

Evidence for Student-Centered Learning



About Education Evolving. We are a Minnesota-based, nonprofit, nonpartisan organization focused on improving American public education. We work to advance student-centered learning for all students, by supporting teachers designing and leading schools, and by advocating for policy that is open to innovation. Read more at www.educationevolving.org.

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PART 1

Introduction and Context

On April 30, 1983, President Ronald Reagan addressed the nation and declared, “Our education system, once the finest in the world, is in a sorry state of disrepair.”¹ His assertion was a response to the findings of the 1983 *A Nation at Risk* report, which was released by the President’s National Commission on Excellence in Education. The report highlighted startling statistics about the high illiteracy rates amongst American youth, as well as the steady decline of standardized test scores in reading, science, and mathematics.²

Since the release of *A Nation at Risk*, the narrative that the nation’s E-12 public education system is “broken” and must be fixed has been prominent in reform efforts—from President Bush’s *No Child Left Behind*, which scaled high stakes, standardized test-based school accountability, to President Obama’s Race to the Top Grant, which provided monetary incentives for states to adopt the Common Core Standards and promote school choice. While these education reform efforts have had a profound impact on E-12 public education, the academic outcomes of the nation’s public school students have continued to be disappointing.³

In fact, after almost 35 years of major education reform efforts and billions of taxpayer dollars spent, the nation’s public schools are still not preparing most students for college and career⁴ or to be competitive in the global economy.⁵ Many employers feel that today’s college graduates are not well prepared to achieve the learning outcomes that they view as important.⁶ In particular, the business community has indicated that college graduates do not possess sufficient skills in mathematics, reading, and in “soft skills” like work ethic, accountability, and self-motivation.⁷

The continued failure of the nation’s E-12 public education system to successfully educate all students and prepare them for college and career raises the question: **Why? Why, after all the time and resources that have been put into fixing our nation’s public schools, have education reform efforts failed to create an equitable system that is academically rigorous, relevant, and engaging for all students?**

The answer is simple. The design and intention of our country’s public education system was never to educate nor meet the needs of **all** students. Rather, its purpose was to prepare students, in mass, to work in an industrialized and standardized economy.

The design of our current public education system was highly influenced by Frederick Taylor’s concept of scientific management, which is centered around improving economic efficiency by putting the system first and ignoring the individual. Specifically, scientific management created a centralized, hierarchical structure where management sets rules and procedures for workers to follow, which made their jobs simplified, standardized, and their productivity optimized.⁸

John Franklin Bobbit, one of the biggest proponents for applying Taylor’s scientific management to public education, argued that schools should be like businesses and focus on eliminating waste, efficiency, and maximizing student outcomes.⁹ Bobbit also agreed with Taylor’s assertion that efficient outcomes depended on centralized authority and detailed, top-down instruction for all tasks that students performed, and the content that teachers delivered.¹⁰ By 1920, most American public schools were designed around the tenets of Taylor’s scientific management, “treating each student as an average student and aiming to provide each one with the same standardized education, regardless of their background, abilities, or interests.”¹¹

“The design and intention of our country’s public education system was never to educate nor meet the needs of ALL students. Rather, its purpose was to prepare students, in mass, to work in an industrialized, standardized economy.”

The tenets of Taylor’s scientific management were not only central to the original design of our current public education system, but they have also persisted and been perfected over time by education reformers like David Snedden,¹² Ellwood Cubberley,¹³ and Edward Thorndike.¹⁴ In fact, in 1993, Doctor Kenneth Gray wrote, “it may be inevitable that America will lose the race for international markets...because its people are infected with a disease called Taylorism.”¹⁵

Therefore, education reform efforts have failed to “fix” the American E-12 public education system because *the system is not broken*. It is doing exactly what it was designed to do—educate the masses in a standardized fashion that completely disregards who students are as individuals or, as American journalist H.L. Mencken wrote in 1924, “The aim of public education is not to spread enlightenment at all; it is simply to reduce as many individuals as possible to the same level, to breed and train a standardized citizenry, to put down dissent and originality.”¹⁶

PART 2

Education Evolving's Seven Principles of Student-Centered Learning

Just as our economy and industries have changed, so too must our system of public education. Education Evolving asserts that if we truly want to reform or “fix” our nation’s public education system so all students can be successful and have their unique needs met, then we must change the *design* of the system.

Instead of maintaining the current, adult-centered, hierarchical structure where students are the receivers of a predetermined set of knowledge, we argue it’s time to redesign the model and system of schooling with *students at the center*. It’s time to design a system that takes into account students’ interests, learning styles, cultural identities, life experiences, and personal challenges. It’s time to design a system that not only sets all students up for success but that is also equitable and meets their unique needs. We call this *student-centered learning*.

Given the unique set of circumstances present in each classroom and school, we do not prescribe a specific definition, program, or model for how schools should realize student-centered learning. Instead, we have identified—from listening to students and educators, and a careful review of academic research summarized in the remainder of this paper—*seven principles of student-centered learning*, which are illustrated in the graphic on the following page.

These principles are meant to be a resource, rather than a blueprint, for educators to use as they implement and practice student-centered learning. We argue that decisions about how these principles are realized should fall under the purview of the educators who work most closely with the students.¹⁷

Natural questions that follow from these seven principles are: Which student *outcomes* would indicate that student-centered learning has been successful? And, what measures might be used to evaluate those outcomes? Due to the unique nature of each school, we do not propose a set of specific outcomes or metrics that schools should use. Rather, similar to our previous assertion, we contend that educators, families, communities, and students should determine which metrics they want to use to identify whether or not their school has been “successful” in practicing student-centered learning.

