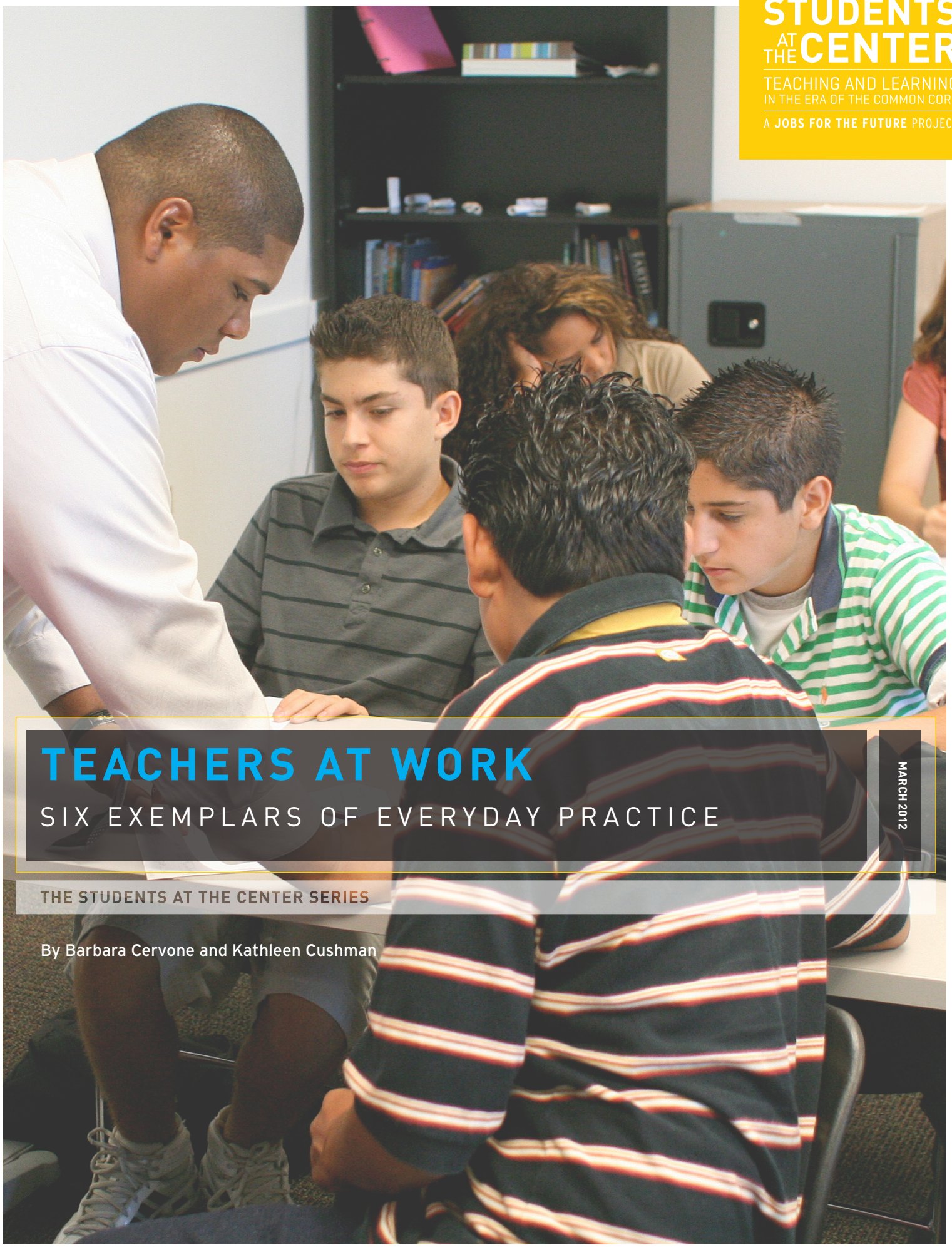
STUDENTS AT THE CENTER

TEACHING AND LEARNING IN THE ERA OF THE COMMON CORE

A JOBS FOR THE FUTURE PROJECT



TEACHERS AT WORK

SIX EXEMPLARS OF EVERYDAY PRACTICE

MARCH 2012

THE STUDENTS AT THE CENTER SERIES

By Barbara Cervone and Kathleen Cushman

EDITORS' INTRODUCTION TO THE STUDENTS AT THE CENTER SERIES

Students at the Center explores the role that student-centered approaches can play to deepen learning and prepare young people to meet the demands and engage the opportunities of the 21st century. *Students at the Center* synthesizes existing research on key components of student-centered approaches to learning. The papers that launch this project renew attention to the importance of engaging each student in acquiring the skills, knowledge, and expertise needed for success in college and a career. Student-centered approaches to learning, while recognizing that learning is a social activity, pay particular attention to the importance of customizing education to respond to each student's needs and interests, making use of new tools for doing so.

The broad application of student-centered approaches to learning has much in common with other education reform movements including closing the achievement gaps and providing equitable access to a high-quality education, especially for underserved youth. Student-centered approaches also align with emerging work to attain the promise and meet the demands of the Common Core State Standards.

However, critical and distinct elements of student-centered approaches to learning challenge the current schooling and education paradigm:

- Embracing the student's experience and learning theory as the starting point of education;
- Harnessing the full range of learning experiences at all times of the day, week, and year;
- Expanding and reshaping the role of the educator; and
- Determining progression based upon mastery.

Despite growing interest in student-centered approaches to learning, educators have few places to which they can turn for a comprehensive accounting of the key components of this emerging field. With funding from the Nellie Mae Education Foundation, Jobs for the Future asked nine noted research teams to synthesize existing research in order to build the knowledge base for student-centered approaches to learning and make the findings more widely available.

The topic of this paper, as with each in the series, was selected to foster a deeper, more cohesive, research-based understanding of one or more core elements of student-centered approaches to learning. The authors in this series: synthesize and analyze existing research in their areas; identify what is known and where gaps remain related to student-centered approaches to learning; and discuss implications, opportunities, and challenges for education stakeholders who put students at the center. The authors were asked to consider the above definition of student-centered approaches, but were also encouraged to add, subtract, or critique it as they wished.

The authors were not asked explicitly to address the Common Core State Standards. Nevertheless, the research proceeded as discussions of the Common Core were unfolding, and several papers draw connections with that work. The thinking, learning, and teaching required for all students to reach the promised outcomes of the Common Core provide a backdrop for this project. The introductory essay looks across this paper and its companion pieces to lift up the key findings and implications for a new phase in the country's quest to raise achievement levels for all young people.

The nine research papers are loosely organized around three major areas of inquiry—learning theory; applying student-centered approaches; and scaling student-centered learning—although many of the papers necessarily cross more than one area:

1. **LEARNING THEORY:** What does foundational and emerging research, particularly in the cognitive and behavioral sciences, tell us about how students learn and about what motivates them to learn?
   Mind, Brain, and Education
   Christina Hinton, Kurt W. Fischer, Catherine Glennon
   Motivation, Engagement, and Student Voice
   Eric Toshalis, Michael J. Nakkula

2. **APPLYING STUDENT-CENTERED APPROACHES:** How are student-centered approaches to learning implemented? What is the nature of teaching in student-centered learning environments? How can students who are underrepresented in postsecondary education be engaged earlier and perform well in the math and reading activities that scaffold learning? How are advances in technology customizing curriculum and changing modes of learning to meet the needs of each student?

   Teachers at Work—Six Exemplars of Everyday Practice
   Barbara Cervone, Kathleen Cushman
   Literacy Practices for African-American Male Adolescents
   Alfred W. Tatum
   Latino/a and Black Students and Mathematics
   Rochelle Gutierrez, Sonya E. Irving
   Curricular Opportunities in the Digital Age
   David H. Rose, Jenna W. Gravel

3. **SCALING UP STUDENT-CENTERED APPROACHES TO LEARNING:** How have schools sought to increase personalization and with what outcomes for learning? What is the relationship between assessment and student-centered approaches? What can districts do to support student-centered approaches to learning?

   Personalization in Schools
   Susan Yonezawa, Larry McClure, Makeba Jones
   Assessing Learning
   Heidi Andrade, Kristen Huff, Georgia Brooke
   Changing School District Practices
   Ben Levin, Amanda Datnow, Nathalie Carrier

A number of distinguished researchers and practitioners serve as advisors to *Students at the Center* including Scott Evenbeck, founding president of the New Community College, City University of New York; Charles Fadel, Visiting Scholar, Harvard Graduate School of Education, MIT ESG/IAP, and Wharton/Penn CLO; Ronald Ferguson, Senior Lecturer in Education and Public Policy, Harvard Graduate School of Education and the Harvard Kennedy School; Louis Gomez, Professor and the John D. and Catherine T. MacArthur Foundation Chair in Digital Media and Learning, Graduate School of Education and Information Studies, UCLA; Susan Moore Johnson, Professor and the Jerome T. Murphy Professor of Education, Harvard Graduate School of Education; Jim Liebman, Simon H. Rifkind Professor of Law, Columbia University School of Law; Miren Uriarte, Professor, College of Public and Community Service, University of Massachusetts, Boston; and Arthur VanderVeen, Vice President, Business Strategy and Development at Compass Learning.

To download the papers, introductory essay, executive summaries, and additional resources, please visit the project website: www.studentsatthecenter.org.

Over the coming months, Jobs for the Future and the Nellie Mae Education Foundation will craft opportunities to engage a broad audience in the conversation sparked by these papers. We look forward to building a shared understanding and language with you for this important undertaking.

Nancy Hoffman, Adria Steinberg, Rebecca Wolfe

Jobs for the Future

JOBS FOR THE FUTURE

Jobs for the Future identifies, develops, and promotes education and workforce strategies that expand opportunity for youth and adults who are struggling to advance in America today. In more than 200 communities across 43 states, JFF improves the pathways leading from high school to college to family-sustaining careers.

WWW.JFF.ORG

The **Nellie Mae Education Foundation** is the largest charitable organization in New England that focuses exclusively on education. The Foundation supports the promotion and integration of student-centered approaches to learning at the high school level across New England. To elevate student-centered approaches, the Foundation utilizes a strategy that focuses on: developing and enhancing models of practice; reshaping education policies; increasing the body of evidenced-based knowledge about student-centered approaches and increasing public understanding and demand for high-quality educational experiences. The Foundation's initiative and strategy areas are: District Level Systems Change; State Level Systems Change; Research and Development; and Public Understanding. Since 1998, the Foundation has distributed over $210 million in grants.

WWW.NMEFOUNDATION.ORG

ABOUT THE AUTHORS

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Kathleen Cushman is an educator and writer who has specialized in the lives and learning of youth for over two decades. In 2001 she co-founded What Kids Can Do, Inc., with Barbara Cervone. Her work there has resulted in nine book collaborations with students, most recently *Fires in the Mind: What Kids Can Tell Us About Motivation and Mastery* (Jossey-Bass 2010).

ACKNOWLEDGMENTS

The authors wish to thank the many teachers, students, and administrators at the six schools in our study for taking time, during their busy days in the spring of 2011, to show us their work and engage with us in reflective conversations. They also provided us with extensive documents relating to school design and practices, which served as helpful background in our descriptions of each school. Where not otherwise indicated, data herein that refers to student enrollment and achievement comes from materials publicly available from districts or school networks. All quotes in this paper were recorded during our visits to the schools.

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INTRODUCTION

> Right when they're trying to step into adulthood, all of their relationships with adults disappear. And adolescents drown in adolescence."
>
> —Greg Cluster, coordinator, MetWest internship program

> "That's when you develop the relationship, with your teachers knowing: "You can do it and we're going to help you through it the whole way. We're not going to give up, and you're not going to give up."
>
> —Michael, grade 10 student, Alief Early College High School

What does teaching look like when it truly centers on the student's learning needs? What conditions foster and support such teaching? What kind of learning environments give all students, and especially underserved youth, access to an education that results in the skills, knowledge, and habits they will need for a successful and productive adult life in our rapidly changing world? How can schools and teachers in the very diverse population served by U.S. schools adapt their structures and practices so as to coach the ongoing social, emotional, and intellectual development of all students?

For almost 40 years, the two of us have championed high schools that put students at the center. Along the way—as writers, researchers, journalists, school founders, and school reformers—we have asked and been asked these questions again and again. The bottom line always comes down to this: "How do we challenge students to do their best?"

We have learned a lot about student-centered learning environments both on the ground and from a critical distance. We find that they come in many shapes and sizes, depending on context. These institutions both emerge from and adapt to local conditions and challenges. Each reflects the educational priorities of its immediate community and leadership, as well as its formulation of the distinct problems it seeks to address and the particular design it embraces: an emphasis on community internships, early college access, technology, the needs of English language learners, and "habits of mind."

We have also learned—firsthand and from the research—that schools deeply committed to student-centered learning nonetheless share a common basis. They all support each student in developing a new relationship to learning, defined by ever more complex challenges, increasing autonomy in addressing those challenges, and expanding awareness of the connections of the learner's own work to that of the larger world. Just as important, they all support teachers, who must themselves develop a fresh relationship to their craft and a cornucopia of new skills.

How do we challenge students to do their best? What does teaching look like when it centers on the student's learning needs? The six school sites visited as part of this inquiry—widely regarded as exemplars of "deep" student-centered learning but with very different contexts and designs—had much to demonstrate. We observed and documented practices,

structures, and tools, all of which illustrated, in their different ways, the kind of teaching that student-centered learning requires. As we interviewed teachers, students, and administrators and learned more about their experiences, challenges, and perspectives, we repeatedly revisited and enlarged our base of understanding.

In the end, we came to see and believe that learning that is truly student centered—more than simply inserting an advisory period into the school schedule or requiring a senior project for graduation—demands a new brand of teaching, coupled with daily acts of invention. Its practice ignites an ever-changing dynamic, what Joseph McDonald (1992) has called a "wild triangle" that links teacher, student, and subject. Clear evidence of success or failure may elude the teacher in the moment, he suggests; yet "out of the uncertainty, craft emerges."

We were also reminded, at each turn, that the purpose of paying attention to students, as Patricia Carini (2000) says, "is not to figure them out." Rather, it directly relates to the central work of teaching: "to be more sensitively attuned to who [students] are and are becoming, so that, recognizing them as persons, we can assist and support their learning better."

Finally, at every school we visited, we saw educators tuning their practice to meet the academic, social, and emotional development of the young people in their charge. Neither these schools nor their teachers began with perfect pitch. Instead, they embraced the steady work of adjusting the pitch, modifying the approach, and fixing wrong notes.

Before exploring those aspects of student-centered learning further, however, we first step back to the historical antecedents of what we observed in these schools during the spring of 2011—and point to the dearth of research on student-centered teaching practice, despite its deep roots in progressive education.

HISTORICAL ANTECEDENTS AND EXTANT RESEARCH

Taken in their nineteenth-century cultural context, the principles held by Horace Mann (1796-1859), who initiated the common schools movement and professional teacher training in the United States, might be said to have laid the foundation for student-centered teaching and learning. As secretary of education in Massachusetts, Mann advocated for public schools serving children from a variety of backgrounds, taught by well-trained teachers, and informed by the spirit, methods, and discipline of a free society (Finkelstein 1990).

A generation later, Francis W. Parker (1837-1902) took Mann's ideas in a more progressive student-centered direction. A Civil War colonel from New Hampshire who traveled abroad to study the pedagogy of educational philosophers including Rousseau, Froebel, and Herbart, Parker in 1875 became superintendent of schools in Quincy, Massachusetts. There he rejected standardization, rote learning, and grading and ranking systems, instead centering curricula and instruction on developing the "whole child." John Dewey (1859-1952), who greatly admired Parker, called him the "father of progressive education."

Dewey himself, an American philosopher and educational reformer in the first half of the twentieth century, maintained that the purpose of schooling was to draw out students' full potential, developing skills that they could use for the greater good of society (Dewey 1938, 1916, 1900). His description of the dynamic among teacher, student, and subject matter foreshadows McDonald's "wild triangle": the teacher acting as guide and facilitator; the student as inquirer and explorer; with knowledge and meaning-making grounded in "the impressions made upon us by natural objects" (Dewey 1916).

From the 1960s through the 1970s, cultural shifts in the United States and abroad gave rise to changes in schooling as well. Some schools adopted structures and pedagogies that veered away from what Brazilian educator Paulo Freire dubbed the "banking model" of education: Teachers deliver knowledge and students passively receive it (Freire 1970). Experiments with more student-centered approaches were drawing notice on the international scene. Among those gathering a dialogue about such issues was Theodore R. Sizer, the young dean of Harvard University's Graduate School of Education, who by the early 1980s had returned to schooling and was deep into a landmark study of the American high school (Sizer 1984).

In 1984, Sizer launched the Coalition of Essential Schools, a widespread movement of (largely secondary) schools willing to attempt a radical restructuring that put the student at the center of teaching practice. Its nine (later ten) "Common Principles" articulated a stripped-down inquiry approach, bringing together many of the progressive concerns that had gathered strength in prior decades (CES 1994). Partly because it rested on principles rather than a particular model, CES soon attracted roughly 1,200 schools willing to work in their own fashion toward more student-centered structures and practices.

