

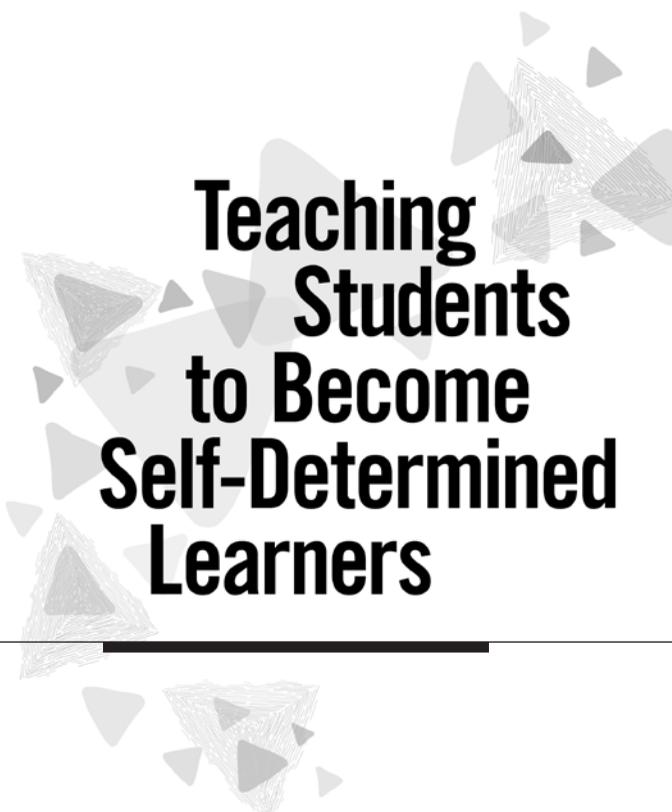
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# Teaching Students to Become Self-Determined Learners



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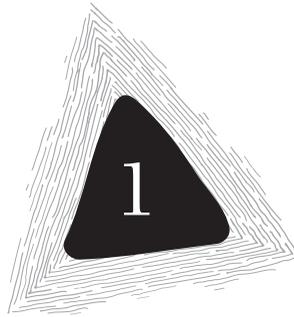




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Chapter 1: The Missing Actor in Education . . . . .	1
Chapter 2: Why Student Ownership and Self-Determined Learning . . . . .	16
Chapter 3: Promoting Student Ownership and Self-Determined Learning . . . . .	30
Chapter 4: Enabling Conditions for Student Ownership and Self-Determined Learning . . . . .	52
Chapter 5: Teaching Strategies for Student Ownership and Self-Determined Learning . . . . .	69
Chapter 6: Assessment and Technology for Student Ownership and Self-Determined Learning . . . . .	97
Chapter 7: Self-Determined Education for All . . . . .	112
Bibliography . . . . .	127
Index . . . . .	135
About the Authors . . . . .	141



# The Missing Actor in Education

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“[P]erhaps children don’t need another reform imposed on them. Instead, they need to be the authors of their own education,” writes Williams College psychology professor Susan Engel in an op-ed piece published in *The New York Times* (Engel, 2011). Engel, a prolific writer on child development and education, reached this conclusion after following the unusual learning journeys of eight high school students at Monument Mountain Regional High School in western Massachusetts. These students designed and ran their own school within a public high school for an entire semester. During the semester, the students followed their own curriculum, without taking other classes. They sought advice from English, math, and science teachers, but they were primarily responsible for their own learning, monitoring each other’s work, and providing feedback to one another. There were no grades, although the students wrote evaluations of each other. They called their program the Independent Project.

The Independent Project was initiated in 2010 by Sam Levin, then a student at Monument, at the encouragement of his mother. “Why don’t you just make your own school?” she had responded when Levin complained to her about how unhappy he and his classmates were about their high school experiences, recounts *Time* magazine writer Alexandria Sifferlin (Sifferlin, 2013).

So he did.

When he was in the ninth grade, Sam started with a schoolwide garden tended solely by students. The students showed so much commitment to the garden that some got up early on Saturdays to work with the

plants. The level of commitment he found in his classmates to nurture something they had created themselves convinced Levin that the students were capable of more—perhaps even managing their own schooling. “I saw the really amazing and powerful things that happened when high school students stepped it up and were excited about something,” Levin said of his experience with the garden project (Sifferlin, 2013).

Levin talked with his school guidance counselor, Mike Powell, about his idea to create a school that would be run by students. Powell extended his support and worked with Levin to get the endorsement of the school principal and superintendent. Amid some pushback from faculty and parents, the school’s Curriculum Steering Committee and the board approved the proposed program, and the experiment began in 2010.

The Independent Project proved to be a huge success, at least in terms of the experience of the students who were involved. “The results of their experiment have been transformative,” observes Susan Engel. Students who were on the verge of dropping out of school became obsessed with learning. Students who struggled in the conventional classroom flourished in their own school. The project worked well for all kinds of students. “[S]tudents, regardless of their previous grades, all produced impressive, substantial, and authentic work,” writes Milton Chen, founding executive director of the George Lucas Education Foundation. “They also learned valuable skills of time management and helping classmates with constructive criticism” (Chen, 2014).

The Independent Project was even more successful as an education experiment in terms of impact and influence. By all accounts, it was a small endeavor: eight students being allowed to manage their own learning for one semester out of their 12 years, or 24 semesters, in their school careers. The idea was fairly simple and straightforward: let the students own their learning.

The project has caught the attention of many. Stories of the project have appeared in major media outlets such as *The New York Times*, *The Washington Post*, and *Time*, as well as influential education media such as eduTopia, KQED Mind Shift, and the website Public School Review. The project was featured in the popular education documentary film *Beyond Measure: The Revolution Starts Now* (Abeles, 2015). A short video about the project went viral on YouTube, with more than 200,000 views since it was posted in 2013. The project was the central topic of a book coauthored by Sam Levin and Susan Engel published in 2016: *A School of Our Own: The Story of the First Student-Run High School and a New Vision for American Education* (Levin & Engel, 2016). The project has also inspired many parents, educators, and students to start their own Independent Project. The

school and Levin have received countless e-mails and visits from people interested in emulating the project.

The success of The Independent Project is the result of growing dissatisfaction with conventional education. It seems to be an answer to the many widely recognized problems of education as it is practiced in most of our schools. It is also an indictment of the numerous failed efforts initiated by governments to improve education. It points out a new direction for educational change.

## **Dissatisfactions with Conventional Education**

There is widespread dissatisfaction with current education practices among students, parents, and the public in almost every country of the world. No one seems to be happy with the education provided by schools today. This dissatisfaction is rooted in a number of widely recognized and documented problems. Chief among them are the persistent education achievement and attainment gap among students of different backgrounds, the widespread disengagement of all students with schooling, and the unpreparedness of children for a world being rapidly shaped by technological advances.

### **Left Behind: The Achievement Gap**

It is no secret that current education does not serve all children equally well. Vast inequalities exist in education today, as demonstrated by the persistent chasm in academic achievement among different groups of children. Children's family backgrounds play a significant role in their educational achievement. In other words, the social economic conditions into which children are born to a large extent determine their educational outcomes.

In the United States, for instance, children of color and from low-income families have, on average, performed worse than Caucasian children and children from high-income families on virtually all indicators of academic success: standardized test scores, high school graduation rates, and college matriculation rates (Bailey & Dynaski, 2011; Darling-Hammond, 2010; Duncan & Murnane, 2011; Ford & Grantham, 2003; Fryer & Levitt, 2004; Hansen, Levesque, Quintero, & Valant, 2018; Plucker, Hardesty, & Burroughs, 2013; Reardon, 2011). Children's academic performance also varies along geographical lines, with children in certain geographical regions doing better than their counterparts in other regions. Similar gaps exist in other educational systems around the world (Byun & Kim, 2010; OECD, 2016; Zhang & Zhao, 2014).

Additionally, the natural conditions children are born with also play a significant role in determining their education outcomes. Children are born with different intellectual capacities, personalities, and desires (Gardner, 1983; John, Robins, & Pervin, 2008; Reiss, 2000; Sternberg, 1988; Zhao, 2018a, 2018b). These natural-born differences lead to different fates in schools and, in turn, outcomes, because certain attributes are favored and others discouraged in the current education system. The favored attributes contribute to educational success and those children with such attributes do well in schools and enjoy better educational outcomes. Children with less-favored attributes do not fit in the current education system and are deemed failures (Clark, 2016; Zhao, 2012, 2018b). The result is the vast academic achievement gap among children—some become straight-A students with excellent test scores to go on to prestigious colleges, and some cannot even achieve the grades or scores to graduate from high school; some move quickly ahead of others and are placed in gifted and talented programs, while some struggle to even keep pace and are identified to receive special or remedial education.