With that said, there are several research-based frameworks for student-centered learning outcomes that are in alignment with our principles. A few examples of these frameworks are:

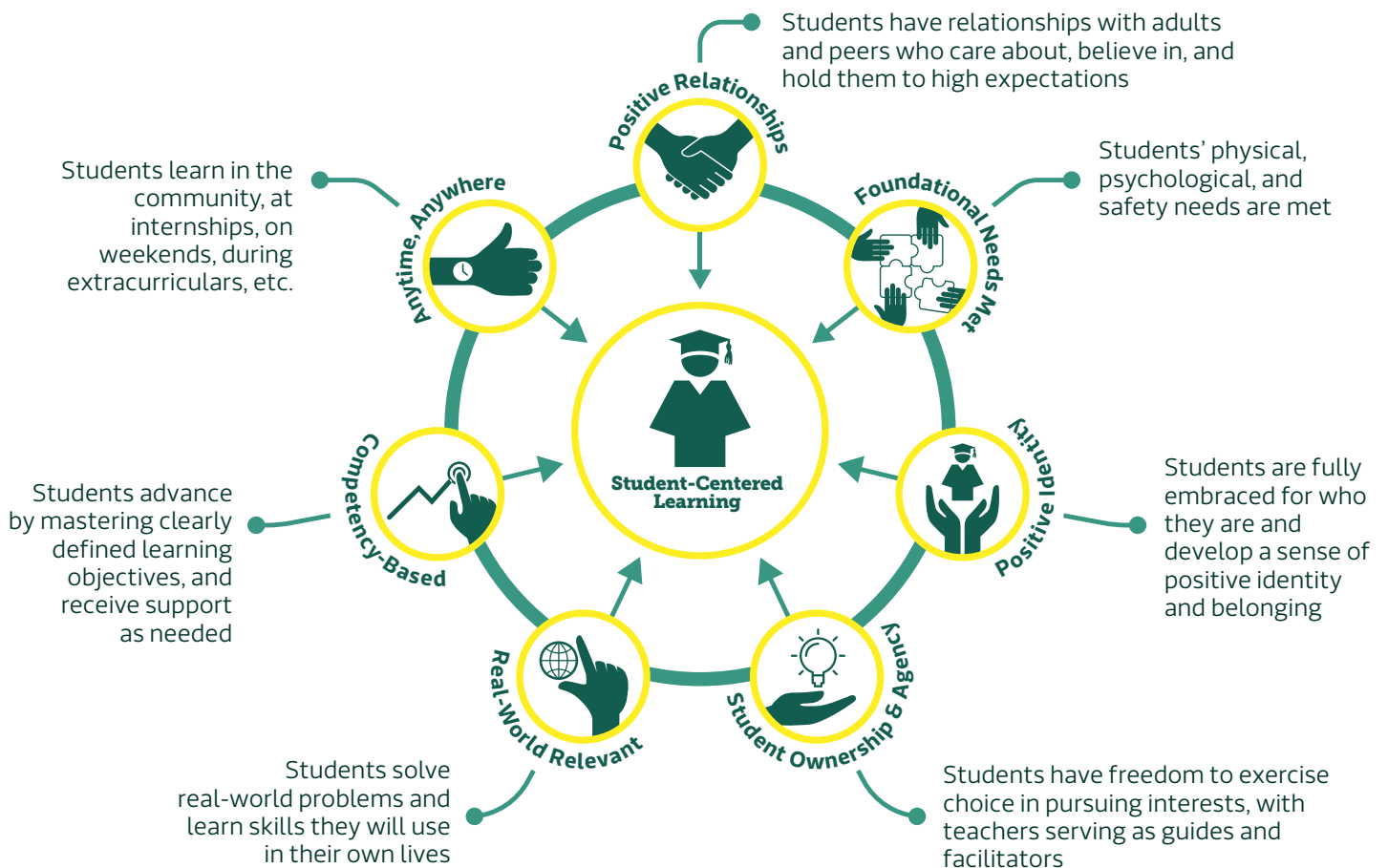
- Education for Work and Life from the National Research Council
- College and Career Readiness Framework from the Education Policy Improvement Center
- Four Cs Framework from Partnership for 21st Century Skills
- MyWays Project from Next Generation Learning Challenges.

Education Evolving will be researching and writing about student-centered learning *outcomes* more in 2018.

“It’s time to design a system that not only sets all students up for success but that is also equitable and meets their unique needs.”

Education Evolving's Seven Principles of Student-Centered Learning

Positive Relationships • Foundational Needs Met • Positive Identity
Student Ownership & Agency • Real-World Relevant
Competency-Based • Anytime, Anywhere



PART 3

Evolution of Student-Centered Learning: A Historical Perspective

The concept of student-centered learning has been around for well over 100 years. Even though it has not been the primary model of design in E-12 public education, its supporters and reformers have been influential in starting and aiding a number of schools across the country that practice student-centered learning. When identifying our seven principles, we drew on this history, as well as the school designs and theory that have come from it.