» The considerable challenges to school structures presented by such principles—which suggested, for example, longer-block schedules, interdisciplinary curriculum, team teaching, and teacher advisement—also entailed significant challenges for teachers.

The considerable challenges to school structures presented by such principles—which suggested, for example, longer-block schedules, interdisciplinary curriculum, team teaching, and teacher advisement—also entailed significant challenges for teachers.

Until the 1980s, professional development for in-service teachers typically took place school by school, not systemically. But in the New York City school system of the 1980s, District 2 and later District 4 (each led, at different points, by Anthony Alvarado) set out to instill "best practices" across the board: common planning time for teams of teachers who share the same students; inter-classroom observations; collaborative critique and reflection; and the like (McDonald forthcoming; Elmore & Burney 1997). In 1993, Stanford University researcher Milbrey McLaughlin described the crucial role played by professional learning communities in generating knowledge, crafting new norms of practice, and sustaining participants in their efforts to reflect, examine, experiment, and change (Lieberman 1995; McLaughlin & Talbert 1993). Research also linked professional learning communities to increased student achievement (Dufour & Eaker 1998).

Equity issues came to the fore in teacher discourse and professional development, taking on urgency as the press for accountability drew attention to the great disparities (in both resources and results) among schools serving different socioeconomic communities. Lisa Delpit and Gloria Ladson-Billings, among others, made the powerful case that "student-centered" teaching required a different emphasis with low-socioeconomic-status children of color, whose chief need was entry into the culture of power (Delpit 1996; Ladson-Billings 1995). As the number of English language learners increased in the nation's schools, a similar argument emerged concerning what approaches best served them (Garcia 2002). Additionally, the need for an equitable, inclusive, and asset-based approach to teaching students with special needs (who came disproportionately from low-income families of color) rose in the consciousness of both researchers and practitioners (Carnine 1991).

Despite these deep historical antecedents—tied to the centuries-old progressive education movement—and like-minded calls for culturally responsive pedagogy and professional learning communities, the research on what teaching actually looks like in student-centered schools is stunningly sparse. However, there are substantial proxies. One finds evaluation reports of school designs built around student-centered learning—for example, *Six Years and Counting: The ECHSI Matures* (American Institutes for Research 2009) and rich portraits by small school leaders like Deborah Meier's *The Power of Their Ideas: Lessons for America from a Small School in Harlem* (1995), Dennis Littky's *The Big Picture: Education Is Everyone's Business* (2004), and Linda Nathan's *The Hardest Questions Aren't on the Test: Lessons from an Innovative Urban School* (2009).

Other scholars and educators have named "best" or "effective" teaching practices that invariably line up with the teaching practices we observed in the schools featured in this paper. "Virtually all the authoritative voices and documents in every teaching field are calling for schools that are more student-centered, active, experiential, authentic, democratic, collaborative, rigorous, and challenging" (Zemelman et al. 2005). In "Ten Roles for Teacher Leaders," Cindy Harrison and Joellen Killion (2007) offer a list that mirrors many of the roles described by the teachers we interviewed: resource provider, curriculum specialist, learning facilitator, mentor, data coach, catalyst for change.

Some researchers have examined specific strategies favored in student-centered learning environments: differentiated instruction; authentic and performance-based assessment; small group learning; project-based and constructivist learning (Subban 2006; Tomlinson 2001; Wenglinsky 2000; Lieberman 1995).

Finally, some of the richest literature on teaching practice and the exigencies of school reform relates to teacher learning. In 1995, Harvard researcher Richard Elmore noted that most school reformers took for granted that changes in structure produce changes in teaching practice, which in turn produce changes in student learning. Research on these connections presents a much more pessimistic and complex view, he said. Two years later, Elmore (1997) cautioned that the deep, systemic incapacity of U.S. schools and the practitioners who work in them to develop and extend new ideas about teaching and learning meant that new ideas would reach only a small fraction of schools and classrooms. Ralph Putnam and Hilda Borko (2004) observed that the nature of knowledge, thinking, and learning had been mostly cast in terms of students. They argued for the need to address the role of teachers in creating learning experiences consistent with the reform agenda, as well as how teachers themselves learn new pedagogical approaches. Milbrey McLaughlin (2005) called for "listening and learning from the field" to better understand how "situated practice" impacts policy implementation—for worse more than better. In "Teacher Learning: What Matters?" Linda Darling-Hammond and Nikole Richardson (2009) argued that the content of professional development can make the difference between enhancing teachers' competence and simply providing a forum for teachers to talk. The most useful professional development emphasizes active teaching, assessment, observation, and reflection rather than abstract discussions; it focuses on student learning and helps teachers develop the skills to teach and assess specific kinds of content.

While this literature on teacher learning does not examine actual teacher practice in student-centered learning environments, it underscores what we found here: Student-centered learning and teacher learning go hand-in-hand.

THE RESEARCH SITES AND THEIR STUDENT-CENTERED DESIGNS

It is impossible to estimate how many U.S. high schools embrace student-centered learning—and execute it well. Ben Levin, Amanda Datnow, and Nathalie Carrier (2012) suggest the very limited extent to which that philosophical bent appears on the radar of school districts, including those ranked by some measure as "high performing."

Related Paper in the *Students at the Center* Series[1]

***Changing School District Practices*, by Ben Levin, Amanda Datnow, and Nathalie Carrier**

In choosing our research sites, we looked for a range of models for enacting student-centered learning. The schools we selected embrace the following designs: Big Picture schools, which individualize student learning via their internship experiences; early college high schools, of which there are now 270 nationwide; the International Schools Network, with its effective approach to teaching English language learners; "hybrid" schools that integrate high tech into highly personalized instruction; and schools with long track records of putting into action the student-centered principles of the Coalition of Essential Schools.[2]

We simultaneously targeted schools where almost all of the students were low-income and minority—or rural, in one of our six choices. In every school in our study, the majority of students would be the first in their families to attend college.

We also sought—and found—substantial diversity in how individual schools take these proven models for student-centered learning and make them their own. We came to see each of our six research sites as a kind of microclimate: subject to the conditions of its topography; the sun, shade, and rain of its resources; the winds of its politics; and the life that its local soil supports, or fails to support.

It is no accident that five of our research sites are small high schools, with under 500 students. Data from a variety of studies have shown that, especially for students from low socioeconomic backgrounds, smaller school size is conducive to effective student-centered practice (Howley, Strange, & Bickel 2000). With notable exceptions—including one school in this study—teachers in small schools are more likely to know their students well, focus on their individual strengths and needs, focus on student work over time, and collaborate on instructional strategies that help students engage with rigorous work (Steinberg & Allen 2002).

ALIEF EARLY COLLEGE HIGH SCHOOL

www.aliefisd.net/groups/alief-early-college-high-school

In partnership with Houston Community College, Alief Early College High School opened with a freshman class in 2009 and by 2011 included 240 ninth and tenth graders. It will eventually enroll 480 students in grades 9-12, drawn from the Alief Independent School District in southwest Houston. The district's rapidly growing student population of 45,000 is 4 percent white, 36 percent black, 48 percent Hispanic, and 12 percent Asian (including large numbers of immigrants from Vietnam, China, and the Philippines); 70 percent

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are economically disadvantaged, and this district has the highest percentage of Hurricane Katrina refugees in the Houston area. Community-wide, local tensions center on a recent rise in gang violence.

Located on Houston Community College's new Alief campus, the school aims to serve low-income students who would be first-generation college-goers, giving them the opportunity to earn college credits while still in high school. Students can earn an Associate's degree and a high school diploma in four years. As one of the newest early college high schools, Alief has the chance to apply lessons learned from its progenitors.[3] For example, in admitting applicants, the school weighs five factors most heavily: whether students are learning English as a second language, would be first in their families to go to college, are African-American or Hispanic, are considered "at risk" of dropping out, and qualify for free or reduced lunch. Once enrolled, all students take four years of AVID (Advancement Via Individual Determination) academic enrichment and support classes, which focus on inquiry, critical thinking, and other key college skills.[4]

BRONX INTERNATIONAL HIGH SCHOOL

www.bronxinternationalhs.com

Founded in 2001 as the third member of what is now called the Internationals Network of Public Schools, Bronx International High School is one of several small schools that occupy the building of a large, failing comprehensive high school that the city closed in 2002. The school's mission is to serve English language learners (ELL) and students who have recently immigrated to the United States. It embraces the core beliefs of International Schools: heterogeneous and collaborative structures; experiential learning; language and content integration; localized autonomy and responsibility within the learning community; and one collaborative learning model for students and faculty alike.

The Bronx is the nation's poorest congressional district. Aside from poverty, students at Bronx International face the special challenges of language acquisition and (for 30 percent) the interruption of their formal education due to war or other conditions in their countries of origin. In 2010-11, the 359 students in grades 9 through 12 represented over 20 countries and spoke 14 languages; some were not literate in their native languages. Seventy percent of students have been separated from one or both parents during their families' immigration to the United States, almost all come from low-income families, and many students work to support themselves. They may also miss extended periods of school to visit relatives in their countries of origin. Documentation issues can obstruct students' access to college financial aid.

Despite these challenges, Bronx International has demonstrated impressive success with its unusually high ELL population. Student scores on the state Regents high school exit exams have steadily increased, with about half of its 2010 graduates earning a Regents diploma. Its four-year graduation rate stands at 65 percent (with 28 percent of students staying for a fifth year, it rises to 74 percent), compared to a citywide 23 percent for English language learners. Attendance has also steadily risen (86 percent in 2009-10) and the dropout rate is 4 percent, compared with 12 percent citywide. Every student applies to postsecondary education, and 14 percent attend classes through College Now, a free City University of New York program designed to prepare public high school students for college.[5]

THE DAYTON EARLY COLLEGE ACADEMY

daytonearlycollege.org

Established in 2003 under the Early College High School Initiative, with support from the Cincinnati-based KnowledgeWorks Foundation, the Dayton Early College Academy serves roughly 400 junior high and senior high school students who are mostly underrepresented in higher education, unprepared academically to meet college readiness standards, and unable to pay for college. Located on the campus of the University of Dayton, DECA was the first early college high school in Ohio and among the first nineteen in the nation. It began as a public school, the result of a partnership between the University of Dayton and the local urban school district, then reorganized to become a charter in 2007. Eighty-eight

percent of DECA's enrollment is students of color, 87 percent are "first generation college-bound," and 70 percent qualify for free and reduced lunch. Many enter DECA with test scores that put them one to three years below grade level.

DECA students graduate by completing a series of six "gateways" in which they demonstrate college-preparatory skills, personal growth, and a commitment to the community through service, job shadows, and internships. There is a core curriculum, along with a multitude of special courses and learning opportunities before, during, and after school and on weekends. Starting in the junior year, students can take classes at the University of Dayton or Sinclair Community College. All DECA students immediately enroll in college upon graduation, compared to 56 percent of African-American and 23 percent of low-income students statewide. The first-to-second-year college retention rate for DECA students stands at roughly 84 percent, compared to a national average of 54 percent. A new middle school aims to address the lack of academic preparation of the students DECA serves, which should raise the percentage of students who succeed in the high school program even further.

METWEST

www.metwest.org

Opened in 2002 as one of the first "new small autonomous schools" in the Oakland (California) Unified School District, MetWest is one of sixty public high schools nationwide pioneering the Big Picture Learning's vision of educating one student at a time, in a tight-knit community of peers, family, teachers, and community mentors. Like other Big Picture schools, MetWest holds that learning must be based on the interests and goals of each student. A student's curriculum must be relevant to people and places that exist in the real world, and a student's abilities must be authentically measured by the quality of her or his work. Working with mentors at a succession of community internships of their own choosing forms the core of each student's individualized learning plan.

MetWest enrolls 136 students in grades 9 through 12; 50 percent are Latino, 30 percent are African-American, 13 percent are Asian-American, 7 percent are white, and 70 percent qualify for free or reduced lunch. In a district characterized by poverty, gang violence, and a high dropout rate, MetWest has the highest attendance rates, the highest pass rates on the California High School Exit Exam, and the lowest suspension rates of all Oakland Unified high schools. Some 40 percent of MetWest students have parents who did not graduate from *high school*—yet at least 90 percent of them graduate and immediately go on to two- or four-year colleges. That compares with the district's graduation rate of 69 percent, with only 38 percent of graduates meeting the eligibility requirements for the California state college and university systems.

NYC iSCHOOL

www.nycischool.org

Started in 2008 with support from N.Y.C. Schools Chancellor Joel Klein and in collaboration with Cisco Systems, NYC iSchool integrates technology with learning that prizes students as autonomous and critical thinkers. Students take interdisciplinary "challenge-based modules" that engage them in the "big ideas"—and problems—of 21st-century society, as well as "core experience" courses that satisfy New York State standards. They work independently online on state Regents prep materials and foreign languages and take Advanced Placement classes using distance learning technology. Each student also participates in an internship outside the school. Students and staff have ubiquitous access to technology, from the Moodle learning management system to laptop computers and other digital equipment. The school is a flagship for N.Y.C. Department of Education's new Innovation Zone (or "iZone").[6]

With roughly 100 students per grade, NYC iSchool enrolls students in grades 9 through 12 (as of the 2011-12 school year), attracting 1,500 applicants for its latest entering class. The student body, which represents all five boroughs of the city, is roughly

40 percent Latino, 28 percent African-American, 21 percent white, and 10 percent Asian-American; half of the students qualify for free or reduced lunch. The school boasts a 95 percent attendance rate. With its "anytime, anywhere" approach to Regents preparation, students in the first three grade cohorts have worked through the required Regents material at a faster pace, and with a higher exam pass rate, than students citywide.

NOBLE HIGH SCHOOL

nhs.msad60.org

Noble High School is a rural comprehensive high school in southern Maine, serving the towns of North Berwick, Berwick, and Lebanon, with a combined population of roughly 12,000. While all but 5 percent of the approximately 1,000 students who attend Noble are white, they reflect a diverse mix of rural, working-class families, and 20 percent qualify for free or reduced lunch. Many of the students come from multiple generations of families who have never watched a son or daughter march in a high school or college graduation: 83 percent of the population in North Berwick, 86 percent in Berwick, and 91 percent in Lebanon have not earned a college degree.

In 1994, Noble joined the Coalition of Essential Schools, and the CES guiding principles have since shaped its efforts to know each student well. It moved into a new building in 2002, designed to support its philosophy. Its practices—including heterogeneous grouping, interdisciplinary teams, block scheduling, and exhibitions—are rare among large rural comprehensive high schools. With bold leadership from its principal, a substantial changeover in faculty over the years, and the backing of its school committee and local families, Noble has won a national reputation for practicing student-centered learning approaches. Seventy-nine percent of the class of 2010 were headed to four- or two-year colleges, and proficiency scores on the Maine State Assessment were on par with state averages at all grade levels and subjects.

CORE ELEMENTS OF TEACHING PRACTICE IN STUDENT-CENTERED LEARNING

video

Just Listen: Maksoom: Teachers As Role Models[7]

Maksoom, in grade 11, looks to her teachers "to show you how the real world is."

What *does* teaching look like when it truly centers on the student's learning needs? What practices, structures, and tools do the six schools in our study turn to every day to coach the intellectual, social, and emotional development of their students?

As we interviewed teachers, students, and administrators and observed them at work—in classrooms, teams, exhibitions, and the community—a collection of core elements came to the fore. Other papers in this project present the research related to student-centered learning and its defining characteristics in great detail. In this paper, we name the elements from the vantage point of practitioners who enact them daily—who may be unaware of their research base but are acute observers of their visible impact. Here is their list:

- Strong relationships with students;
- Personalization and choice in curricular and instructional tasks;
- Appropriate challenge levels for each learner;
- Supporting students' social and emotional growth and identity development;
- Anytime, anywhere, and real-world learning;
- Technology that is integral to teaching and learning;
- Clear, timely assessment and support; and
- Fostering autonomy and lifelong learning.

These core elements, we hasten to add, do not exist as discrete functions but in a dynamic relationship, affecting and contributing to one another. A focus on any one element (social and emotional learning, for example) inevitably leads to others (like assessment and support) as a school sees students' development through a more holistic lens. Such correspondences remind us that student-centered teaching does not come about as schools cherry-pick its elements one by one. Instead, it is a cultural shift involving virtually every aspect of what goes on in a school and district.

The practices we highlight are far from exhaustive—and far, far fewer than those that we observed. We chose them for their prevalence and, in some instances, their inventiveness. Based on our direct observations, our interviews with students and staff, and our deep familiarity with the research underlying these practices, we conclude that they make a real difference in the effectiveness of the learning environment for the students on whom they center.

