



Students
at the
Center



JOBS FOR THE FUTURE

DEEPER LEARNING RESEARCH SERIES

LET'S GET REAL

DEEPER LEARNING AND THE POWER OF THE WORKPLACE

by Nancy Hoffman
February 2015

EDITORS' INTRODUCTION TO THE DEEPER LEARNING RESEARCH SERIES

In 2010, Jobs for the Future—with support from the Nellie Mae Education Foundation—launched the Students at the Center initiative, an effort to identify, synthesize, and share research findings on effective approaches to teaching and learning at the high school level.

The initiative began by commissioning a series of white papers on key topics in secondary schooling, such as student motivation and engagement, cognitive development, classroom assessment, educational technology, and mathematics and literacy instruction.

Together, these reports—collected in the edited volume *Anytime, Anywhere: Student-Centered Learning for Schools and Teachers*, published by Harvard Education Press in 2013—make a compelling case for what we call “student-centered” practices in the nation’s high schools. Ours is not a prescriptive agenda; we don’t claim that all classrooms must conform to a particular educational model. But we do argue, and the evidence strongly suggests, that most, if not all, students benefit when given ample opportunities to

- Participate in ambitious and rigorous instruction tailored to their individual needs and interests
- Advance to the next level, course, or grade based on demonstrations of their skills and content knowledge
- Learn outside of the school and the typical school day
- Take an active role in defining their own educational pathways

Students at the Center will continue to gather the latest research and synthesize key findings related to student engagement and agency, competency education, and other critical topics. Also, we have developed—and have made available at www.studentsatthecenter.org—a wealth of free, high-quality tools and resources designed to help educators implement student-centered practices in their classrooms, schools, and districts.

Further, and thanks to the generous support of The William and Flora Hewlett Foundation, Students at the Center has expanded its portfolio to include an additional and complementary strand of work.

The present paper is part of our new series of commissioned reports—the Deeper Learning Research Series—which aim not only to describe best practices in the nation’s high schools but also to provoke much-needed debate about those schools’ purposes and priorities.

In education circles, it is fast becoming commonplace to argue that in 21st century America, each and every student must aim for “college, career, and civic readiness.” However, and as David Conley described in the first paper in this series, a large and growing body of empirical research shows that we are only just beginning to understand what “readiness” really means. Students’ command of academic skills and content certainly matters, but so too does their ability to communicate effectively, to work well in teams, to solve complex problems, to persist in the face of challenges, and to monitor and direct their own learning—in short, the various kinds of knowledge and skills that have been grouped together under the banner of “deeper learning.”

What does all of this mean for the future of secondary education? If “readiness” requires such ambitious and multi-dimensional kinds of teaching and learning, then what will it take to help students become genuinely prepared for life after high school, and what are the implications for policy and practice?

We are delighted to share this installment in the Deeper Learning Research Series, and we look forward to the conversations that all of these papers will provoke.

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



Rafael Heller, Rebecca E. Wolfe, Adria Steinberg

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JOBS FOR THE FUTURE

Jobs for the Future works with our partners to design and drive the adoption of education and career pathways leading from college readiness to career advancement for those struggling to succeed in today's economy. We work to achieve the promise of education and economic mobility in America for everyone, ensuring that all low-income, underprepared young people and workers have the skills and credentials needed to succeed in our economy. Our innovative, scalable approaches and models catalyze change in education and workforce delivery systems.

WWW.JFF.ORG



Students at the Center—a Jobs for the Future initiative—synthesizes and adapts for practice current research on key components of student-centered approaches to learning that lead to deeper learning outcomes. Our goal is to strengthen the ability of practitioners and policymakers to engage each student in acquiring the skills, knowledge, and expertise needed for success in college, career, and civic life. This project is supported generously by funds from the Nellie Mae Education Foundation and The William and Flora Hewlett Foundation.

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ABOUT THE AUTHOR

Dr. Nancy Hoffman is a Vice President and Senior Advisor at Jobs for the Future, a national nonprofit in Boston, focused on improving educational and workforce outcomes for low-income young people and adults. Hoffman is the co-lead of the Pathways to Prosperity State Network, a collaboration between JFF, the Harvard Graduate School of Education, and 11 states focused on ensuring that many more young people complete high school and attain a postsecondary credential with currency in the labor market. Beginning in 2002, Hoffman led JFF's work to develop early college high schools. Hoffman has held teaching and administrative posts at Brown, Temple, Harvard, FIPSE, M.I.T., and elsewhere. She has also served as a consultant for the education policy unit of the Organization for Economic Cooperation and Development (OECD). Her most recent book is *Schooling in the Workplace: How Six of the World's Best Vocational Education Systems Prepare Young People for Jobs and Life* (Harvard Education Press 2011). Hoffman holds a B.A. and Ph.D. in comparative literature from the University of California, Berkeley. She serves on the Massachusetts Board of Higher Education.

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INTRODUCTION

The pitcher cries for water to carry
and a person for work that is real.

—Marge Piercy, “To be of use”

Between the ages of 20 and 65, the average U.S. adult works roughly 90,000 hours—that’s 47 hours per week over four and a half decades.¹

Why 47 hours, rather than the stereotypical 40-hour week? At either end of the earning spectrum, Americans are spending more time at work than ever before. For many low-wage workers, it now takes two or more jobs just to get by, and for many professionals, work—whether it involves doing deals or doing good—provides the central organizing structure in their lives, keeping them busy from early in the morning until late at night.

Americans now spend a larger portion of their lives working than they do eating, sleeping, studying, or even watching television. It may be a source of satisfaction or distress, engagement or alienation, excitement or tedium, or, most likely, a mix of all of these things. Whatever its quality, though, work tends to have a major impact on identity and character, on self-esteem, on one’s belief in the future, and ultimately on one’s feeling of entitlement to participate as a citizen, family member, and social being in the world beyond the family.

For young people in the United States, whatever their backgrounds, one of the essential purposes of schooling should be to help them develop the knowledge, skills, and competence needed to search for and obtain work that they find at least reasonably satisfying. And yet, our educational system does precious little to introduce young people to the working world or to prepare them for just how large a role work is likely to play in the rest of their lives.

While the phrase “college and career readiness” appears seemingly everywhere in the current discourse about the goals of high school, the “career readiness” part often seems like an afterthought,² tacked on as if to suggest that if students pursue an academic, college-prep course of study—the real priority of most recent school reforms—they will also, as a side benefit, have better job prospects. This lack of attention to career preparation only serves to intensify the class divide, leaving the most privileged students to anticipate and prepare for professional careers like those of their parents, while students from low-income families continue to think of work mainly as a way to survive.