Looking Back at Progressive Education: The Original Student-Centered Learning

In 1875, Francis W. Parker, a Civil War colonel, became superintendent of schools in Quincy, Massachusetts. While there, he rejected standardization, rote learning, and grading and ranking systems.¹⁸ Instead, he advocated for centering curricula and instruction on developing the “whole child.” John Dewey, a progressive education reformer and philosopher, referred to Parker as “the father of progressive education.”¹⁹

Dewey himself was also a proponent of educating the “whole child” and student-centered learning. In his 1900 book, *School and Society*, he wrote “the child becomes the sun about which the appliances of education revolve; he is the center about which they are organized.”²⁰ Dewey argued that students should be engaged in meaningful activity, invested in what they are learning, participate in classroom democracy, and that curricula should be relevant to their lives.²¹

During the Great Depression and World War II era, students of Dewey’s, like William H. Kilpatrick, taught the principles of his progressive education to thousands of teachers and school leaders. However, in the 1950’s, during the Cold War era of anxiety and conservatism, progressive education was “widely repudiated, and it disintegrated as an identifiable movement.”²²

There was a brief time, during the mid 1970’s, when the Taylorist model was challenged and reformers attempted to connect the design of school to a student-centered approach.²³ However, the movement, which led to the creation of “open-classroom schools,” quickly faded away, ended in backlash, and there was a call for schools to get “back to the basics.”²⁴

Since then, the tenets of progressive education have been “rediscovered” by several theorists, education reformers, and researchers, who have widely written about the benefits of student-centered learning. One of the most famous reformers was the late TheodoreSizer. In 1984, he launched the Coalition of Essential Schools, a widespread national movement of schools that put students at the center of the teaching practice and provided nine (later ten) “Common Principles” that “articulated a stripped-down inquiry approach, bringing together many of the progressive concerns that had gathered strength in prior decades.”²⁵ At its peak, the Coalition had over 600 formal members. And although the organization formally ceased operations in December 2016,²⁶ there are still several hundred schools around the world that are practicing the Coalition’s “Common Principles” and putting students at the center.

Student-Centered Learning Today

While there is a large body of theoretical and anecdotal literature, there is no agreed-upon definition for the overall concept of student-centered learning. Some theorists provide a broad definition like “students have a choice in their learning,”²⁷ while others provide specific principles.²⁸ Relatedly, there are several education organizations across the country—including the Nellie Mae Education Foundation, Education Reimagined, Hewlett Foundation, Next Generation Learning Challenges, Center for Collaborative Education, New Schools Venture Fund, and others—that have identified their own principles or definitions of student-centered learning they contend are necessary so all students can be successful in college, career, and life.

There are also a number of programs that educators have implemented or refer to—personalized learning, project-based learning, differentiated instruction, center-based classroom, Montessori, flipped classrooms, inquiry-based learning—as a way to get to student-centered learning. However, these programs are all different in design, scope, purpose, and their results vary across classrooms.

Even though there is no agreed upon definition or singular program for realizing student-centered learning, the unifying theme is that in student-centered learning the model shifts from being adult-centered and standardized to student-centric and individualized. Specifically, the learning is personalized to the students’ unique needs, interests, and aspirations, and designed with their ideas and voices at the table.

“...in student-centered learning the model shifts from being adult-centered and standardized to student-centric and individualized.”

PART 4

Research on Student-Centered Learning as a Whole

In addition to examining the history and current context of student-centered learning, we also did a comprehensive survey of the published qualitative research, quantitative research, and case studies on student-centered learning. It is important to note that while there is a significant amount of research on a variety of student-centered learning strategies—adaptive math software, project-based learning, goal setting, etc.—there is limited large-scale research on student-centered learning as a whole. With that said, results from the few student-centered learning studies that have been done are promising. In this section, we will provide an overview of these results.

Student-Centered Schools: Closing the Opportunity Gap (2014)

In June 2014, the Stanford Center for Opportunity Policy in Education published case studies and a cross-case analysis of four California urban high schools that practice student-centered learning.²⁹ Importantly, the study schools were non-selective in their admissions, and served primarily low-income students and students of color.

The study found that, at all four study schools, students outperformed most of the traditional schools in their respective communities that served similar populations with regard to graduation rates, student achievement, college preparatory course completion data, and college persistence.³⁰ Notably, these results were particularly evident for students of color, low-income students, and English language learners.

A few of the other key findings from the study are:

- At three of the four study schools, graduation rates for Latino, ELL, and low-income students ranged from 10 to 24 percentage points higher than the state averages.
- At two of the four study schools, graduation rates for African-American students were almost 30 percentage points higher than the district and state averages.
- Two of the study school's four-year college persistence rates “far exceeded” the national average; particularly for students who were the first in their family to attend college.
- Survey data from the graduates in the study suggested that their school's practices of relationship building, high standards, deeper learning, and instructional relevance contributed to their success in college.³¹

Qualitative Study of Student-Centered Learning Practices in New England High Schools (2015)

In 2015, the Nellie Mae Education Foundation and UMass Donahue Institute published a qualitative study on student-centered learning approaches in 12 public high schools in New England.³² The authors defined student-centered learning as schools that practiced the following four tenets:

- **Learning is Personalized:** Students engage in different ways and in different places.
- **Learning is Competency-Based:** Students move ahead when they have demonstrated mastery of content, not when they've reached a certain birthday or endured the required hours in a classroom.