The first kind of achievement gap, the one associated with children's social economic status and race or ethnicity, has received much attention. It has been accepted as a result of social injustice and economic inequality. It also has been recognized as a matter of grave social and economic consequences if left unaddressed. As a result, closing this achievement gap has been on the mind of many governments in recent decades. In fact, the majority of recent reform efforts launched by governments around the world have targeted the achievement gap linked to poverty and race/ethnicity.

The latter gap, the one associated with differences in talents, interests, and personality, has been largely ignored. Worse, it has been accepted as normal and an expected outcome of education. In other words, the gap is intentional because education, as a sorting mechanism, is intended to differentiate individuals and select them for different opportunities and places in a meritocracy (Zhao, 2016b, 2018b). Consequently, apart (perhaps) from students receiving special education services, children who are not served well by conventional education are simply considered poor students. The problem, in other words, is seen as the child and not the education system itself. To far too many parents and students, this gap is a source of dissatisfaction and misery (Clark, 2016). There is increasing recognition that these students are victims of current education practices, and there is growing interest in changing pedagogical practices to meet the needs of diverse learners, resulting in the recent growth of differentiated education, personalized learning, and individualized learning.

## **The Miserable: Disengagement and Emotional Cost**

Another source of dissatisfaction is student disengagement. A large proportion of students are not actively engaged with learning in schools. In the United States, the 2017 Gallup poll of student engagement found that less than half of students are engaged, while nearly a quarter of students are actively disengaged and another 29 percent are moderately disengaged (Gallup, 2017). The numbers are about the same as in the previous year. The same survey found that only 20 percent of students said that they did not miss school at all in the previous year without a good reason or because they were sick, while nearly 30 percent said they missed school a lot or some. In Australia, a study found that about 40 percent of students are unproductive in a given year (Goss & Sonnemann, 2017).

Another sign of disengagement is dropping out of school. Many students choose to leave school before completion. In the United States, for example, more than one million students drop out of school each year without earning a diploma (Washor & Mojkowski, 2014). About six percent of American high school students dropped out in 2016.

In addition to disengagement, many experience negative emotions about school. According to 2015 results of the largest international education survey, Programme for International Student Assessment (PISA), more than half the world's 15-year-olds reported feeling very anxious about taking tests and a slightly lower percentage of students reported that they get tense about studying. The same study found that more than a quarter of students do not have a sense of belonging at school (OECD, 2017).

Students are also extremely bored in school. They are “bored out of their minds” (Jason, 2017). A Gallup poll conducted in 2004 asked teens to select the top three words to describe their feelings in school; half of them chose “bored” and 42 percent chose “tired.” Only two percent reported having never been bored in school.

The issues of student disengagement, dropout, anxiety, boredom, and general social, psychological, and emotional well-being have been frequently reported and discussed. They have grave consequences for the students themselves as they go through school, and as adults when they leave school. Consequently, they have serious economic and social consequences for society. Thus, not surprisingly, educators, parents, and policymakers have been frustrated with the failure of educational institutions to engage children in productive activities, provide more engaging experiences, and offer an environment that promotes social, psychological, and emotional well-being in all students (Feldman, Smith, & Waxman, 2017; Gleason, 2017; Washor & Mojkowski, 2014).

## **The Unprepared: The Talent Mismatch**

Another major source of dissatisfaction with education today is its failure to prepare children for a world that has been and will continue to be transformed. It is widely recognized that today's schools are not adequately equipping children with the skills and qualities needed in the future, resulting in a talent mismatch. In other words, what the skills and knowledge schools expect children to master are not what the future world needs, and what the future world needs is not being taught in schools.

Education is always in a race with technology (Goldin & Katz, 2008). Gradual technological advances accumulate into a revolution and transform civilization. Such transformation often leads societies to reconsider the value of previously prescribed skills and knowledge. Different societies value different skills and knowledge. What is useful and desirable in one society may not be equally useful or desirable in another. Likewise, what is useful and desirable in the past may become obsolete in the future. Thus, throughout history, societies have engaged in exercises to define and redefine human qualities worth cultivating in schools, especially during times of significant change (Broudy, 1982; Goldin & Katz, 2008)

We are in the midst of major societal change. Starting in the 1970s, waves of technological advancement have led to massive societal transformations that ushered in the Third and Fourth Industrial Revolutions (Schwab, 2015) or the Second Machine Age (Brynjolfsson & McAfee, 2014). Unlike the first rounds of industrialization, the Fourth Industrial Revolution features “smart” machines or artificial intelligence (AI) and AI-based automation, as well as global networks of things (Executive Office of the President, 2016; Schwab, 2015). These “smart” machines have already brought about disruptive changes and will continue to do so in the future.

Some of the knowledge and skills cultivated by traditional education have been increasingly rendered less valuable or even obsolete by smart machines (Pink, 2006; Wagner, 2008, 2012; Zhao, 2012). The goal of technological development is to enhance and extend human abilities, to make human beings more effective and more efficient, help human beings perform tasks that would otherwise be impossible, and free people from mundane, harmful, or dangerous tasks. Over the past two centuries, technology has significantly increased human productivity, extended human capabilities, and freed more humans from mundane and dangerous tasks. A collateral effect is the disappearance of traditional production-line jobs and displacement of some human workers. This occurs because machines

have been increasingly equipped with the same knowledge, skills, and other human qualities to perform tasks previously performed by human beings. In fact, machines are much superior to human beings for some tasks, and very often machines cost much less, are consistently obedient, and can work longer hours without complaint than human beings. Machines have gradually taken the jobs schools have traditionally prepared human beings to perform, rendering the prescribed qualities that have been valued less useful and desirable.

Rote memorization, information processing, and repetitive procedure knowledge are among the first to be rendered less useful by recent information and communication technologies. For example, the best *Jeopardy!* and chess players in the world are computers, demonstrating the superiority of machines' capacity for information storage and processing. Traditionally valued low-level cognitive skills are easily replaceable by machines, as are traditionally valued and machinelike qualities such as following instructions and obeying orders without questioning (Brynjolfsson & McAfee, 2014; Common Core State Standards Initiative, 2011; European Communities, 2006; Frankiewicz, 2019; Partnership for 21st Century Skills, 2007; World Economic Forum, 2016). At the same time, the Second Machine Age (Brynjolfsson & McAfee, 2014) has created opportunities for traditionally undervalued talents to become valuable. For example, when jobs that require rote memorization disappear, the number of jobs requiring higher-order thinking such as creativity increases. As a result, as the manufacturing class declines, the creativity class rises (Florida, 2012). When jobs that favor so-called "left-brain" skills such as linear and logical thinking are automated, the "right-brained"-based talents become more useful and desirable (Pink, 2006).

More importantly, increased productivity brings about more leisure time and disposable income, which allows human beings to expand their consumption beyond physical necessities (Zhao, 2012). Whereas underdeveloped countries must focus on basic survival (e.g., food, clean water, shelter, basic medicine), humans in technologically developed economies are able to invest in the psychological, aesthetic, intellectual, and social needs of its populace. Thus, in developed economies, education, entertainment, health care, travel, fashion, beauty, and other industries that serve psychological, intellectual, aesthetic, and social needs have become as large as, if not larger than, industries that meet the basic needs for physical survival such as food and housing.

These new industries provide unlimited potential for traditionally undervalued talents to become useful and desirable. For example, interpersonal and intrapersonal talents became very valuable as the counseling

industry expanded; all sorts of therapy, personal coaching, and interpersonal communication skills became highly valuable. Artistic talents have become more valuable as more people consume arts in various forms, including visual arts, video games, aesthetically appealing devices and furniture, artisan food, and films. Similarly, the ever-expanding television and video industry has created opportunities for individuals talented in storytelling, acting, and being funny. In other words, some traditionally useless talents have become useful (Zhao, 2018c).

Under the big umbrella of 21st century skills (Partnership for 21st Century Skills, 2007; Trilling & Fadel, 2009) are a host of skills and characteristics necessary for the 21st century, but they have not been considered important before: communication, critical thinking, creativity, and collaboration (Common Core State Standards Initiative, 2011; European Communities, 2006; Trilling & Fadel, 2009). Besides 21st century skills, there are numerous other skills, abilities, and characteristics proposed to be valuable in the new age but have not been valued in traditional education: dispositions (Costa & Kallick, 2013), creativity and innovation (Florida, 2012; Wagner, 2008, 2012), right-brained skills (Pink, 2006), entrepreneurial skills and mindset (World Economic Forum, 2009, 2011; Zhao, 2012), personal qualities (Duckworth & Yeager, 2015), global competencies (Reimers, 2009; Zhao, 2009a, 2009b), mindset (Dweck, 2008; Gardner, 2007), and noncognitive or soft skills (Brunello & Schlotter, 2010; Levin, 2012; World Economic Forum, 2016).

