



**FORD PARTNERSHIP  
FOR ADVANCED STUDIES**  
*Next Generation Learning* 

# Framework

# Table of Contents

<b>Ford PAS Next Generation Learning Framework .....</b>	<b>3</b>
The Urgency for Change .....	3
Nashville—Starting with One Teacher .....	4
The Three Strands of Ford PAS Next Generation Learning.....	5-6
Ford PAS Next Generation Learning Graphic.....	7
<b>The “Partnership” in Ford PAS.....</b>	<b>8</b>
The Base of Experience of Ford PAS Next Generation Learning .....	8-9
Expected Outcomes of Ford PAS Next Generation Learning .....	10
Emerging Insights from Ford Motor Company’s Journey in Education.....	11
<b>More About the Three Strands of Ford PAS Next Generation Learning .....</b>	<b>12</b>
Learning Pillars .....	12-13
Teaching Pillars.....	13-14
Transforming Teaching and Learning: Professional Development and Support for Collaborative Cultures .....	15
Redesigning High Schools: Career Academies and Similar Career-and Interest-themed Programs .....	15-16
Volusia County, Florida—Community-wide Commitment .....	17
<b>Sustaining Change through Business &amp; Civic Leadership: Innovative Partnerships.....</b>	<b>18</b>
Where These Partnerships Can Lead .....	19
The Opportunity for Partnership .....	20

## Ford PAS Next Generation Learning Framework

**MISSION:** Ford PAS Next Generation Learning mobilizes educators, employers, and community leaders to create a new generation of young people who will graduate from high school both college- and career-ready—an emerging workforce prepared to compete successfully in the 21st century economy.

### The Urgency for Change

Our nation's business leaders and policymakers understand that global competitiveness depends on the ability of our K–12 educational infrastructure to prepare a 21st century workforce. With baby boomers poised to retire in large numbers, and many high-skilled jobs, particularly in scientific and technical fields, going unfilled, improving the quality and performance of high schools has become the number one task facing communities large and small across the country.

In our current economy, the push to increase the numbers of students qualified in science, technology, engineering, and mathematics (STEM) has increased as strength in these fields has become the key to maintaining U.S. economic leadership. However, our educational institutions are simply not graduating enough students for the high-skilled positions in these fields that employers need to fill, and our high schools in particular are not doing enough to prepare students for success, either in college or careers.

Too many high school students today are disconnected and unsuccessful in schools that lack relevance. A large proportion of students who drop out of high school say that they found school boring and their classes uninteresting. The national high school drop-out rate of 30 percent—and reaching levels of more than 50 percent among minority populations—testifies to the urgent need to engage our country's youth in learning that addresses their interests and develops their talents. Even of those who do graduate from high school, a surprisingly high percentage are required to take remedial academic courses in their first year of college, convincing many young people that college is not for them.

Even for many high- and medium-achieving students, traditional modes of instruction lack the real-world applications and engagement of personal interests that benefit young people. The lack of focus and persistence in higher education among academically qualified students suggests that personal engagement is missing in most high schools.

Add to that the considerable anxiety being generated by an economy in transition—from industrial- to knowledge-based—and education emerges as the most important factor in securing financial health and prosperity for both individuals and communities.

Ford recognizes the importance of these issues. In today's global economy, a highly skilled workforce is critical to corporate survival. The fiercely competitive global automotive sector has dramatically accelerated the shrinking of the talent pool, particularly in North America—and like many companies, Ford and its suppliers are having increasing difficulty in finding and keeping workers with skills in engineering, science, design, finance, and technology. The educational system is unable to meet the needs of this knowledge- and information-based economy.

Ford Motor Company Fund's Ford PAS Next Generation Learning initiatives are designed to mobilize all sectors of a community and to bring communities together, nationwide, to transform high schools and the entire workforce development system. By helping communities address this most perplexing challenge—ensuring the future of American competitiveness and economic health—Ford continues its long tradition of leading and supporting educational improvements that benefit the American economy.

## Nashville—Starting with One Teacher

In the spring of 2007, Antwon Crutcher was enrolled in Donna Gilley's Introduction to Business class at John Overton High School in Nashville, Tennessee. Antwon, a senior, was just getting by in school, and his attendance was spotty. Ms. Gilley used the Ford PAS curriculum module *Planning for Business Success*, in which students develop their own business plans. In this module, students learn to use spreadsheets for cost analyses, conduct Internet research, design market research surveys, use basic statistics to analyze survey results, make decisions and solve problems in teams, and give and receive feedback to teammates. Antwon put hours of work into his plan for Prestige Auto Detailing, a custom auto-detailing business, which was so impressive that Ms. Gilley encouraged him to enter a national business plan competition. Antwon's entry won the state competition, advancing him to the National Business Professionals of America competition in New York. Though he had previously expressed no desire to go on to college, his renewed interest in learning made him receptive to Ms. Gilley's encouragement, and he applied and was accepted to Nashville State Community College (NSCC).