- **Learning Happens Anytime, Anywhere:** Learning takes place beyond the traditional school day, and even the school year. Learning is also not restricted to the classroom.
- **Students Take Ownership Over Their Learning:** Engage students in their own success, as well as incorporate their interests and skills into the learning process.³³

The study found that the majority of the participating schools were effective in personalizing the learning of their students and creating an environment where students took ownership of their learning. However, the study also found that the participating schools struggled with implementing and practicing “anytime, anywhere learning” due to a series of challenges that both teachers and administrators faced.

Teachers from the participating schools largely responded that student-centered learning promoted higher student engagement and facilitated learning that was more relevant to students. Further, a large percentage of the teachers contended that students in student-centered environments explored the curriculum with more depth and retained knowledge more effectively than in traditional settings.

Continued Progress: Promising Evidence on Personalized Learning (2015)

A November 2015 study by the RAND Corporation analyzed 11,000 students at 62 schools that served primarily low-income students, and employed personalized learning strategies. The study also examined a subset of 32 study schools that had successfully implemented five specific personalized learning strategies—learner profiles, personal learning paths, competency-based progression, flexible learning environments, and a focus on college and career readiness.

Results found that study students made significantly greater gains in math and English language arts than a comparison group of similar students from comparable schools.³⁴ These findings were consistent with data that RAND had reported in the prior year, but the sample for this study was three times larger. Another significant finding was that, even though most of the study students had started below the national averages in mathematics and reading, they generally ended with scores near or above the national averages after two years in personalized learning schools.

Informing Progress: Insights on Personalized Learning Implementation and Effects (2017)

New evidence from a July 2017 study by the RAND Corporation found that students participating in personalized learning schools had modest gains in reading and math scores, as compared peers in other schools and that personalized learning is “benefitting students of all ability levels.”³⁵ Additionally, the study found evidence suggesting that the more a school implements personalized learning practices, the greater the positive effects on student achievement. With that said, the authors noted that this finding requires further research in order to be confirmed because of the low implementation of personalized learning at some of the study schools, which suggests that the real limitations may not be in the designs themselves, but in actually getting them implemented.

What was Missing from the Literature?

Throughout this section we examined theory, research, studies, and literature that examined the construct of student-centered learning as a whole. From this review, we identified five of our seven principles, which were referenced throughout—positive relationships, student-ownership and agency, real-world relevant, competency-based, and anytime, anywhere.

From our review, it became apparent the primary focus of the research and case studies was on the benefits of student-centered learning for students when the *academic* experience is redesigned. However, from our examination of the history of student-centered learning, as well as ample research to be shown in Part 5, we know that non-academic factors play a critical role in a student’s development and academic success. Because of the importance of these non-academic factors, we decided it was necessary to add two more principles that reflected this: positive identity development and foundational needs met.

PART 5

Research Supporting Each Principle of Student-Centered Learning

In the previous sections, we provided an overview of the history of student-centered learning, as well as a review of the research and literature that examined student-centered learning as an overall construct. However, because none of the studies or theories comprehensively included or examined all seven of our principles it was imperative that we provide evidence and justification for why we chose each of them.

In this section we have also provided some real world examples of how schools and districts are implementing each principle. However, we want to emphasize our earlier point that there is no “right way” or specific program that schools should use in order to realize our principles. Rather, these examples are merely a few of the many programs, curricula, tactics, and strategies that educators can draw from as they decide how best to implement student-centered learning.

Additionally, we want to note that we have labeled and ordered the principles in this paper solely for organizational purposes, and not in any special order of significance.



Principle #1: Positive Relationships

In our current Taylorist public education system, the relationship between the student and teacher does not have the opportunity to positively develop because it places teachers in a position of authority over the students.³⁶ Teachers dictate what they need to know and how to do tasks, thereby alienating the student from their own intellectual curiosity and creativity.

This design contradicts the large body of research which shows that when students have positive relationships with their teachers they are better able to tackle academic challenges, develop higher self-esteem, and learn about appropriate peer relationships.³⁷ Also, students who believe that their teachers care about their success and have high academic expectations for them are more motivated to meet those expectations, and they also perform better academically than their peers who do not.³⁸

Positive student-to-teacher relationships are particularly important for low-income students. Research shows that low-income students who have positive relationships with their teachers have higher academic achievement and more positive social-emotional adjustment than similar students who do not.³⁹

The application of Taylor’s scientific management to public education has also made it difficult for positive relationships amongst students to develop because it prevents them

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from regularly interacting with one another and forces them to be in competition for grades. However, strong relationships between students play a critical role in their academic and social outcomes, and long-term success.⁴⁰ Research has also found that positive peer relationships are important in a student's personal growth,⁴¹ academic success,⁴² and critical to a student's cognitive, social, and language development.⁴³

This is particularly true for students who have adverse family circumstances, as measured by ecological disadvantage, violent conflict, and harsh discipline. Research has found that peer acceptance can serve as a “moderator” for all these measures.⁴⁴

Advisory: Positive Relationships in Practice

Advisories are a widely promoted program for developing and fostering positive teacher-to-student and student-to-student relationships. In practice, advisories can take many different forms in size and frequency, from one-on-one to group sessions that can meet daily or weekly. Importantly, by facilitating a small peer community of learners, advisories help students more meaningfully connect with one another⁴⁵ as well as with their advisor. Research shows that strong adult mentorship can increase the likelihood of graduation and postsecondary success for high school students, greater student advocacy, and personal growth.⁴⁶