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CORE ELEMENTS OF TEACHING PRACTICE IN STUDENT-CENTERED LEARNING

STRONG RELATIONSHIPS WITH STUDENTS

- Teacher-student advisement
- Norms of trust, respect, and inclusiveness
- Easy contact among students and teachers
- Reaching out to families
- Connecting students with community

ANYTIME, ANYWHERE, AND REAL-WORLD LEARNING

- Flexible schedules
- Community internships
- Curricular projects that engage the world outside school

PERSONALIZATION AND CHOICE IN CURRICULAR TASKS

- Personal learning plans
- Substantial choice in curricular tasks
- Opportunities to show mastery in varied ways
- Independent projects that build on special interests

TECHNOLOGY THAT IS INTEGRAL TO TEACHING AND LEARNING

- Online learning adapted to individual student needs
- Online tools that promote student collaboration
- Email

APPROPRIATE CHALLENGE LEVELS FOR EACH LEARNER

- Scaffolding
- Differentiated instruction
- Supporting students with special needs
- Focusing on habits of practice and revision so that students push themselves

CLEAR, TIMELY ASSESSMENT AND SUPPORT

- "Just in time" feedback
- Gateways and exhibitions
- Customized assessments
- Student feedback on curriculum and instruction

SUPPORTING SOCIAL AND EMOTIONAL GROWTH

- Educating the "whole child"—and knowing students well
- Student reflection
- Engaging peers
- Coaching students on presenting themselves publicly

FOSTERING AUTONOMY AND LIFELONG LEARNING

- Building students' skills around planning, time management, self-pacing, persistence, self-organizing, and taking initiative
- Learning to learn

ELEMENT 1. STRONG RELATIONSHIPS WITH STUDENTS

Research backs up what makes gut sense: teachers who take the time to know their students well can create trusting and respectful relationships that bring the learning environment to life (Cornelius-White 2007; Davis 2003; Bryk & Schneider 2002). Acting as coaches and facilitators of learning rather than deliverers of knowledge, such teachers often develop students' academic knowledge and skills in a context of collaborative interaction. Whether that coaching comes in the form of accommodation to individual circumstances, extra help and attention, or intervention in times of stress, students recognize and try hard for "a teacher who cares" (Stipek 2006).

video

Just Listen: Rashaun, You Gotta Keep Going[8]

Rashaun, in grade 11, talks about how a good coach pushes him just to his limit but not beyond. If teachers keep pushing, he says, "finally it comes through and I get it."

In the schools we visited, several structures and practices stand out for their contributions to building strong relationships with students:

- Teacher-student advisement;
- Norms of trust, respect, and inclusiveness;
- Easy contact between teachers and students; and
- Reaching out to families as an extension of building relationships with students.

We start with advisement, a bedrock practice of student-centered learning environments.

TEACHER-STUDENT ADVISEMENT

Adults in schools advise students in many ways, of course, but by far the best known structure for that is the advisory group, or "advisory," designed to be a small group of students meeting regularly with an adult who keeps a close eye on their social, emotional, and academic development. In practice, advisement takes many shapes.

At MetWest (as at all Big Picture schools), the advisory displaces conventional classroom instruction as the central structure of the school. Teaching adults are known as "advisors." Each supervises and coordinates the learning and assessment of a group of 20 students across the board, for two years, in academic subjects and in their internships. This radical restructuring of the teacher's role reflects Big Picture's conviction that adults at school should chiefly advise and facilitate the adolescent's self-directed path of discovery. Greg Cluster, who has worked at the school almost since its start, told us:

> You need to teach students how to take initiative to pursue learning, and that's it, and that's all that matters. It's counterproductive teaching kids to be receptive vessels: they're not being active in their learning, they can't name what the standards are.

Dayton Early College Academy ties advisory groups to the intricate process of helping students complete the six gateways required for graduation. Students have one advisor for grades 7 and 8 and another for grades 9 through 12. Advisors/teachers have their advisees for one period every day. They meet with parents and frequently serve as conduits between classroom teachers and parents. If a student is experiencing difficulty in school, it is usually the advisor who convenes a meeting with parents and staff. Students often say their advisory is their home away from home, and stay in contact with their advisors when they go away to college. "Advisories are the brain and the heart of DECA," said Marge Mott, a long-time faculty member.

At NYC iSchool, principal Alisa Berger echoes that conviction: "We tell teachers that their most important role in the school is as advisor." Advisories typically meet for two hours weekly, building long-term relationships between a teacher and 10 to 15 students who continue as a group through graduation. The "immense amount of time and professional development" spent working with teachers on the advisory role pays off in the classroom, Berger said:

> It's a very intense relationship, but it also makes the kids have an adult that they feel very safe and supported by. And it helps the classroom teachers frame their role as teacher. If they're struggling with a child in the classroom, they go talk to that kid's

Dayton Early College Academy ties advisory groups to the intricate process of helping students complete the six gateways required for graduation.

> advisor, who is another teacher who can help frame their work.

Alief Early College High School has created a hybrid design for advisement: The AVID teacher guides cross-disciplinary academic development for a group of 25 to 28 ninth- and tenth-grade students, while each staff member mentors 12 students, one on one, in a program called Knights Friends Forever (after the school mascot). "Their AVID class is very much a family," said Terry Guidry, who directed the school in its first two years:

> But we feel like the more supports we give them, the more successful they're going to be. So we assign every staff member in the building to mentor 12 students individually. Even the secretary and our custodian do it; we're family here and our custodian is very much a part of our family. Those 12 students are our kids. We say, "If you need anything, if you feel frustrated, if you get stressed out, if you need help, come see me. I'm your person to help guide your way through this program."

All students at Bronx International High School belong to advisory groups, which recently have focused on service learning. As with all classes at this school for immigrants, the advisory's overarching concern is fostering English language development and a sense of belonging—in this case in a nonacademic setting in which students can improve their English along with their school or community environment. For example, students in Christine Celentano's advisory took on the project of painting a mural in their community, from raising the funds to creating the art.

Advisory groups (called "seminars") were originally part of the student-centered design of Noble High School, the large comprehensive high school in our study. However, after years of adjusting advisories to address teacher and student feedback and changing circumstances, the school has changed the practice altogether. Instead, it has built an elaborate team structure that threads teacher-student advisement into the hourly fabric of the school—in effect, supplanting advisories. Since the early 1990s, teams of roughly 80 students and a handful of teachers have occupied center stage at Noble. Heidi Early Hersey, who directs the school's Professional Development Center, explained the rationale:

> Over the years, [the] faculty has fine-tuned the team structure. Then the move to a new building in 2002—designed so that each team would have its own common space with adjoining classrooms (we call them "pods")—blessed us with a physical layout that matched our blueprint for learning. A year later, we decided to embed the teams in three "vertical learning academies." With the new building and a small community structure that finally worked for us, we ended the seminar. We no longer needed to carve out an extra space to see kids. We saw them all the time.

NORMS OF TRUST, RESPECT, INCLUSIVENESS

Teachers tell us that respect and trust travel a two-way street in schools, between adults and students—and have everything to do with learning. Students tell us that if a teacher sets a steady example of fairness and respect, they respond positively whether or not they like a teacher personally. If they trust a teacher to do the job with competence and without bias, they are willing to fulfill their part of the deal: pay attention, do the work, and play by the rules (Cushman 2003).

At every level, from course assignments to dress codes, the schools we studied work hard to enfold students in community norms of trust, respect, and inclusiveness. Teachers create that climate through their attitudes and actions, NYC iSchool's Alisa Berger noted:

> With our new teachers at the beginning of the year, we spend time on classroom management and classroom structures,

> how you support student learning, how you talk to kids in a way that they feel loved and supported and encouraged . . . where they feel safe and free to take risks, make mistakes, knowing that we love them no matter what. You can't learn unless that's in place.

Trust and inclusiveness, according to Bronx International, is a precondition to learning a new language along with challenging academic material. In heterogeneous classes that mix students of different ages, grades, academic achievement, linguistic proficiency, native language, and prior schooling, its teachers encourage and support continual communication. Once each week, every class comes into a circle for 20 minutes of reflective talk about how things are going. Liana Maris, who as student services coordinator spearheaded the school's commitment to "restorative practices," explained the purpose:

> The circle promotes listening to each other, empathy, giving everybody in the room a voice. It creates a sense of trust, so when you have to have an [intervention] circle because something happened, students aren't afraid to talk to each other and to accept responsibility for what they have done.

At all the schools we visited, when behavioral norms were transgressed, interventions took learning, rather than punishment, as their goal. Terri Guidry came to Alief Early College High School from a background in school counseling. "We don't do punishment," she said:

> It's more: "I expect more of you. That's not college-going behavior. We have to get you ready to go over to the college, and so that takes mature behavior." We want them to be responsible for it themselves. A lot of times we don't have to correct behavior—the students will correct other students. Especially the tenth graders, they'll be like, "Stop acting like you're silly! Stop it!" You know, "We need to get to work!"

EASY CONTACT AMONG TEACHERS AND STUDENTS

The small enrollment and small quarters of five of the schools we visited encourage a culture of informal, as-needed contact among all players. The large high school, Noble, accomplishes this through vertical learning academies and pods. Everywhere, we saw impromptu conversations involving student growth and learning: a teacher stopping a student in the hall to ask about how a college visit went; a student at a computer, snagging a passing teacher to check out a question she had; a teacher and a student striking up an animated conversation as class ended.

Some schools take impromptu communication a step further. In a large, open area that adjoins the central offices at NYC iSchool, students hang out at tables to socialize and work. Along the perimeter of the room, large-screen computer monitors show a continual flow of information about what's going on, when, and where. The signal is clear to the kids, who check it out habitually: This is a place where things change a lot, and you'll want to stay on top of it.

At Noble High School, email provides the circuitry for "anytime, anywhere" communication among students and teachers, who carry their laptops everywhere. In school and out, they use email to track each other down, check in, keep on top of and turn in assignments, ask and answer questions, and share information. Their informal norm: keep it short; reply ASAP. At school, teachers and students call on a roving tech expert to troubleshoot email and other computer glitches as they arise. Julie Gagnon, a math teacher, noted:

> We've only had the laptops for a year, but I can't imagine the school functioning without them. Sure, it puts teachers on call. But it beats the reverse: missed assignments and deadlines, wondering what's happened to a student, students not getting the feedback they need to revise and improve. All the back and forth may even save time. You can settle something in a quick email exchange, right then and there, instead of having to track each other down and then it's too late.

REACHING OUT TO FAMILIES

All six schools regard parents and guardians, and often other family members, as partners. They expect parents to be active members of the school community, joining in family nights and school celebrations and attending the exhibitions that mark their children's progress. Most important, they view parent participation as integral to building strong relationships with students—even, sometimes, as an opportunity to strengthen a student's strained relationship with a parent.

Here again, Noble's teachers use email many times a day to field and answer questions and resolve problems with parents. The school reports that 95 percent of parents have email accounts. "If I get an email from a parent at nine at night, they can count on my responding by seven the next morning," said Jessie Jost, a tenth-grade math teacher.

Teaching teams also send out weekly parent newsletters that summarize learning activities and goals for the week, offers vignettes, and lists upcoming events and assignments. "This means a parent *knows* her child is having a test on Friday," said Jost.

At MetWest, where students are routinely out of the building on internships, teacher-advisors treat parents as essential partners. "I know, I'm like your best friend, we're always on the phone together," Carolyn Norr said genially into her mobile phone to a parent of a student having behavior problems. Ten minutes later, she was dialing the family of a student who had not checked in at her internship placement, and the progression of calls continued through the afternoon.

At DECA, teachers visit the homes of their advisees before school starts each fall. They also host monthly parent meetings where parents can exchange concerns, and they readily contact parents with questions. "Not a day passes without my exchanging information with parents—either at their instigation or mine," teacher Jessica Austin said.

The teachers we interviewed know well that their outreach efforts are complicated by estrangement, language barriers, parents working multiple jobs, homelessness, students moving from one caregiver to another, the emotional safety of the student—not to mention the adolescent predilection to keep parents or guardians out of their lives.

They also acknowledge the parental expectations, often shaped by previous experience, that communication from school only spells trouble. "We do everything we can to indicate it's not about 'gotcha,' about telling parents where their child has screwed up—or maybe where the parent has screwed up," said Noble language arts teacher Jennifer England. "It's about engaging parents as partners, in good times and bad."

CONNECTING STUDENTS WITH COMMUNITY MENTORS

All of the schools in our study, to varying degrees, count on community mentors as part of the critical web of adult-student relationships. "If there's one thing this school recognizes for sure, it's that students at this school need every adult on deck," said Marge Mott at DECA. "It's our job to connect them with writing mentors that can help with their essays, college students who can serve as tutors and role models, a lifetime reader who can share her passion for books."

Student volunteers from the adjacent Houston Community College work as tutors in Alief Early College High School's ubiquitous AVID classes. Trained to coach students in asking high-level questions, they bring to their groups a distinct sense of the outside world, whether it comes from a first-generation college youth who has made it through rough waters to get there or a retiree with business experience. They view themselves, and are viewed by the students they coach, as mentors as much as tutors.

Schools view parent participation as integral to building strong relationships with students—even, sometimes, as an opportunity to strengthen a student's strained relationship with a parent.

At Bronx International, an afterschool collaboration with the nonprofit group iMentor NYC pairs juniors with individual adult mentors who spend six to eight hours a month with them, communicating weekly by email.

At MetWest, almost all of the structures and practices revolve around the school's robust commitment to learning through internships, with mentors at the core. What MetWest students learn from their community mentors plays a more important role in their development than many academic classes, said Greg Cluster, who coordinates the school's internship program.

> Students learn all kinds of workplace skills, and they learn habits of professionalism, and they learn specific skills related to a field, and they learn how to build relationships with adults. And they learn to see adults as resources for learning what you want to learn in the world . . . not just as authority figures, to either obey, if you're a "good kid," or disobey, if you're a "bad kid."

In turn, MetWest puts enormous energy into identifying, coaching, and supporting its field-based mentors, who often come to them through the personal networks of teacher-advisors or the initiative of students themselves. The school keeps a database of some 400 organizations and businesses that have taken its students in the past and the individuals who have stood out as strong mentors. Teacher-advisors visit mentors regularly to collaboratively plan and assess the student's work and progress and to coach the mentor on what learning outcomes they expect. "Mentoring is a skill," Cluster noted. "People learn it and they get better at it."

ELEMENT 2. PERSONALIZATION AND CHOICE IN CURRICULAR AND INSTRUCTIONAL TASKS

As the papers on personalization and motivation show, adolescents put high value on taking charge of their own lives, and when they initiate and have a say in learning activities, they invest in them more.[9] For this reason, student-centered teaching encourages a high degree of choice and personalization in how students approach their learning targets. Teachers who support and facilitate these approaches are building on students' innate drive toward self-determination (Stipek 1998; Passe 1996; Deci & Ryan 1985).

Related Papers in the *Student at the Center* Series

series

***Motivation, Engagement, and Student Voice*, by Michael Nakkula and Eric Toshalis**

***Personalization in Schools*, by Susan Yonezawa, Larry McClure, and Makeba Jones**

The schools we visited expected students to create and review their own personal learning plans; exercise substantial choice among assignments, readings, and topics when completing course tasks; demonstrate mastery in different forms and media; and pursue independent projects and extended learning opportunities that built on special interests.

Just Listen: Arielle, Brainstorming My Senior Project[10]

video

Arielle, in grade 11, talks about her intense absorption in the planning stages of her year-long senior project.

PERSONAL LEARNING PLANS

The practice of U.S. public schools creating an "individualized educational program" to match each student's needs began when the Individuals with Disabilities Education Act mandated it in federal legislation designed to protect the rights of children with disabilities. Whether or not they formalize such a process, the schools we visited all display a commitment to teaching whose substance and pace matches each student's developmental needs.

However, each had its own way of carrying out this ambitious idea.

At NYC iSchool, all ninth graders take a quarter-long "challenge-based module" on the psychology and neuroscience of learning. With a growing understanding of mind and brain, they reflect on how they themselves learn best, creating their own plan for learning at school and beyond. The coursework, according to its co-teachers Susan Herzog (science) and Jennifer Rygalski (humanities), reflects a founding principle of the school: that to make responsible educational choices, students must understand how they learn and know the strategies that work best for them. At the end of each quarter, each student leads a 20-minute conference with his/her parents and advisor, to go over their work and decide on their personal and academic goals in the next quarter. At the end of tenth grade, iSchool students personalize their learning plans even further, choosing an academic "focus area" (English, history, math, science, psychology, business, the arts, or technology) to explore in increasing depth in the two years before graduation.

The Learning Through Internship system at MetWest serves much the same purpose as a personal learning plan, while individualizing each student's path even further. Although MetWest has a course of studies for all students, they select and arrange their own internships according to their interests, and they set their own learning objectives as each placement begins. MetWest advisors meet with the mentor and student to review explicit written expectations for both, add expectations tailored to the particular site, and help students decide on objectives (framed as statements that begin "I can").

At Dayton Early College Academy, the six gateways required for graduation feed, mark, and alter students' personal learning plans. The steps in each plan are cumulative, requiring students to demonstrate and reflect on the progress they have made since their previous gateway and to look ahead, deepening their strengths and addressing their weaknesses. Just as important, students proceed through their gateways at their own pace; the timing becomes, in effect, part of the personal learning plan. "We have students who will go a year and a half without completing a gateway, and then finish two in six months," DECA's Marge Mott explained.