That summer, Antwon came to Louisville, Kentucky, to participate in the student program at the national Ford PAS networking conference. In Louisville, he met other Ford PAS students, educators, and representatives of business and communities from around the country, and talked about his experiences with the Ford PAS program. In the fall, Antwon enrolled at NSCC. The following summer, he returned to the Ford PAS conference, held in Palm Springs, California. This time, he served as a mentor to the Ford PAS high school students participating in the conference. He also announced to the attendees, including his former teacher Ms. Gilley, that he had done well enough his first year at NSCC to be able to transfer in the fall of 2008 to the business program at Middle Tennessee State University.

But how does Antwon's individual success translate to success for other students like him in the Nashville schools—once described as “dropout factories”?

Beginning with the establishment of Alignment Nashville in January 2005, the city of Nashville has created a system to align community organizations and resources so that their coordinated support of public schools contributes to the success of the community as a whole. As part of a high school Small Learning Communities initiative, Metro Nashville Public Schools—in partnership with postsecondary institutions, the business community, and nonprofit organizations—has begun training teachers throughout the district in the Ford PAS approach to teaching and learning, and schools have begun offering Ford PAS to students in career academies that have been established in every high school across the city.

Nashville still has a ways to go in this effort, but Nashville's success in building community engagement and its commitment to offering the career academy option to all students are moving the community closer to meeting the criteria for success to become a Next Generation Learning Community (see pages 8 and 16). Donna Gilley has also taken a leadership role in Nashville's broader reform efforts, working with colleagues to build teachers' capacity to transform teaching and learning in their classrooms, using the Ford PAS approach. She has also begun to use Ford PAS professional development strategies to nurture school cultures that support transformative teaching and learning. By the time Antwon Crutcher graduates from Tennessee State, the joint efforts of Nashville's educators and business and community leaders should be keeping more young people in high school, sending them on to success in college, and seeing them graduate prepared for careers in the growth industries of the future.

Perhaps the cars that Antwon's detailing business serves will be powered by alternative energy sources designed by those who've completed the newest Ford PAS science course, *Working Toward Sustainability*, which engages students in exploring fuel sources that can serve as alternatives to fossil fuels.

## The Three Strands of Ford PAS Next Generation Learning

Together with our partners, Ford PAS is improving teaching and learning, promoting the redesign of schools to better serve students and their families, and supporting the emergence of powerful community engagement.

Students are at the center of everything we do. The changes we support in schools and their communities will help achieve the larger goal that all young adults will graduate from high school equipped with the essential knowledge and skills needed for success in postsecondary learning and future careers, and for active citizenship. In particular, with the rapid advancement of technology in every aspect of our lives and work; the demands for numeracy, statistical reasoning, and scientific understanding in the workplace; and the need for scientific and technological literacy to fulfill family and civic responsibilities, every young person needs to be literate in the STEM (science, technology, engineering, and math) disciplines. Our commitment is to prepare the future scientists, inventors, public servants, and entrepreneurs who will apply their passions and expertise to improving the world for their generation and those to come.

The three strands of the Ford PAS Next Generation Learning initiatives are Transforming Teaching and Learning, Redesigning High Schools, and Sustaining Change Through Business and Civic Leadership.

### Strand One: Transforming Teaching and Learning

1. Transforming Teaching and Learning: Creating meaningful learning experiences that enable students to apply academic knowledge to real-world challenges

Ford PAS provides strategies and tools to do the following:

- Engage all students in meaningful learning that is connected to their own lives and usable in the real world
- Prepare students with both essential academic knowledge that meets rigorous standards and 21st century skills (critical thinking, problem-solving, communication, teamwork, creativity, and global awareness) required for success in college and careers
- Enable students to see how what they are learning in school can prepare them for postsecondary education, productive careers, and active citizenship
- Engage business, higher education, and the broader community in expanding students' educational experiences and social networks beyond the classroom doors
- Offer educators professional learning opportunities that enable them to apply these transformative teaching and learning strategies throughout their practice

## Strand Two: Redesigning High Schools

2. Redesigning High Schools: Creating and maintaining the career- and interest-based programs and the collaborative culture, structures, and practices necessary to transform teaching and learning and facilitate community engagement

Ford PAS provides strategies and tools to do the following:

- Identify and implement standards of practice for career academies and other innovative and effective designs that support meaningful connections between (1) classroom learning, (2) the needs of the workforce, and (3) economic development resources and needs in the community
- Engage entire school teams in developing and sustaining the collaborative culture and practices required to transform teaching and learning
- Design and implement systems and structures that facilitate changes in teaching and learning as well as school culture—for example, administrative leadership that understands and promotes quality instruction, and scheduling that provides teachers with joint planning time and enables academic, and career and technical education teachers to integrate their instruction

## Strand Three: Sustaining Change through Business and Civic Leadership

3. Sustaining Change through Business and Civic Leadership: Engaging employers, educators, and community leaders to collaborate in building and sustaining educational programs that promote community growth and prosperity by preparing students for future work and citizenship

Ford PAS, specifically through the Next Generation Learning Communities program (see page 8), provides strategies and tools for communities to do the following:

- Align educational programs with regional workforce and economic development strategies
- Engage employers in creating, supporting, and participating in effective educational programs that will develop a qualified, diverse workforce for the future
- Offer career- and interest-themed schools that provide the structure and culture required to transform teaching and learning
- Leverage employer support to ensure that educational programs are sustainable and will survive changes in school leadership

All of these efforts require a culture of shared accountability and excellence, in which everyone—students, teachers, administrators, families, and business and community partners—participates in collecting and reviewing data in order to measure progress, works collaboratively to build a climate of trust that welcomes the perspectives of all stakeholders, and maintains a commitment to continual learning and improvement.