The Noble Network of Charter Schools in Chicago is an example of a successful advisory program. Students in Noble's schools are assigned an advisor that they stay with until graduation. Advisors meet with their advisees daily and check in with them about their courses, grades, attendance, and behavior. Advisors also assist with navigating the college process and are in regular communication with their advisees' families.⁴⁷



Principle #2 : Foundational Needs Met

There is a significant amount of research indicating that if a student is to be successful, in academics and life, then their “foundational” needs—physical, psychological, and safety—must be met.⁴⁸ Specifically, when these basic needs are met, students miss fewer classes and days of school, have higher engagement, are less likely to participate in “risky or antisocial behavior,” and have higher academic achievement.⁴⁹

Our nation's public education system, however, has continuously fallen short in supporting students in meeting these basic needs. On average, more than 21 million students receive a free or reduced price school lunch per day.⁵⁰ However, only 12.1 million (a little over half) of those students receive a free or reduced priced school breakfast,⁵¹ which is unacceptable given that 76 percent of public school teachers report that their students regularly come to school hungry.⁵²

Another unmet need that is gaining more attention in public education research is toxic stress, which is “prolonged activation of stress response systems in the absence of protective relationships.”⁵³ Research shows that toxic stress leads to quantifiable changes in areas of the brain that are centrally involved in learning and can result in learning problems.⁵⁴ There is also a growing amount of research on how toxic stress “can switch on certain genes that may lead to serious illness”⁵⁵ and also “negatively affects emotional regulation.”⁵⁶ For example, students who have experienced toxic stress may have a harder time sitting still in class and may exhibit disruptive classroom behavior.⁵⁷ Additionally, the more adverse experiences that students have during their childhood—poverty, abuse or neglect, parental substance abuse or mental illness, and exposure to violence—the greater the likelihood that they will have developmental delays and greater health problems like diabetes, depression, substance abuse, and heart disease.⁵⁸

We recognize that there are several other unmet student needs that we have not mentioned. Fortunately, there are several initiatives across the country that are dedicated to meeting the foundational needs of students. One of those initiatives is community schools, which offer a wide range of services and opportunities in partnership with community stakeholders and service providers, like mental and physical health services, after school and summer programming, and family support services.⁵⁹ Research has found that students in community schools have higher

attendance rates, math and English achievement rates, and grade point averages, while also having lower dropout rates.⁶⁰

Trauma-informed schools are another initiative designed to meet the needs of students. When schools adopt trauma-informed approaches—that is, reshaping their organizational culture, practices, and policies to be more sensitive to the experiences and needs of their students⁶¹—research has found a corresponding increase in student resilience,⁶² coping skills,⁶³ attendance,⁶⁴ and graduation rates.⁶⁵ Additionally, these practices, over the long term, are associated with a decrease in discipline referrals, out-of-school suspensions, and incidents of physical aggression.⁶⁶

Family League of Baltimore: Meeting Foundational Needs in Practice

The Family League of Baltimore partnership with Baltimore City Public Schools, the mayor, and City Council is an example of a successful community schools initiative. There are over 45 community schools across the city, which provide students with mental health supports, after-school programs, and access to food, to name a few. These efforts have contributed to a reduction in chronic absenteeism rates, increased student achievement, and increased student participation in afterschool activities.⁶⁷



Principle #3: Positive Identity

Our current public education system is not designed to recognize the uniqueness of each student, nor to help them develop a sense of positive identity. Rather the system relies on the assumption that academic motivation and student effort are a result of the teacher’s instruction and a student’s pre-existing aptitude, rather than take into account the identity—culture, background, and experiences⁶⁸—of the student.⁶⁹ This is contradictory to ample research which finds that positive identity development is critical to a student’s academic and social outcomes.

Psychologists stress that adolescence is an incredibly important period of development for the formation of an individual’s healthy identity.⁷⁰ This is significant because a person’s identity has a lot of influence not only on how they perceive others, but also on their own self-esteem and confidence.⁷¹ Relatedly, when schools do not effectively facilitate opportunities for students to develop a positive self-identity, they are more likely to have increased concerns about social acceptance and higher feelings of inadequacy in their academic performance.⁷²

Unsurprisingly, teachers are very important to the development of a student’s positive identity. A 2011 research paper by the University of Massachusetts Boston found, “Too often teachers, administrators, and other school staff approach their students with cultural blindness, constructing cultural differences as impediments rather than assets. As a result, many students of color are disengaged in their educational experience, report feeling uncomfortable in school, and have higher stress levels.”⁷³ However, when teachers use cultural resources to teach knowledge, skills, values, and attitudes then student achievement is raised and students of color “maintain identity and connections with their ethnic groups and communities...and acquire an ethic of success.”⁷⁴

Relatedly, research has found that students of color benefit from having teachers who share their racial and ethnic identity. Specifically, teachers of color “can be more motivated to work with students of color in high poverty, racially and ethnically segregated schools” and have higher academic expectations for students of color.⁷⁵ However, it’s not just students of color that benefit from having a teacher of color. Rather, research has found that for all students, positive exposure to individuals from a wide range of races and ethnic groups, particularly in childhood, can “help to reduce stereotypes, attenuate unconscious implicit biases and help promote cross-cultural social bonding.”⁷⁶