Schools, by and large, have not responded to the changes. The majority of schools in the world have continued to insist on teaching the obsolete skills, while ignoring the ones that have become essential in the new world. The result is the inevitable talent mismatch, which has already negatively affected the world economy and the lives of millions of people who fail to find meaningful work (Zhao, 2015b). The Hays Global Skills Index 2015, developed by the global recruiting firm Hays in partnership with Oxford Economics, points out:

Yet, as [labor market] participation rates fell and long-term unemployment increased, businesses have still found it difficult to fill job vacancies. This apparent contradiction—unfilled jobs and high unemployment—is a clear indicator of a mismatch between the skills employers are looking for and the skills possessed by job seekers (Hays, 2015, p. 11).

The situation of talent mismatch will continue and worsen if education remains the same. Without transformative changes, our children will be woefully unprepared to succeed in the Second Machine Age. They

will not be able to enjoy the prosperity promised by the technological advances leading to the Fourth Industrial Revolution.

## **Failed Reforms**

To be fair, there has not been a lack of efforts to address these dissatisfactions. Apart from the bottom-up efforts of educators, education researchers, and businesses to introduce small-scale changes, governments around the world have launched massive top-down reforms to improve education (Schleicher, 2018; Zhao, 2015a; Zhao & Gearin, 2018). Because governments are the most influential actors in education, as they control policies and investment, reform efforts launched by governments have been the primary force shaping the directions of change in education.

Broadly speaking, education reforms launched by governments in the world in recent years have followed two different trajectories. One is to introduce more standardization, centralization, and test-driven accountability into schools, and the other is to allow more local control, reduced testing, and decreased academic burden. Representative of the first direction is the United States, Australia, and England. These education systems have made serious attempts to develop nationally centralized curriculum standards, impose national standardized tests to hold schools and teachers accountable, increase competition among schools and students, and favor direct instruction (Zhao, 2012). The No Child Left Behind Act (No Child Left Behind Act of 2001, 2002) and the Common Core State Standards Initiative (Common Core State Standards Initiative, 2011) in the United States epitomize this direction.

Reform efforts in East Asian education systems such as China, Singapore, Hong Kong, and South Korea exemplify the latter direction. These systems have been working hard to relax central control of the curriculum, broaden the curriculum beyond core subjects, limit the importance and frequency of standardized testing, and grant more local autonomy. Additionally, these systems have also introduced measures to reduce academic burden, shorten school days, curb tutoring outside school, reduce competition among schools and students, and introduce more child-friendly pedagogies (Zhao, 2014, 2015a).

The two directions are in opposition to each other, but they are both rooted in past experiences (Zhao, 2009a, 2018d). The standardization, centralization, and testing direction has been the traditional practices in East Asia, while the more local autonomy, broader curriculum, and less testing direction has been a feature of Western education. From this perspective, the global education reforms are, in essence, a trade of past

strategies and tactics. The reason for this mutual borrowing lies in the different perceptions of problems each education system faces. The most acute education problem perceived by Western education systems is low academic performance and the wide achievement gap, measured by test scores, especially compared to East Asian education systems. This perception is partially a result of international assessment programs such as PISA and Trends in International Mathematics and Science Study (TIMSS), which have consistently placed East Asian students far ahead of students in the United States, England, and Australia. Traditional practices of East Asian education are thus believed to lead to better academic outcomes and smaller achievement gaps and are worth emulating (Tucker, 2011).

East Asian education systems have been troubled by their students' high anxiety, lack of creativity, low confidence, and poor social, psychological, physical, and emotional health. They believe that education in the West, in particular the United States, holds the solution. Thus they have been drawing inspirations from traditional practices in the West in their attempt to improve education (Zhao, 2009a, 2018d).

The results of the reforms have generally been disappointing. They have done little to make education better. The problems that caused the widespread dissatisfaction remain. The reforms have not improved the standing of students in the United States, Australia, and England in international assessment programs, nor have they narrowed the achievement gaps among different groups of children (Zhao, 2018b). The reforms have not led to more engagement, more positive social and psychological experiences, or more confident and happy students in Asian schools (OECD, 2017; Zhao, 2018e).

There have also been serious efforts to better prepare children for the changed and changing world. Many governments have introduced 21st century skills or other new capabilities, such as global competency and entrepreneurial thinking, into their curricula (Australian Curriculum Assessment and Reporting Authority, 2010; The European Parliament & The Council of the European Union, 2006; Zhao, 2015a). But the majority of schools offer the same education experiences for all children. As a result, as Tony Wagner, a well-known thought leader in education, points out in his book: there is a global achievement gap, the gap between what schools teach and what the world needs, because even our best schools do not teach the new survival skills (Wagner, 2008).

## **Wrong Fixes**

The failure of these reforms to improve education is not surprising, but the reason is not that these efforts did not have an impact on schools due to the usual reasons of resistance and inertia (Tyack & Cuban, 1995; Tyack & Tobin, 1994). On the contrary, these reforms have significantly affected curriculum, school staff, and school culture, as exemplified by the sweeping changes brought about by the No Child Left Behind Act to American schools (Zhao, 2018e).

No, they failed because they did not address the root cause of the problems: the traditional education paradigm (Zhao, 2012, 2018a, 2018b). In other words, these reform measures were designed to strengthen the very apparatus that is the cause of the problems. Thus, instead of solving the problems, the reforms exacerbated them.

## **Prescribed Skills and Knowledge**

The traditional paradigm of education starts with the assumption that all children need the same set of skills and knowledge to succeed in adult life, and all children are capable of and interested in acquiring the same skills and knowledge. Thus, we have curriculum standards and grade-level expectations to codify what and when children need to learn and tests to verify that they have learned the prescribed skills and knowledge.

## **Teacher- and Adult-Directed Learning**

Conventional education further assumes that children must be explicitly taught and managed by adults. Thus, we have them organized into classes monitored by adults and structure their time carefully into manageable segments.

## **Uniform Instructional Methods**

Furthermore, the traditional paradigm of education assumes that all children learn the same way and progress at a similar pace. Thus, we have uniform instructional methods and arrange children into grades based on their biological age.

## **Grades and Exams**

Finally, the traditional paradigm operates as a mechanism to sort students into different positions and award different opportunities and resources based on the extent to which they have mastered the prescribed skills and knowledge. Thus, we have grades and exams.

Some elements of the prevailing educational paradigm may have been more or less valid in the Industrial Age (Zhao, 2012, 2016b, 2018c), but no longer. Nonetheless, this paradigm is the very cause of the problems leading to the widespread dissatisfaction with education today. First, not everyone needs the same set of skills and knowledge to succeed in adult life, except for a small set of basics. In today's world, what makes one successful is a combination of personal qualities and skills unique to each individual (Zhao, 2018b, 2018c). However, this outdated assumption directly leads to the so-called achievement gaps because not every child has the same resources, environments, capacities, and interests that help them acquire the same skills and knowledge at the same pace.

Second, when children are forced to learn things they are not interested in or find irrelevant, they become bored and disengaged. When they are constantly being judged as a failure, they become frustrated and disengaged. When they are pitched against each other to compete for higher scores on the same tests, they become anxious and experience unhealthy social relationships. When they are deprived of ownership and autonomy, they become less motivated and engaged. The Gallup survey of student engagement shows a gradual decline in engagement as grades go up, with students in primary grades most engaged (Gallup, 2017), suggesting that as students spend more time with the one-size-fits-all paradigm of education and they become more autonomous, they become less engaged.

Third, controlling what, when, how, and where children learn limits the opportunity for students to develop their capabilities needed for success in today's world. As Susan Engel points out:

... our current educational approach doesn't just fail to prepare teenagers for graduation or for college academics; it fails to prepare them, in a profound way, for adult life.

We want young people to become independent and capable, yet we structure their days to the minute and give them few opportunities to do anything but answer multiple-choice questions, follow instructions, and memorize information. We cast social interaction as an impediment to learning, yet all evidence points to the huge role it plays in their psychological development (Engel, 2011).

## Time for Something Different

"The definition of insanity is doing something over and over again and expecting a different result." Although Albert Einstein probably did not come up with this witty and insightful quote that has often been (mis)

attributed to him (Becker, 2012), the message remains powerful. We cannot repeatedly do the same thing to improve education and expect a different result. It is time to try something totally different.

That's what the Independent Project did. The Independent Project represents a complete departure from the traditional paradigm. It rejected the idea that all children should learn the same skills and knowledge codified in curriculum standards. Instead of forcing students to follow a curriculum, the Independent Project enabled them to design and develop their own curriculum. The project dismissed the belief that students must be explicitly taught by adults. Although they consulted with teachers, students managed and organized the learning on their own. The project also abandoned the idea that all children make similar progress and need to be grouped by biological age. Students in the Independent Project were from different grade levels and ages and they worked with each other very well. Furthermore, the Independent Project did not give exams or grades. Instead, the students provided evaluations of each other.