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What it means to be “ready” for a career is complicated and deserves real attention of its own. If one asks teenagers what the point of going to high school is—and many researchers have—one doesn’t hear them describe career readiness as a mere by-product of academic studies. To the contrary, they tend to say things like: *What’s the point of sitting there if you don’t know what jobs or adult life school leads to? School is mainly about academics, and it’s pretty boring.*³

Today, few students experience a visceral connection between classroom learning and what they call “the real world.” For stronger and/or relatively affluent students, work is something far off, expected to begin after a four-year college degree. And even among those students who take some career and technical education courses in the formative middle and high school years, it is widely understood that the main point of CTE is to keep them motivated to stay through high school graduation, not to give them genuine preparation for and an initial experience of the workforce.⁴

But, some might argue, the Internet provides more free advice than any one jobseeker can absorb. Plus, high schools have guidance counselors, and many offer service-learning programs, work-study jobs, co-ops, and assemblies featuring speeches by local business leaders. Moreover, teachers are forever admonishing students to study hard, else they won’t be able to go to college and get a good job.

But something’s missing from this logic,⁵ something that would provide young people with a much more powerful, explicit introduction to careers. In strong vocational education systems abroad, that something is called “preparation for working life,” a phrase that signals that the two—work and the rest of life—are intrinsically connected. What “preparation for working life” means, for example, in Switzerland, Germany, Austria, the Netherlands, Singapore, and some of the Nordic countries is that starting around age 15 or 16, young people actually learn about, prepare for, and begin to *experience* the workplace. And the way in which they do so responds to the developmental needs of adolescents, to the needs of the economy for a pipeline of young professionals who will take over from aging baby boomers, and, more grandly, to a basic human need to make meaning in the world by acting in the public sphere and producing goods and services used by others.

In the United States, by contrast, we tend to assume that young people are supposed to become educated and *then* go to work (and that adults, for their part, are supposed to enjoy their real lives only after the work day ends). Those dichotomies blind us in important ways, however. In fact, work provides powerful opportunities to learn, and the workplace is where many young people are most receptive to applying academic skills and content as well as using critical interpersonal and intrapersonal capacities—i.e., the collection of knowledge and skills referred to as “deeper learning.”



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At times, work may seem like the enemy of life and leisure, but it can also be—and often is—an important source of meaning. Moreover, experiencing the workplace tends to be a prime force in helping young people grow up.⁶ Indeed, a first job is a crucial rite of passage. As the economist Andrew Sum (arguably the nation's leading expert on the youth labor market) puts it in a recent paper titled, alarmingly, *The Plummeting Labor Market: Fortunes of Teens and Young Adults*, “Finding and keeping a job is a key step in a young person’s transition to adulthood and economic self-sufficiency” (Sum et al. 2014).⁷

This paper argues that the current discussion about deeper learning in the nation's high schools ought to be reframed in order to acknowledge that career readiness isn't just an outcome of deeper learning; rather, career readiness is better defined as a process through which young people learn deeply and become prepared for the American version of working life.

The workplace can be a particularly good setting for deeper learning. It immerses and engages young people in developmentally appropriate, real-world tasks that challenge them not only to learn advanced subject matter but also to regulate their own behavior; persist at and complete difficult assignments; work in teams; solve the kinds of unexpected, everyday problems that occur in workplaces; and communicate effectively with colleagues of differing ages and backgrounds. In short, the deeper learning movement can and should be aligned with current

efforts to create better transitions from school to the workforce.

My argument is grounded in both economics and psychology (with a touch of philosophy mixed in). The economic case is purely pragmatic, based in the recognition that young people are being treated roughly in today's job market, and that young jobseekers will likely continue to struggle in the coming years. The second part of the argument, grounded in psychology, draws from research findings suggesting that most people, and especially the young, learn best and most deeply through a combination of theory and practice (sometimes called “praxis”), and that practical experience—particularly job-related experience—plays a central role in the formation of personal and group identity.

I begin by reviewing where the United States now stands with regard to youth experience in the labor market; it's a troubling story. I then turn to a more hopeful subject, discussing the psychological benefits of learning through a combination of school- and work-based activities. I continue with a description of an existing education system that relies on partnerships between employers, unions, a central government, and educators to make work a source of deeper learning that meets both the developmental needs of young people and the economic need for a steady supply of well-trained talent. Finally, I review some promising initiatives that aim to promote high-quality, work-based learning for a wide range of U.S. students.

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PUTTING THE CAREER IN “COLLEGE AND CAREER READINESS”

As recently as a generation ago, the nation’s young people grew up knowing that if they worked hard and stayed out of trouble, they could expect to find jobs with decent salaries when they left high school, and those jobs would allow them to become independent and self-sustaining adults. Today, though, millions of young Americans are stepping into the labor market after high school only to discover that the best they can do is piece together a series of part-time, low-wage jobs that barely allow them to support themselves, much less build a satisfying life. And the same is true even among young people with some college credits or a poorly chosen two- or four-year degree.

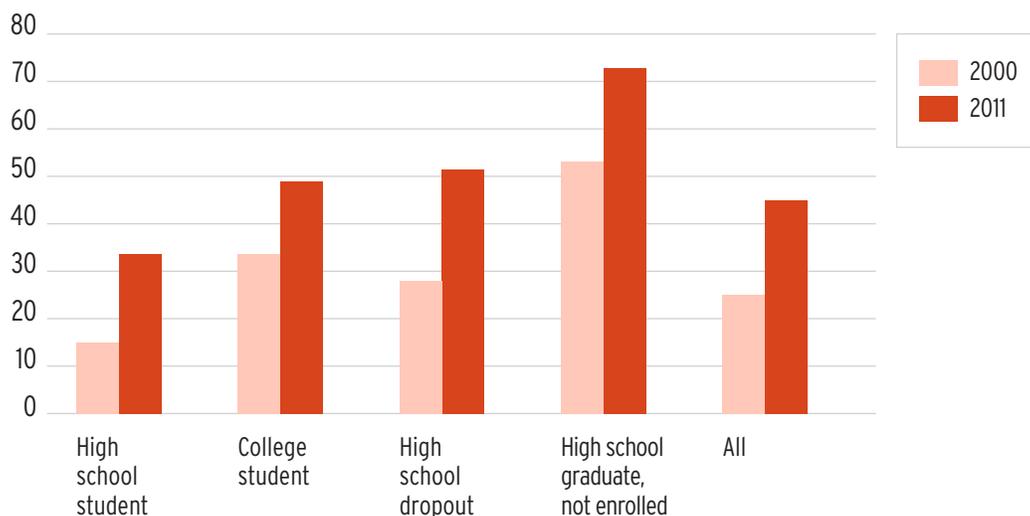
The Great Recession of 2008 (which lasted, technically speaking, until 2009 in the U.S. and even longer overseas) has had a major impact on the well being of many Americans, especially those with low skills who lack the technical expertise now required in almost every occupation. But it has had an inordinately heavy impact on the young, especially young people of color, youth from low-income backgrounds, and youth who have either dropped out of high school or who completed it but have no postsecondary plan.

Andrew Sum reviews the dire situation in a 2014 Brookings Foundation report, for which he was the lead author:

Employment prospects for teens and young adults in the nation’s hundred largest metropolitan areas plummeted between 2000 and 2011. On a number of measures—employment rates, labor force underutilization, unemployment, and year-round joblessness—teens and young adults fared poorly, and sometimes disastrously.

