom videos and interactives, dynamic assessments, and strong “hooks” to engage students and bring non-cognitive skills to life.
2. *Instructor Certification*: Instructors go through an upfront certification process that gives them fluency with the key non-cognitive skills taught in the course. Certification ensures that instructors impact students from day one.
3. *Focus on Application*: Throughout the course, students are relentlessly challenged to immediately apply the course principles in their lives, making learning highly personal and relevant.

When students are presented with engaging training, led by well-prepared instructors, and apply the course principles to their lives, students experience marked growth.

## Instructional Content

The course covers a wide range of non-cognitive skills. The six skills that form the backbone and predominant focus of the course are: Growth Mindset, Locus of Control, Grit, Goal-Setting, Social Intelligence, and Delayed Gratification. Here is how these six skills are presented:

**Growth Mindset:** From the start, students learn that success is not fixed for any of us. Success does not come from immutable factors such as one’s innate intelligence, life circumstances, or socioeconomic background. Instead, students learn that they have leadership power, or “power that comes from how one thinks and acts.” *Every student has this leadership power because every student can shape how they think and act.* Students get continuous Growth Mindset training throughout the course. They learn the following definitions for success and failure: Success is any time I take action to grow; Failure is any time I do nothing to grow.

**Locus of Control and Agency:** Locus of Control and Agency are taught through a metaphor called the “Turbo Button.” The Turbo Button represents the power that anyone has to take action to improve his/her own life or the life of others. Just as in a video game, where a Turbo Button gives extra power, students who hit their “Life Turbo Button” wield new power to succeed academically and in their own life. In every part of the course, students are challenged to hit their Turbo Button and apply what they are learning.

**Goal-Setting:** One entire module covers all aspects of goal-setting, including why goals matter in the first place. Students learn how to create MAD Goals™, or “Measurable, Attainable, and Deadline-Driven Goals.” Students also learn how to chart out their goals for every summer and semester of school, whether in high school or college, by creating a North Star.

**Grit:** Three lessons train students to overcome challenges and bounce back from failure by using their “Solution Power.” For example, students learn that everyone will face “Stuck-Points” in life and students



learn a variety of techniques to get to “Solution-Points.” The reflection students do to create their North Star goals also gives them a greater sense of *why* what they do matters. Having a strong “Why,” according to Duckworth, helps students persevere in the face of obstacles.

**Social Intelligence:** The course instructs students to use their “Social Power” to build strong relationships, attract mentors, and connect with people of diverse backgrounds. The second half of the course focuses entirely on social intelligence. Students learn how to use both verbal and non-verbal communication, how to resolve conflicts through open communication, and how to contribute to and lead teams.

**Delayed Gratification:** Students learn multiple ways to delay gratification. They learn that success requires “Activation Energy,” or energy that is built up over time from taking small actions, such as doing your homework, for years. Students also learn to differentiate between the Lasting Zone and the Instant Zone. The Lasting Zone consists of things that matter such as health and academic skill, and the Instant Zone of things that bring pleasure in the short-term, but have no lasting value. Students learn how to map out every week to maximize their time in the Lasting Zone and avoid short-term distractions that prevent long-term success.

## About Mawi Learning

Mawi Learning transforms the academic, career, and life opportunities of students through non-cognitive skill development. Over the last fifteen years, Mawi Learning has trained over 1,000,000 students at more than 1,000 schools. Learn more at [MawiLearning.com](http://MawiLearning.com).



## About Florida Virtual School

Florida Virtual School (FLVS) is an established leader in developing and providing virtual Kindergarten through Grade 12 education solutions to students nationwide. A **nationally recognized e-Learning model**, FLVS, founded in 1997, was the country's first state-wide Internet-based public high school. In 2000, the Florida Legislature established FLVS as an independent educational entity with a gubernatorial appointed board. FLVS is the only public school with funding tied directly to student performance. Access the school at [www.flvs.net](http://www.flvs.net).

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