The Independent Project exemplifies a new paradigm of education. This paradigm does not presuppose or predefine what knowledge or skills children should and must learn. In this paradigm, the "curriculum" is one that follows the child. It begins with the children: what they are interested in, what excites them, what they are capable of, and how they learn. This paradigm does not assume all children are the same; therefore, it does not impose artificial standards or age-based, grade-level expectations. It helps children move forward from where they are. Furthermore, it does not believe children are simply empty vessels ready to be filled with knowledge, but rather it assumes that each child is a purposeful agent who interacts with the outside world.

The difference between conventional education or the old paradigm and the new one is best summarized by the American educator and philosopher John Dewey in his book *Experience and Education*:

To imposition from above is opposed expression and cultivation of individuality; to external discipline is opposed free activity; to learning from texts and teachers, learning through experience; to acquisition of isolated skills and techniques by drill, is opposed acquisition of them as means of attaining ends, which make direct vital appeal; to preparation for a more-or-less remote future is opposed making the most of the opportunities of present life; to static aims and materials is opposed acquaintance with a changing world (Dewey, 1938, pp. 5–6).

The new paradigm is not really new. Even before John Dewey, great education thinkers, such as Swiss education reformer Johann Heinrich

Pestalozzi and Genevan philosopher Jean-Jacques Rousseau, articulated similar ideas underlying the paradigm. These ideas have also been put into practice in democratic schools for a long time. For example, schools like Summerhill (Neil, 1960; Stanford, 2008), Sudbury Valley School (Greenberg, Sadofsky, & Lempka, 2005), and Jefferson County Open School (Posner, 2009) have followed these ideas for decades.

But these ideas have never entered mainstream public education. Their practice has often been confined to a very small number of schools, mostly private and small scale. And these schools are generally seen as too radical for the masses. As a result, policymakers have been unwilling to consider these ideas for an entire education system and few traditional schools have been willing to embrace these beliefs and replace the traditional paradigm with the new one. It seems that we have arrived at a time when these ideas are needed for every child.

The key to realizing the new paradigm of education is student ownership. In the Independent Project, students owned their education. As owners, they took control of what they wanted to learn and how they wanted to learn. They also owned their education environment. They made decisions about whom they wanted to work with. They also made decisions about how to organize and manage their learning as a community. Having ownership is perhaps the most important factor that led to the success of the Independent Project, as pointed out by Susan Engel in her *New York Times* piece:

The students in the Independent Project are remarkable but not because they are exceptionally motivated or unusually talented. They are remarkable because they demonstrate the kinds of learning and personal growth that are possible when teenagers feel ownership of their high school experience, when they learn things that matter to them, and when they learn together. In such a setting, school capitalizes on rather than thwarts the intensity and engagement that teenagers usually reserve for sports, protest, or friendship.

Accepting that students are the owners of their education is to recognize and respect students' inalienable right to self-determination. Students, however young they may be, are human beings. And human beings have the right to self-determination, including self-determination over their own education. It is unfortunate that this inalienable right has been taken away from children, ironically in the name of giving them an education. For the sake of a better education for all children and a better world for everyone, we need to return this right to our children.

The Independent Project shows one way to return the right to self-determination over education to children. In this book, we combine our years of experience in teaching entrepreneurship and creativity and in individualizing instruction to promote self-determined learning to lay out a path that leads to a new direction and that places the missing actor in education—the student—back into the educational picture.

# Bibliography

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- Abeles, V. (Writer). (2015). *Beyond measure: The revolution starts now*. In V. Abeles (Producer).
- Alperovitz, G. (2005). *America beyond capitalism: Reclaiming our wealth, our liberty, and our democracy*. Hoboken, NJ: John Wiley & Sons.
- Angyal, A. (1941). *Foundations for a science of personality*. Cambridge, MA: Harvard University Press.
- Apple, M. W., & Beane, J. A. (1995). *Democratic schools*. Alexandria, VA: ASCD.
- Australian Curriculum Assessment and Reporting Authority. (2010). *A curriculum for all young Australians*. Retrieved from [http://www.acara.edu.au/verve/\\_resources/Information\\_Sheet\\_A\\_curriculum\\_for\\_all\\_young\\_Australians.pdf](http://www.acara.edu.au/verve/_resources/Information_Sheet_A_curriculum_for_all_young_Australians.pdf)
- Bailey, M. J., & Dynaski, S. M. (2011). Inequality in postsecondary education. In G. J. Duncan & R. J. Murnane (Eds.), *Whither opportunity? Rising inequality, schools, and children's life chances* (pp. 117–132). New York/Chicago: Russell Sage Foundation/Spencer Foundation.
- Becker, M. (2012). Einstein on misattribution: "I probably didn't say that." Retrieved from <http://www.news.hypercrit.net/2012/11/13/einstein-on-misattribution-i-probably-didnt-say-that/>
- Beghetto, R. (2018). *What if? Building students' problem-solving skills through complex challenges*. Alexandria, VA: ASCD.
- Benjamin, C. (1996). *Problem solving in school*. Upper Saddle River, NJ: Globe Fearon Educational Publisher.
- Beyth-Marom, R., Fischhoff, B., Jacobs Quadrel, M., & Furby, L. (1991). Teaching decision making to adolescents: A critical review. In J. Baron & R.V. Brown (Eds.), *Teaching decision making to adolescents*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Birnbaum, R. (2004). The end of shared governance: Looking ahead or looking back. *New directions for higher education*, 2004(127), 5–22.
- Blasi, J. R., Freeman, R. B., & Kruse, D. (2014). *The citizen's share: Reducing inequality in the 21st century* (Paperback ed.). New Haven, CT: Yale University Press.
- Bonk, C. J., Lee, M. M., Reeves, T. C., & Reynolds, T. H. (Eds.). (2015). *MOOCs and open education around the world*. New York: Routledge.
- Botti, S., & McGill, A. L. (2006). When choosing is not deciding: The effect of perceived responsibility on satisfaction. *Journal of Consumer Research*, 33(2), 211–219.
- Broudy, H. S. (1982). What knowledge is of most worth? *Educational Leadership*, May, 574–578.
- Brunello, G., & Schlotter, M. (2010). *The effect of noncognitive skills and personality traits on labour market outcomes*. Retrieved from [http://www.epis.pt/downloads/dest\\_15\\_10\\_2010.pdf](http://www.epis.pt/downloads/dest_15_10_2010.pdf)
- Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies* (1st ed.). New York: W. W. Norton & Company.
- Bundick, M. J. (2011). Extracurricular activities, positive youth development, and the role of meaningfulness of engagement. *The Journal of Positive Psychology*, 6(1), 57–74.
- Byrnes, J. P. (2002). *The nature and development of decision making: A self-regulation model*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Byun, S.-Y., & Kim, K.-K. (2010). Educational inequality in South Korea: The widening socioeconomic gap in student achievement. *Research in Sociology of Education*, 17, 155–182.
- Cadwalladr, C. (2015, August 02). The "granny cloud": The network of volunteers helping poorer children learn. *The Guardian*. Retrieved from <https://www.theguardian.com/education/2015/aug/02/sugata-mitra-school-in-the-cloud>
- CAST. (2018). *Universal design for learning guidelines version 2.2* [graphic organizer]. Wakefield, MA: Author. Retrieved from <http://udlguidelines.cast.org/more/about-graphic-organizer>