Figure 1.

Employment rates of teens aged 16-19 in the nation’s 100 largest metropolitan areas by educational attainment/school enrollment, 2000 and 2011



Source: Adapted from Sum et al. 2014, using data from the Current Population Survey, Bureau of Labor Statistics http://www.brookings.edu/~media/Research/Files/Reports/2014/03/14%20youth%20workforce/BMPP_Youth_March10EMBARGO.pdf

In 2000, 44 percent of teens were in the labor market; by 2011, the figure had dropped to 24 percent. For urban, low-income teens of color, the odds of having a job—any job at all—now stand at roughly 10 percent. In fact, the teens with the highest employment rates come from families earning \$120,000 or more, and the rates are lowest among teens with family incomes below \$40,000, the young people most in need of earning power (Sum et al. 2014).

And lest readers suspect that disadvantaged teens are *choosing* not to work, Sum and his colleagues provide another data point: labor market underutilization, which includes those who desire work but who have stopped looking, and those who are working part-time but want full-time employment. In 2011, they note, black teens had the highest rate of underutilization (60 percent), followed by Latinos (52 percent), Asians (48 percent), and whites (35 percent). In other words, teenagers’ desire to work is as high as ever—perhaps higher. If they are not working, it is mainly because they can’t find jobs.

Youth Experience in the Labor Market

What do we know about the kinds of work experiences that are available to 16- to 19-year-olds today? First, if they work at all, high school students do so only part time and often sporadically. Second, for those teens lucky enough to find paid employment, first jobs are limited to a narrow range of options more so than ever before. Increasingly, teens must start in the low-wage service economy, where they compete with other low-wage, unskilled workers, many of them immigrants who have major family responsibilities.

The data are grim: The percentage of young people working in low-wage jobs in the food and personal service categories (e.g., cooks, cashiers, waiters, hair and beauty workers,

home-care aides) has risen from 15 percent in 1980 to 27 percent today (Carnevale, Hanson, & Gulish 2013). That is, it has become much more difficult not only for teens to find work but also for them to find work that pays a decent wage.

According to a recent report from Georgetown University’s Center on Education and the Workforce, *Failure to Launch: Structural Shift and the New Lost Generation*, young adults change jobs 6.3 times, on average, between the ages of 18 and 25. In this environment, all young people, not just those from low-income families or with weak academic preparation, need more information about careers, more structure in their school-to-postsecondary pathways, and much more experience of the workplace than ever before. And that includes those who will become overeducated baristas or discouraged temps moving from office to office until their late 20s, despite having Associate’s or Bachelor’s degrees.

To be clear: There is nothing inherently wrong with these starter jobs for teenagers, especially if responsible adults help young people make sense of where such jobs fit in the economy and what kinds of skills such jobs can teach.⁸ It can be motivating to find out what one hates doing as well as what one finds enjoyable and rewarding. But the recent decline in even low-wage service sector opportunities means that a majority of young people from low-income backgrounds are unable to land starter jobs, which would allow them to gain initial work experience, earn some money, and feel the pride that comes with a paycheck.

More affluent young adults, especially those with social capital and family incomes in the top 5-10 percent, often struggle to find paying jobs, too. However, those young people are far more likely to use personal connections

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to find internships in places such as child care centers, nonprofits, scientific research labs, and the businesses of family and friends. For that matter, they may also get to go abroad over the summer, participate in wilderness training, or serve as unpaid junior camp counsellors—experiences that contribute to identity development, to maturation, and to inequality.

No matter their background, though, young people who start looking for work after they finish school—whether high school or a two- or four-year degree program—tend to face the same conundrum: If you don't have experience, you can't get a job, but if you don't have a job, you can't get experience.

Employers tend to list “experience” in job postings not because they are biased against young people per se but because they are wary of the high costs and long timelines for training new workers. The real bias in U.S. business culture is in favor of short-term gains rather than long-term planning. (As described below, employers in many other countries have a much stronger tradition of working closely with K-12 and postsecondary institutions to ensure that school prepares young entrants for the labor market.)

Indeed, employers are correct to assume that a high school or college graduate who has never worked will be unlikely, if hired, to quickly translate school knowledge productively to the workplace. Not only does it take time for new workers to figure out how to apply what they learned in the classroom, but it also takes time to figure out how one should behave at work—not to mention how one should deal with the knotty, unexpected, and complicated problems that arise every day in every workplace. In fact, young people and employers in countries that have strong apprenticeship systems tend to cite this latter challenge—how to deal with what social scientists call “messy” or “ill-formed” problems—as precisely the sort of thing that can only be learned on the job and not in a high school or college classroom (Metlay & Sarawitz 2012). This observation

should give pause to those who assume that such aspects of deeper learning are taught most effectively in school settings.

In an effort to help greater numbers of youth and young adults gain a foothold in the labor market, many policy makers, philanthropists, and nonprofit leaders have begun to focus new efforts on helping our most vulnerable young people reconnect with education and workforce training. For example, opportunity youth—the current term for 17- to 24-year-olds who neither work nor attend school—are poised to benefit from new initiatives like the Opportunity Youth Incentive Fund (managed by the Aspen Institute's Forum for Community Solutions), the work of President Obama's My Brother's Keeper coalition, and the Opportunity Youth coalition brought together by Civic Enterprise.

These investments are timely, welcome, and of high priority. And yet, they focus entirely on getting young people *back on track*, without doing anything to prevent them from falling off the rails in the first place. What is needed today, more urgently than ever, is a more comprehensive and determined effort to help every young person make a smooth transition into the workforce.

Until high school educators, supported by policymakers, begin to take the career readiness part of their mission as seriously as they do college readiness, teens will continue to experience leaving school as a sudden shock, like being tossed into cold, turbulent waters knowing only the theory of how to swim.

Many middle-class and affluent young people can, at least, rely on family and friends to help them stay afloat for the time being (while they go to college or graduate school, do an unpaid internship, or piece together temp work). For teens with fewer resources, though, the prospects tend to be bleak. And as long as schools and employers fail to address the youth employment crisis, those young people will struggle just to keep their heads above water, much less establish themselves in the adult world.⁹

Work and the Maturation of Adolescents

Perhaps the most eloquent and persuasive scholar writing about this topic is Robert Halpern, chair of the Research Council at Erikson Institute, a Chicago graduate school focused on child development. I draw liberally from his recent book, *Youth, Education, and the Role of Society: Rethinking Learning in the High School Years*, since it presents the best and most evidence-based argument that schools in general are failing to engage adolescents in ways that are in keeping with their developmental needs (Halpern 2013).

As Halpern points out, many young people find school to be terribly boring, and it is not because boredom comes naturally to teenagers. A wealth of evidence suggests that many apparently disengaged students are, in fact, lively and engaged thinkers in their lives outside of school. Often, students who seem listless and uninterested in math or social studies turn out to be self-taught experts in computer programming, civil war history, music, or some other field of their own choosing, which they pursue with passion and commitment. School may fail to grab them, but they certainly are looking for things to grab onto that can help them define themselves as they grow up.