The graphic on page 7 shows the essential practices of the classrooms, schools, districts, and communities that employ Ford PAS strategies and tools.

# FORD PAS NEXT GENERATION LEARNING



## Next Generation Learners

- Prepared for success in college and the workplace
- Engaged, able to apply learning in the real world
- Possess critical 21st Century skills

## Transforming Teaching & Learning

### Transforming Teaching & Learning

#### Essential Practices

Teaching that is characterized by the Ford PAS Teaching Pillars:

- Academically rigorous and career-relevant
- Inquiry-based
- Project-based
- Real-world
- Performance-based
- Technology-rich

Learning that embodies the Ford PAS Learning Pillars:

- Flexibility in applying academic knowledge and skills
- Problem-solving
- Critical thinking
- Teamwork
- Communication
- Creativity and Innovation
- Global Awareness

## Redesigning High Schools

#### Essential Practices

- Students have choices among high-quality career academies and similar career-and interest-themed programs
- District supports and sets expectations for school redesign
- Adults and students are accountable for results
- School leaders have flexible use of resources to support redesign
- School staff form a learning community committed to transforming their practice

## Sustaining Change Through Business & Civic Leadership

### Sustaining Change Through Business & Civic Leadership

#### Essential Practices

- Business, civic, and education leaders create a master plan for education transformation
- Business and civic leaders support and sustain the master plan
- Employers are actively engaged in guiding and supporting career academies and similar career-and interest-themed programs
- Career-and interest-themed programs address skilled workforce priorities
- The broader community is aware and engaged
- Stakeholders are mutually accountable for implementation of the master plan
- Parents and families are mobilized to support student aspirations and achievement



## The “Partnership” in Ford PAS

Ford PAS partners not only with local communities and schools, but also with national and regional organizations that demonstrate expertise across a range of disciplines within education reform and community engagement.

- Ford PAS takes the lead role in areas where we have developed a unique core of expertise.
- In cases where like-minded organizations and consultants have already developed a core area of competence that can benefit a school, district, or community, we can play a facilitating or brokering role in bringing the expertise of those organizations to bear.
- We also help prepare communities to mentor other like-minded communities that share similar goals in mobilizing broad support for effective education reform.

In all of our partnerships, we focus on the development of local capacity to tailor programs and solutions to a particular community’s strengths and challenges.

## The Base of Experience of Ford PAS Next Generation Learning

Over the past two decades, Ford Motor Company Fund has developed and tested four complementary initiatives to support education transformation, which have been embraced by both business and educational institutions around the United States. To create these programs, Ford drew on research and partnered with leaders in workforce and economic development, education reform, school redesign, the development of professional communities, and the integration of academic and career and technical education. These four major initiatives are now being drawn together under the banner of Ford PAS Next Generation Learning.

- The first effort was the ***Ford Academy of Manufacturing Sciences (FAMS)***, an early school-to-work program that was recognized by the national School-to-Work Opportunities Act as a model program. FAMS, which was focused on manufacturing, linked classroom learning to applications in the real world, with a focus on critical workplace skills, such as problem-solving, teamwork, communication, and critical thinking. FAMS was adopted by hundreds of sites around the nation over the course of its lifetime.
- The second related program, the ***Henry Ford Academy***, was launched in 1997 as the nation’s first public charter high school founded as a partnership between public education (Wayne County, Michigan Public Schools), a cultural nonprofit organization (The Henry Ford), and a major global corporation. The Academy was developed as an innovative full-school education reform model, making public education a public endeavor by placing the school on the floor of the Henry Ford Museum and in Greenfield Village, a venue that hosts more than 1.5 million visitors a year. The school was designed as a learning laboratory, teaching critical 21st century skills in a project- and inquiry-based environment, connecting students with the community, and linking classroom learning with real-world relevance. The Academy was founded with a firm commitment to share its innovations in teaching and learning with the wider public education system in an effort to drive reform.