SUBSTANTIAL CHOICE IN CURRICULAR TASKS

Teachers at our study schools routinely build student choice into the school day, believing intuitively that students who have a say in their learning invest in it more. Dante, a senior at DECA, could not agree more: "One of the things they tell you here is to do what you love and love what you do," he said. "Having choices helps make that happen, even if it's just choosing the side you'll take in a classroom debate." Another student added, "It's more important that the choices are constant than big."[11]

At Noble High School, one teacher reflected, students may end a day having made more than a dozen decisions about what they would do: which book to read during the sustained silent reading required of all students every day; which among the week's assignments to tackle that day in algebra; which essay topic to pick—or devise—in a language arts unit on personal narrative; which team to join in researching the pre-Civil War South; which among a list of 10 practice sets to focus on in a class on study skills. "We can't imagine classrooms where the choices given students can be counted on just one hand," the teacher said.

Choice shows up in other forums, too. Preparing for the state Regents is regarded as a necessary chore at NYC iSchool, because the exams largely involve a narrow focus on recalling lower-level content. ("It's not *unimportant* content," noted principal Alisa Berger, "just low conceptual understanding.") Berger used the online biology course as an example:

> You want the kids to understand the parts of the circulatory system, right? In many ways it's very simple, low-level content, but it's not simple if you don't know anything about it! So in the online course, kids can choose how they engage with it. Do you want to watch a video of blood working its way through the circulatory system or listen to a lecture? Do you want to play a game where you match parts of the circulatory system to where they are in your body? You make the choices, and when you feel like

> you have mastered the content you take the quiz, which our teachers make up using sample questions from old Regents exams. If you don't feel ready, you go back and do the online work again, this time maybe making a different choice for how to learn the content.

OPPORTUNITIES TO DEMONSTRATE MASTERY IN DIFFERENT FORMS AND MEDIA

How students demonstrate their grasp of challenging material in these schools has changed markedly from the time when the chief options were a research paper or a pencil-and-paper test. Each school has opened avenues for students to exhibit conceptual mastery more dynamically—for example, by creating videos and mixed-media presentations, inventing and then building products, conducting experiments and surveys, debating and performing dramatic role-plays, and designing interactive games and websites. Each school sees public demonstrations of proficiency as integral to learning; students must not only know important content but communicate it effectively to others.

At Bronx International, the goal of communicating in English goes hand in hand with mastering intellectual material. Dolan Morgan's twelfth-grade English class intertwines evidence of meeting those dual goals. One week, students worked in separate groups to explore five questions about absurdism and existentialism, calling on texts that matched their language abilities. Halfway through the class, they switched groups to share the information they had gleaned. Morgan requires all students to make a presentation to the class every Friday, explaining and synthesizing their learning. He explained the rationale:

> Whether it be acting out part of a play or just giving a PowerPoint presentation about part of a book, I think that type of pressure and openness gets every student to achieve. Everyone's presentation obviously looks very different based on their abilities, but it's all around the same content, and every student is capable of doing something along those lines.

At NYC iSchool, students routinely produce short video documentaries or other digital products to show their understanding. Jonathan, a ninth grader, described Kitchen Sink Physics, a "core experience" class he took:

> We're learning Newton's laws so we can apply them to our own physics examples, and we're making videos about it. We use videos of Bill Nye as our model, because his videos are very exciting demonstrations, and not as much text. It's pretty interesting—if a video's interactive or more engaging, I remember stuff a lot more.

After learning about the controversial process of hydraulic fracturing (or hydrofracking) to extract natural gas from reservoir rock formations, iSchool students in Susan Herzog's science class spontaneously organized a vigorous "Think Before You Frack" public information campaign, whose extensive website includes a video, a radio play, and an original song that won a city award.[12]

INDEPENDENT PROJECTS AND EXTENDED LEARNING OPPORTUNITIES THAT BUILD ON SPECIAL INTERESTS

All six schools require students to carry out independent projects and encourage them to pursue extended learning opportunities that will stretch them intellectually, and often socially and emotionally as well. At MetWest, such work takes place in the context of internships. At NYC iSchool, it is often built into interdisciplinary challenge-based modules or "field experience projects" that take students into the community. Although intended to build initiative and autonomy, independent projects at these schools do not lack for adult mentorship, much of it outside of school. In fact, they prove particularly effective as

» **How students demonstrate their grasp of challenging material in these schools has changed markedly from the time when the chief options were a research paper or a pencil-and-paper test.**

opportunities for coaching students to navigate the networks of expertise by which accomplished people break new ground in their fields.

After NYC iSchool students choose an academic focus area late in tenth grade, they begin preparing for a culminating independent project, said Alisa Berger:

> They spend junior year thinking about the lens that people in that field use to look at the world and at problems. At the beginning of the year they take a nine-week class called Critical Thinking and History (or whatever the area is), and through that they decide, "I'm interested in this smaller topic through the historian's lens." Then they write a research paper, sort of a lit review: "This is what people are thinking about my topic," and they use that to decide, "This is what I'm going to work on next year."

To graduate from MetWest, each student must carry out a senior thesis project that derives from her/his work and learning in the community. It begins with a 15- to 25-page proposal, approved by the principal as well as their internship mentor and advisor.

Such capstone senior projects are a graduation requirement in most of the schools we studied, typically presented by graduating students before a public audience and assessed by a panel of teachers, community members, and often experts. By that time, students have acquired plenty of experience in self-managing their studies. They are ready for what lies ahead, Noble teacher Adina Hunter pointed out:

> The senior project is as personalized as it gets. It empowers students to advocate for their own learning. To be able to identify what interests them, what they're passionate about, what they need to learn, know, and how to set deadlines, how to tell they're making progress, what they need to do to get to the next level, how to apply and share what they've learned—that's major.

ELEMENT 3. APPROPRIATE CHALLENGE LEVELS FOR EACH LEARNER, LEADING TO STRETCH

Challenging and stretching students in ways that take into account their readiness and build their confidence as learners goes hand in hand with giving students choice in curricular tasks: appropriate challenging brings personalization full circle. Ample research suggests that young learners, especially those who have had little academic success and are vulnerable to group judgments, feel discouraged and often humiliated by failure (National Research Council 2003; Bandura 1993; Cohen 1980). When they stretch for and grasp something difficult, on the other hand, they may become eager to try the next hard thing (Mayer 2004). The teacher who knows students well enough to set tasks that are neither too easy nor too hard may set in motion a cycle of effort, practice, and intrinsic satisfaction, approaching a state of focused absorption that psychologists call "flow" (Vygotsky 1986; Csíkszentmihály 1990).

All six schools in our study infuse these understandings of challenge into their structure and daily teaching practice. Indeed, challenging and stretching students may be what these schools do best. "If you have a disparaging gap in achievement, you do not close it by doing less but by doing more," DECA teacher Brent Goff told us:

> As a teacher here, we never forget where these kids come from. The peaks are that much higher knowing the valleys they come from. But this doesn't mean that we water or slow down the curriculum for them, that we do an urban curriculum that isn't as challenging as a suburban curriculum. We don't serve them underhand texts. This year the students in my class read *Beowolf, Frankenstein, Grendel, Beloved, Native Son*, the epic poem *Gilgamesh*. We don't take our foot off the accelerator.

» All six schools in our study infuse these understandings into their structure and daily teaching practice. Indeed, challenging and stretching students may be what these schools do best.

Teachers in the schools we visited commonly use challenging and stretching strategies for scaffolding, differentiated instruction, focus on habits of practice and revision so that students push themselves, and thoughtful targeting of students with special needs.

SCAFFOLDING

Since the students in most classrooms have very different readiness levels, the student-centered teacher scaffolds instruction and differentiates learning tasks so that each learner is ready for just the right stretch.

video

Just Listen: Kenneth, Knowing How Far to Reach[13]

Kenneth, in grade 11, dislikes a challenge if it seems either too easy or impossibly hard. To really be motivated to work at something, he says, "you have to know yourself and know your capabilities."

Teachers use scaffolding in Alief's AVID classes to help students come up with good questions at several levels of inquiry. "You don't ever want to just start throwing out information," remarked Peggy Breef, who teaches Advanced Placement English half time and serves as an instructional coach for the remainder. She explained:

> We call it "Hook, Line, and Sinker." It's that concept of, "I've got to do something to get them into the subject matter. Then I have to do something with them to get that subject matter across, and then I have to let them do something with what they've learned and take it out and beyond."

Conversation between a student and a teacher-advisor at MetWest often centers on habits such as persistence and revision. Michelle Deiro, a 12-year veteran English teacher, described how she provides scaffolding as her students work on their writing skills, a major emphasis at the school:

> Basically it's teaching them how to be their own best editor, their best critical reader. Part of the challenge of that is letting go a little bit as time goes by. We don't hold their hands too much, or they can't get to that next place and do it themselves. In tenth grade, I would spend a lot more time going over that "in college or in a future job you're going to have to take care of that yourself." By the time they were seniors, if I could tell that they didn't use their own self-editing tools, I wouldn't even look at [their writing]. It has been good to hear students from college come back and tell us, "I've done four drafts on my own."

The principle of scaffolding has shaped the overall design of these schools. DECA, for example, launched a middle school when it recognized that too many of its entering ninth graders lacked the habits they needed for the challenge and work load they faced; roughly half would leave DECA before their senior year. The vertical learning academies at Noble move students along a path of increasing autonomy and decreasing reliance on the intensive team support they receive as freshmen and sophomores.

DIFFERENTIATED INSTRUCTION

Across the schools, teachers name the same issue as one of their greatest challenges: how to center teaching on individual needs when students arrive with myriad differences in experience and readiness. They embrace differentiation in many ways, summoning their inventive powers and attunement to students.

For example, no matter what the subject in Bronx International's multilevel, multilingual classes, every teacher is always teaching English. Yet for any day's tasks, the language of instruction is determined collaboratively, as students work in small groups on projects that develop both language and content knowledge. Based on their needs, students may use both English and their native languages to explore content; those more proficient in English often translate for others. Teachers stay close at hand, differentiating their instruction at every turn, said Dolan Morgan:

> As a teacher here, the biggest challenge is the variability of what you get as a cohort. The huge discrepancy between one student's ability and another's makes it hard to manage how the scope and

These six schools set high standards for all students, and heterogeneous grouping is the rule in their classrooms. However, they also spend considerable time and resources supporting students who need something extra, or different, in order to thrive.

> sequence [are] going to play out over four years. Some students already have a whole bunch of strengths from previous schooling, and can acquire language almost just by hanging out. Others have huge deficits in their previous education, either from not being in school or from poor schooling.

At Noble High School, a number of teachers have incorporated a "layered-curriculum approach": a model that requires students to use higher-level thinking as they work through three layers, with the layers connected to points or grades (Nunley 2005).

The culture at each of these six schools also encourages teachers to adapt "off the shelf" curricula to work for both teachers and students. For example, Alief's Kevin Sevin uses the College Board's curriculum content for his AP human geography class. "But how I deliver it is up to me," he said, so he often uses group projects to develop students' understanding.

Teachers and students alike note how online courses inherently allow students to take in information at their own pace. Nicky, a tenth grader at NYC iSchool, gave an example:

> When you have an actual teacher in the room and they're giving a lecture, and you ask them to say whatever they said again, you're kind of holding everybody else up. But in [an online lecture], if you're a person who needs to hear things a couple times to write down efficient notes, then you pause the video or rewind and listen to that part again.

SUPPORTING STUDENTS WITH SPECIAL NEEDS

These six schools set high standards for all students, and heterogeneous grouping is the rule in their classrooms. However, they also spend considerable time and resources supporting students who need something extra, or different, in order to thrive.

At Noble High School, guidance counselor Shelly Lajoie runs a successful recovery program for failing juniors and seniors who realize that they want to graduate with their classmates; she tailors it to fit their individual circumstances. Down the hall, teacher Adina Hunter keeps challenging the high school's "gifted" students. "I'll work with the teacher and with the student to find a curriculum or a project they can do discreetly in class, on top of their regular work," Hunter explained.

Many Bronx International students arrive in the United States in eighth or ninth grade and have only a few years in which to master both a new language and New York's graduation requirements. The school meets the challenge head on, with every teacher simultaneously coaching content-area knowledge and language skills, but four years is not enough for some students. To catch them up from the start, the school launched its new Bridges program in 2011. Leah McConaughey, a former Bronx International teacher and now an instructional coach for the N.Y.C. Department of Education, explained:

> Even when they are integrated into Internationals schools, our SIFE [Students with Insufficient/Interrupted Formal Education] students are still so far below on basic literacy and numeracy skills that they're not performing well. We want to identify those students and give them a targeted experience in their first year, where every single course is going to offer very rich instruction in basic numeracy and basic literacy.

FOCUS ON PRACTICE AND REVISION HABITS SO STUDENTS PUSH THEMSELVES

"DECA is so much extra!" Darnell exclaimed. "There's so much work, so much expected of you, so much you have to practice." The four other seniors in the focus group agreed: "I keep telling my buddies at other schools, 'Man, you have it easy,'" one said. In

our years of listening to students in schools that value student-centered teaching, students invariably tell us they have never worked harder. Jordan, a DECA twelfth grader, gave an example:

> Educators and the like, they call it feedback, we call it edits. No student at DECA ever passes a gateway the first time. They always give you edits. You hate them, because it means more work, but you appreciate them, because the edits makes you improve. Sometimes I think they give us edits not because we need them, but to keep us on our toes, to keep us working. But with the edits comes support. They are always there to help.

By using the term "Not Yet" as an assessment code, Bronx International sends students a clear signal to keep trying again until they get it. English teacher Dolan Morgan made the case for that in a 2008 memo to his colleagues:

> The traditional grading system promotes the idea that there are failures and there are achievers. It sends the message that opportunities for success happen, and if you miss them, that's it, it's over. The outcomes environment promotes the idea that there are those who have already achieved and those that will. It sends the message that there are multiple opportunities to succeed and that you are encouraged to keep trying.

Around every corner at Noble High School we found a poster listing the school's guiding principles, which also form the rubric for measuring students' yearly progress. Are they, for example, complex thinkers who can analyze, synthesize, and evaluate? Self-directed learners who participate in challenging experiences with perseverance? "We don't expect them to start out with these skills, but we expect them to practice and practice, and get better and better," said teacher Jennifer England. Because writing undergirds so much of how Noble students share their knowledge and experience, the school has a writing center, open throughout the day and staffed by accomplished student writers, where those needing help with a paper can get it.

ELEMENT 4. SUPPORTING SOCIAL AND EMOTIONAL GROWTH AND IDENTITY DEVELOPMENT

Cognitive psychologists widely accept that the adolescent's central developmental needs involve developing identity, belonging, being heard, being in charge, being supported, feeling powerful, understanding the world, and being able to argue in ways that make adults listen (Phinney & Ong 2007; Karpov 2003; Coleman & Hendry 1990; Cohen 1980). These social-emotional needs loom especially large as secondary school teachers seek to engage students in academic challenges and to foster the habits of mind and work they will need throughout their lives. Empirical evidence on the positive impact of social-emotional learning on student growth and achievement is growing (Durlak et al. 2011).

Just Listen: Elijah, New Perspectives on Myself[14]

Elijah, in grade 11, says that writing has given him insight into stressful situations he has faced. "I really learned a lot about myself," he says. "There's so much more than just your perception of things."

video

More traditional models of teaching presume that academic motivation and effort come about when the teacher's instruction interacts with students' existing aptitude. A more student-centered teaching approach takes into account the conflicting narratives that adolescent learners often hold about themselves—for example, "I am bad at math" or "I can do whatever I put my mind to." Those narratives, fundamentally social, emotional, and cultural in nature, are part of how young people develop an identity based on the dynamic among their beliefs, relationships, and prior experiences (Davis 2011). If teachers tune into that process humming in the background—intervening strategically at various points—they can help students negotiate their learning targets (Alexander 2003).

Just Listen: Hannah, An Encouraging Teacher's Effect[15]

Hannah, in grade 10, sees herself getting better in math largely because she can count on her teacher's support and encouragement. Now she wants to continue studying it beyond high school.

video

Teachers pointed to an array of practices they believe support students' social and emotional growth and identity development. Here we highlight four: educating the whole child—and knowing students well; requiring personal reflections by students; nourishing peer relationships, teamwork, and mentoring; and coaching students on how to present themselves in public.

EDUCATING THE "WHOLE CHILD"—AND KNOWING STUDENTS WELL

Each of the schools in our study would argue that everything about their daily practice is intended to educate the "whole child." However, to do this well, teachers must also know their students well—including both the narratives students bring to school and the new ones they hope to create once there. At Bronx International, 70 percent of students have been separated from one or both parents during their families' immigration to the United States; almost all come from low-income families, and many work to support themselves. In addition, war or other conditions in their countries of origin have prevented many students from getting adequate schooling. The teachers at Bronx International, as at all the schools we visited, bring to the business of educating the whole child a finely tuned sense of the individual, and often urgent, needs of the particular children they teach and the families of which they are part.