Unfortunately, notes Halpern:

The very types of experiences that young people most need are the hardest to come by in American culture. . . . There’s a kind of *Catch-22* here. Like every culture, ours needs young people to grow up. But because they are not yet grown up, because we cannot readily see their desire to participate and contribute, and perhaps because we are not fully comfortable with who they are, we deny young people access to what would be most helpful to them. (p.4)

What do young people need by way of experience to support them in growing up? Most helpful, Halpern argues, are activities that take them out of their comfort zones, challenge them, place them among adult workers in authentic settings, and ask them to perform. We need to change the balance, he asserts, between in-school and out-of-school learning. School as it is currently organized has an “outsized role . . . in addressing developmental needs.”

In an influential 1991 article, “Cognitive apprenticeship: Making thinking visible,” John Seeley Brown and colleagues argue that the traditional apprenticeship model provides the right sort of support, relying on a process of “modeling, scaffolding, fading, and coaching. . . . The expert shows the apprentice how to do a task, watches as the apprentice practices portions of the task, and then turns over more and more responsibility until the apprentice is proficient enough to accomplish the task independently” (Collins, Holum, & Brown 1991).

Brown and his colleagues were interested in the ways in which the apprenticeship model could be translated to schools, where, they argue, knowledge tends to be presented in abstract ways, denying students the opportunity to do and reflect on concrete tasks. But much has changed since 1991. At that point, Brown could still take it for granted that while young people were not getting anything like an apprenticeship experience in the classroom, many of them were at least getting a taste of it while working at their first jobs in the evenings, over the weekends, and during the summer. Given the abysmally low rate of youth participation in today’s labor market, however, that can no longer be assumed. It remains an urgent priority to give students more opportunities for concrete, hands-on learning at school. But it has become just as urgent a priority to give young people chances to



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learn about the sorts of thinking and doing that go on in the workplace, too.

If Brown's goal was to translate this apprenticeship model to the school setting, Halpern would connect it back to the workplace. Using similar language to Brown, he argues that students need many opportunities for "observing, emulating, practicing, applying, and revising," both in and out of the classroom. Schools could support the transition to working life by mixing in-school learning with out-of-school, work-based experiences that gradually increase in time as students advance toward the completion of high school and onward into postsecondary education and/or the workforce.

How Some Other Countries Initiate Young People Into Working Life

Until recent years, the U.S. education policy community showed little interest in the world beyond our borders. That changed dramatically in 1995 with the release of findings from the Third International Math and Science Study (TIMSS), followed in 2000 by the results of the Programme for International Student Assessment (PISA), sponsored by the Organisation for Economic Cooperation and Development (OECD).

Together, these assessments provided clear evidence that U.S. students were being outperformed in math, science, and literacy. In comparison with peers from 20 or 30 other countries, U.S. students scored at average and below average levels. While this has been confirmed by subsequent rounds of assessments, repeated as recently as 2013, additional studies have shown that other countries have also overtaken the U.S. in the production of high school and college graduates, while attainment in this country has been stagnant. For many decades the world

leader in high school and college completion, today the U.S. ranks 22nd in high school graduation among the 28 OECD member nations that have that data available and 10th in tertiary degree attainment by 25- to 34-year-olds among all 34 OECD member nations (OECD 2014a, 2014b).

Today, U.S. policymakers regard such findings with alarm, seeing them as an indicator of declining economic competitiveness. At the same time, they are also becoming more inclined to look overseas for insights into how we might improve our own schools. Indeed, one recent book explicitly treats the findings of a recent administration of PISA as a source of lessons for the U.S. (Tucker 2011). "How would one redesign the American education system," it asks, "if the aim was to take advantage of everything that has been learned by countries with the world's best education?" Chapters focus on high achieving countries including Shanghai (for China), Finland, Japan, Singapore, and our close neighbor, Canada. Similarly, another recent book explains why Finland, Singapore, and South Korea have both greater equity of outcomes *and* higher achievement than the U.S. (Darling-Hammond 2010).

Increasingly, policymakers are looking to see what the U.S. can learn from other countries' approaches to career education, too, in order to help us address three critical problems. First is a growing skills-gap (a mismatch between the skills workers have and the jobs that are available), suggesting that the country is not producing the highly trained "middle-skill" technicians that are needed to fuel the recovery. Second, the crisis in college costs is making families more attentive to the economic return of a degree. Third, new evidence from the fields of brain science, achievement, motivation, and adolescent development confirm that adolescents tend to learn best when their learning environment provides, as Halpern puts it, "a window to the adult world by blending academic and



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applied learning through introduction of apprenticeships, project-based learning, and other real-world applications” (Halpern 2012).

Today, many U.S. educators are looking specifically to Germany, Switzerland, the Netherlands, the Nordic countries, and Singapore for insights into effective vocational education, just as they looked to Denmark in the 1980s. (As an aside, nobody would argue that the U.S. can or should adopt any of those models whole cloth, but only that an understanding of those systems can *inform* our own policy discussions and provide fresh ideas.) These countries have low rates of youth unemployment (single digits in the Netherlands and Switzerland), flourishing economies, and, not unrelated, strong vocational education systems that serve at least 50 percent of the 16- to 19-year-old population. (Further, the Netherlands and Switzerland were the only two European countries to rank in the top ten on the 2013 PISA mathematics results—a test indicating strong preparation for both advanced vocational education and college-level academic work.)

Various studies suggest that the existence of a strong vocational system ranks among the top four or five most powerful reasons that explain why some countries are more economically successful than others (Bishop 2010; KOF Swiss Economic Institute 2014; Breiding 2013). Switzerland is a prime example (and the subject of the next section of this paper): It holds the top spot on the well-known INSEAD Global Innovation Index (an annual report on world economies and their growth potential); it has a highly competitive export economy, sending 80 percent of what it produces abroad; at more than \$80,000 per year, it has the third highest per capita income in Europe (after Luxembourg and Norway) and the fourth highest in the world; and it is the best example of an innovation economy that relies on a highly skilled technical and specialized workforce educated in a vocational system. Moreover, while

many other countries are beginning to regret and backtrack on policies meant to encourage college for all (policies that have led to a glut of “mal-employed” and jobless holders of Bachelor’s degrees), Switzerland has been content to produce comparatively low numbers of traditional university graduates and increasing numbers of graduates with technical higher education degrees from universities of applied sciences.

For the purposes of this paper, however, the most important lesson to be learned from Switzerland has to do not with its economic success—impressive as it is—but with the thoughtfulness it has given to matters of teaching, learning, and equity, making it a particularly interesting model for U.S. policymakers to study.¹⁰

But, readers may wonder, why not feature, say, Germany, the better-known exemplar of a school system that prioritizes both academic and vocational education? The reason has to do with two concerns that Americans always raise when discussing dual or apprenticeship systems: *How well do they serve immigrant and low-income populations? And do they use tests to track students from an early age?*

While there is much to admire about the German model, the fact is that in spite of major investments over many years, the country has had little success in engaging the least affluent quartile of its student population, composed heavily of immigrants and the children of guest workers. By contrast, the Swiss system seems to work well for 95 percent of its young people, including the majority of students from poor and/or immigrant families.

