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The Science and Practice of Self-Control

Angela L. Duckworth* and Martin E. P. Seligman

University of Pennsylvania

Abstract

In 2002, we discovered that self-control “outdoes” talent in predicting academic success during adolescence. Since then, a surfeit of longitudinal evidence has affirmed the importance of self-control to achieving everyday goals that conflict with momentary temptations. In parallel, research that has “lumped” self-control with other facets of Big Five Conscientiousness has shown the superior predictive power of this broad family of individual differences for diverse life outcomes. Self-control can also be “split” from related traits that in certain contexts demonstrate superior predictive power for achievement. Most important, both the “lumping” and “splitting” traditions have enhanced our understanding of the underlying mechanisms and antecedents of self-control. Collectively, progress over the past decade and a half suggests a bright future for the science and practice of self-control.

Other than intelligence, why do some students do better than others? And can these psychological determinants be changed? These are the questions that drew one of us (Duckworth) to leave the classroom, where for years she’d taught math to teenagers, to train with the other (Seligman) as a psychological scientist.

Both of us had watched equally intelligent students succeed or fail for reasons entirely separate from their innate facility for learning. We observed that the challenges of “studenting” (Corno & Mandinach, 2004) extend far beyond the intellectual. In particular, academic work was almost always pitted against less effortful, more entertaining alternatives. Thus, those with greater self-control seemed to get the most out of every learning opportunity.

To test the hypothesis that the capacity to regulate attention, emotion, and behavior in the presence of temptation predicts academic success better than general intelligence, we undertook a prospective, longitudinal study of local middle school students (Duckworth & Seligman, 2005). In the fall, we administered a standard IQ test and a multi-method battery of self-control, including questionnaires completed by students and their parents and homeroom teachers, as well as both hypothetical and behavioral delay of gratification tasks. Seven months later, at the conclusion of the school year, we collected official school records.

What did we learn? We were unsurprised to find that students with higher IQ scores in the fall went on to earn higher report card grades and standardized achievement test scores in the spring. But we also learned that self-control predicted all the same outcomes and more:

fewer absences, less procrastination, more time studying, and less time watching television. Finally, whereas self-control predicted rank-order gains in report card grades, IQ did not. In follow-up studies at the same school, we found that rank-order changes in self-control every six months predicted subsequent rank-order changes in report card grades—but not the reverse (Emanuele et al., 2010).

Longitudinal research on larger samples followed over longer periods and with a broader array of life outcomes has since affirmed the significance of self-control (Duckworth & Carlson, 2013; Duckworth, Tsukayama, & Kirby, 2013; Mischel, 2014). For instance, Moffitt et al. (2011) have demonstrated in a representative sample of over a thousand New Zealanders that self-control measured with observer, parent, teacher, and self-report ratings during the first decade of life predicts a startling array of adult life outcomes, including income, savings behavior, financial security, occupational prestige, physical and mental health, substance use, and (lack of) criminal convictions. In the same study, the predictive power of self-control was comparable to intelligence or family socioeconomic status.

Though important, self-control is not the only psychological determinant of success. There is now convincing evidence for a plurality of characteristics that are each distinguishable from intelligence, meaningfully predictive of life outcomes, measurable, and malleable by experience and intervention. These attributes are variously dubbed character strengths (Park, Tsukayama, Goodwin, Patrick, & Duckworth, 2016; Peterson & Seligman, 2004), character skills (Heckman & Kautz, 2013), social and emotional competencies (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011), executive functions (Diamond, 2013), personality or temperament traits (Duckworth & Carlson, 2013; Roberts & DelVecchio, 2000), and non-cognitive skills (Heckman, Stixrud, & Urzua, 2006; Messick, 1979).

The multiplicity of psychological processes relevant to thriving within and beyond the classroom has raised a methodological question: Is more progress made by lumping these characteristics together or by splitting them apart? We side with Fiske (2002): These approaches are deeply complementary.

Self-control, for example, can be “lumped” with responsibility, orderliness, and other highly correlated facets of the Big Five personality factor of conscientiousness (Roberts, Bogg, Walton, Chernyshenko, & Stark, 2004). Indeed, individual differences in self-control emerge early (Mischel, 2014), suggesting that the capacity to voluntarily suppress and elevate impulses may contribute to facets of Big Five conscientiousness that emerge later (Eisenberg, Duckworth, Spinrad, & Valiente, 2014).