- Chamberlin, R. (2016). *Free children and democratic schools: A philosophical study of liberty and education*. New York: Routledge.
- Chen, M. (2014, June 17). *Student Power!* Retrieved from <https://www.edutopia.org/blog/student-power-milton-chen>
- Clark, L. (2016). *Beautiful failures: How the quest for success is harming our kids*. Sydney, Australia: Penguin Random House Australia.
- Colorado Education Initiative. (n.d.). *Grade 9–12 decision making*. Retrieved from <http://www.coloradoedinitiative.org/wp-content/uploads/2014/10/Grade-HS-Decision-Making.pdf>
- Common Core State Standards Initiative. (2011). Common Core State Standards Initiative. Retrieved from <http://http://www.corestandards.org/>
- Costa, A. L. L., & Kallick, B. (2013). *Dispositions: Reframing teaching and learning*. Thousand Oaks, CA: Corwin.
- Csikszentmihalyi, M. (1991). *Flow: The psychology of optimal experience*. New York: HarperCollins.
- Cuban, L. (1986). *Teachers and machines: The classroom uses of technology since 1920*. New York: Teachers College Press.
- Cuban, L. (1993). Computers meet classroom: Classroom wins. *Teachers College Record*, 95(2), 185–210.
- Cuban, L. (2001). *Oversold and underused: Computers in schools 1980–2000*. Cambridge, MA: Harvard University Press.
- Cuban, L. (2004). The open classroom. *Education Next*, 4(2). Retrieved from <https://www.educationnext.org/theopenclassroom/>
- Damon, W. (2008). *The path to purpose: How young people find their calling in life*. New York: Free Press.
- Darling-Hammond, L. (2010). *The flat world and education: How America's commitment to equity will determine our future*. New York: Teachers College Press.
- Deci, E. L., Hodges, R., Pierson, L., & Tomassone, J. (1992). Autonomy and competence as motivational factors in students with learning disabilities and emotional handicaps. *Journal of Learning Disabilities*, 25(7), 457–471.
- Deci, E. L., & Ryan, R. M. (2012). Motivation, personality, and development within embedded social contexts: An overview of self-determination theory. In R. M. Ryan (Ed.), *The Oxford handbook of human motivation* (pp. 85–110). Oxford: Oxford University Press.
- Deci, E. L., & Ryan, R. M. (2016). Optimizing students' motivation in the era of testing and pressures: A self-determination theory perspective. In W. C. Liu, J. C. K. Wang, & R. M. Ryan (Eds.), *Building autonomous learners: Perspectives from research and practice using self-determination theory* (pp. 9–29). New York: Springer.
- Deci, E. L., Ryan, R. M., & Guay, F. (2013). Self-determination theory and actualization of human potentials. In D. M. McInerney, H. W. Marsh, R. G. Craven, F. Guay (Eds.), *Theory driving research: New wave perspectives on self-processes and human development* (pp. 109–133). Charlotte, NC: Information Age Publishing.
- De Roo, G. (2017). *Environmental planning in the Netherlands: Too good to be true: From command-and-control planning to shared governance*. New York: Routledge.
- Dewey, J. (1938). *Experience and Education*. New York: Collier Books.
- Dewey, J. (1975). *Democracy and education: An introduction to the philosophy of education*. New York: Free Press.
- Dominguez, P. R., Gamiz, F., Gil, M., Moreno, H., Zamora, R. M., Gallo, M. . . . de Brugada, I. (2013). Providing choice increases children's vegetable intake. *Food Quality and Preference*, 30(2), 109–113.
- Duckworth, A. L., & Yeager, D. S. (2015). Measurement matters: Assessing personal qualities other than cognitive ability for educational purposes. *Educational Researcher*, 44(4), 237–251.
- Duncan, G. J., & Murnane, R. J. (Eds.). (2011). *Whither opportunity? Rising inequality, schools, and children's life chances*. New York/Chicago: Russell Sage Foundation/Spencer Foundation.
- Dweck, C. S. (2008). *Mindset: The new psychology of success*. New York: Ballantine Books.
- D'Zurilla, T. J., Nezu, A. M., & Maydeu-Olivares, A. (2004). Social problem solving: Theory and assessment. In E. C. Chang, T. J. D'Zurilla, & L. J. Sanna (Eds.). *Social problem solving: Theory, research, and training*. Washington, DC: American Psychological Association.
- Ellenberg, J. (2014). *How not to be wrong: The power of mathematical thinking*. New York: Penguin Press.
- Engel, S. (2011, March 15). Let kids rule the school. *The New York Times*. Retrieved from [https://www.nytimes.com/2011/03/15/opinion/15engel.html?\\_r=0](https://www.nytimes.com/2011/03/15/opinion/15engel.html?_r=0)
- European Communities. (2006). *Key competences for lifelong learning: A European framework*. Retrieved from [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.C\\_.2018.189.01.0001.01.ENG&toc=OJ%3AC%3A2018%3A189%3ATOC](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.C_.2018.189.01.0001.01.ENG&toc=OJ%3AC%3A2018%3A189%3ATOC)

- Executive Office of the President. (2016). *Artificial intelligence, automation, and the economy*. Retrieved from <https://www.whitehouse.gov/sites/whitehouse.gov/files/documents/Artificial-Intelligence-Automation-Economy.PDF>
- Feldman, D. L., Smith, A. T., & Waxman, B. L. (2017). *Why we drop out: Understanding and disrupting student pathways to leaving school*. New York: Teachers College Press.
- Florida, R. (2012). *The rise of the creative class: Revisited* (2nd ed.). New York: Basic Books.
- Ford, D. Y., & Grantham, T. C. (2003). Providing access for culturally diverse gifted students: From deficit to dynamic thinking. *Theory into Practice*, 42(3), 217–225.
- Frankiewicz, T. C.-P. (2019, January 7). Does higher education still prepare people for jobs? *Harvard Business Review*, January 07, Online. Retrieved from <https://hbr.org/2019/2001/does-higher-education-still-prepare-people-for-jobs>
- Fryer, R. G., & Levitt, S. D. (2004). Understanding the black-white test score gap in the first two years of school. *The Review of Economics and Statistics*, 86(2), 447–464.
- Gallup. (2017). Gallup Student Poll: Engaged today — Ready for tomorrow. Retrieved from [http://www.gallup.com/file/education/233681/2017\\_GSP\\_Scorecard.pdf?g\\_source=link\\_wwwv9&g\\_campaign=item\\_233555&g\\_medium=copy](http://www.gallup.com/file/education/233681/2017_GSP_Scorecard.pdf?g_source=link_wwwv9&g_campaign=item_233555&g_medium=copy)
- Gallup Youth Survey. (2004). *Most teens associate school with boredom, fatigue*. Retrieved from <https://news.gallup.com/poll/11893/most-teens-associate-school-boredom-fatigue.aspx>
- Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York: Basic Books.
- Gardner, H. (2007). *Five minds for the future*. Boston: Harvard Business School Press.
- Geelong Grammar School. (2016). *School performance information 2016*. Victoria, AU: Author. Retrieved from <file:///C:/Users/mlw/Downloads/School%20Performance%20Information%202014.pdf>
- Gillet, N., Vallerand, R. J., & Lafrenière, M. K. (2012). Intrinsic and extrinsic school motivation as a function of age: The mediating role of autonomy support. *Social Psychology of Education*, 15(1), 77–95.
- Gleason, D. L. (2017). *At what cost? Defending adolescent development in fiercely competitive schools*. Raleigh, NC: Lulu Press.
- Goldin, C., & Katz, L. F. (2008). *The race between education and technology*. Cambridge, MA: Harvard University Press.
- Goss, P., & Sonnemann, J. (2017). *Engaging students: Creating classrooms that improve learning*. Retrieved from <https://grattan.edu.au/report/engaging-students-creating-classrooms-that-improve-learning/>
- Goyal, N. (2012). *One size does not fit all: A student's assessment of school*. New York: Alternative Education Resource Organization.
- Goyal, N. (2016). *Schools on trial: How freedom and creativity can fix our educational malpractice*. New York: Doubleday.
- Greenberg, D., Sadofsky, M., & Lempka, J. (2005). *The pursuit of happiness: The lives of Sudbury Valley alumni*. Framingham, MA: Sudbury School Press.
- Guay, F., Lessard, V., & Dubois, P. (2016). How can we create better learning contexts for children? In Liu, W. C., Wang, J. C. K., & Ryan, R. M. (Eds.), *Building autonomous learners: Perspectives from research and practice using self-determination theory* (pp. 83–106). Singapore: Springer.
- Hahn, J. D. (2018). *Kindergarten class's morning handshake ritual has helped one non-verbal student find his voice*. Retrieved from <https://people.com/human-interest/kindergarten-class-morning-handshake-keene-elementary/>
- Hairon, S., & Goh, J. W. (2015). Pursuing the elusive construct of distributed leadership: Is the search over? *Educational Management Administration & Leadership*, 43(5), 693–718.
- Hansen, M., Levesque, E. M., Quintero, D., & Valant, J. (2018, April 17). Have we made progress on achievement gaps? Looking at evidence from the new NAEP results. Retrieved from <https://www.brookings.edu/blog/brown-center-chalkboard/2018/04/17/have-we-made-progress-on-achievement-gaps-looking-at-evidence-from-the-new-naep-results/>
- Harel, I., & Papert, S. (1991). *Constructionism*. New York: Ablex Publishing.
- Harris, A. (2013). *Distributed school leadership: Developing tomorrow's leaders*. New York: Routledge.
- Harris, A., Leithwood, K., Day, C., Sammons, P., & Hopkins, D. (2007). Distributed leadership and organizational change: Reviewing the evidence. *Journal of Educational Change*, 8(4), 337–347.
- Harris, K. R., & Graham, S. (1992). Self-regulated strategy development: A part of the writing process. In M. Pressley, K. R. Harris, & J. T. Guthrie (Eds.), *Promoting academic competence and literacy in school* (pp. 277–309). San Diego, CA: Academic Press.
- Hays (2015). *Labour market in a world of continuous change: Hays Global Skills Index 2015*. Retrieved from [http://www.hays.pl/cs/groups/hays\\_common/documents/digitalasset/hays\\_1794865.pdf](http://www.hays.pl/cs/groups/hays_common/documents/digitalasset/hays_1794865.pdf)
- Hofer, J., & Busch, H. (2011). Satisfying one's needs for competence and relatedness: Sequence domain-specific well-being depends on strength of implicit motives. *Personality and Social Psychology Bulletin*, 37(9), 1147–1158.