And unlike the German system, the Swiss system is highly permeable. Young people are not tracked into vocational studies. If they prefer applied rather than theoretical learning, they *choose* apprenticeship, and 75 percent of 15-year-olds make this choice. Nor do they or their families



But it is entirely conceivable that states in the U.S. could adapt some of Switzerland’s practices or, at the very least, be inspired by the Swiss example to rethink our assumptions about the ways in which young people come of age and the ways in which out-of-school, work-related experiences can promote deeper learning.

see it as a second-class option—most young apprentices say with no embarrassment that they are tired of sitting in classrooms and want to do something that feels more grown-up. Often, parents comment on how quickly their teenager went from sleeping late in a messy room to being out the door in a suit or with their protective glasses and shoes with no prodding at all.¹¹

After their apprenticeship, students have a wide range of options to consider: continuing in the labor force, entering a university of applied sciences, or—if they change their minds at any point—moving onto the academic track. About 40 percent of 15-year-olds who score a 4 or 5 on PISA (i.e., the top end of the range) choose vocational education, signaling that apprenticeship is a high status way to learn. In fact, some openings for apprentices in the financial industry and in information technology (IT) attract nearly 10 times the number of applicants that they can accommodate.¹²

No, the U.S. is not Switzerland, and the differences between the two countries are immense. But it is entirely conceivable that states in the U.S. could adapt some of Switzerland's practices or, at the very least, be inspired by the Swiss example to rethink our assumptions about the ways in which young people come of age and the ways in which out-of-school, work-related experiences can promote deeper learning.

The View from the Alps

Some facts to begin with: Switzerland is a small, rich country of roughly 8 million inhabitants. It has very limited natural resources and relies heavily on human talent for its economic success. It is diverse not just linguistically

but ethnically, too, with nearly a quarter of its current population born outside of the country. It is the world's oldest direct democracy, with a presidency that rotates among 7 elected secretaries. And, most important for our purposes, over the past 20 years, it has modernized its vocational education system. Rather than seeking to expand its university sector, it has chosen to add to the list of occupations that can be studied through the Vocational Education and Training (VET) system to include fields such as dance, music, child care, IT, elder care, and engineering; the traditional trades; and such fields as banking, insurance, and advanced manufacturing, which have long been included.¹³

In Switzerland, small and large companies, state of the art factories, insurance agencies, banks, hospitals, retail stores, and child care centers host 16- to 19-year-old apprentices who serve customers, work on complex machines, carry out basic medical procedures, and advise investors. In short, they do everything an entry-level employee would do, albeit under the wing of credentialed trainers within the company, taking responsibility for implementing one strand of the carefully designed curriculum.

Roughly 30 percent of Swiss companies host this sort of “educational” employee. Young people rotate among three learning sites—the workplace, a training organization that focuses on the given sector, and school—in different proportions over the three or four-year period of their apprenticeship. Students have electronic schedules that tell them whether it is a day to wear a suit, take their protective glasses and hairnet, or put on jeans and a tee shirt and head to school for language, math, or history. Students' learning is highly personalized: Their own interests and talents are at the core of their studies, and they are



Students' learning is highly personalized: Their own interests and talents are at the core of their studies, and they are encouraged to consider their options for further education and/or a change of field.

encouraged to consider their options for further education and/or a change of field. Further, they get paid an average monthly starting wage of around \$700, rising to around \$1,200 by the time they are in their third or fourth year, a rate substantially below the Swiss minimum but attractive for a teenager living at home.¹⁴ They do productive work that returns the cost of training and a bit more to their employer.¹⁵ And, as result, the Swiss economy can rely on a talent pipeline of young professionals.

Further, with more than 90 percent of young people moving successfully through the apprenticeship system or university, Swiss educators can afford to focus intensively on the small percent who struggle, providing counseling, an extra “bridge year” after ninth grade, and, when needed, individual case management.

To what extent does this model value what we, in the U.S., might call “deeper learning”? That is, does it provide young people with a well-rounded education—teaching them high-level academic skills and content as well as critical interpersonal and intrapersonal capacities—or does it provide a narrow sort of occupational training? And if students are expected to contribute to the bottom line of their companies, then how can we be sure that the vocational programs are truly organized for their benefit, and not just to provide employers with cheap labor?

The superficial answer is that the Swiss schools are explicitly charged with helping each young person to “flower” as a person and to take responsibility for their private, social, and professional lives.¹⁶ More concretely, this means that the VET curriculum gives priority to the teaching of metacognition, providing students with regular opportunities to discuss what they are learning and why

they are learning it. Thus, when foreign visitors ask VET students about their experiences, more or less all of them are able to describe the three pillars of vocational education, *wissen, können, and machen* (or *know, know how to, and apply*), and to explain why it is important to learn content, methodology, and social and behavioral skills (the *what, how to, and how to behave*).

Students seem particularly aware of why interpersonal skills are so important—after all, coming from the peer-centered life of ninth grade, the first days at work must be an eye-opener, revealing just how different professional norms of interaction from social life in school are. For example, on a recent study tour to Switzerland, a U.S. delegation of visitors was introduced to a young apprentice who recounted her first experience at age 16 as a teller (the starting point in the banking curriculum in Switzerland) and her second six-month rotation working in a back office, where she carried out all her transactions by phone:

“Of course, you can’t see people on the phone,” she said, “so you have to imagine much more about them. You have to listen in a special way. You have to tell by their tone of voice whether they want to chat or want the answer quick and goodbye. And they might yell at you or be mad, and they’ll be more likely to do it if you can’t see them, so you have to figure out how to calm them down and get them what they need. I know all the things my bank does—I can open a checking or savings account, tell someone how things look in their investment account, get them to the right officer for loan information, but if I can’t see them, it’s much harder to do it right.”¹⁷

Further, Swiss curriculum documents are laid out with very clear goals, outcomes, and activities for each of the VET

» For a group of foreign visitors, myself included, these presentations offered a window into just how much these students had learned about mathematics, information technology, and physics as well as more specialized skills in machining, drawing, and mechanics, while also having numerous opportunities to develop and practice the interpersonal and intrapersonal skills associated with deeper learning.

settings—school, training company, and workplace—and across all three. In addition to the usual academic subjects, schools teach the language, history, and basic concepts and theories related to the student’s chosen occupation. Training companies are more applied and hands-on but still devoted to helping students learn and practice, not to produce. For example, students gain applied foundational knowledge (e.g., the rudiments of the banking system, the basics of welding) and are expected to learn essential workplace behaviors (e.g., contributing to teams, asking for help, making independent decisions). And in the workplace, students begin with structured learning tasks. Only gradually are they expected to contribute enough goods and services to allow the company to recoup, by the third or fourth year, the costs of training and, in most cases, to reap a small profit.