Connecting the burgeoning literature on self-control to the equally fertile research on Big Five personality helps to synthesize resonant findings in each tradition. For instance, the relevance of self-control to everyday functioning is affirmed by research demonstrating that, of the Big Five factors, conscientiousness is most reliably associated with report card grades (Poropat, 2009), physical health (Friedman, Hampson, Duckworth, & Kern, 2014), longevity (Bogg & Roberts, 2013; Kern & Friedman, 2008); wealth (Duckworth, Weir, Tsukayama, & Kwok, 2012), and income (Duckworth et al., 2012).

“Splitting” self-control from related constructs is also enriching. For example, self-control can be distinguished from the related construct of grit, defined as passion and perseverance for long-term goals. Though highly correlated ($r > .6$ in Duckworth, Peterson, Matthews, and Kelly (2007)), self-control and grit are not identical. In our data, self-control has proven more prognostic of everyday measures of adaptive functioning, including report card grades and maintaining a healthy weight, whereas grit outpredicts self-control for especially challenging, identity-relevant goals like winning the National Spelling Bee or surviving “Beast Barracks,” the first summer of training at West Point (Duckworth & Gross, 2014).

Self-control enables us to navigate conflicts between any of our goals and innumerable “hourly temptations,” as Galton (1869/2006, pp. 40–41) put it. Grit, in contrast, is particularly relevant to enduring goals of superordinate personal significance (Sheldon, Jose, Kashdan, & Jarden, 2015). Some extremely disciplined individuals lack the single-minded, sustained commitment that is signature to grit, and some individuals who doggedly pursue a lifelong calling are not especially well-regulated in other domains of life. By necessity, a gritty person cannot be gritty about everything. Instead, a gritty person will be gritty about just one, or maybe two, things. To lack grit is to lack *any* enduring, identity-relevant goal of supreme importance or to give up easily on such a goal in the face of setbacks. As *New York Times* commentator David Brooks (2016) has put it, grit is “downstream from longing. People need a powerful why if they are going to be able to endure any how.”

Unlike grit, self-control is rated among the least prevalent of 24 character strengths by adults in 54 nations and by both children and adults (Park & Peterson, 2006; Park, Peterson, & Seligman, 2006). Why? One reason may be that though individuals vary in what, specifically, tempts them most, everyone can think of *something* that feels good right away but is soon regretted (Duckworth & Steinberg, 2015; Tsukayama, Duckworth, & Kim, 2012). We all have our demons. And doing battle with them can be exhausting (Kurzban, Duckworth, Kable, & Myers, 2013). It is no wonder that Freud (1920) considered delaying the gratification of ill-timed or inappropriate impulses (“to put up with a little displeasure”, p. 444) the central developmental challenge of childhood.

The special relevance of self-control to academic work was foretold by Binet and Simon (1916), James (1899), and Weschler (1943). More recently, experience sampling method (ESM) studies have confirmed that almost all students, when prompted to report their thoughts and feelings when in class or doing homework, say there’s nothing more important to their future, yet they wish they were doing something else (Galla, Rikoon, Haimm, & Duckworth, under review). In contrast, while playing sports, rehearsing for the school play, or otherwise engaged in extracurriculars, students say they’re both trying hard and intrinsically motivated (Larson, 2000). This shows that it’s not enough to split the psychological capacities that enable other aspects of flourishing—we also have to split academic “studenting” tasks from other aspects of a young person’s development.

In the decade since Duckworth and Seligman (2005), what has science discovered about the psychological determinants of success? In our view, lumping and splitting have enabled impressive progress in measuring and establishing the real-world importance of an increasingly comprehensive set of personal attributes—not just self-control and grit but

many others. Lumping has revealed patterns only discernible when taking a “bird’s eye view” of individual differences conceptualized at higher levels of abstraction. Splitting has made visible nuanced differences among these attributes, including boundary conditions for their relevance. Together, these complementary approaches have advanced our understanding of the underlying processes and genetic and environmental antecedents of psychological success factors.

In turn, this understanding has opened the door to “psychologically wise” interventions (Walton, 2014). For instance, rather than exhorting students to “just use some self-control, please!”, we can now teach them goal setting and planning strategies (Duckworth, Kirby, Gollwitzer, & Oettingen, 2013; Patterson & Mischel, 1975), situational strategies that make physical temptations less obvious (Duckworth, Gendler, & Gross, 2016), and cognitive strategies that make negative emotions less overwhelming (Kross, Duckworth, Ayduk, Tsukayama, & Mischel, 2011; Mischel et al., 2011). Over time, effortful application of these skills may give way to effortless, automatic habits (Galla & Duckworth, 2015; Wood & Rünger, 2016).

What does the future hold? We hope that psychologists will work more intimately with scientists from other fields, including sociology and economics, with practitioners, including teachers and athletic coaches, and with students themselves. Such an interdisciplinary approach could lead to unprecedented understanding—and enabling—of human potential.

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