- The third complementary program was the ***Ford Partnership for Advanced Studies (Ford PAS)***. This program began in the early 2000s as both a replacement for FAMS and, more importantly, as an effort to extend the education reform philosophy of the Henry Ford Academy with a format and program design that is more easily accessible and implementable by high schools all across the country. Ford PAS was developed in collaboration with Education Development Center, Inc., a widely respected nonprofit research and development organization. It was designed with a focus on developing a high-quality project-based curriculum, and placed its core emphasis on a better way of learning and teaching (known as the Ford PAS Learning and Teaching Pillars—see page 12). The Ford PAS Pillars are facilitated by high-quality professional development and carefully crafted curriculum. Essential to Ford PAS success is a network of employers, postsecondary educators, and community partners who actively support students' learning. In 2007, based on the program's success in creating such partnerships, Ford PAS received the first National Governors Association Public-Private Partnership Award (see the text box on page 10). In 2009, a network of Ford PAS Regional Hubs began to provide services in support of Ford PAS within states and regions across the U.S.
- The most recent effort is Ford PAS ***Next Generation Learning Communities***, which officially recognizes and supports the development of whole-community initiatives for education improvement that use career pathways within high schools (i.e., career academies). The whole-community approach is essential to ensuring the success and sustainability of the changes in school culture and structure that support the transformative learning exemplified by the Ford PAS Pillars.

As Ford's education initiatives have expanded, so have their reach and impact. The Henry Ford Academy expanded to Chicago in 2008 and to Detroit and San Antonio in 2009. More than 600 schools in 27 states participate in the Ford PAS program. And 14 communities have been recognized for varying levels of accomplishment as Next Generation Learning Communities.

Building on the successes of these programs, informed by the research that guides them, and strengthened by lessons learned, Ford PAS Next Generation Learning is able to offer students, parents, teachers, schools, school districts, businesses, and communities a powerful set of practical strategies and tools that will enable them to address the most persistent and intractable challenges of preparing young people for college and career success. While each initiative takes a different entry point to the broader enterprise of educational improvement—individual teachers and classrooms, schools and districts, businesses and communities—together they point the way toward achieving complementary changes throughout the system. Moreover, the Ford PAS tools and strategies not only support new reform initiatives, they also strengthen existing efforts.

## Expected Outcomes of Ford PAS Next Generation Learning

In the short and medium terms, the success of Ford PAS will be indicated by the following:

- An increasing percentage of students who develop the essential knowledge and skills identified by employers
- Increased attendance, persistence, and graduation rates
- Increased postsecondary attendance and persistence rates
- Improved earning potential

Students will be college- and career-ready, a particular benefit for less-advantaged students who need to simultaneously work and pursue postsecondary education.

In the medium and long terms, broader success will be indicated by the following:

- Rising gainful employment
- Strengthened workforce and economic development
- Increased income tax revenue
- Reduced expenses for incarceration and public assistance

While accountability for results is a non-negotiable part of improving our schools, we must fight the subtle shift of mission in which schools have begun to focus primarily on scores and test-taking. Effective accountability measures are meant to focus on the skills, knowledge, and attributes of real people: our students. These measurement systems are not an end unto themselves.

Ford PAS is committed to ensuring that students are held accountable for acquiring essential knowledge and skills critical to their future success. To this end, we partner with a number of organizations and agencies that share this goal, including organizations that share our particular commitment to preparing young people for success in postsecondary education and careers that require strong grounding in STEM fields. (For a list of current partners, see [www.fordpas.org](http://www.fordpas.org).)

### Recognition by the National Governors Association

In 2007, the National Governors Association (NGA) honored Ford Motor Company with the first NGA Public-Private Partnership Award, established to recognize [NGA Corporate Fellow](#) companies for noteworthy partnerships with governors and states and to honor companies that have partnered with a governor's office to implement a program that positively affects a state's citizens. Ford was nominated by Michigan Governor Jennifer Granholm for its work in education and the development and growth of the Ford PAS program. Ford Motor Company was chosen for the award by an independent selection committee.

"This award is a great opportunity for us to recognize forward-thinking partnerships between states and corporations," said then-NGA Chair, Arizona Governor Janet Napolitano. "Ford is dedicated to ensuring our students are ready to meet the challenges of a global economy. . . . Ford PAS shows how companies can work with states and communities to prepare today's young people for success in tomorrow's workplace. As Ford undergoes its own transition to better compete in the global economy, I commend Ford's leaders for engineering a solution to aggressively cultivate 21st century job skills in Michigan and across the nation."

Then-NGA Vice Chair, Minnesota Governor Tim Pawlenty, noted, "As we seek opportunities to make our schools more rigorous and relevant, we appreciate Ford's dedication to forming strong partnerships between public and private sectors and improving our children's educational experience."

## Emerging Insights from Ford Motor Company's Journey in Education

Through its stages of growth, Ford PAS Next Generation Learning has gained the following insights about the strengths and shortcomings of reforms in teaching and learning and program structures:

1. Teachers can learn powerful teaching and learning strategies when supported by strong professional development and a well-crafted model curriculum. Good teaching can transform learning for students who participate in the classrooms of these teachers. However, while the progress of individual teachers and their students is essential, this is still not enough to reach *all* students in a school and community.
2. An integrated, career-themed program (such as may be offered in a career academy) engages students by tapping into their personal career interests and brings teams of teachers together to collaborate across a curriculum. For those students who participate in such programs, the combination of rigor, relevance, and relationships can be transformational. However, while the gains of these students are essential, since the program only affects a small set of students within a traditional high school; this is still not enough to reach *all* students in a school and community.
3. A high school that implements a whole-school redesign using career or other themes, supported by strong principles of practice, can transform learning for every student in the school. However, while this school-wide transformation of student outcomes is essential, if the school exists as a lone “lighthouse of excellence” within a mediocre district filled with missed potential for students, this is still not enough to reach *all* students in a community.
4. Ideally, a district will focus all of its resources on a unified mission, encouraging schools to reinvent themselves, using a portfolio of approaches that involve personalization; to implement transformative teaching and learning strategies; to integrate academic, career, and technical education; to offer relevant, work-based learning experiences; and to enable all students to develop 21st century skills. However, there are still risks:
  - There is the risk that periodic leadership changes—among the superintendent of schools, school board members, and school principals—will produce a “not invented here” attitude on the part of the new leadership team.
  - There is the risk that when external funding wanes and changes are made to state and federal policy, funding, and regulations, the original purpose and passion of the reform will be lost.
  - If the emphasis is *only* on structural redesign of a high school, and even personalization and counseling strategies, but not on creating a culture of collaboration that sustains a professional community for teachers in support of transformative teaching and learning, there is the risk (and indeed the likelihood) that student achievement will remain stagnant.
5. Therefore, to sustain and protect ongoing transformation of teaching and learning that leads to *every student's* positive outcomes, education reform must include *all* of these elements: transforming teaching and learning, redesigning high schools, sustaining change through

business and civic leadership, and a shared culture of excellence and accountability for results.

## More About the Three Strands of Ford PAS Next Generation Learning

The following sections provide additional information about the key components of the Ford PAS initiatives.

### Transforming Teaching and Learning: The Ford PAS Learning and Teaching Pillars

Ford PAS is dedicated to preparing all students to succeed as citizens and workers in the 21st century global economy. To achieve this success, high school students must engage in learning that develops and uses both academic knowledge and the skills essential for success in college and careers, and teachers must employ strategies that encourage the active, self-monitored learning that will yield these results. The research-based Ford PAS Learning and Teaching Pillars embody the Ford PAS approach to transforming teaching and learning: hands-on, collaborative, and project- and inquiry-based. Students acquire knowledge and skills as they work in teams to investigate significant issues, carry out long-term projects, and create products that demonstrate their learning. This approach answers the questions that the traditional academic program fails to answer for most students who drop out of high school—and for many who graduate: Why am I learning this? What does it have to do with my life and the lives of people in my community? How does it prepare me for the future?

### Learning Pillars

The Ford PAS Learning Pillars articulate essential academic and career-related knowledge and skills that have been identified by employers and college faculty as necessary for young people to be fully prepared for success in both college and career.

- **Application of academic knowledge and skills:** Students both acquire essential academic knowledge and skills and develop flexibility in drawing on appropriate disciplinary knowledge and skills to address real-world challenges.
- **Problem-solving:** Students work with open-ended problems and issues that require them to learn and draw upon key academic knowledge to clarify and analyze situations, explore solutions, and evaluate results.
- **Critical thinking:** Students analyze, synthesize, and evaluate information. They learn how to make reasoned judgments based on observation, experience, reflection, reasoning, and discussion.
- **Teamwork:** Students work in teams to conduct investigations, synthesize data, and communicate results. They learn to give and receive feedback, negotiate agreements, facilitate meetings, and take on a variety of leadership roles. Students also work independently and are assessed for the individual contributions they make to team products.
- **Communication:** Students learn strategies for evaluating complex oral, written, and multimedia communications, and create oral, written, and multimedia material for a wide variety of purposes and audiences.
- **Creativity and innovation:** Students learn to think creatively in response to a wide variety of challenges. They invent, try out, and revise designs and solutions, and are encouraged to take risks, learn from failures as well as successes, and value diverse perspectives.

- **Global awareness:** Students tackle issues that cross borders, and consider the perspectives of people and communities around the world. They explore potential solutions tailored to particular cultures, and learn to work and communicate effectively with others who have diverse views.

## Teaching Pillars

The Ford PAS Teaching Pillars represent the ways that the Ford PAS curriculum structures and guides students' learning of essential knowledge and skills. These instructional strategies—based upon rigorous research and professional experience—help students meet and exceed state-established benchmarks for academic performance, succeed in college-level work, and meet employers' workplace expectations.

- **Academically rigorous:** Teachers facilitate learning of essential knowledge, skills, and ways of thinking particular to the core academic disciplines, meeting state and national academic standards and college-readiness expectations.
- **Integration of academic and career-related knowledge and skills:** Teachers help students to develop career-related knowledge and skills in the context of academic courses and also to learn and apply academic knowledge and skills in the context of career-related courses.
- **Inquiry-based:** Teachers organize learning around investigation of significant issues and problems. They structure these investigations, often through hands-on learning experiences, so that students acquire knowledge, skills, and understanding.
- **Project-based:** Teachers guide students in carrying out in-depth, long-term projects which culminate in products or presentations of students' investigations and results.