In sum, the experience adds up to much more than what, in this country, might be called “learning by doing,”¹⁸ which, though useful, rarely encourages this sort of deliberate, ongoing, and reflective practice. The Swiss model doesn’t just give students hands-on opportunities but guides them through a process of learning, being taught to apply, and then applying skills and knowledge, and the cycle is repeated and reinforced at each of the three learning sites, over the three or four years of apprenticeship.

Consider the presentations made recently by young people completing the highly technical first two years of the polymechanic program at LIBS, an intercompany training institution for the manufacturing and engineering professions. For a group of foreign visitors, myself included, these presentations offered a window into just how much these students had learned about mathematics, information technology, and physics as well as more specialized skills in machining, drawing, and mechanics, while also having numerous opportunities to develop and practice the interpersonal and intrapersonal skills associated with deeper learning.

For example, two young men provided a close look at a series of inventive assignments leading to their final year’s project. They explained that they had designed and

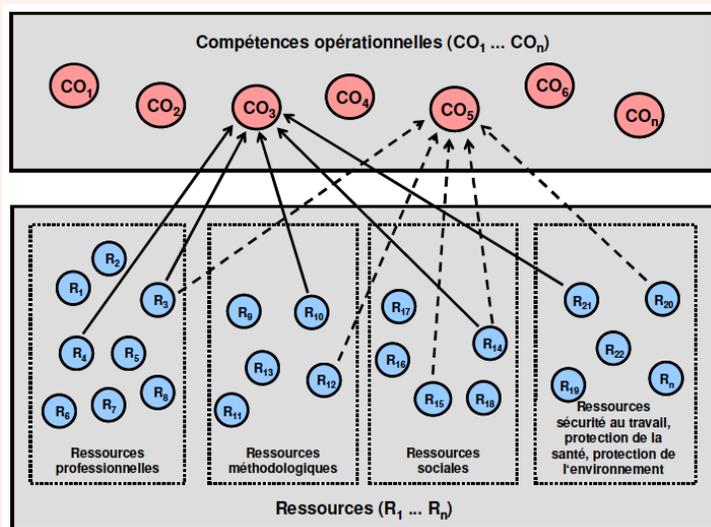
produced a hydraulic machine to lift heavy kitchen cabinets and hold them in place for an installer. However, their goal was not only to construct the machine but also to turn the design process into a demonstration problem for a group of 15-year-old students, who were spending several days on site to see whether they might want to pursue an apprenticeship.

Thus, the assignment required the second-year students not only to know the given mechanical principles but also to take a step back and think about what they had learned, so that they could translate those principles into a task that would be suitable for less-knowledgeable young people. Further, the project was totally self-directed and included self-assessments in workflow management, problem solving, explanation of the method of approach, and the ability to seek help when needed.

Such activities and assignments are, to put it mildly, very different from and much more powerful than what one typically observes in high school classrooms, whether in the U.S. or elsewhere. In short, they amount to a truly deep learning experience, one that engages young people in advanced academic content, teamwork, metacognition, persistence, problem solving, critical thinking, effective communication, and more, all of it in the context of developmentally appropriate real-world challenges.

Note also that this form of work-based learning includes daily contact with and coaching from various adults, representing various occupations. As Halpern argues, such multigenerational working communities tend to be much healthier environments for adolescents than schools full of other adolescents are. While peer groups have their benefits, exposure to peers alone can work against the maturing process, too, since, as he puts it, “The more powerful and complete the peer world, the more it is detached from pathways toward adulthood. . . . It makes little sense,” he goes on, “to take large numbers of inexperienced individuals who are the same age and relative maturity, place them in an isolated setting, and ask them to use that particular setting to grow, mature, [and] gain knowledge and experience” (Halpern 2013, p. 30, 39)

The paragraph below (translated from the French) summarizes the work of a polymechanic, accompanied by a pair of graphics from the polymechanic learning plan. The first shows the relationship between the competencies—*know*, *know how to*, *know how to behave* (red circles) and the professional, methodological, and social resources. (A fourth area, environment, is added because of its importance in manufacturing.) The second is a mini-case, one of many illustrating each level of learning, describing how a more experienced apprentice teaches beginning students. This, too, is part of the required curriculum. In other words, built into the learning system is the reinforcement of what an advanced student has learned in the assignment to plan a lesson, review it with his or her superiors, and then teach it to entering students, taking care to explain foundational concepts, develop an effective pedagogical approach, provide an assessment of the students' learning, and assess the experienced apprentice's own performance:¹⁹



Graphique: Compétences opérationnelles et ressources

Polymechanics are distinguished by approaches and actions that are both economical and ecological. They carry out requests and projects assigned to them in a systematic and independent manner. They are accustomed to working in teams; they are flexible and open to innovation. They respect principles of the security and safety at work; they protect health and the environment.

Marc is charged with teaching a group of apprentices certain objectives required in the foundation curriculum. This assignment comprises planning, facilitating, and evaluating a set of training activities. His professional advisor gives him an overview of the content, the length, and the dates for the organization of the activities; deadlines by which to complete the training sequence; and the number of participants to be engaged.

Marc creates a detailed program taking into account the required equipment and facilities, the content of the training activities, and the number of participants. He writes up this plan and presents it to his advisor. He then makes sure the necessary equipment, facilities, and training documents are available in sufficient number and required quality.

In order to facilitate the activities, he reviews the principles of the foundation methodology and pedagogy and creates an environment suitable for beginning apprentices. He evaluates the progress of the students by interacting and speaking with them. Through clear assessment measures, he guarantees that the students achieve the required learning objectives. In the case of weak outcomes, he defines strategies to encourage improvement and presents them jointly with his advisor to the students.

Plan of Action

- Respect the rules relative to the protection of the health and security of the work environment.
- Carry out the assignment according to the instructions.
- Plan and organize the sequence of activities.
- Bring the activities to life.
- Control the level of learning.
- Evaluate the activities and document them.

WORK-BASED DEEPER LEARNING IN THE U.S.: PROBLEMS AND PROMISES

Having made the case for the integration of schools and workplaces as sites for deeper learning, and having described what such learning looks like in practice, I turn in the final section of this paper to the status of such school/work opportunities in the U.S. If learning to work, and learning deeply *from* work, is so powerful and important in the adolescent years, then what should educators and policymakers be doing to ensure that more young people have such experiences? Do we have examples of such deep, work-based learning in this country?

Not surprisingly, there are no education systems in the U.S. that feature the length, depth, and specificity of the work-based learning system in Switzerland. Nor have any U.S. school systems turned the school/work equation on its head, with high schools supplementing what is learned at work rather than employers supplementing what is learned at school.

Few U.S. educators today would be likely to endorse the notion that a prime goal of high school should be for young people to learn to work and begin a first career. Age 15 or 16 is too early for such goals, they might argue, adding that internships, job shadows, and the like should be defined as career exploration activities meant to give students a taste of the work world and to encourage them to go on to higher education, where more specific and more technical career preparation takes place.