- Individuals with Disabilities Education Act (IDEA). (2004).
- Internet World Stats. (2019, June 30, 2018). *Internet world stats: Usage and population statistics*. Retrieved from <http://www.internetworldstats.com/stats.htm>
- Jason, Z. (2017). Bored out of their minds. *Harvard Ed. Magazine*, Winter 2017. Retrieved from <https://www.gse.harvard.edu/news/ed/17/01/bored-out-their-minds>
- John, O. P., Robins, R. W., & Pervin, L. A. (2008). *Handbook of personality: Theory and research* (3rd ed.). New York: Guilford Press.
- Joyce, B., & Weil, M. (1980). *Models of teaching* (2nd ed.). Englewood Cliffs, NJ: Prentice Hall.
- Kafai, Y. B., & Resnick, M. (Eds.). (1996). *Constructionism in practice: Designing, thinking, and learning in a digital world*. London: Routledge.
- Kelly, M., Dubb, S., & Duncan, V. (2016). *Broad-based ownership models as tools for job creation and community development: A guide to how community development is using broad-based ownership models to help low- and moderate-income communities*. Retrieved from <http://democracycollaborative.org/content/broad-based-ownership-models-tools-job-creation-and-community-development>
- Kelly Services. (2009). *Kelly global workforce survey*. Retrieved from <http://ir.kellyservices.com/news-releases/news-release-details/according-new-international-workplace-survey-kelly-services>
- Kern, M. L., Benson, L., Steinberg, E. A., & Steinberg, L. (2015). *The EPOCH measure of adolescent well-being*. Melbourne: Author. Retrieved from [http://www.peggykern.org/uploads/5/6/6/7/56678211/epoch\\_measure\\_of\\_adolescent\\_well-being\\_102014.pdf](http://www.peggykern.org/uploads/5/6/6/7/56678211/epoch_measure_of_adolescent_well-being_102014.pdf)
- Knowles, M. S. (1975). *Self-directed learning: A guide for learners and teachers*. Chicago: Follett Publishing.
- Krulik, S., & Rudnick, J. A. (1995). *The new sourcebook for teaching reasoning and problem solving in elementary school*. Boston: Allyn & Bacon.
- Lane, D. (2018). *Deschooling in school: Part 3*. Retrieved from <https://www.self-directed.org/tp/deschooling-in-school-3/>
- Laski, E. V., Jor'dan, J. R., Daoust, C., & Murray, A. K. (2015). What makes mathematics manipulatives effective? Lessons from cognitive science and Montessori education. *SAGE Open*, 5(2). doi:10.1177/2158244015589588
- Leighninger, M. (2006). *The next form of democracy: How expert rule is giving way to shared governance—and why politics will never be the same*. Nashville, TN: Vanderbilt University Press.
- Levin, H. M. (2012). More than just test scores. *Prospects: The Quarterly Review of Comparative Education*, 42(3), 269–284.
- Levin, S., & Engel, S. (2016). *A school of our own: The story of the first student-run high school and a new vision for American education*. New York: The New Press.
- Mann, L., Harmoni, R., & Power, C. (1989). Adolescent decision making: The development of competence. *Journal of Adolescence*, 12(3), 265–278.
- Mann, L., Harmoni, R., Power, C., Beswick, G., & Ormand, C. (1989). Effectiveness of the GOFER course in decision making for high school students. *Journal of Behavioral Decision Making*, 1(3), 159–168.
- Marques, S. C., & Lopez, S. J. (2017). The development of hope. In M. L. Wehmeyer, K. A. Shogren, T. D. Little, & S. J. Lopez (Eds.), *Development of self-determination through the life-course* (pp. 271–281). New York: Springer.
- Martela, F., & Ryan, R. M. (2015). The benefits of benevolence: Basic Psychological needs, beneficence, and the enhancement of well-being. *Journal of Personality*, 84(6), 750–764.
- Mathewson, T. G. (2018). Using creative classroom design to promote instructional innovation. *The Hechinger Report*, April 4, 2018. Retrieved from <https://hechingerreport.org/using-creative-classroom-design-to-promote-instructional-innovation/>
- Miller, G. A., Galanter, E., & Pribram, K. H. (1960). *Plans and the structure of behavior*. New York: Holt, Rinehart, and Winston.
- Mithaug, D. E. (1993). *Self-regulation theory: How optimal adjustment maximizes gain*. Westport, CT: Praeger.
- Mithaug, D. E., Mithaug, D. K., Agran, M., Martin, J. E., & Wehmeyer, M. L. (2003). *Self-determined learning theory: Construction, verification, and evaluation*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Mitra, S. (2007, July 17). Kids can teach themselves. Retrieved from [https://www.ted.com/talks/sugata\\_mitra\\_shows\\_how\\_kids\\_teach\\_themselves](https://www.ted.com/talks/sugata_mitra_shows_how_kids_teach_themselves)
- Mitra, S. (2012a). *Beyond the hole in the wall: Discover the power of self-organized learning* (Kindle ed.). Retrieved from [https://www.amazon.com/Beyond-Hole-Wall-Discover-Self-Organized-ebook/dp/B0070YZSFQ/ref=la\\_B001KCZLKQ\\_1\\_1?s=books&ie=UTF8&qid=1500419170&sr=1-1](https://www.amazon.com/Beyond-Hole-Wall-Discover-Self-Organized-ebook/dp/B0070YZSFQ/ref=la_B001KCZLKQ_1_1?s=books&ie=UTF8&qid=1500419170&sr=1-1)
- Mitra, S. (2012b, February 3). *The hole in the wall project and the power of self-organized learning*. Retrieved from <https://www.edutopia.org/blog/self-organized-learning-sugata-mitra>
- Montenegro, A. (2017). Understanding the concept of student agentic engagement for learning. *Columbian Applied Linguistics Journal*, 19(1), 117–128.
- Neil, A. S. (1960). *Summerhill: A radical approach to child rearing*. Oxford: Hart Publishing.