Several DECA seniors offered examples of how their teachers and advisors had put into practice the idea of educating the whole child:

> Sophomore year, one day my math teacher asked me if I'd ever thought of becoming an engineer. He said that I had like a special talent for math. He got me to sign up for a robotics class, then other engineering type classes. He helped me get an internship. He told my parents they should encourage me. And he made sure I kept my grades up in other subjects. He could sense when I was slacking off and kept after me.
> *—Dante, grade 12*

> When I started at DECA, I was what you'd call immature. The only reason I was here was because my father insisted I come. My advisor picked up on me right away. She and I talked about what were immature actions and what was mature. Then all through the year we did, like, a behavior inventory.
> *—James, grade 12*

Predictably, the schools in our study have created informal and formal structures that target a subset of students perceived as vulnerable to failure. For example, research shows that the move to ninth grade hits some students hard, setting them up for academic failure, social and emotional difficulties, and disengagement (National Middle School Association 2006). Thus, at Noble, the transition from middle to high school draws special attention. In larger high schools, these students often fall through the cracks. Noble teacher Jennifer England has determinedly taken struggling ninth graders under her wing in a class with the neutral title, "Study Skills":

> I asked the principal if I could teach this class, [and said] that it had to be first block so that kids would want to come to school. I didn't want them to have to do any school work but to get full course credit. The principal said sure—and the success has been ridiculous. It's not magic, it's just giving kids a caring, safe environment. Today we started with a check-in about our weekends, then we had breakfast, we took a walk outside, we played 20 minutes of basketball, we did a quick review for their exam . . . and the kids started their day in a good space.

STUDENT REFLECTION

Student reflection is integral to teaching and learning at these schools. Students are routinely required to keep response journals when reading, complete reflective writing assignments, record their community service and internships, and include their own "takeaways" in reports and presentations. "There is a whole lot of self-discernment at this school," said one junior.

Three of the six schools in our study demand that students complete a 25-page autobiography as part of their graduation portfolio. Dante, a twelfth grader at Dayton Early College Academy, compared the task to climbing a rock wall:

> Our teacher, Mr. Goff, he did everything he could to lead us through the autobiography. We made our personal timeline, a list of highs and lows, we interviewed people in our family about what we were like and all, we wrote drafts and read them aloud and got feedback. Twenty-five pages—that's stiff. But I learned so much about myself, things I'd never thought about much before.

That language arts teacher, Brent Goff, provided some background on Dante's assignment:

> The autobiography is a chance for students to discover who they are. This year we had a writer in residence for the first two weeks and she began by introducing the idea of memoirs. We started small, but as the kids got comfortable, it took off. Six weeks later, every student had completed their autobiography and they had the opportunity to read their pieces at a local bookstore.

Personal reflection is embedded in the gateways, portfolios, and other evidence that students at all six schools must present to demonstrate progress and mastery, from ninth grade straight through graduation.[16] At Noble High School, for example, students participate each year in a student-led "roundtable" before a panel. They frame each presentation around an essential question: Who am I? (grade 9); Where am I going? (grade 10); How will I get there? (grade 11); How can I exhibit what I have learned? (grade 12).

"The difference between doing time at a job and investing time in your work is reflection," reads the text at the top of the journal prompts that MetWest students complete twice weekly whether they are still searching for the right internship or already going out to work. "If you don't record what you learned, it's almost like you didn't learn it. Also, by recording what you are learning and how you are feeling, you will come to know yourself better."

ENGAGING PEERS

Traditional school settings often discourage "peer influence" rather than encourage it, and the norm is to separate students by grade level. At these six schools, the opposite is true. Starting with advisories, teachers nourish close ties among students across grade levels. They view these peer ties as part and parcel of students' social and emotional development, and they regularly point students to one another as sources of support.

Social group interactions among students at the beginning of a school year are especially complex at Bronx International, given its high language barriers. At the end of his tenth-grade year, one boy described how teachers help defuse the tensions:

> At the beginning nobody knew each other. They be like they looking at each other. And the Africans and the Dominicans, they used to fight because every time the Spanish people used to talk Spanish, the Africans didn't understand them, so they thought that they was talking about them. But now everybody know each other. It's cool. Because we get to know about other people's community, how do they feel, the opportunity that they give them, why they came over here, and to learn about their country.

A recently instituted program at Noble High School formally pairs struggling sophomores with eleventh graders who are positive role models. Teacher Julie Gagnon explained:

> They meet twice a week during sustained silent reading time, and touch base, make a connection, get some work done, learn some skills, whatever they need. Some kids need to connect with another student. We train them and meet together once a week, to hear how things are going and to learn from them what we can do to improve the program.

Personal reflection is embedded in the gateways, portfolios, and other evidence that students at all six schools must present to demonstrate progress and mastery, from ninth grade straight through graduation.

» Perhaps the best preparation for developing social confidence in public comes via the exhibitions that punctuate these students' rise from freshmen to graduating seniors. Teachers and advisors work hard to prepare their students for these high-stakes performances.

When conflicts arise between students, each of these schools invokes a structure that teaches students to resolve disputes through discussion: peer mediation, for example, at Noble; a course in anger management at DECA. At Bronx International, as noted, teachers deliberately set aside class time for students to share what's causing difficulty among classmates and to take responsibility using a "restorative practices" approach that eschews blame in favor of reparations.

COACHING STUDENTS ON HOW TO PRESENT THEMSELVES PUBLICLY

Students in these schools often told us, "I used to be so shy and now I speak up." They talk about a progression that started with their becoming more comfortable speaking up in class and grows to include a range of public "performances": cold calls to adults in the community to arrange job shadows and internships; hosting visitors to their schools; and speaking about their learning and their schools at public forums and conferences.

Teachers coach students well in advance of public scrutiny. "Before a student goes on a job shadow, they rehearse the handshake, the importance of making eye contact, speaking clearly and loudly enough to be heard, the role of small talk," Marge Mott at DECA explained. Anne Rasmussen, Director of Community Involvement, teaches a "corporate etiquette" class to DECA's freshmen so they are more comfortable in business situations. "We don't expect our students to come with these social skills; it's our job to teach them," Mott added. "When students need to set up phone interviews with strangers in the community, we ask them to first script their introductory remarks and practice them until they have them down."

Perhaps the best preparation for developing social confidence in public comes via the exhibitions that punctuate these students' rise from freshmen to graduating seniors. Teachers and advisors work hard to prepare their students for these high-stakes performances. After sitting through a morning of exhibitions at MetWest, an engineer with a long career in the aerospace industry noted:

> You don't see those kinds of levels of presentation from a lot of professionals in business. They don't come prepared with good PowerPoint presentations; they're not able to stand up and speak as eloquently as the students do.

Exhibitions of student work in the problem-based curriculum modules at NYC iSchool often take place outside the school, when students present to the organizations for whom they act as consultants. For example, one module engaged with curators at the 9/11 Memorial Museum in New York, supplying curators with their own perspectives on the attacks as well as those from video conferences they conducted with youth in Afghanistan, London, Israel, and New Orleans. "It has changed me," Hannah told us, near the end of her tenth-grade year:

> I feel like I'm a lot stronger and I'm not as scared to stand in front of a room and talk to people on a stage or something, or publicly speak. That's a really big strength that I've gotten from being a student here. I'll carry that on with me.

ELEMENT 5. ANYWHERE, ANYTIME, AND REAL-WORLD LEARNING

With their developmental drive to "become someone" in the larger world, adolescents often feel constrained when their learning is confined to the classroom. Recognizing this, the schools we studied open their doors wide in all directions. They make schedules more flexible, so that students can take advantage of learning opportunities outside the school, anywhere and anytime. They bring the world into school by welcoming community members as partners in the curricula, instruction, and assessment. And they facilitate digital access to the wide world to stimulate and deepen students' interests, knowledge, and skills.

As teachers and administrators in our research stressed, creating—and managing—opportunities for extended learning outside the school and classroom can be daunting. Sending students out "into the real world" and bringing the real world into the classroom, as one teacher said, takes "a hell of a lot of arranging." But all agreed the effort has multiple payoffs with regard to student motivation, deeper and more grounded learning, lessons in citizenship, job awareness, and building social skills like self reliance.

Here we describe how this extended learning plays out in the schools we visited—through flexible schedules, community internships, and curricular projects that involve the world outside school—and what such practices require of the teachers involved.

video

Just Listen: Amanda, Internships and Hands-on Learning[17]

Amanda, in grade 11, describes her "really cool" internship at a museum: "I'm really learning about history other than inside a classroom." Holding a document from long ago made her think, "This is something I really want to do and learn more about."

FLEXIBLE SCHEDULES

NYC iSchool has used technology to render the conventional high school schedule virtually obsolete. Students decide for themselves when to work through the teacher-created online courses that help them prepare for state Regents exams; if they do the work at home, they may take one of about 50 loaner laptops with them. From any Internet connection, students can access the Moodle "virtual desktop" system on which teachers post curricular and instructional materials. The year is organized in nine-week quarters (or occasionally trimesters). Challenge-based modules, seminars and labs, and other classes meet according to a schedule. A lot of the work is exploratory, involving individualized or small-group activities or forays outside the school.

Much the same could be said about MetWest, whose students spend two days a week seeking or carrying out community internships. The effect is that much instruction focuses on building strong and self-reliant habits of work and of mind, whatever the setting. When at school, students meet in grade-level classes, with one teacher-advisor coaching and coordinating their academic development across the curriculum. This permits an extraordinary amount of flexibility and differentiation, in both timing and instructional modalities.

DECA keeps its doors open for an extended day, providing a nurturing base from which students come and go for "anytime, anywhere" learning. Marge Mott described a typical day:

> Many of our students arrive, by their own choice, an hour before school starts and hit the computers. When classes end, they may return to the computer, go do their community service, join up with a book club, head out for an internship. We don't see this as "after school." We see all of this as "school," with students making a commitment to learning that stretches throughout the day.

COMMUNITY INTERNSHIPS

Requiring students to complete a certain number of hours of community service is becoming the norm in many U.S. high schools. Two of our six study sites had community service requirements: 60 hours at Noble and 100 hours at DECA. At all six schools, community internships hold value as occasions for learning.

Students at DECA must complete at least two short-term internships before they graduate. Noble High School encourages, but does not require, students to pursue community internship opportunities. Bronx International includes a weekly internship for seniors in its graduation requirements; NYC iSchool requires internship "field experiences" in the last two years and encourages them for ninth and tenth graders.

Learning through internships (LTI) is central to the MetWest curriculum, in the Big Picture tradition. "For students who are confronted with the reality of poverty, the fact that they're going to need to work is very present in their minds by ninth grade," said Greg Cluster, who coordinates the LTI program.

> About 40 percent of our students have parents who didn't graduate high school—not college, high school—the question of whether they're going to stay in high school is huge. It's not an assumed thing. And so unless the high school is really connecting with their future and related to the concept of work and a future life path from day one, the odds of them dropping out are extremely high.

The more ambitious the internship program, the more adult time it requires to develop, coordinate, and monitor. For the first three years of NYC iSchool, a field experience coordinator helped arrange weekly Wednesday-afternoon internships for almost every student. Although for logistical reasons she will curtail the program somewhat in the fourth year, principal Alisa Berger said it is vital to the school's approach:

> I spend a lot of time explaining that we teach in an interdisciplinary way here because that's the way people in the real world work. I never sit down at my desk and say, "I'm going to do math now"—I'm doing everything! And the kids need to go out in the real world and experience how that is actually happening.

CURRICULAR PROJECTS THAT ENGAGE THE WORLD OUTSIDE SCHOOL

Notably among the schools we studied, MetWest and NYC iSchool ground much of their curricula in real problems in the larger community. At MetWest, that emphasis emerges naturally from the central role internships play in student learning. For example, several students with internships at the American Friends Service Committee collaborated on a media campaign to highlight the situation of undocumented youth after the DREAM act failed to win congressional approval in 2011. Their work products included a press kit and a grant proposal to raise funds for designing and executing a mural outside their San Francisco workplace.

In NYC iSchool's short-term, intensive challenge-based modules, the teacher's role changes from instructor to facilitator, with an interest in the subject but no expertise. Tapping the expertise of outsiders, principal Alisa Berger said, offers a deeper kind of learning:

> When kids are working to build a green roof, or creating digital activism campaigns around the humanitarian crisis in Zimbabwe, this is real work. The teacher is not an expert in these content areas at all; students need access to real people who do this as their jobs. So the teacher's job is to connect them with experts, people with very small areas of which they have a complete knowledge.

Students told us they felt energized by these regular contacts with problems and people from the larger community. "Other people from outside come in and help us—they're pretty much like our teachers, too," said Sasha, a tenth grader.

ELEMENT 6. TECHNOLOGY THAT IS INTEGRAL TO TEACHING AND LEARNING

Unquestionably, 21st-century technology is changing the way teaching and learning take place in classrooms. As the paper in this series on curriculum customization and new technologies demonstrates, when used thoughtfully, new technologies provide ever sharper tools for what student-centered teachers have long practiced the old-fashioned way: adapting instruction to what individual students most need; encouraging students to collaborate in their learning; and providing swift and relevant feedback on their work.

Related Paper in the *Students at the Center* Series[18]

***Curricular Opportunities in the Digital Age*, by David H. Rose and Jenna W. Gravel**

Our schools, all robustly student-centered, fall at various points along the spectrum of how much they integrate technology into what they do so well. Here we center on three distinguishing practices: online learning adapted to the needs of each student; online tools that promote student collaboration; and heavy reliance on email.

ONLINE LEARNING ADAPTED TO INDIVIDUAL STUDENT NEEDS

Despite all the paths the digital revolution has opened for personalizing instruction, ensuring the quality and depth of online learning still presents a challenge. Outstanding in this respect was NYC iSchool, which has designed an inventive, efficient hybrid approach to enabling the richest possible learning outcomes for students.

For example, iSchool teachers have far more latitude to design and teach project-based challenge modules, college-style seminars, and targeted science labs because they have created online courses all their students use to prepare for New York State's Regents exams. Those digital learning environments contain Web-based alternatives for mastering content, as well as quizzes containing Regents test questions. Teachers also review the material and rubrics with students in nine-week seminars directly before the test. The advantages are clear: Students self-pace their progress through the exam curriculum; acquire a fund of background knowledge; and usually make their way quickly toward the more engaging projects ahead.

Many NYC iSchool students told us that they liked the flexibility of their online courses in both timing and presentation. Jennie, a ninth grader, said:

> I did the best in U.S. history last quarter, and that was because in the videos, there [were] words, and then there [were] pictures. They would explain it and if you didn't get it, you can watch the whole thing over again. I also like the fact that if it's online, it's always going to be there. So you can go back and you can look at it again.

Principal Berger also invests time in having teachers create their own online courses to make up for deficits in the existing online curriculum. To prepare students for the high-stakes state exams solely with off-the-shelf online curriculum "would be deeply failing our students," she said.

One curriculum module, for example, was based on an online simulation designed by a Barnard professor: Students form environmental consulting teams and use professional methodology to hunt for evidence of land contamination. In another tactic, experienced teachers from the East Bronx Academy of the Future teach AP courses to iSchool students via distance learning. "I didn't have teachers certified to teach these four courses, yet we had students whom they would serve," Berger said. "It's a real commitment on both schools' parts, but our partnership is really important, so we schedule a lot of things around enabling it. And it's very cost effective."

ONLINE TOOLS THAT PROMOTE STUDENT COLLABORATION

NYC iSchool students have Internet access to all material and communications related to their courses. A Moodle-based virtual classroom contains assignments and teacher feedback, reading and multimedia content, class notes, self-correcting quizzes, group discussion boards, and online forums.

Video conferencing via Skype has also proved a powerful collaborative tool at the iSchool, where challenge-based modules routinely ask students to collaborate with outside experts or peers from around the world. In a module called "Sixteen," two classes interviewed teenagers around the world, using anthropological methods to compare adolescence in different cultures. Elijah, an eleventh grader, told us how the experience changed his thinking:

> How they do their marriages [in one African culture] . . . they would continuously jump to see who jumps the highest and that's how they find their spouse. And in some Indian cultures, you just get married to, like, somebody you don't even know. I'm just like, "Wow!" And I try to understand . . . what would make them do it this way. But that's just how their culture is. That's how they were raised.

Just Listen: Maranda, Being 16 in Different Cultures[19]

Maranda, in grade 11, describes a class in which students used anthropological methods to investigate the experience of 16-year-olds in cultures around the world. "It was different for a lot of us," she says. "It was very different."

DECA's Brent Goff weaves a variety of software into his twelfth-grade language arts classes, providing a platform for collaboration. He described his techniques:

> Media and writing can work in tandem. When we read *Frankenstein*, we did a wiki book. In lit[erature] circles, the students would upload their chapter summaries to Google docs, and these became their equivalent of Spark Notes or Wikipedia, except that they had created the content, it was a communal effort. Then when it came to writing about *Frankenstein*, the students could go back and look at the document they had created together and draw upon it.