But this is not to suggest that this country is without excellent models of high schools that seamlessly integrate academics with career preparation and that treat the workplace as an important site for deeper learning. In fact,

high-quality, work-related education is provided in many states by national initiatives and networks, by impressive “one off” schools and programs, and through the long-standing tradition of vocational or CTE schools and centers. The problem is that such excellent programs and schools currently serve only a relatively small number of students. And the question is: Can these excellent models be further scaled up and their approaches refined and adapted in our many comprehensive high schools?

Exemplary Models

Among the most impressive networks incorporating learning for specific careers are up-to-date vocational high schools and centers, career academies, High Tech High Schools, Project Lead the Way, Big Picture Schools, Cristo Rey schools, and early colleges. Each provides some form of applied learning related to the labor market from programs linked to industries (e.g., finance, veterinary technology, information technology, and health care), to individualized multiyear mentorships, to an engineering curriculum that



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Boundaries between disciplines don't exist, since students are problem solving and learning as one would in the real world.

gets students started on design thinking in the elementary grades.²⁰ And each provides opportunities for students to become truly engaged in problem solving, teamwork, communicating with diverse colleagues, and other aspects of deeper learning.

For example, Cristo Rey students share a single full-time job (in a law firm, bank, hospital, or other setting), with each student working one day a week to pay tuition for schooling. Big Picture students make personalized learning plans that take them out to work several days a week with mentors of their choice with the goal of defining their passions and finding work that is satisfying. In the highly regarded Massachusetts system of vocational schools, students circulate among career areas for between four months and a year in ninth grade before making a career choice. These vocational schools typically host companies on site as well as provide clinical training required for industry certifications.

A particularly interesting school—a “one off”—is CART, the Center for Advanced Research and Technology. A part-time career center located in Clovis, California near Fresno, CART provides half-day programs for 1,300 eleventh and twelfth graders from 15 high schools. While CART uses CTE funds and offers some of the state's Regional Occupational Programs, nothing is standard about a CART education, from CART's facility to its approach to learning. The 75,000 square foot CART building, designed to replicate a high performance business atmosphere, is organized around four career clusters—professional sciences, engineering, advanced communications, and global economics. Teachers, business partners, and invited experts work not in classrooms but in large open spaces filled with equipment, work stations, and student work (spaces similar to those at a high-tech start-up or science lab). Within each cluster are several career-specific laboratories in which students complete industry-based projects and receive academic credit for advanced English, science, math, and technology. Boundaries between disciplines don't exist, since students are problem solving and learning as one would in the real world. Students do everything from testing water in the High Sierra to making industry-standard films to trying out

aviation careers by actually flying planes. Teaching teams include business and science partners, and many teachers have extensive professional experience.

Another promising approach has taken root among some of the 300 or so early college high schools across the country. Roughly one third of those schools have a thematic focus on the STEM fields (science, technology, engineering, and math), with health sciences being particularly popular. Since hospitals tend to be accustomed to supervising people at the beginning of their careers, a number of them have agreed to partner with these early colleges, providing students with work-based learning opportunities in various health care fields. For example, Wake Early College High School in Raleigh, North Carolina assigns students to spend a significant portion of their time on Wake Tech's health sciences campus and in Wake Medical's main hospital, where they participate in job shadowing, internships, and other activities that put them in direct contact with practicing medical professionals.

An adaptation of the early college model, New York City's P-TECH, was developed by IBM in partnership with the New York City Department of Education and the Early College Initiative at CUNY. Graduates of this six-year program emerge with A.A.S. degrees in computer systems technology or electromechanical engineering technology. This model has affinities with European approaches in that students are promised paid internships in their final year, either at IBM or a partner IT company. Recently, New York State funded 26 additional P-TECH programs, and Chicago and several other cities are currently adapting the model. New York City also has other early colleges sponsored by an advertising industry organization, Montefiore Hospital, and Con Edison.

Similarly, SAP, the German business solutions company, is sponsoring early college programs in the U.S.: B-TECH, which just opened in New York City, and a business IT-focused program opening in 2015 in Boston in partnership with the Mayor's Office, Charlestown High School, and Bunker Hill Community College. In addition, a major agricultural firm, Paramount Agricultural Companies,

is designing and supporting five early colleges in the California Central Valley focused on careers in agribusiness, plant science, and agriculture mechanics. Students in these schools will be able to earn at least a year of college credit, will be supported to complete an Associate's degree, and will have paid internships in Central Valley companies.

Among statewide investments, the newest of the modernized integrated career/academic approaches is Linked Learning, an ambitious California initiative that aspires to have every high school student in the state—about 1.8 million young people—enrolled, over the next decade, in a career/academic interdisciplinary curriculum with pathways into postsecondary education. Linked Learning combines the broad academic foundation needed for further education with depth of study in a career area and is implemented not just in single schools but across entire school districts and regions (Hoachlander & Yanofsky 2011). Developed with major philanthropic investment, Linked Learning—along with National Academies Foundation schools and California Partnership Academies—recently helped to secure a California public investment of \$500 million to create career pathways aligned with labor market needs, starting in ninth grade and moving through community college degrees or certificates. The first set of grantees is just getting to work.

Finally, the Pathways to Prosperity Network—directed by Jobs for the Future in collaboration with the Harvard Graduate School of Education—is attempting to capitalize on the sporadic models that now exist to build a stronger career education system that is more responsive to the needs of the labor market and that engages students in deeper learning through work experiences. Pathways is now 2 years old, with 11 state members—Arizona, California, Delaware, Georgia, Illinois, Massachusetts, Missouri, New York, Ohio, Tennessee, and Wisconsin—doing significant work in creating career pathways in grades 9-14.

The network seeks to ensure that many more youth complete high school, attain a postsecondary credential with currency in the labor market, and get launched on a career while leaving open the prospect of further education. Key sectors of the economy identified for building career pathways across the states include information technology, health care, and advanced manufacturing. Along with the states in the Pathways Network, the Federal government, some philanthropies and corporate foundations, and nonprofit organizations and states beyond the Network are also engaged in this work.²¹

Note that all of these models understand their mission to be more than just “vocational,” as it is typically defined in this country. Collectively, they represent a growing movement to rethink the role of career preparation in the high school curriculum and to address the either/or—either career-focused or college-prep—dichotomy by creating integrated educational models that are meant to engage adolescents in learning advanced academic content through a combination of classroom activities and participation in developmentally appropriate, work-based experiences. Moreover, all of these models understand the workplace to be a powerful site—and for some students, perhaps the *most* powerful site—for deeper learning.