A school’s climate can also impact the development of a student’s identity. A positive school climate promotes positive student identity development, higher self-esteem,⁷⁷ elevated psychological well-being,⁷⁸ higher student academic motivation and engagement,⁷⁹ and improved behavioral, academic, and mental health outcomes for students.⁸⁰ On the other hand, in schools with a negative climate, students are more likely to experience violence, bullying, and punitive disciplinary actions, which are often accompanied by reduced academic achievement and high levels of student absenteeism.⁸¹

Network for the Development of Children of African Descent (NDCAD): Positive Identity in Practice

NDCAD is a family education center that serves children, families, and communities throughout the Twin Cities metropolitan area. They offer a number of literacy and cultural enrichment programs, including tutoring, free children's books with an African cultural focus, the Sankofa Reading program, as well as parent and teacher training. Their goal is to "positively impact the cultural, spiritual, and academic development of children by working holistically with young people, parents, educators, and the community." They believe that the development of positive cultural identity should be integrally linked with efforts at developing academic literacy.



Principle #4: Student Ownership and Agency

In a Taylorist public education system, students are taught from a predetermined curriculum and provided with "efficient" step-by-step procedures for completing tasks. This results in students having minimal ownership and agency in their learning.

This contradicts a large body of research which has found that meaningfully involving students in their education can increase their academic achievement, motivation, effort, participation, and engagement in their learning.⁸² When given choice in their learning, students engage in deeper, richer learning, display more on-task behavior, and the learning environment becomes more collaborative.⁸³ Research also shows that when students are given autonomy in their learning they are more likely to better develop their 21st century or "character" skills in critical thinking, problem solving, teamwork, creativity, grit, perseverance, and time management. These are some of the most sought after skills for employers.⁸⁴

One type of program that increases student ownership and agency is project-based learning, which is a "student-driven, teacher-facilitated approach to learning."⁸⁵ Project-based learning creates the opportunity for students to gain knowledge and skills by doing research and inquiry, under teacher supervision, by responding to an engaging, relevant, and complex question or problem. The student then translates their knowledge into a project that they present to a small audience. Students who are engaged in project-based learning exhibit higher academic gains on standardized assessments than their peers in traditional schools, and are more responsible, independent, and disciplined.⁸⁶

Whatever the program, if students are going to have more ownership and agency in their learning, it is imperative that the traditional roles of students and teachers change. Evidence shows that teachers who "highly supported" student autonomy are more likely to encourage student initiative, support intrinsic student motivation, nurture competence, use non-controlling communication, and promote internalization by providing rationales and promoting the value of a task.⁸⁷

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Pittsfield School District: Student Ownership and Agency in Practice

In 2011, Pittsfield Middle High School, which serves grades 7-12 in New Hampshire, began its innovative, student-centered approach when it transitioned to being more focused on student-led discussions, small-group work, and individual projects.⁸⁸ The individual grading system was also replaced with a matrix of “competencies,” which detailed the skills and knowledge that students are expected to master in each class.⁸⁹ There are also online classes available to students so they can further challenge themselves and earn college credit.⁹⁰ Student voice and input is also included with regard to decisions on school rules, regulations, and discipline.⁹¹ The goal is for students to carry more of the responsibility for their own learning and they are also expected to develop critical thinking skills that are required for “real world” success.⁹² Because the program has been so successful at Pittsfield Middle High School, it was expanded to the elementary school for the 2017-18 academic year.



Principle #5: Real-World Relevant

Over 100 years ago, our public education system was designed with the goal of educating the masses to work in an era of compliance, standardization, and automation. Even though our economy and industries have changed, the design of our public education system has not. This is problematic because the majority of today’s students will be employed in jobs that don’t exist yet⁹³ and the business community is pleading for something different.⁹⁴

In fact, recent studies⁹⁵ and employer surveys⁹⁶ have revealed that many companies are struggling to find employees to fill jobs, with 57 percent of CEOs indicating that they have had a hard time finding employees with fundamental skills in math, reading, and writing.⁹⁷ Additionally, the vast majority of Americans support adding job or career skills classes in schools, and think it is “highly important for schools to help students develop interpersonal skills, such as cooperative, respectful of others and persistent at solving problems.”⁹⁸

Engagement and motivation is directly related to whether or not a student finds relevance in what they’re learning.⁹⁹ This is important because student engagement has consistently been found to be a strong predictor of student performance and behavior in the classroom,¹⁰⁰ decreased likelihood of student alienation,¹⁰¹ and a precursor to long-term academic achievement and graduation.¹⁰² Also, students who are engaged in school earn higher grades,¹⁰³ have higher standardized test scores,¹⁰⁴ better attendance,¹⁰⁵ and are less likely to drop out.¹⁰⁶ This last point is significant, because surveys have found that about half of high school dropouts reported being uninterested in what their schools had to offer and that their schoolwork was not relevant to where they were in their lives or in their experiences outside of school.¹⁰⁷

There are a number of different programs—work-based learning, makerspaces, interdisciplinary learning, internships, career fairs—educators can utilize in order to incorporate the real-world relevant principle into their schools. Importantly, the program must be relevant to the student. For example, if a student is interested in public policy or social issues, they could volunteer at a homeless shelter, interview legislators, or research effective job creation programs.