EMAIL

We described earlier how email has become a lifeblood for communication at Noble High School, now that all students and faculty have laptops they carry almost everywhere. "It has transformed how we communicate with each other—between teachers and students, teacher to teacher, parents and teachers, with the community," said Heidi Early Hersey.

The use of email may be less ubiquitous at the other schools, where laptops do not come with membership. And email has its liabilities at school, as everywhere: It risks creating an intrusive level of availability, information overload, and the expectation of two-way communication. Yet this vital tool for connecting and sharing information clearly supports many core elements of student-centered learning in a number of our six schools. It undergirds strong relationships between students and their teachers, advisors, and community mentors, making it possible to send reminders, ask questions and get answers, seek input, give advice, check in about personal matters, and more. It supports collaboration, comment, and feedback. It encourages the exchange of drafts and revisions, whether by a student seeking input on her college essay or by teachers developing a cross-disciplinary unit. It also enables parents and teachers to communicate outside school hours.

ELEMENT 7. CLEAR, TIMELY ASSESSMENT AND SUPPORT

Training young people in intellectual inquiry is much like coaching an athletic sport, as Theodore R. Sizer (1984) memorably pointed out in his lifetime of exploring student-centered learning. It involves teacher and novice looking together at exemplary work and analyzing, element by element, what makes such work so good. It entails setting fair and achievable benchmarks for each learner's efforts. And it requires "just in time" feedback by the teacher-coach, who lends steady encouragement as students develop and test new skills and knowledge in practice. We often saw the art and science of such coaching in evidence, as we watched the teachers in our six study sites support and challenge their students.

Here we examine four key practices: just-in-time feedback; gateways and exhibitions; customized assessments; and student feedback on curricula and instruction.

video

Just Listen: Kenneth, Challenge Is Motivating[20]

Kenneth, in grade 11, says that increasing the challenge level "keeps me motivated to wanting to do more" whether it's in math or sports.

JUST-IN-TIME FEEDBACK

The best time to tell learners whether they are on the right or wrong track is when they are most interested in this information, usually right after they complete a task or give their answer. Otherwise, the informational and motivational value of the feedback will be diminished—and students may continue to make the same errors going forward. And students need feedback that is frequent: it packs more punch than broad, infrequent feedback (Slavin 2003). Teaching that embeds just-in-time feedback into the lesson can and does occur in all kinds of high schools, but we suspect it occurs most frequently in student-centered learning environments, which explicitly prize inquiry-based dialogue.

A day at Noble High School brings the practice of just-in-time feedback into sharp relief. This is a glimpse of what we saw:

8:40 a.m.: With desks arranged in a large hollow rectangle, 20 freshmen look up from their laptops to hear their teacher, Jennifer England, explain the day's task: Working with a partner, they are to select what they consider to be their three most meaningful work products for the year and upload them to their electronic portfolios. England provides criteria to guide their selections, then sets them to work. For the next half hour, she circles the class, seeing how each student is doing and answering their questions. When a student asks something other students should hear, England repeats the question out loud ("Is it okay to pick an assignment I really messed up on, plus my revision?") then offers her response ("Absolutely. That way folks can see your progress").

11:10 a.m.: For two weeks, the students in Meghan Fox's tenth-grade social studies class have worked in teams of four preparing their positions for a simulation in which members of the U.S. Senate will vote on a controversial issue. Today, Fox pulls aside each team for a second run-through of their presentations. When the first team finishes its speech, Fox suggests that they reconsider their decision to have team members rapidly alternate lines. ("It makes it feel jumpy, it may be confusing for the audience.") She heard strong appeals to emotion, she says, but not enough evidence that would appeal to reason. ("Remember, you are addressing the Senate.") She advises the students to distinguish more clearly their position's impact on foreign policy, domestic policy, and military/national defense. Still, she is encouraging: "It's a real improvement. Just clean these things up and you're good to go!"

Audio clip on the *Students at the Center* website[21]

Meghan Fox gives feedback to the team.

audio

Training young people in intellectual inquiry requires "just in time" feedback by the teacher-coach, who lends steady encouragement as students develop and test new skills and knowledge in practice.

1:20 p.m.: Sean is doing a third practice run of his senior project, in front of his advisor and three other students. His topic: maple sugaring, on which he is an expert. He presents a PowerPoint with his photos showing, step by step, the science and craft of making maple syrup. He's nervous, and it's hard for him to acknowledge the applause that follows. The students give warm and cool feedback, using a well-honed protocol. "You can see your passion for the subject," says one. "But you have to stop covering your mouth with your hand," says another. Then it's the advisor's turn. "I am delighted that you added all of those extra slides, they provide so much detail!" But she urges him to throw away his note cards and speak, instead, from his deep knowledge. She tells him to be proud of his broad vocabulary, for his use of words like "robust." She suggests that he not point out his mistakes to the audience.

GATEWAYS AND EXHIBITIONS

Most of the schools we studied have structures for students to present their work formally in order to demonstrate their readiness to move forward or graduate. These structures vary in pacing (some come quarterly, others at the two-year mark); in the stakes involved (some are more like course assessments, others more like comprehensive exit hurdles); and, notably, in the means and media students employ to present their work. Our list below shows those variations and more, but what links the practices is the conviction that the ability to "show what you know" is an important marker of successful—and student-centered—learning. In every instance, students share their work publicly and receive feedback through a detailed rubric that everyone in attendance is encouraged to fill out.

To graduate from Bronx International, aside from meeting their course requirements and passing the state Regents exams, students must complete a major culminating task in each core subject area: math; English language arts; social studies; and science. During the senior year, each student assembles these tasks in a portfolio along with a resume, personal essay, and statement of her/his future goals, then presents it in an hour-long exhibition before a panel of classmates and teachers, and sometimes community members as well.

All MetWest students present their work in quarterly exhibitions every year for an audience of teacher-advisors, peers, and community partners. In addition, halfway through their time at MetWest, students present a "gateway" portfolio to show that they are ready for the school's Senior Institute. Its requirements center on three main objectives: taking initiative for deep learning; a responsible approach to work habits; and "building self in community." Two years later, Senior Institute students present their culminating senior thesis projects, demonstrating their readiness to graduate and go on to college.

NYC iSchool expects exhibitions or performances of student work to culminate every significant learning experience, whether in challenge modules, core coursework, or field experiences. Those exhibitions often involve outside public audiences with a stake in the information (such as the 9/11 museum consultation described under Element 4). In March of the twelfth grade, students present their senior theses or projects before panels that include teachers, peers, advisors, and family members.

Noble High School's seven guiding principles are the touchstone for the yearly student presentations required for graduation. Each year, students must compile a graduation portfolio exemplifying their most meaningful learning experiences as they strived to meet those principles. As noted under Core Element 4, the portfolio must include the components featured in the grade 9 roundtable (Who am I?), the

grade 10 gateway (Where am I going?), the grade 11 pathway (How will I get there?), and the senior project (How can I exhibit what I've learned?). Noble has introduced a new electronic portfolio system that promises to make students' work available anytime and anywhere, and to ease the organizational challenges of keeping track of four years of student work.

Audio clip on the *Students at the Center* website[22]

Jennifer England introduces the electronic portfolio process to students.

At DECA, students must pass six gateways to graduate. Once their advisor has reviewed and approved their evidence, they can apply at any time to present a gateway before a panel of teachers, students, and family members. Each gateway has its own requirements, but taken together students must demonstrate a number of elements: 95 percent attendance over the 45 days prior to their gateway; 80 percent mastery of a multi-genre research topic, as determined by the advisor and presented through media; 75 percent proficiency in academic standards (in relation to the Michigan Educational Assessment Program and ACT College Readiness Standards); increasing self-discernment as evidenced in a personal reflection paper; active family participation; documentation of community service, internships, and job shadows; and three literary analyses of books. Students must also show their daily planner, completed and signed by the advisor.

CUSTOMIZED ASSESSMENTS

"All students come to school with something that's not there yet," said English teacher Dolan Morgan, describing the schoolwide, outcomes-based assessment system at Bronx International. "And our job as teachers is to help them get to a certain point of learning."

As noted, Morgan and his colleagues have created customized software where teachers enter the desired outcomes for each course (including behavioral habits along with academic goals), and then teachers, students, and families can regularly check individual progress. Failure is not an option; outcomes not reached are marked "Not yet." Assessment that charts growth in this way "fits all kids," Morgan said. "But it's especially empowering for English language learners, who are already struggling with language. You're not acquiring content because of that language, and you shouldn't be punished for it."

Software like this often suits the philosophies of student-centered schools, but we saw several schools struggle to find a system that combines ease of use, compatibility with their curricula, programs, and district requirements. NYC iSchool itself designed the Moodle-based system it used for the first three years, and now plans to transition to new software designed by the city's Department of Education. Each such transition, teachers at different schools told us, involves learning on their part and the inevitable frustrations of adapting to a new system.

STUDENT FEEDBACK ON CURRICULA AND INSTRUCTION

The schools in our study routinely invite student input on shaping instruction and practice. The input is typically tightly focused—different from "student voice" on issues affecting the whole school, although the teachers in our schools elicit this, too. With the easy student-teacher contact that characterizes daily life in these schools, much of this student feedback is informal, as Noble teacher Josh Gould pointed out:

> The feedback, it just happens naturally. If I'm considering what book I'm going to teach next, I'll give it to a junior during sustained silent reading and say, "Hey, would you read this and give me some feedback about how you think sophomores will respond to it." Or in Modern Novel, the last thing we do is revise the curriculum for the next year. The students talk about what worked for them and what didn't, or "Next year you should read this book first then that one."

At all six schools, we observed teachers checking with students as class ended to see how things had gone: Did the example used help them understand the concept? Did they like the reading? Was the pace too fast or too slow? Not surprisingly in an environment that encourages students to ask questions and seek clarification, teachers told us that some students were quick to let them know when they were not getting it or what they would prefer to be studying. "If you don't want to know an answer, then don't ask our kids," Noble's Josh Gold said. "Our kids are pretty well educated about what good teaching looks like."

With Noble's ubiquitous laptops, some teachers quickly poll students online about elements in an upcoming unit. As part of the senior project at Noble, each student must complete a feedback form about the process, noting what worked well or did not. "Each year we tweak one thing or another, based on their comments," said guidance counselor Shelly Lajoie, who oversees senior projects at Noble. Morgan, a recent graduate, approved of the practice:

> It makes your students powerful. The power to look beyond the current situation and become part of the solution. It makes students feel respected and responsible in themselves, to say if something is not working and how we can do it differently.

NYC iSchool's faculty also use digital communication to seek regular student feedback. After each course ends, students use an online survey to offer feedback on its strengths and weaknesses. "That information definitely becomes part of our professional conversation as teachers shape their goals for the next session," said Mary Moss, the school's founding co-principal.

ELEMENT 8. FOSTERING AUTONOMY AND LIFELONG LEARNING

Just Listen: Farhan, The "Opportunity Network"[23]

Farhan, in grade 11, describes an "opportunity network" program in which he connects with and learns from professionals in different fields. A few years back, they were "in my position literally," he says. But now, "from speaking to them, I learned a lot about what it means to be an adult."

video

A key task in adolescence is to develop the capacity for autonomy, and just about every practice we have described so far underscores one of the most unique features of student-centered learning environments: giving students the opportunities, skill sets, and work ethic they need to become independent learners. Teachers at each of the schools in our study work deliberatively and intuitively to strike a fine balance between encouraging students to be self-directed (which does not come naturally to students used to a traditional learning environment) and keeping a close watch. They pair risk taking with responsibility, continual planning with continual assessment. They encourage students to seek out learning opportunities and resources outside the school and to initiate their own projects. They help students identify and analyze the ways in which each one learns and works best. And they give students continual practice in the habits necessary to succeed at whatever they take on.

Here we single out two themes: building students' capacity to self-regulate; and learning how to learn.

BUILDING STUDENT SKILLS AROUND PLANNING, MANAGING TIME, SELF-PACING, PERSISTENCE, SELF-ORGANIZING, AND TAKING INITIATIVE

We saw practice in these habits at every turn. DECA students, for example, fill out daily planners that set the work of the day in a larger context. Bronx

» **The schools in our study routinely invite student input on shaping instruction and practice. The input is typically tightly focused—different from "student voice" on issues affecting the whole school, although the teachers in our schools elicit this, too.**

International students use laptops in every class to keep close track of which outcomes they are working toward each day. And throughout their twice-weekly internships, MetWest students plan, report, and reflect in writing on each day's work outside the school.

NYC iSchool designs its Regents prep online curriculum to maximize student independence and self-direction, said Alisa Berger:

> A lot of this is about enabling the students, making them feel empowered, that they own their learning and they're in charge of it. Their teacher doesn't need to master their content, they need to master their content. They want to graduate high school, so to pass the Regents is an authentic motivator. Part of this goes into how we grade kids: If you fail the quiz online, that's okay. It just means you haven't mastered the content yet.

Angelica, a ninth grader in NYC iSchool's first year, wrote this reflection on the challenges that autonomous online learning presented:

> In the beginning I was not fond of being both teacher and student simultaneously. It required more effort, patience, self-control, and self-motivation. Not consistently having someone keep tabs on me was surprisingly unnerving; I had expected to thrive with this newfound freedom. After all, wasn't this the independence I had always yearned for? However, I quickly discovered that my "freedom" was buried beneath layers and layers of responsibility—or in my case, procrastination.

Each fall in her ninth-grade reading class, Noble teacher Jennifer England provides students with a syllabus (posted on her website) that includes a detailed list of what she expects of them as collaborative and autonomous learners—and what she pledges to do in return. Earlier in this paper, England described a study skills course she designed for entering ninth graders at risk of falling behind. Immaturity and isolation figure strongly, she hypothesized, in the severe difficulties some students face with regard to planning and time-management, persistence and self-organizing, and taking initiative. Rather than tackling these skills head on, England's course nurtures students' social and emotional growth along with study skills, deliberately creating activities where one supports the other. Four years after the course began, all the students who participated because the school considered them a dropout risk remain in school; the first cohort has graduated.

Resource on the *Students at the Center* website[24]

Jennifer England's 2011-12 Reading Workshop Syllabus

We have talked about how independent learning experiences, especially those linked to the outside world, embody the personalization and real-world connections these six schools hold dear. These practices also serve as guided opportunities for students to take initiative on their own and act as responsible, semiautonomous agents in the community. Greg Cluster, coordinator of the MetWest internship program, noted:

> The students first have to express some interest in the field before they're ever talking to someone [about an internship], and so that student initiative is there right off the bat. Second, the student has to get the internship for themselves, and so they value it. All of that creates the dream teaching situation: students who really want to learn what mentors have to teach, and who really value that relationship right from the start. They're saying: "I had to work hard to get this, so I'm going to take advantage of it."

LEARNING ABOUT LEARNING

If students are to become "lifelong learners," it helps if they learn thinking skills and strategies that can support sturdy learning through adulthood. Research argues that these skills can be taught to children of all ages (Immordino-Yang & Damasio 2007; Manning

1991; Marzano & Arredano 1986; Osmon & Hammafin 1992). All the core elements reveal a common thread: instilling metacognition as a habit in student learning. Specifically, the core elements help students plan their approach to a learning task, monitor their own comprehension, and evaluate their own progress toward completing it. Students learn to reflect on their own strengths and weaknesses, set realistic goals for themselves, and sustain their effort over time.

Sometimes we saw that occur in formal or informal dialogue, as teachers pressed students to articulate their growth and development as learners. At MetWest, such conversations take place often among students and their advisors or workplace mentors, said Christina Chung, who directs the school's afterschool program:

> In helping prepare our students for that next step in life—whether it's to enter the real world with a job or a community college or four-year university—formal English-history-math classes isn't what has ensured them success there. A lot of what we've done is teach them to know how to be resourceful—whether it's online, talking to professors, knowing how to access lots of different parts of this world.

Often we saw students thinking metacognitively in their written or oral reflections when they presented their work to others at the conclusion of coursework or projects. One Bronx International student, who arrived in the United States from Bangladesh at 14 with barely any English, thought back in his graduation portfolio on why he cared so much about learning:

> My village was a canvas of hope and tragedy. Poor people were denied access to the most essential needs: education, jobs, and health care. People thought living a deprived life was normal for someone growing up in extreme poverty. Even at a young age, I was mystified as to why poor children struggled and died. [When I arrived in New York] I was shocked by people's discriminatory behavior toward immigrant students. However, I didn't abandon hope. . . . I desperately sought opportunities to provide me with a pathway toward success.

To deepen students' metacognitive skills, both Noble High School and NYC iSchool created special courses in the science of learning.