- Nezu, A. M., & D'Zurilla, T. J. (1981). Effects of problem definition and formulation on decision making in the social problem-solving process. *Behavior Therapy*, 12(1), 100–106.
- Niemiec, C. P., & Ryan, R. M. (2009). Autonomy, competence, and relatedness in the classroom: Applying self-determination theory to educational practice. *Theory and Research in Education*, 7(2), 133–144.
- Niemiec, R. M. (2017). *Character strengths interventions: A field guide for practitioners*. Boston: Hogrefe.
- No Child Left Behind Act of 2001, P.L. 107-110, 20 U.S. C. § 6319 (2002).
- Norrish, J. (2015). *Positive education: The Geelong Grammar School journey*. Oxford: Oxford University Press.
- Ochberg, F. M. (2005, April 8). The ties that bind captive to captor. *Los Angeles Times*. Retrieved from <http://articles.latimes.com/2005/apr/08/opinion/oe-ochberg8>
- OECD. (2016). *PISA 2015 results (Volume I): Excellence and equity in education*. Retrieved from: <http://dx.doi.org/10.1787/9789264266490-en>
- OECD. (2017). *PISA 2015 results: Students' well-being*. Retrieved from [http://www.keepeek.com/Digital-Asset-Management/oecd/education/pisa-2015-results-volume-iii\\_9789264273856-en-Wk1WGrQ-fOQ#page1](http://www.keepeek.com/Digital-Asset-Management/oecd/education/pisa-2015-results-volume-iii_9789264273856-en-Wk1WGrQ-fOQ#page1)
- Papert, S. (1993). *The children's machine: Rethinking school in the age of the computer*. New York: Basic Books.
- Papert, S. (1999). Technology in schools—To support the system or render it obsolete? *Milken Exchange*. Retrieved from <http://www.milkenexchange.org/feature/papert.html>
- Pappano, L. (2012, November 2). *The year of the MOOC*. Retrieved from <http://www.nytimes.com/2012/11/04/education/edlife/massive-open-online-courses-are-multiplying-at-a-rapid-pace.html?pagewanted=all>
- Partnership for 21st Century Skills. (2007). Framework for 21st century learning. Retrieved from [http://www.21stcenturyskills.org/documents/frameworkflyer\\_072307.pdf](http://www.21stcenturyskills.org/documents/frameworkflyer_072307.pdf)
- Patall, E. A., & Hooper, S. Y. (2018). The role of choice in understanding adolescent autonomy and academic functioning. In B. Soenens, M. Vansteenkiste, & S. Van Petegem (Eds.), *Autonomy in adolescent development: Toward conceptual clarity* (pp. 145–167). London: Routledge.
- Peterson, C., & Seligman, M. E. P. (2004). *Character strengths and virtues: A classification and handbook*. New York and Washington, DC: Oxford University Press and American Psychological Association.
- Pink, D. H. (2006). *A whole new mind: Why right-brainers will rule the future*. New York: Riverhead.
- Plucker, J. A., Hardesty, J., & Burroughs, N. (2013). *Talents on the sidelines: Excellence gaps and America's persistent talent underclass*. Retrieved from [http://webdev.education.uconn.edu/static/sites/cepa/AG/excellence2013/Excellence-Gap-10-18-13\\_JP\\_LK.pdf](http://webdev.education.uconn.edu/static/sites/cepa/AG/excellence2013/Excellence-Gap-10-18-13_JP_LK.pdf)
- Posner, R. (2009). *Lives of passion, school of hope: How one public school ignites a lifelong love of learning*. Boulder, CO: Sentient Publications.
- Potter, M. (2017). Governance of higher education: Global perspectives, theories, and practices by Ian Austin and Glen A. Jones. *The Review of Higher Education*, 41(1), 141–143.
- Raley, S. K., Shogren, K. A., & McDonald, A. (2018). How to implement the self-determined learning model of instruction in inclusive general education classrooms. *Teaching Exceptional Children*, 51(1), 62–71.
- Rath, T., & Clifton, D. O. (2004). *How full is your bucket?* Washington, DC: Gallup Press.
- Reardon, S. F. (2011). The widening academic achievement gap between the rich and the poor: New evidence and possible explanations. In G. J. Duncan & R. J. Murnane (Eds.), *Whither opportunity? Rising inequality, schools, and children's life chances* (pp. 91–116). New York/Chicago: Russell Sage Foundation/Spencer Foundation.
- Redford, K. (2018). First person: When it comes to universal design for learning, don't wait to be an expert. *Education Week Teacher*, January 24, 2018. Retrieved from <https://www.edweek.org/tm/articles/2018/01/24/when-it-comes-to-universal-design-for.html>
- Reeve, J. (2002). Self-determination theory applied to educational settings. In E. L. Deci & R. M. Ryan (Eds.), *Handbook of Self-Determination Research* (pp. 183–203). Rochester, NY: Rochester University Press.
- Reeve, J. (2013). How students create motivationally supportive learning environments for themselves: The concept of agentic engagement. *Journal of Educational Psychology*, 105(3), 579–595.
- Reeve, J., Ryan, R., Deci, E. L., & Jang, H. (2012). Understanding and promoting autonomous self-regulation: A self-determination theory perspective. In D. H. Schunk & B. J. Zimmerman (Eds.), *Motivation and self-regulated learning: Theory, research, and applications* (pp. 223–244). New York: Routledge.
- Reeve, J., & Tseng, C.-M. (2011). Agency as a fourth aspect of students' engagement during learning activities. *Contemporary Educational Psychology*, 36(4), 257–267.
- Reimers, F. (2009). Educating for global competency. In J. E. Cohen & M. B. Malin (Eds.), *International Perspective on the Goals of Universal Basic and Secondary Education* (pp. 183–202). New York: Routledge.
- Reiss, S. (2000). *Who am I?: The 16 basic desires that motivate our behavior and define our personality*. New York: Jeremy P. Tarcher/Putnam.

- Resnick, M. (2017). *Lifelong kindergarten: Cultivating creativity through projects, passion, peers, and play*. Cambridge, MA: The MIT Press.
- Rose, T. (2016). *The end of average: How we succeed in a world that values sameness*. New York: HarperOne.
- Rouso, H. (1993). *Disabled, female, and proud: Stories of ten women with disabilities*. New York: Bergin & Garvey.
- Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology*, 57(5), 749–761.
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. New York: The Guilford Press.
- Schleicher, A. (2018). *World class: How to build a 21st century school system*. Paris: OECD.
- Schmitz, R. (2016). Crozet Elementary pilots AVID program. *The Crozet Gazette*, October 7, 2016. Retrieved from <https://www.crozetgazette.com/2016/10/07/crozet-elementary-pilots-avid-program/>
- Schwab, K. (2015). The fourth industrial revolution: What it means and how to respond. *Foreign Affairs*, December 12. Retrieved from <https://www.foreignaffairs.com/articles/2015-12-12/fourth-industrial-revolution>
- Seligman, M. E. P. (2011). *Flourish: A visionary new understanding of happiness and well-being*. New York: Simon & Schuster.
- Sheldon, K., & Deci, E. (1993). *The self-determination scale*. University of Rochester, Rochester, NY: Author.
- Sheldon, K. M., Ryan, R. M., & Reis, H. T. (1996). What makes for a good day? Competence and autonomy in the day and in the person. *Personality and Social Psychology Bulletin*, 22(12), 1270–1279.
- Shogren, K. A., Raley, S. K., Burke, K. M., & Wehmeyer, M. L. (2019). *The self-determined learning model of instruction: Teacher's guide*. Lawrence, KS: Kansas University Center on Developmental Disabilities.
- Shogren, K. A., & Wehmeyer, M. L. (2017). Problem solving. In M. L. Wehmeyer, K. A. Shogren, T. D. Little, & S. J. Lopez (Eds.), *Development of self-determination through the life-course* (pp. 251–260). New York: Springer.
- Shogren, K. A., Wehmeyer, M. L., Forber-Pratt, A. J., & Palmer, S. B. (2015). *VIA inventory of strengths for youth (VIA-Youth): Supplement for use when supporting youth with intellectual and developmental disabilities to complete the VIA-Youth*. Lawrence, KS: Kansas University Center on Developmental Disabilities.
- Shogren, K. A., Wehmeyer, M. L., & Khamis, S. (2017). Self-initiation and planning. In M. L. Wehmeyer, K. A. Shogren, T. D. Little, & S. J. Lopez (Eds.), *Development of self-determination through the life-course* (pp. 209–217). New York: Springer.
- Shogren, K. A., Wehmeyer, M. L., & Palmer, S. B. (2017). Causal agency theory. In M. L. Wehmeyer, K. A. Shogren, T. D. Little, & S. J. Lopez (Eds.), *Development of self-determination through the life-course* (pp. 55–67). New York: Springer.
- Shogren, K. A., Wehmeyer, M. L., Palmer, S. B., Forber-Pratt, A., Little, T. J., & Lopez, S. J. (2017). *Self-determination inventory: Self-report*. Lawrence, KS: Kansas University Center on Developmental Disabilities.
- Sifferlin, A. (2013, March 27). A high school where the students are the teachers. *Time*. Retrieved from <http://healthland.time.com/2013/03/27/a-high-school-where-the-students-are-the-teachers/>
- Snyder, C. R., Hoza, B., Pelham, W. E., Rapoff, M., Ware, L., Danovsky, M. . . . Stahl, K. J. (1997). The development and validation of the children's hope scale. *Journal of Pediatric Psychology*, 22(3), 399–421.
- Snyder, R. (1994). Hope and optimism. In V.S. Ramachandran (Ed.), *Encyclopedia of human behavior* (Vol. 2) (pp. 535–542). San Diego, CA: Academic Press.
- Snyder, R. (2000). *Handbook of hope: Theory, measures, and applications*. San Diego, CA: Academic Press.
- Snyder, R., Tran, T., Schroeder, L. L., Pulvers, K. M., Adams, V., & Laub, L. (2000). Teaching the hope recipe: Setting goals, finding pathways to those goals, and getting motivated. *Reaching Today's Youth*, 4(4), 46–50.
- Soenens, B., Vansteenkiste, M., Van Petegem, S., Beyers, W., & Ryan, R. (2018). How to solve the conundrum of adolescent autonomy? On the importance of distinguishing between independence and volitional functioning. In B. Soenens, M. Vansteenkiste, & S. Van Petegem (Eds.), *Autonomy in adolescent development: Toward conceptual clarity* (pp. 1–32). London: Routledge.
- Spillane, J. P. (2012). *Distributed leadership* (Vol. 4). Hoboken, NJ: John Wiley & Sons.
- Spillane, J. P., Halverson, R., & Diamond, J. B. (2001). Investigating school leadership practice: A distributed perspective. *Educational Researcher*, 30(3), 23–28.
- Stanford, P. (2008, January 24). Summerhill: Inside England's most controversial private school. *The Independent*. Retrieved from <http://www.independent.co.uk/news/education/schools/summerhill-inside-englands-most-controversial-private-school-772976.html>
- Sternberg, R. J. (1988). *The triarchic mind: A new theory of human intelligence*. New York: Viking.
- Sternberg, R. J., Jarvin, L., & Grigorenko, E. L. (2009). *Wisdom, intelligence, creativity, and success*. New York: Skyhorse Publishing.