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Additionally, students should be able to demonstrate their learning through a variety of methods that build their real-world, 21st century skills. Student portfolios, performance exhibitions, and digital assessments are a few examples of strategies that educators can use to diversify the ways students can demonstrate their learning.¹⁰⁸ This point will be discussed further in our next principle, competency-based.

Work-Based Learning: Real World Relevant in Practice

Work-based learning provides students with exposure to working professionals and allows them to better understand the jobs, careers, and skills that are needed to succeed in today's workforce. Some of the student benefits from participating in work-based learning are that they:

- Connect what they are learning in the classroom to the education and skills that they need in order to succeed in the workplace;
- Become more motivated to do well in school and pursue postsecondary education;
- Gain an understanding of workplace norms, which include “soft skills” that might influence their career success;
- Explore and learn about a wide variety of careers, which can help them make more informed decisions about their education and career goals.¹⁰⁹



Principle #6: Competency-Based

The Taylorist model of public education goes against core cognitive science principles, which contend that new knowledge is built upon prior knowledge.¹¹⁰ Under the Taylorist model, students are taught in a standardized fashion and move along, whether they have mastered the material or not, by age or if they have spent an arbitrary amount of time in a class. If a student is moved along year after year, despite not mastering the content, then gaps in their knowledge will become larger, which can result in serious life challenges.¹¹¹

In contrast, competency-based learning is personalized with respect to pacing, support, and determination of mastery. Students don't move onto another topic until they have demonstrated mastery on a set of competencies that have been deemed requisite to that new topic. Some students will move through the content more quickly, but students who are struggling will receive the support and time that they need. The result is differentiated, equitable learning that meets the individual needs of each student.

An important part of competency-based education is scaffolding, which is when students receive assistance on an “as-needed basis, fading the assistance as their competence increases.”¹¹² Scaffolding can take many forms, including discussion before a lesson about current knowledge a student has, technology, leading questions and prompts, and teacher support before, during, or after a lesson, to name a few. When educators provide students with these types of support, it activates prior knowledge in a way that pushes students without frustrating them to the point where they give up.¹¹³

Education technology, in particular adaptive software, can play an important role in competency-based education. These tools personalize learning to each student's needs and creates “an instructionally sound and flexible environment that supports learning for students with a range of abilities, disabilities, interests, backgrounds, and other characteristics.”¹¹⁴ It also allows students to be in charge of how they learn, while also assisting educators with identifying gaps in a student's knowledge and keeping them on track.

“Competency-based learning is personalized with respect to pacing, support, and determination of mastery.”

Another important component of competency-based education is diversifying how students demonstrate their learning. For example, through portfolios and performance assessments.¹¹⁵ In recent years, there has been a lot of pushback from teachers, families, organizations, and students regarding the usefulness of standardized, multiple-choice assessments. In fact, only 42 percent of adults think that performance on standardized tests are a highly important indicator of the quality of a school.¹¹⁶

Expanding beyond using only multiple-choice assessment is important because high-stakes testing has been shown to negatively impact motivation and learning, narrow curricula,¹¹⁷ and often does not accurately reflect a student's performance in the real world.¹¹⁸ Additionally, research supports using multiple forms of assessment to measure student growth. In particular, research on performance assessments, which requires students to perform a task or generate their own responses, shows they are better for assessing and acquiring high level, complex thinking skills and are more likely to encourage the acquisition of them.¹¹⁹

Sanborn Regional School District: Competency-Based in Practice

Since 2010, Sanborn Regional School District has been redesigning their E-12 public education system to be competency-based, which includes a competency-based grading, curriculum, and reporting system for all of its courses and grade levels. Today, Sanborn is considered to be a national leader in competency-based learning.



Principle #7: Anytime, Anywhere Learning

In his book, *Blueprint For Tomorrow*, Prakash Nair, one of the world's leading school architects, explains that school buildings “need to be designed from the ground up to support four essential design principles. They need to be welcoming, be versatile, support various learning activities, and send positive messages about activity and behavior.”¹²⁰

These four design principles are often missing in today's schools. Rather, students are educated according to age and in classrooms containing rows of desks with the teacher at the front of the classroom. Students are confined to their desks or classrooms, and are only allowed to move to their next, designated space upon hearing a bell. It's a rigid design that restricts where, what, and when a student learns.

However, in recent years there have been a growing number of schools across the country that are creating more flexible and innovative learning environments, with hallways, stairwells, and other parts of the school becoming places to learn. An example of this innovation is flexible classrooms, which “give students a choice in what kind of learning space works best for them, and help them to work collaboratively, communicate, and engage in critical thinking.”¹²¹ Albemarle County Public Schools, located in Virginia, implemented flexible classrooms over 10 years ago. They restructured classrooms to have at least three kinds of seating areas, flexible bookshelves, and large round or rectangular tables instead of individual working spaces.¹²² Walking into a classroom, there might be students lying on the floor, sitting at low tables on their knees, or standing up. Since the district has implemented flexible classrooms, they have noticed that their students' grades have improved and they seem happier and more engaged.¹²³

There are also benefits to students' learning outside of the school building, school day, and school year. Practically speaking, students spend only 20 percent of their “waking time annually in formal classroom education, leaving 80 percent of their time to explore and enhance their learning interests in nonschool settings.”¹²⁴ There are a variety of programs or opportunities—internships, work-based programs, community service, flexible learning, etc.—schools can utilize to engage students in anytime, anywhere learning, as described in the real-world relevant principle section.