### ***Inquiry- and Project-Based Learning: Does It Work?***

From elementary school through college, using projects that engage students in investigations that have genuine purposes and products is proving more effective than traditional textbooks and lectures. A recent study conducted by Purdue University researchers with a racially diverse group of eighth-graders, for example, found that students who were asked to build a water purification device that demonstrated their grasp of the relevant science concepts demonstrated a deeper understanding of the concepts than those who were taught using traditional methods. Even at M.I.T., the physics department recently replaced its large introductory lecture course with smaller classes that emphasize hands-on, collaborative learning. As a result, the dropout rate from the course has decreased from 10–12 percent to 4 percent, and attendance has increased from 50 to 80 percent.

Project-based learning (PBL) is grounded in research that shows the importance of learning concepts in meaningful contexts, the key role of social interactions in learning, and the need for learners to be aware of learning goals and their own learning processes.

According to a recent meta-analysis by Utah State University researchers Andrew Walker and Heather Leary of more than 80 studies of PBL, reported in the *Interdisciplinary Journal of Problem-based Learning* (Vol. 3, No. 1, 2009), compared to alternative teaching methods, PBL holds its own on standardized tests of academic knowledge and does better than lecture-based approaches on other kinds of outcomes. When studies use assessments that measure application of knowledge and principles, not simply recall of facts, PBL yielded even better results. Studies on the benefits of PBL have also shown that compared to other instructional methods, PBL enhances students' learning by fostering higher-order thinking, problem-solving ability, collaboration skills, and the ability to engage in and comprehend complex processes.

- **Real-world:** Teachers use real-world situations—such as business and engineering challenges—to build academic knowledge and develop problem-solving, teamwork, and communication skills. Students have opportunities to interact with professionals in careers of interest to them, and venture into businesses, college campuses, and the community as part of their learning.
- **Performance-based:** As students apply the knowledge, skills, and understandings they acquire through the curriculum’s learning experiences, teachers use a variety of tools to assess students’ progress toward meeting learning goals correlated with academic and (where appropriate) career technical education (CTE) standards.
- **Technology-rich:** Teachers engage students in using technology and media tools to conduct research, organize and analyze data, simulate complex systems, and communicate ideas. Students master a variety of technology and media tools and make good choices about their use.
- **Career-relevant:** Teachers and school staff structure learning so students understand a broad range of career paths, become aware of the knowledge and skills required to succeed in a variety of careers, and know what education and training are required for entry-level and more advanced positions.

Ford PAS is ideally suited to help teachers master these powerful approaches to learning and teaching. Ford Motor Company has partnered with Education Development Center, Inc., to develop the Ford PAS curriculum resources (available at no cost) that link classroom learning with the challenges students will face in postsecondary education and the workplace of the future. The Learning and Teaching Pillars are the key principles in the design of the Ford PAS curriculum,<sup>1</sup> which integrates academically rigorous, standards-based content with realistic applications in such areas as design and product development, information systems, environmental sustainability, global economics, business planning, and personal finance. Teachers learn to integrate the pillars into their practice through use of the Ford PAS curriculum and ongoing participation in Ford PAS professional development opportunities and school-based professional learning communities.

---

<sup>1</sup> For more details, see *Pillars of Ford PAS* at [www.fordpas.org](http://www.fordpas.org).

## Transforming Teaching and Learning: Professional Development and Support for Collaborative Cultures

Inquiry- and project-based teaching and learning requires that most teachers learn an entirely new role in the classroom, as the facilitator of learning rather than the source of authoritative knowledge. In addition, extensive use of teamwork, integration of technology, and the ongoing involvement of community partners are often unfamiliar to teachers. Effectively implementing the Learning and Teaching Pillars thus requires intensive professional development (PD) and ongoing technical assistance for teachers and administrators.

Ford PAS offers a variety of PD opportunities for teachers to renew, update, and advance their teaching and content knowledge and skills. The Ford PAS PD program includes both online and in-person components. Since 2006, Ford PAS has also been building a national network of providers who offer PD for teachers regionally. These PD providers periodically come together to strengthen and deepen their skills in facilitation of teachers' learning and their capacity to support the growth of professional communities that foster collaboration.

As the Ford PAS PD program has evolved, it has increasingly focused on the development of learning communities in classrooms, schools, and school districts. Such communities are designed to create and sustain the culture of collaboration that research shows is essential to sustain changes in educators' practice over time. The PD program is employing tools and strategies designed to support educators' acquisition of a new skill set that will enable them to take on the role of "change" coach and facilitator of job-embedded PD that builds professional learning communities in their schools. Some of these PD providers are also extending their facilitation role beyond the schools to engage district, business, postsecondary, and community leadership in collaborating to support and sustain Ford PAS initiatives in their communities.

## Redesigning High Schools: Career Academies and Similar Career- and Interest-themed Programs

In the 20th century model of American high schools, there was a stark distinction between college preparatory courses and career and technical education courses (also known as vocational education). Some students were on a track preparing for college (meaning, a four-year bachelor's degree), and other students were on a vocational track, preparing for direct entry into the workplace.