- The European Parliament, & The Council of the European Union. (2006, December 12). *Recommendation of the European Parliament and of the Council of the European Union on key competences for lifelong learning*. Retrieved from [http://eur-lex.europa.eu/LexUriServ/site/en/oj/2006/L\\_394/L\\_39420061230en00100018.pdf](http://eur-lex.europa.eu/LexUriServ/site/en/oj/2006/L_394/L_39420061230en00100018.pdf)
- The Granny Cloud. (n.d.). *Welcome to the granny cloud*. Retrieved from <http://thegrannycloud.org/>
- Tian, M., Risku, M., & Collin, K. (2016). A meta-analysis of distributed leadership from 2002 to 2013: Theory development, empirical evidence, and future research focus. *Educational Management Administration & Leadership*, 44(1), 146–164.
- Trilling, B., & Fadel, C. (2009). *21st century skills: Learning for life in our times*. San Francisco: John Wiley & Sons.
- Tucker, M. (Ed.). (2011). *Surpassing Shanghai: An agenda for American education built on the world's leading systems*. Boston: Harvard Education Press.
- Tyack, D., & Cuban, L. (1995). *Tinkering toward utopia: A century of public school reform*. Cambridge, MA.: Harvard University Press.
- Tyack, D., & Tobin, W. (1994). The “grammar” of schooling: Why has it been so hard to change? *American Educational Research Journal*, 31(3), 453–479.
- United Nations (1989). *Convention on the rights of the child*. Geneva: Author. Retrieved from <https://www.ohchr.org/en/professionalinterest/pages/crc.aspx>
- Vallerand, R. J. (2016). The dualistic model of passion: Theory, research, and implications for the field of education. In W. C. Liu, J. C. K. Wang, & R. M. Ryan (Eds.), *Building autonomous learners: Perspectives from research and practice using self-determination theory* (pp. 31–58). Singapore: Springer.
- van Inwagen, P. (2008). How to think about the problem of free will. *The Journal of Ethics*, 12(3), 327–341.
- Vansteenkiste, M., Niemiec, C., & Soenens, B. (2010). The development of the five mini-theories of self-determination theory: An historical overview, emerging trends, and future directions. In T. Urdan & S. Karabenick (Eds.), *Advances in motivation and achievement, vol. 16: The decade ahead*. Bingley, UK: Emerald Publishing.
- Vella-Brodrick, D. A., Rickard, N. S., & Chin, T-C. (2014). *An evaluation of positive education at Geelong Grammar School: A snapshot of 2013*. The University of Melbourne, VIC, Australia: Author. Retrieved from <file:///C:/Users/mlw/Downloads/Research%20Report-GGS-August2014.pdf>
- Waghid, Y. (2014). *Pedagogy out of bounds: Untamed variations of democratic education* (Vol. 61). New York: Springer Science & Business Media.
- Wagner, T. (2008). *The global achievement gap: Why even our best schools don't teach the new survival skills our children need—and what we can do about it*. New York: Basic Books.
- Wagner, T. (2012). *Creating innovators: The making of young people who will change the world*. New York: Scribner.
- Washor, E., & Mojkowski, C. (2014). Student disengagement: It's deeper than you think. *Phi Delta Kappan*, 95(8), 8–10.
- Wehmeyer, M. L., Agran, M., & Hughes, C. (1998). *Teaching self-determination to students with disabilities: Basic skills for successful transition*. Baltimore: Paul H. Brookes.
- Wehmeyer, M. L., Agran, M., Palmer, S. B., & Mithaug, D. E. (1999). *A teacher's guide to implementing the self-determined learning model of instruction*. Lawrence, KS: Beach Center on Disability.
- Wehmeyer, M. L., Little, T., & Sergeant, J. (2009). Self-determination. In S. Lopez & R. Snyder (Eds.), *Handbook of positive psychology* (2nd ed., pp. 357–366). Oxford: Oxford University Press.
- Wehmeyer, M. L., & Mithaug, D. (2006). Self-determination, causal agency, and mental retardation. In L. M. Glidden (Ed.), *International Review of Research in Mental Retardation* (Vol. 31) (pp. 31–71). San Diego, CA: Academic Press.
- Wehmeyer, M. L. & Shogren, K. A. (2017). Decision-making. In M. L. Wehmeyer, K. A. Shogren, T. D. Little, & S. J. Lopez (Eds.), *Development of self-determination through the life-course* (pp. 261–270). New York: Springer.
- Weinstein, N., Przybylski, A. K., & Ryan, R. M. (2012). The index of autonomous functioning: Development of a scale of human autonomy. *Journal of Research in Personality*, 46(4), 397–413. doi: 10.1016/j.jrp.2012.03.007
- Weinstein, N., & Ryan, R. M. (2010). When helping helps: Autonomous motivation for prosocial behavior and its influence on well-being for the helper and recipient. *Journal of Personality and Social Psychology*, 98(2), 222–244.
- Wilby, P. (2016, June 07). Sugata Mitra—the professor with his head in the cloud. *The Guardian*. Retrieved from <https://www.theguardian.com/education/2016/jun/07/sugata-mitra-professor-school-in-cloud>
- Woolley, K., & Fishbach, A. (2017). Immediate rewards predict adherence to long-term goals. *Personality and Social Psychology Bulletin*, 43(2), 151–162.

- World Economic Forum. (2009). *Educating the next wave of entrepreneurs: Unlocking entrepreneurial capabilities to meet the global challenges of the 21st century*. Retrieved from [http://www3.weforum.org/docs/WEF\\_GEL\\_EducatingNextEntrepreneurs\\_ExecutiveSummary\\_2009.pdf](http://www3.weforum.org/docs/WEF_GEL_EducatingNextEntrepreneurs_ExecutiveSummary_2009.pdf)
- World Economic Forum. (2011). *Unlocking entrepreneur capabilities to meet the global challenges of the 21st century: Final report on the entrepreneurship education work stream*. Retrieved from [http://www3.weforum.org/docs/WEF\\_GEL\\_UnlockingEntrepreneurialCapabilities\\_Report\\_2011.pdf](http://www3.weforum.org/docs/WEF_GEL_UnlockingEntrepreneurialCapabilities_Report_2011.pdf)
- World Economic Forum. (2016). *The future of jobs: Employment, skills, and workforce strategy for the fourth industrial revolution*. Retrieved from [http://www3.weforum.org/docs/WEF\\_Future\\_of\\_Jobs.pdf](http://www3.weforum.org/docs/WEF_Future_of_Jobs.pdf)
- Wren, D. J. (1999). School culture: Exploring the hidden curriculum. *Adolescence*, 34(135), 593–596.
- Zhang, G., & Zhao, Y. (2014). Achievement gap in China. In J. V. Clark (Ed.), *Closing the achievement gap from an international perspective: Transforming STEM for effective education* (pp. 217–228). New York: Springer.
- Zhao, Y. (2009a). *Catching up or leading the way: American education in the age of globalization*. Alexandria, VA: ASCD.
- Zhao, Y. (2009b). Needed: Global villagers. *Educational Leadership*, 67(1), 60–65.
- Zhao, Y. (2012). *World class learners: Educating creative and entrepreneurial students*. Thousand Oaks, CA: Corwin.
- Zhao, Y. (2014). *Who's afraid of the big bad dragon: Why China has the best (and worst) education system in the world*. San Francisco: Jossey-Bass.
- Zhao, Y. (2015a). *Lessons that matter: What we should learn from Asian school systems*. Retrieved from <http://www.mitchellinstitute.org.au/reports/lessons-that-matter-what-should-we-learn-from-asias-school-systems/>
- Zhao, Y. (2015b). A world at risk: An imperative for a paradigm shift to cultivate 21st century learners. *Society*, 52(2), 129–135.
- Zhao, Y. (2016a). *Counting what counts: Reframing education outcomes*. Bloomington, IN: Solution Tree.
- Zhao, Y. (2016b). From deficiency to strength: Shifting the mindset about education inequality. *Journal of Social Issues*, 72(4), 716–735.
- Zhao, Y. (2018a). Personalizable education for greatness. *Kappa Delta Pi Record*, 54(3), 109–115.
- Zhao, Y. (2018b). *Reach for greatness: Personalizable education for all children*. Thousand Oaks, CA: Corwin.
- Zhao, Y. (2018c). The rise of the useless: The case for talent diversity. *Journal of Science Education and Technology*, 28(1), 62–68. doi:10.1007/s10956-018-9743-3
- Zhao, Y. (2018d). Shifting the education paradigm: Why international borrowing is no longer sufficient for improving education in China. *ECNU Review of Education*, 1(1), 76–106.
- Zhao, Y. (2018e). *What works may hurt: Side effects in education*. New York: Teachers College Press.
- Zhao, Y., & Gearin, B. (Eds.). (2018). *Imagining the future of global education: Dreams and nightmares*. New York: Routledge.
- Zhao, Y., Zhang, G., Lei, J., & Qiu, W. (2015). *Never send a human to do a machine's job: Correcting the top five mistakes in Ed Tech*. Thousand Oaks, CA: Corwin.

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