By creating opportunities for students to receive credit for engaging in activities outside of the school building and school day, schools are recognizing that some students face barriers that prohibit them from fully engaging during the traditional school day. Survey results and research have

found that many high school dropouts left school for personal reasons, “about one-third [of dropouts] reported they had to get a job and make money; a quarter said they became a parent; and about a fifth said they had to care for a family member. Many of these young people reported doing reasonably well in school and had a strong belief that they could have graduated if they had stayed in school.”¹²⁵ By providing options for anytime, anywhere learning, schools are being responsive to the individual needs of their students and creating opportunities for them to be successful.

“By providing options for anytime, anywhere learning, schools are being responsive to the individual needs of their students.”

Big Picture Learning: Anytime, Anywhere Learning in Practice

In their book, *Leaving to Learn*, Elliot Washor, co-founder of Big Picture Learning (BPL), and Charles Mojkowski, a former educator and administrator, support the argument for allowing students to participate in more out-of-school learning experiences. Citing high and persistent dropout rates as well as the “big four” reasons for why students dropout—academic failure, behavioral problems, life events, and disinterest—the authors contend that allowing students to learn outside of the confines of a school increases student engagement and reduces dropout rates. They also assert that these opportunities can reclaim back to school students who had previously dropped out.

These arguments are not just theoretical. BPL schools routinely have higher four-year graduation rates than their respective district schools, as well as have more students passing the state English and mathematics assessments. Additionally, almost 80 percent of BPL students take college courses while in high school, and survey results show that 66 percent of former BPL students “believe that their BPL experience prepared them for the life they ended up pursuing.”¹²⁶

Conclusion

Student-Centered Learning: From Principles to Action

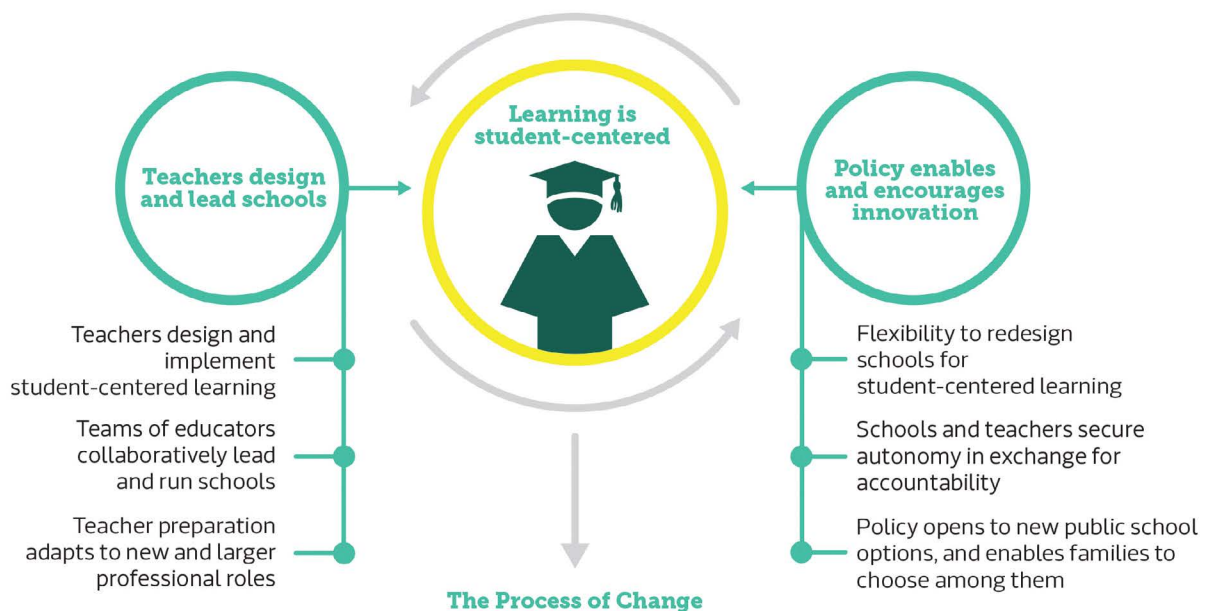
At Education Evolving, our seven principles of student-centered learning serve as a guidepost for all of our current and future work, and our theory of change reflects that belief. Specifically, we assert that in order to get to student-centered learning, two things must occur:

1. Teachers, who work closest with the students, must have larger professional roles in designing and leading schools.
2. Policy must enable and support innovation, by removing barriers, creating space, and fostering a climate of encouragement for educators who are reimagining learning.

We argue that the transition to student-centered learning cannot be orchestrated from a hierarchical, top-down structure. Rather, bold innovation and continuous improvements to traditional school should happen side-by-side in a “split screen,” which provides the opportunity for changes to occur organically, over time as innovative approaches to learning are tried, refined, replicated, and adopted by others.

We also recognize that our principles of student-centered learning are not intransigent. Rather, they are evolving and will likely be refined and amended as more research emerges and as we engage with more stakeholders.

We look forward to working with educators, students, families, and communities to advance our seven principles of student-centered learning and our theory of change so that, one day, all students will receive an equitable, rigorous, and relevant education that meets their unique needs.



Bold innovation and continuous improvement happen side by side in a “split screen”. Change is not orchestrated from the top-down. The system changes organically, innovative approaches to learning spread and improve, as they are tried, refined, and replicated.

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