> At the very beginning, we took a class called iLearn, where we did personality tests and figured out what kind of student we are, and the way we learn best. Like, are you the person who is a good leader and motivator to get everybody else working? Or are you better at just doing what you're told but doing a good job? Are you a visual learner? It's almost impossible for me to learn without seeing it.
> *—Nicky, grade 10 student, NYC iSchool*

> How a teacher teaches and how you learn, your learning style, are so connected. My sophomore year we did a test which explained to us our personal learning style. Even if a teacher didn't implement every learning style in their class, at least I knew what mine was. One day, my teacher wrote this phrase on the blackboard: "Learning about learning." That's what I learned at Noble.
> *—Morgan, recent graduate, Noble High School*

The core elements help students plan their approach to a learning task, monitor their own comprehension, and evaluate their own progress toward completing it. Students learn to reflect on their own strengths and weaknesses, set realistic goals for themselves, and sustain their effort over time.

TEACHER ROLES IN STUDENT-CENTERED ENVIRONMENTS

The core elements of student-centered teaching overlap and combine in a dynamic relationship, each affecting and contributing to another. Yet teasing apart and analyzing that web reminds us sharply that schools do not rise or fall—and students do not thrive or fail—based on structures and practices alone. Institutions and students alike depend on the ability of teachers, in the course of any day, to take on a range of roles that may be unique to their profession.

We describe those roles—curriculum planner, classroom facilitator and coach, assessor, advisor, connector, and communicator—both as we observed them and through the eyes of teachers. Again, our categories cross paths at times. We regard that overlap as a useful indicator of the complex demands of student-centered teaching, with implications for policy, school transformation, teacher education, and the future of the profession itself.

Janice Eldridge, at Noble High School, framed the subject of teachers' roles bluntly:

> I don't think we have clearly defined roles here. We wear so many hats, we do so many different things. So if you're the kind of teacher that wants to just come in and teach your curriculum, this is not the place for you.

Though challenging, such shape-shifting also lends a distinct appeal to the work of teaching, as her colleague Andy Korman pointed out:

> We have a culture here that encourages risk taking—to try something new, to put on a new hat, to reach out to that kid. We also attract teachers who are willing to think outside the box, that are in tune with this culture. And even if you fail in a particular lesson, that's okay. The point is to try to help these kids meet their educational goals.

Students, too, notice and appreciate the different roles their teachers play in their learning. Looking back after her graduation from Noble High School, Morgan came up with three that mattered most to her:

> First of all: teacher, professor. Then there's friend: Most of the time, the teachers here create a very personal relationship with their students. They get involved in what their students care about, they help them and coach them. Finally, there's mentor: Beyond that personal relationship with kids, the teachers here also help you discover how to succeed in what interests you. They are examples of that.

CURRICULUM PLANNER

For the teachers we observed in these six secondary schools, planning curricula is a constant aspect of the work. Most have set aside textbooks, instead calling on multiple sources for ideas and materials and choosing depth over "coverage." Alief's Peggy Breef explained her rationale:

> I've been teaching 12 years, and when I first started teaching, I was like, "Oh my goodness! I covered *The Odyssey* and then we read Antigone and we went through *Lord of the Flies* and we did this and that. . . ." This year, I'm struggling to get through two novels and short stories and one play. But it's much more in depth, much more narrow. It forces me to really be thinking, "What are the essential things that they have to learn?" It does take longer to teach that way, almost half again as long, I'd say. And it's harder. It's harder. You know, I could easily just stand up and talk for an hour, but I don't want to do that.

Most courses at NYC iSchool are shorter than standard ones and more focused. This presents particular challenges for teachers who plan curricula. "The first year, I created at least five separate courses that I had never taught before," said veteran science teacher Susan Herzog. To complicate things further, iSchool courses take several forms: challenge-based modules that address problems in the outside world; online instruction to master traditional material tested on state exams; and core academic seminars and labs. Each requires its own kind of preparation.

That said, certain elements remain central, said principal Alisa Berger:

> The same teacher who's teaching Living Environment online is also teaching a nine-week regular class on neuroscience and another on genetics. So how do we help that teacher create a course about neuroscience? They have to break it down: This is the enduring understanding. These are the objectives that go into that enduring understanding. They get an understanding of how complex an objective is, and how to chunk it. They learn what you don't do online, and how you assess.

Teachers in our study's schools plan the curricula in collaboration with colleagues wherever possible, both in devising and in continually revising their lessons. Many go to great lengths to integrate curricula across disciplines, as Josh Gould at Noble High School described:

> One of the things we spend a lot of time on, as a team, is developing integrated curriculum units and projects. This year, for example, we created a unit on immigration. We stopped running the regular class schedule—no 80-minute English, no 80-minute history. Instead, the students came in and we just worked on immigration for three weeks.

CLASSROOM FACILITATOR AND COACH

Once in a learning environment with students, teachers act more as guides than as lecturers. It works best, they said, if they set up scenarios in which students can explore, ask their own questions, and discover their own answers. "When I'm in the classroom, I don't feel like I'm a teacher," mused Bronx International English teacher Dolan Morgan:

> It feels like I'm a facilitator of a movie or a play that's happening. I give them materials to work with—some students get a certain set of materials and others get a different one. And then I just make sure that they're understanding what they're doing.

Teachers in the Early College High School Initiative, including those at Alief and DECA, follow the initiative's "Common Instructional Framework" of six strategies: Collaborative Group Work; Write to Learn; Classroom Talk; Questioning; Scaffolding; and Literacy Groups. Each strategy places the teacher squarely in the role of facilitator, Alief's Peggy Breef noted, and the AVID curriculum further reinforces that:

> The kids are learning in their AVID classes how to write level 1, 2, and 3 questions. If you're always thinking that way as a teacher, you don't ever want to just start throwing out information. I have to do something with the kids to get the subject matter across, and then I have to let them do something with what they've learned now and take it out and beyond.

We watched one class in an NYC iSchool science module meet the challenge of creating a green roof for the school. At its start, Susan Herzog loosely framed what lay ahead for her students, leaving ample room for their own initiative. They would go up to the roof a couple times a week to observe the shadows at different times of day, she explained. Then they would answer: How can we put a classroom up

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there? What kind of materials would we use to build it? Where would we site the panels, solar panels, wind turbines, etc.?

ASSESSOR

The teachers we observed regarded assessment as a student-centered art, interwoven with the business of teaching. More than a test, such assessment is an active process that requires teachers to stay alert to countless signals, said NYC iSchool principal Alisa Berger. As teachers circulate in the class, they engage with every student in some way that enables them to measure their understanding.

For iSchool courses conducted primarily online, Berger noted, the teacher plays an equally important assessment role:

> Teachers have time in their schedules during the school day to monitor students' online progress and intervene. For now, they use a simple program we designed to track how kids are progressing through the work: "So this student was at this place last week. Where are they this week? How many times have they signed in? Are they moving at a good pace?" If someone is signing in a lot but stuck someplace, the teacher checks in with the kid about why that is. That could happen during study hall or during teachers' office hours, which are 40 minutes, four days a week.

Dolan Morgan likes the specificity of Bronx International's outcomes-based assessment system, which breaks out skills and content that students master at their own pace. Even what students choose not to work on, Morgan said, gives him useful information on what to do next:

> I try to offer a list of outcomes a group can attack, and they go to an outcome when they're ready. I'm then preparing for teaching what they *haven't* chosen based on what they've decided they could do. Allowing them to choose is a way of me getting information by negation. Of course, they always choose different things.

At all six schools, high-stakes state tests loom over the students. Those can not be ignored, even if they often lack the emphasis on deeper learning that teachers prefer. As the Texas Assessment of Knowledge and Skills (TAKS) approached, Alief's Peggy Breef found a balance that worked for her students:

> At other high schools where I've taught, the nine weeks before TAKS, that's all we did—TAKS blitz. Lotteries . . . prizes . . . tutorials, it was like a circus atmosphere. So here, it got to be that time of year, and I started to panic, "We need to do TAKS prep!" And then I'm, like, "We probably don't need to do that much." We had a few tutorials. We looked at the test: how long it's going to be and the types of questions. And we did practice the writing part. We focused on the essentials. And the kids did extremely well.

The assessment data that most help teachers improve their teaching, we heard again and again, is closest to home: "what's happening with our students."

ADVISOR

Though not all the schools we visited structure student advisement in the same way, all the teachers in this study see the advisor role as central to their work. "A lot of the students struggle here with getting support from home or other places," noted Jessica Austin at DECA, where students remain in one advisory group for grades 7 and 8, then move to another for the high school years. Austin considers the advisory relationship critical to their success, both emotionally and academically:

> Students build a strong relationship with someone who can support them academically, emotionally, really be there for them, get to know their family, that one-on-one. I'm also a motivator and pusher, making sure that students are working on whatever they need to be working on that day, in their advisory—instead of just, say, working on whatever they pull out of their backpack. Then when they are preparing for a gateway, I make sure they have everything they need, the signatures, the planner, the

essays, the self reflection. I try to meet with every student alone, once a week.

Teachers acknowledge that the advisory role adds responsibilities, and these six schools take pains to keep advisement structures from becoming a perfunctory chore. Alief Early College High School locates academic advisement in its AVID classes; in a separate system, each adult mentors 12 students one-to-one.

At NYC iSchool, every adult shares in advisory responsibilities. "We create a culture that every adult in the school is a teacher, and that's through advisory," said NYC iSchool principal Alisa Berger. "That is an inherent part of this model: We're all learning and we all work together."

Noble High School disbanded its advisory groups to embed advisement in familial team structures. Four teachers and a guidance counselor work closely with 80 students. Counselor Shirley Lajoie said the new system works well for both students and teachers:

> Our teachers, because of this closeness to students, definitely take a lot on about what's happening in this or that student's life. It definitely burdens them, especially some of the freshman teachers on my team. So I try to divide up the roles with them. I tell them that their job is to teach that student as responsively as they can and leave the heavier stuff to me, like, "I can make that call for you."

CONNECTOR

Research shows the interpersonal networks in which adolescents participate make a big difference to their future lives (Putnam 2004; Schaefer-McDaniel 2004; Lee & Croninger 1999). For example, at Bronx International, helping students connect with summer opportunities or postsecondary pathways is a frequent focus of group discussions, said one tenth grader:

> We have a class every Tuesday, Wednesday, and Thursday, and we talk with our teacher about what you have to do to make it to college and stuff like that. Or we just talk about working papers. And the teachers help us to get work . . . to get money in the summer.

In rural Maine as well, opportunities can be scarce for teenagers, especially during hard economic times. "I am constantly sending out opportunities via email for summer programs, or scholarship opportunities, or contests that they can enter," said Noble teacher Adina Hunter. "That's a lot of what I do: connect students to opportunities to push themselves above and beyond their classrooms."

MetWest teacher-advisors often mine their personal networks to connect students with potential community mentors for the school's internship curriculum. More, they explicitly teach students the skills to reach out on their own. Cameron described his ninth-grade practice sessions at MetWest, making calls to seek an internship placement:

> We had a script about what MetWest was, and you had to explain the script, and then you had to ask if you could go on for an interview. My advisor helped me a lot with that. He made sure all the students were making phone calls, everyone was serious about the internships, things like that. We practiced with our peers. We practiced with him, too. And most of the time, I was making real phone calls to practice with.

Just Listen: Elijah: On Terms with Us[25]

Elijah, grade 11, gives examples of how a teacher can make students feel easy and natural in the classroom, without losing their respect.

video

Teachers acknowledge that the advisory role adds responsibilities, and these six schools take pains to keep advisement structures from becoming a perfunctory chore.

PROFESSIONAL LEARNING IN STUDENT-CENTERED ENVIRONMENTS

In a way, teachers need the same things for themselves that students require in a truly student-centered learning environment. Strong relationships, choices, clear goals, appropriate challenges and feedback, a culture that fosters personal growth, opportunities to extend and apply their learning, autonomy—all these elements help teachers grow and thrive in their practice with students. Recent research speaks volumes to the value of high-quality, collaborative, ongoing teacher development (Borko 2004; Wilson & Berne 1999; Darling-Hammond & McLaughlin 1995).

At the same time that student-centered schools foster such elements in student learning, we observed, they also embed them in the professional lives of teachers. Indeed, professional development is continuous at our six sites. These educators see themselves as learners as much as teachers, and, assuredly, what has made these schools shine is their determination to be *learning organizations*. Each began with a more-or-less defined blueprint, drawn from the "parent" organization of which it was a member (e.g., the Early College High School Initiative, Big Picture, the Coalition of Essential Schools). Then, as each adapted the blueprint to its own circumstances (the "microclimates" described earlier), the school set in motion a process of ongoing design and redesign, deepening or extending what worked, jettisoning or revising what did not. These educators regard mistakes and risk taking as opportunities to learn. They could laugh about the time it has taken to accrue their hard-earned wisdom—over 20 years, in the case of Noble High School.

COMMON PROFESSIONAL AND PLANNING TIME

All these schools create regular, frequent opportunities for teachers to collaborate with one another for the benefit of their students. That might involve gathering to compare notes on the progress and problems of shared students, planning a curriculum within a content area, or integrating a curriculum across academic domains. Teachers need protected time for such work, they told us, and in our six study schools they largely get it.

Bronx International explicitly commits to "one learning model for all," consisting of collaborative structures in which students and faculty alike can build on strengths and support one another's needs. Five interdisciplinary teaching teams of four teachers and a guidance counselor each share up to 75 students (three with mixed ninth- and tenth-grade students and one each for grades 11 and 12). The teams meet three times a week to review curricula, instruction, and assessment; plan interdisciplinary projects; look closely at student work; and confer about students' academic and personal development. Interestingly, the school has tasked a new "coaching team" to differentiate professional development for all staff, so teachers might target areas of growth both individually and collaboratively.[26]

As noted earlier, every teacher at Noble is part of a team. Every other day, teams meet for 80 minutes to compare notes on students, seek advice on a class that did not go well or report on one that shone, plan interdisciplinary units, synchronize schedules, discuss

» At the same time that student-centered schools foster such elements in student learning, we observed, they also embed them in the professional lives of teachers. Indeed, professional development is continuous at our six sites.

» In both formal and informal ways, the schools we visited open up the classroom doors, making regular and frequent opportunities for administrators and teaching colleagues to observe, mentor, and learn from one another.

upcoming events (e.g., the sophomore gateway), and look at cross-cutting issues (e.g., grade-to-grade transitions). "If you want teachers to teach differently, you have to give them the opportunity to work together, continuously, in a targeted and focused way," said Heidi Early Hersey, director of Noble's Professional Development Center. "They have to trust and respect one another; they have to feel supported and challenged."

Noble has also embraced the National School Reform Faculty's "critical friends group" structure: Small groups of teachers work with protocols in a sustained and inquiry-based professional learning community (Easton 2009).[27] In addition, Noble sets aside five to six half-days a year for teacher planning within content areas. It also reserves four full days for school- or districtwide professional development. Noble faculty can sign up for graduate courses and free district-sponsored mini-courses that meet at Noble after school. A recent workshop, for example, centered on layered curricula.

As with student learning, NYC iSchool uses specialized approaches that meet individual needs to foster growth in its teaching staff. "It's a professional development model in the progressive tradition," said principal Alisa Berger. Teachers spend an average of five hours a week working collaboratively on issues that arise in their own classroom teaching. Expertise comes from within: For example, Curtis Borg, the school's technology coach, provides not just generalized trainings but ongoing, targeted coaching as individual teachers integrate high-tech tools into curricula and instruction.

At Alief Early College High School, teacher professional development focuses on the (very complementary) core practices of both the Texas Early College High School Initiative and the AVID college-readiness system. Early college schools especially emphasize collaborative professional time for teachers to foster the "three R's" of rigor, relevance, and relationships. AVID provides intensive training in college-ready skills, with a strong focus on asking increasingly thoughtful questions. All teachers meet for an hour every Wednesday in teams of 15, working on the Common Instructional Framework we observed in use throughout the school. Teacher and instructional coach Peggy Breef described the process:

> We started with writing to learn, and everybody committed to that in every class. Sometimes I presented material to them almost like they're the students, so they got hands-on experience and could see that it works. We tried out different strategies and then came back together, reviewed our work, looked at student work, and discussed what's working and what's not. Piece by piece, everybody got familiar with all the strategies and had some protocols, some tools in their toolbox. A lot of it is nothing new, and a lot of teachers were doing it naturally. That was a good thing for me to point out to them.

OBSERVATION AND SHARING

In both formal and informal ways, the schools we visited open up the classroom doors, making regular and frequent opportunities for administrators and teaching colleagues to observe, mentor, and learn from one another. Making collegial practices routine, teachers told us, lessened their "performance anxiety" and made mutual support and development the norm. Even teachers temperamentally predisposed to do well in a student-centered learning environment need feedback to grow, they said.

Peggy Breef described introducing the early college practice of "instructional rounds" to her Alief colleagues:[28]

> Ideally, every teacher would be rounded once per nine weeks, by their peers or instructional coaches. It's time consuming; and so when we started off, it really wasn't

» Each school has developed comprehensive and thoughtful systems to support newcomers as they immerse themselves and become adept in that school's essential practices, tools, and structures.