However, as the world of work has shifted, most skilled employment now requires a foundation of academic and 21st century knowledge and skills that must be mastered in high school, as well as additional education beyond high school, with community college technical programs emerging to fill an important part of the employment preparation spectrum.

### Effectiveness of Career Academies

Research shows that career academies can have dramatic results. In Sacramento City, California, between 2001 and 2004, following the introduction of district-wide career academies, dropout rates were reduced by half (down from nearly 25 percent), the number of students taking the SAT more than doubled, and suspension and expulsion rates were dramatically reduced.

A rigorous study conducted by MDRC\* found that the wages, hours worked, and employment stability of young men who attended career academies significantly increased. Other studies conducted between 2000 and 2009 have shown increases in test scores and two- and four-year college attendance, as well as lower dropout rates, among students who attended career academies. (See [www.fordnglc.org](http://www.fordnglc.org) for additional details.)

\*A nonprofit, nonpartisan social policy research organization created in 1974 by the Ford Foundation and a group of federal agencies.

K–12 schools now constitute an essential foundation for a community’s workforce development system. Additionally, many students with four-year liberal arts degrees have come back to community college or other training programs to earn skills that are marketable and career-specific. For today’s economy, the lines between career-related and college preparation have blurred significantly—and high school programs need to adapt accordingly.

We believe that the most successful approach for high schools is one that infuses the high expectations and academic rigor of college preparatory academic programs with the real-world relevance and rigor of career and technical education. This fusion of approaches can be carried out through career- and interest-based programs.

Such programs come in several varieties, such as multiple career academies and other themed programs within a larger high school, single-themed small schools, or “early college high schools.” Regardless of their specific structure, all effective programs share key characteristics:

- The program of study selected by the student leverages an area of personal interest and integrates it with core academic knowledge. This integrated program of study is offered within a small learning community.
- The programs are not stand-alone “boutique” programs but are part of a district strategy to offer a portfolio of approaches (“multiple pathways”) so that every student has the opportunity to choose a program that fits a personal interest.
- The programs offer extensive real-world contact with adults currently working in the field or area of interest, and they typically provide an opportunity for students to earn college-level credits while still in high school. In order for college credit to be available to high school students, schools and colleges must develop effective partnerships that allow for smooth transitions into postsecondary education.

Ford PAS Next Generation Learning continues to advocate strongly on behalf of high-quality career academies, and also encourages any high school design that incorporates these key characteristics

## Volusia County, Florida—Community-wide Commitment

In 2007, Ford Motor Company Fund named Volusia County, Florida, as a Next Generation Learning Community at the Leadership level. This honor affirms that Volusia County has achieved a high level of integrated reform and redesign of its secondary education system. The designation recognized Volusia County for its work over more than a decade to build a high school reform strategy that is ongoing and sustainable, difficult to dislodge, and firmly embedded in the culture of the school system and the beliefs of administrators, teachers, parents, students, and community partners.

Sixteen municipalities make up Volusia County, including the metropolitan areas of Daytona Beach, DeLand, Deltona, Ormond Beach, and Port Orange. As of June 2007, Volusia offered 30 career academies at its 9 high schools, serving 3,500 of the district's high school students. Career academies cover a diverse set of themes, including Agricultural Science; Communications and Multi-Media Technology; Aviation and Aerospace Technology; Design and Manufacturing Technology; Drafting and Trade-Related Occupations; Health Services; Horticultural, Environmental and Marine Science; International Business and World Languages; Public Service; Sport Science and Emergency Services; and Scientific Inquiry and Engineering.

Strategies that Volusia has used to ensure the success of its academies have included the following:

- Paying close attention to raising academic expectations and integrating career and technical education programs of study with Florida's academic standards
- Working with Daytona State College to allow career academy students to receive college credit for completing rigorous high school courses
- Building a broad network of more than 60 organizations, under the umbrella of Career Connections, that are involved in and committed to the efforts

Volusia's efforts at redesigning its high school offerings are yielding impressive results, with increased graduation rates and overall school improvement:

- Volusia County's graduation rate was 81.9 percent in 2005–06; it increased to 82.6 percent in 2006–07. This is a substantial increase over the 70.1 percent graduation rate recorded in 1998–99.
- According to information released in July 2008, the Volusia County School District has been rated an "A" district, based on 2007–08 statewide test results. For the first time, three high schools also earned an "A" rating, and there are no "D"-rated schools, which hasn't been the case since the 2003–04 school year.

The district has also focused attention on improving the quality of teaching and learning in career academies, and recently has begun to introduce the Ford PAS approach to educators in the district in order to further strengthen instructional quality. In the 2010–11 school year, Volusia also established three Ford PAS Academies that integrate Ford PAS curriculum and the Learning and Teaching Pillars throughout their programs.