> full-blown rounds. Sometimes it would just be the instructional coach going into the rooms, just to give teachers feedback with "I saw," "I heard," and "What if" kinds of statements. The teacher requests it, comes up with the question, tells us what to look for. We meet in the morning and she might say, "I really want to know if my students are understanding this concept. And this is how I'm going to teach it and this is what I want you to look for." So we look for just that, and then in the afternoons we meet again. There's a nonjudgmental protocol for giving feedback, so it's not threatening to the teacher. I think we've managed to do that.

As well as spending professional learning time with peers, all NYC iSchool teachers get one to two hours a week of individualized support for their teaching practice, working with an administrator or a math coach. Alisa Berger makes such coaching a top priority for school administrators, who may spend three to five hours a day with teachers. They hone in on the details that make the difference, she said:

> For most teachers, it focuses on designing learning experiences. For example, "What was your goal of that lesson? Was it meaningful? Was it achievable? Did it connect to the big idea, the enduring understanding that we're trying to get to?" If not, that's where we start. If that's there, "What was the evidence at the end of the period that the kids moved toward your goal?"

At DECA, two faculty members take on the rotating position of full-time peer coach to their colleagues. As a new teacher, Jessica Austin said, she appreciated the "nonthreatening, nonjudgmental" support:

> One of my biggest struggles is group discussion. What should I do when it kind of dies off? How do I spark their interest back? How do I manage four groups at once, when I'm working with one group and others get off task? I'd have [the peer coach] notice when the discussion died down, and if I did an appropriate job getting it back together, how did that happen—or if I didn't, did she have any suggestions for me? She would also come in for multiple classes, since each class dynamic is different. Then we'd meet maybe the next day to talk through her observations and advice, plus other things I didn't ask her about but which she thought important to share. It's much better than going to someone and asking about an issue in the abstract.

TEACHER INDUCTION

The schools in our study all recognized that it takes time and attention to acclimate new teachers to a particular student-centered culture. Each has developed comprehensive and thoughtful systems to support newcomers as they immerse themselves and become adept in that school's essential practices, tools, and structures.

In her second year at DECA, Jolie Ankrom spoke at great length about the training she received as a new teacher, built around the Common Instructional Framework of the Early College High School Initiative.[29] Ankrom described her induction, play by play:

> At DECA, two experienced teachers taught all of our entry teachers the frameworks and how to implement them. They not only taught us what they were, but they modeled them for us and they co-taught with us for pretty much the entire first year. . . .
>
> Some are themes that every teacher should know, like scaffolding: how to integrate older material with newer material, how to help kids to connect the material. But others

of them are specifically geared toward student-centered learning, like collaborative group work. Most teachers know what that means but not how to apply it. We learned specific activities to integrate collaborative work with the kids, and then practiced them. . . .

A big plus was that they actually taught us the frameworks by using the frameworks. So if we were learning how to do a Literacy Group, they had us become our own Literacy Group. We played it out in real time. We could see the logistics and what's tricky and what we needed to tweak. . . .

In the end, the Common Instructional Framework centers around having the students being pretty much the leaders and the teacher the facilitator. What does student-centered teaching look like? Here's what I've learned. I'd say it looks like me doing a lot more planning in the background, but at the actual implementation of the lesson, you'll see me floating around, observing, listening to see whether kids were getting what I wanted them to get, watching to see if they're on task or off task. As a first-year teacher, you can be so focused on yourself and your planning and being the center of attention and lecturing that you don't see the students. It was freeing, once I'd done the background planning for an activity, to see the students run with it—and collaborate.

resource

Resource on the *Students at the Center* website[30]

Jolie Ankrom's full reflections on the challenges and satisfactions of being a new teacher, and group work by students, advisories, and teacher collaboration.

At NYC iSchool, the principal and three assistant principals all play a major part in fostering teacher development. Planning a challenge-based curricular module at the iSchool can daunt even a seasoned teacher, so new teachers receive one-on-one help from school leaders as they take on that work. But all teachers need induction when it comes to the school's expectation that teachers help develop its online Regents prep curriculum, said Alisa Berger:

> Creating good online curricula that clearly identify what you want the kids to know, [that] provides various learning opportunities for them to know it and various opportunities for them to indicate true mastery of it—that is very complex learning for our teachers. It was a lot of work, and we've spent hours in the summer with them: designing the courses, setting up the expectations, and showing them what we expect them to do on a weekly basis. It's a completely new role for most teachers—in some ways it may be easier for teachers who haven't already formed strong ideas of what their role is.

In a somewhat similar challenge, Bronx International teachers must learn to coach both English language and content-area skills in their classrooms. They get help from colleagues in their clusters, using the school's peer-mentoring system, but the school has also found another solution. Its parent organization, Internationals Network for Public Schools, has partnered with Long Island University to tailor a program in teaching English as a second language to meet the demands of the Internationals approach. Apprentice teachers in the new I-START program are paired with mentor teachers in Internationals schools, and several have joined the Bronx International faculty with a significantly less steep learning curve to face.[31]

DISTRIBUTED LEADERSHIP

In all the schools we studied, we saw structured opportunities for teachers to move into responsible non-classroom roles. The schools have all fostered a culture in which they develop talent from within rather than importing consultants who might not be versed in their ways.

Teacher-advisors at MetWest often take on other leadership positions, as did Greg Cluster, who coordinates the school's Learning Through Internship program, and Christina Chung, who directs its afterschool program. As student services coordinator

» Student-centered schools bring teachers together at regular intervals to take stock of their progress and their shortfalls with respect to student learning. Our six schools have made this a priority as well, gathering faculty once or twice a year to share and reflect on data—not just through standardized test scores but through close observation and careful listening.

at Bronx International, Liana Maris also has leadership responsibilities across the spectrum, including supporting teachers in their student-centered teaching.

Two NYC iSchool teachers, Michelle Leimsider and Lauriann Kress, were participating at the time of our visits in district programs preparing them for leadership positions; now both have stepped up to join assistant principal Jesse Spevack in that position. Principal Alisa Berger relies on that triumvirate to share in the ongoing professional coaching she and her founding co-principal, Mary Moss, conduct with all iSchool teachers. At the same time, she takes advantage of every opportunity for teachers to learn from one another. For example, she plans for a teacher who wants to teach AP literature to sit in on that course as a master teacher from the Bronx conducts it via Skype. Berger explained:

> If I were a teacher who was about to go teach the course, this is the best professional development ever—to be learning in this environment with this exceptionally skilled teacher. I have been the adult who sits in the room while the kids have class, and I have learned so much.

At both of the early college high schools in our study, DECA and Alief, experienced teachers also serve as instructional coaches, passing on to their colleagues the training they receive from the early college efforts in their states.

TAKING STOCK

Ever since the 1990s, when the press for data-based accountability began to strengthen, we have observed student-centered schools bringing teachers together at regular intervals to take stock of their progress and their shortfalls with respect to student learning. Our six schools have made this a priority as well, gathering faculty once or twice a year to share and reflect on data—not just through standardized test scores but through close observation and careful listening.

Through their daily coaching of teachers, NYC iSchool administrators seek to instill the schoolwide habit of gathering information about the effectiveness of teaching, said Alisa Berger:

> You have to have an idea of how students are doing and when. And we've found that teachers' "guts" are often off, in terms of how many kids actually got it. If it's maybe 3 percent of the kids who didn't get there, we ask, "What does that mean for your lesson tomorrow?" If it's 26 percent who didn't get there, what does that mean for tomorrow? What could you have done to increase that percentage? The conversation is just, "Don't trust your gut. You do need to have some evidence."

Since 2006, DECA has used the "My Voice" student survey, developed by the Quaglia Institute for Student Aspirations, to collect detailed feedback from students about how school structures and practices affect academic success and overall school climate. In a day-long meeting each year, the faculty members go over the results, asking: What in the student responses gets your attention? Why is it important? What is the overall tone of the student responses? What do students see as the strengths of our school? Are these strengths relative or remarkable? What needs improving? What can we and should we do?[32]

At Noble, too, a yearly student survey takes the temperature of students. A faculty member who is pursuing an advanced degree in computer science volunteers his time to do the data crunching.

In a process familiar among start-up schools, these schools are continually examining, rethinking, and revising the larger structural issues that affect

teaching and learning. For example, in the 2011-12 school year, NYC iSchool is trying a new schedule, a new learning management system, and a new structure for its student internship program.

Yet the years do not exempt more seasoned student-centered schools from such soul-searching. For example, the Noble faculty has struggled for almost 20 years to find the ideal structures for breaking their school of roughly 1,000 students into small learning communities. The latest decision—three "vertical learning academies," in which only ninth and tenth graders learn in teams of eighty students with five teachers—continues to raise important questions about personalization and collaborative teaching for grades 11 and 12.

TEACHERS AS PROFESSIONAL DEVELOPERS

As a natural corollary to their growing expertise, teachers in our study schools also reached out to share their student-centered structures and practices with other schools and districts. Such opportunities arose in various ways, depending on the networks in which they were embedded. Big Picture Learning, to which MetWest belongs, has a long tradition of asking teachers (and students) to represent its philosophy and practices at conferences and consultancies. And because NYC iSchool is considered a flagship of its school district's "Innovation Zone," its teachers field continual requests to represent and explain their unconventional educational offerings.

Two of our schools have created institutional offspring to inform and educate others about their student-centered ways. Long known as a highly developed example of the Coalition of Essential Schools principles in action, Noble established its own professional development center, where its faculty offer workshops to teachers and administrators from districts near and far. DECA, one of the nation's first early college high schools, runs a summer institute attracting educators interested in learning from practicing teachers about the rapidly spreading early college design for schools.

At both Bronx International and MetWest, teachers mentor others who work with their students but are not formal members of the faculty. In the case of MetWest, it comes about as advisors make the rounds to the sites where their students work at internships. At each stop, they engage in thoughtful discussions with the mentor, talking over the student's performance on the job and nudging the expectations ever higher. Internship coordinator Greg Cluster commented admiringly on the effects of how one teacher, Michelle Deiro, conducted such conversations:

> It's not an explicit evaluation or feedback thing [for the mentors]. But I think there's a lot of modeling: Michelle holds students to high expectations and she demonstrates that in front of the mentors. So the mentors are watching, and they're saying, "Oh, I can actually hold the student to that high an expectation." They're learning through observation and immersion—really, that's how the training happens.

CONCLUSION

We arrive, finally, where we started. What does teaching look like when it truly centers on the student's learning needs? What conditions foster and support such teaching? What kinds of learning environments give all students—especially underserved youth—access to an education that results in the skills, knowledge, and habits they will need for a successful and productive adult life in our rapidly changing world?

And how can schools and teachers in the very diverse population served by U.S. schools adapt their structures and practices to coach the ongoing social, emotional, and intellectual development of all students?

The six secondary schools falling under our lens have much to show and teach about deep student-centered learning. Indeed, they reveal a set of eight core elements—common strands of belief that give rise to deep, far-reaching adolescent learning. Those elements have a long and distinguished history in the United States and elsewhere. Starting with strong relationships with students, they belong to a philosophical family that (among other things) values appropriate challenge levels for each learner, connects learning to the world outside the school, and assesses student progress in timely and authentic ways. And they are linked in deep ways to one another. In every school we visited, teachers reiterated what we observed in the structures and practice described herein: Those eight core elements must work in harness for their strength to make a difference.

Yet each school carries the marks of its origin and context. And each has to work within its microclimate: the local soil with its particular nutrients and stressors; the shifting winds of district and state policy; the welcome rain or parching drought of resources; the rise and fall of temperatures in its community. Thus, we do not present the specific steps these schools take as neat designs for replication. Rather, we regard them as models of how public schools can center teaching and learning on the needs of students even while adapting to their unique environments. They have grown from both necessity and invention, and so have power to inspire in situations very different from their own.

That said, the nature of the teaching itself bears deep and striking resemblances across these schools. Every teacher we observed and interviewed takes on multiple roles that cross and blend in practice: curriculum planner along with classroom facilitator and coach; assessor and advisor; connector and communicator. To survive that daunting exercise and keep students at the center of their vision, teachers told us, requires certain dispositions. Those who thrive in their profession care about the "whole child"; have real enthusiasm for their subject; see themselves as facilitators, not deliverers, of knowledge and skills; embrace teamwork with colleagues while using their own judgment with students; remain open to critique; and are comfortable with risks, fluidity, and change. In sum, they give it everything they have.

What structures help these teachers take on such hard work, get better at it, and succeed? The single most important support, they told us, is frequent,

» **What structures help these teachers take on such hard work, get better at it, and succeed? The single most important support, they told us, is frequent, common planning time.**

common planning time. That along with other key collegial practices—steady mentoring for new teachers, for example, and regular observation of each other's classrooms—empower teachers in the same way that they seek to empower their students. Despite the challenges and frustrations of their profession, these teachers said, they feel part of a learning organization. Reflecting, taking stock, adding and subtracting, reinventing—all lend color, depth, and life to their everyday practice, and to the learning of their students.

Student-centered teaching and learning is more the exception than the rule in U.S. schools today. The headwinds are strong in the face of scaling up structures and practices that support it. Common core standards may provide an important lift, assuming those standards are both high and clear enough to translate into widespread practice. Technological advances will unquestionably alter the landscape, though raising issues of both depth and equity. Yet top-down reform, a hyper-reliance on testing to measure mastery among both students and teachers, the push for standardization despite the most diverse student body in our nation's history—these and other trends greatly challenge efforts to spread the kind of schooling this paper has explored.

Still, student-centered teaching and learning may have its own exponential thrust. As examples thrive in many microclimates, it may build upon itself: more students and teachers experiencing its challenges and satisfactions; more communities witnessing the effects on engagement and excellence; policymakers taking note, along with prospective teachers and administrators.

We conclude with one fundamental question for the nation. In the face of the current policy headwinds, how can we give more children—especially those "left behind" on the basis of poverty, color, language, and other "difference"—the opportunity to learn in schools like these?

ENDNOTES

[1] See series paper: http://www.studentsatthecenter.org/papers/changing-school-district-practices

[2] For more information, see: http://www.bigpicture.org/, www.earlycolleges.org, http://www.internationalsnps.org/, and http://www.essentialschools.org/

[3] For more information on the Early College High School Initiative, managed by Jobs for the Future, see: http://www.earlycolleges.org/

[4] For more information on AVID, see: http://www.avid.org/index.html

[5] For more information on College Now, see: http://collegenow.cuny.edu/

[6] For more information on the Innovation Zone, see: http://schools.nyc.gov/community/innovation/izone/

[7] See: http://www.youtube.com/watch?v=qBv5DXMpH8I

[8] See: http://www.youtube.com/watch?v=6sL_tmgxHLw

[9] See series papers: http://www.studentsatthecenter.org/papers/motivation-engagement-and-student-voice and http://www.studentsatthecenter.org/papers/personalization-schools

[10] See: http://www.youtube.com/watch?v=EyxFD4wwNWc

[11] For more on UDL engagement, see "Universal Design for Learning" in *Curricular Opportunities in the Digital Age*, by David H. Rose and Jenna W. Gravel. See series paper: http://www.studentsatthecenter.org/papers/curricular-opportunities-digital-age

[12] For more information on the campaign, see: http://www.thinkbeforeyoufrack.org/

[13] See: http://www.youtube.com/watch?v=W8azIpBCnaU

[14] See: http://www.youtube.com/watch?v=Bw9QgOO4_IQ

[15] See: http://www.youtube.com/watch?v=XyMwU1fqm_A

[16] Schools characteristically assign different names to these milestones.

[17] See: http://www.youtube.com/watch?v=53teTDgt-A4

[18] See series paper: http://www.studentsatthecenter.org/papers/curricular-opportunities-digital-age

[19] See: http://www.youtube.com/watch?v=yhzuOvvLd-o

[20] See: http://www.youtube.com/watch?v=k04b1lWKil0

[21] See: http://www.studentsatthecenter.org/audio-clip-feedback-students

[22] See: http://www.studentsatthecenter.org/audio-clip-electronic-portfolios

[23] See: http://www.youtube.com/watch?v=lKY_vF95_5o

[24] See: http://www.studentsatthecenter.org/reading-workshop-syllabus

[25] See: http://www.youtube.com/watch?v=28-bDdBjSWI

[26] Differentiated instruction, language development, and outcomes-based assessment are the top topics that Bronx International teachers request, the school reports.

[27] For more information on the National School Reform Faculty, see: http://www.nsrfharmony.org

[28] Just as medical rounds enable doctors to observe and reflect upon one another's practice, instructional rounds are a form of professional learning that engage teachers in reflective conversations about effective teaching. For more information, see Richard Elmore's work on instructional rounds.

[29] Michigan requires that every new teacher take part in an entry-year program, but schools have leeway on how they structure that.

[30] See: http://www.studentsatthecenter.org/interview-dayton-teacher

[31] For more information on I-START, see: http://www.liu.edu/Brooklyn/Academics/Schools/SOE/SpecProg/I-START.aspx

[32] For more information on the My Voice student survey, see: http://myvoice.pearsonfoundation.org/surveys

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