Liz Taylor, CTE Specialist with Volusia County Schools, is enthusiastic about the introduction of Ford PAS:

*Volusia's academies are required to integrate a career course with an academic course at each grade level and develop rigorous and relevant comprehensive units of instruction. **We feel that the Ford PAS modules will raise the rigor and the level of relevance for our students.***

## Sustaining Change through Business and Civic Leadership: Innovative Partnerships

A well-educated and well-trained workforce is a pivotal factor in driving and sustaining a community's growth and prosperity. Developing a well-educated and well-prepared workforce depends, in part, on having high schools that are redesigned through career-themed programs and transformed teaching and learning.

Success in transforming and sustaining new forms of teaching and learning and in redesigning schools likewise depends on strong community leadership and ongoing support. Innovative business-community-education partnerships connect local high schools with colleges and universities, community organizations, and employers, and provide real-world learning opportunities that are an essential component of the curricula and programs of study. These partnerships help sustain reforms during periodic storms that unhinge most education reform initiatives. Only through sustained effort can these reforms succeed in institutionalizing transformative approaches to teaching and learning and school redesign, and ultimately changing deeply held beliefs and school cultures.

Employers in the community (private businesses, public institutions, and nonprofit organizations) have an important role to play:

- Providing a “high altitude” perspective regarding the scope and direction of reform efforts, particularly in making sure that they accurately reflect the knowledge and skills that students need to acquire
- Working directly with career- and interest-based programs in an advisory capacity, providing input to the curriculum and the program so that current and emerging industry-specific issues and trends are addressed
- Providing the essential real-world connections and learning opportunities that bring the curriculum to life by providing externship experiences to teachers, serving as guest speakers and advisors on student projects in the classroom, and offering mentoring, job-shadowing, and internship opportunities to students

Ford PAS Next Generation Learning Communities have access to tools that support the development of effective employer-community-education partnerships, including guidelines and evaluation criteria to ensure that communities are addressing all the components necessary for successful change. (See [www.fordnglc.org](http://www.fordnglc.org) more information.)

The same set of skills essential to developing a culture of collaboration within schools can also enable teams of educators—at the district and school level—to work effectively with employers and community leaders to build and sustain the partnerships needed to achieve the desired results for students. Thus, the strategies and tools that Ford PAS has created in order to build cultures of collaboration among educators are also being introduced to Next Generation Learning Communities.

## Where These Partnerships Can Lead

Ford PAS has held a series of conferences at which students, teachers, administrators, employers, and community leaders have gathered to share what they have learned, exchange ideas, and create a common vision for the future. At each of these conferences, the students (from diverse and typically disadvantaged backgrounds) have galvanized the adult participants with their energy, intelligence, creativity, and aspirations. For example:

- The high school-aged girl from Lancaster, Pennsylvania, who went from homelessness and apathy in the classroom to success in her Ford PAS studies and a firm path to college.
- The young man from San Antonio, Texas, who gave a light-hearted answer to an interviewer about what he might tell an administrator who visited his Ford PAS economics classroom: “You can leave—there’s learning going on here, and you don’t want to get in the way!”

Particularly in a time of economic anxiety and scarce resources, the advantage of Ford PAS Next Generation Learning is that it provides practical, accessible programs that can be used to mobilize entire communities around educational change that is doable and sustainable.

Everyone involved in Ford PAS Next Generation Learning believes that we owe a commitment to these students and the young people like them across the country. We commit to employing the best strategies and creating the systems that will motivate them to continue to learn. We commit to providing them with the foundation on which they can create promising futures, for themselves, their communities, and their country.

## The Opportunity for Partnership

Please let us know what you think about the work of Ford PAS Next Generation Learning, and how you would like to be involved. Does your community have motivated employers, educators, parents, and community leaders who want to see the next generation prepared for success in the workforce and as citizens? Are you ready to engage in a process of aligning workforce development strategies with the redesign of education programs to prepare young people for promising careers? Do you want to improve teaching and learning in your district's high schools and offer all students a pathway to postsecondary education and careers?

As Ford PAS Next Generation Learning grows to meet increasing demand, the Henry Ford Learning Institute (HFLI), a nonprofit organization that builds on the investments in education made by Ford Motor Company Fund (and continues to collaborate with Education Development Center), seeks additional partners to support expansion of the network.

We invite you to join us in this exciting and comprehensive undertaking: Whether you are an educator, an employer, a community leader, or a member of an organization that promotes workforce development or community involvement in schools, your participation is essential for student success and your community's shared prosperity.

E-mail Cheryl Carrier, Director, 21<sup>st</sup> Century Education Programs, Ford Motor Company Fund, at [ccarrier@ford.com](mailto:ccarrier@ford.com), or call (313) 248-8028, or email Janet Padilla, Ford PAS Manager, Henry Ford Learning Institute, at [jpadil18@ford.com](mailto:jpadil18@ford.com), or call (313) 549-9662. And please visit our Web sites: [www.fordpas.org](http://www.fordpas.org) and [www.fordnqlc.org](http://www.fordnqlc.org).

Last updated September, 2010

*Acknowledgement: Ford PAS Next Generation Learning would like to thank Ilene Kantrov, Hans Meeder, and Charles Mojkowski for their work in drafting and editing this paper, as well as other members of the Ford PAS Advisory Committee for their contributions and suggestions.*