The Employer Intermediary Challenge

Whether the design of work-based learning involves a single school, a network of schools, or a multistate effort, a major challenge is to develop relationships with employers, employer associations, and workforce nonprofits, encouraging them to provide a large number of students with the most attractive form of work-based learning: a paid, multiweek apprenticeship or internship in the summer between eleventh and twelfth grades or during the last years of high school. But the larger the number of students to be served with an experience-based approach, the more



All of these models understand the workplace to be a powerful site—and for some students, perhaps the *most* powerful site—for deeper learning.

difficult it becomes to make the appropriate workplace experiences available.²²

Further, even if employers were more inclined toward collaborating with education institutions to share in preparing young people for working life, teachers and school leaders still would lack the time or capacity to develop the number of internships needed while attending to their other responsibilities. In order to scale up such programs, states and school districts likely will require help from intermediary groups—such as workforce development nonprofits, businesses, and public sector organizations—that can set up work-based learning opportunities and broker relationships among high school educators, community colleges, and employers.

However, most workforce development projects in the U.S. have tended to focus only on providing services to displaced, low-skilled, or unemployed adults and disengaged young people. Few have much capacity to work with students who are currently in high school or college.

Perhaps the most notable exception to this norm is the statewide network of Workforce Investment Boards (WIBs) in Massachusetts, particularly its flagship Board, the Boston Private Industry Council (known as the “Boston PIC”). Boston places about 9,000 young people in summer jobs each year, and some students continue to work during the school year. The PIC takes responsibility for developing, placing, and managing the learning for the 3,000 students who are in private companies, while the City places an additional 6,000 students in the public sector.²³ A state line item called “Connecting Activities,” managed by the College and Career Readiness unit of the Massachusetts Department of Elementary and Secondary Education, pays for the WIB staff of employer account managers and school career specialists, while employers contribute the student stipends. Additionally, in the last several years, a number of both nonprofit and for-profit entities have sprung up, focused on identifying internship opportunities, preparing students for them, and placing students in work sites, usually at some cost to employers.²⁴

POLICY IMPLICATIONS

In this concluding section, I provide a brief overview of the sorts of state policies and local capacity that will have to be developed or expanded in order to scale up existing opportunities for deeper, work-based learning.

In general, policies will need to incentivize:

- Employers to take young people into their offices, shop floors, hospitals, and other work places and to make a serious commitment to giving these students opportunities to learn about the given field, study its core content, contribute to work teams, take on challenging tasks, and otherwise practice the skills associated with deeper learning.
- Educators to implement, credit, and promote work-based experience as a means of learning deeply.
- Intermediaries (nonprofit organizations such as Workforce Investment Boards, chambers of commerce, United Way chapters, sector associations, and community-based organizations) to translate between educators and employers and to provide the infrastructure that makes collaboration possible.

1. Employer-targeted policies to incentivize work-based deeper learning. These can include direct subsidies to employers for student wages, student trainers, and other expenses; tax credits for taking on interns and apprentices; and training levies consisting of a tax that companies pay to support nonprofit organizations and industry associations that help to design and oversee work-based learning.

Other policies could include requirements to take on student interns in vendor contracts or bartering arrangements in which a school makes its facilities available to an industry in exchange for providing up-to-date equipment for student use.²⁵ Finally, one low-cost strategy for engaging employers is to ask them to offer teacher externships. These help teachers learn about the 21st-century workplace, can serve as the impetus for industry aligned assignments for students, and might also pave the way for students' job shadowing visits and apprenticeships.

2. Policies that incentivize the education sector to support work-based deeper learning. Compared to policies focused on employers, these policies are better developed at this point. In general, existing education policies make such learning an option, not a requirement, except when a funded initiative carves out work-based learning as a component of a specific design, as is the case in the major investments in career pathways in California (\$500 million), Ohio (\$250 million), New York (\$38 million), and the U.S. Department of Labor's Youth Career Connect initiative (\$100 million).

States can further incentivize educators to take on work-based learning by funding expanded learning time



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so that students can incorporate internships in the school day; providing credit for internships; requiring that career development education be incorporated into the existing course of study in middle and high schools; and awarding endorsements, honors, or “seals” for CTE courses that incorporate work-based learning. Several of these incentives could be incorporated into a state’s accountability system.

- 3. Policy levers to create or broaden the mission of intermediary organizations.** Effective work-based learning often depends on the participation of intermediary organizations (such as community foundations, Workforce Investment Boards, and other nonprofit organizations), which can help negotiate agreements between schools and businesses, supervise programs, and ensure their quality. In turn, for intermediaries to serve this role effectively, they must be careful to delineate their precise roles and responsibilities, and they must secure a stable and long-term funding stream that allows them to do the work of designing curricula, arranging new programs, overseeing internships, and so on.

There are several possible avenues through which states can provide the support that intermediary organizations need. For example, they can direct new state resources to Workforce Investment Boards that are undertaking intermediary functions, or they can make use of their federal Workforce Innovation and Opportunity Act (WIOA) Youth funds to support intermediaries focused on work-based learning. Discretionary grants can also be used to establish intermediaries or to distribute basic intermediary functions across several organizations; intermediary functions can be expanded over time as additional funding becomes available.

Further, many states, regions, and districts have begun the process of revitalizing and modernizing career education by designing new programs based on the analysis of regional labor market trends, focusing on growing industries and occupations that have good wages and career ladders and that will require people with a solid foundation of core academic and technical skills. Such labor market information can easily serve as the impetus for creating new work-based learning agreements and raising funds for intermediaries to manage them.

All of these approaches will require educators, employers, and intermediaries to have greater access to timely labor market information as well as better systems by which to keep track of the amount of time students spend in work settings. Further, in order to be worth the effort that it will take to design, implement, and scale up these approaches, careful attention must be paid to principles of educational quality, with an emphasis on approaches that result in learning that is deeper and more lasting than what can be gained in the classroom alone.

For this goal to be realized, many more employers—public and private—must choose to work more closely with their local schools, and they must recognize that it is their mutual obligation, and very much in their self interest, to provide access to learning in the workplace. Many more educators will have to come to understand how learning about and through work can be a powerful lever for social, emotional, and intellectual growth. And policy makers will have to understand that schools need the resources to be staffed and structured to make deeper learning come to pass.

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To return to where I began, my goal here was to use this exploration of the role of work in adolescent lives to argue that every young person should have the opportunity to gain the knowledge, skills, and competence needed to search for and obtain work that is meaningful, and that to provide such powers of self-determination to young people requires a substantial rethinking of what schooling should be like for teenagers.

Final Thoughts

As I write the concluding words of this paper, news keeps coming that makes preparing young people for the better jobs in the labor market more and more urgent. For while the economy is recovering, wages are relatively stagnant, especially at the low end; current employees are losing benefits; companies are outsourcing high percentages of their work to staffing agencies that hire on short-term contracts; and confronted with growing pressure to raise wages for fast food workers, employers appear prone to confrontational reactions.

To return to where I began, my goal here was to use this exploration of the role of work in adolescent lives to argue that every young person should have the opportunity to

gain the knowledge, skills, and competence needed to search for and obtain work that is meaningful, and that to provide such powers of self-determination to young people requires a substantial rethinking of what schooling should be like for teenagers.

As I hope readers recognize by now, the argument I'm making is not that kids need jobs—that is certainly true—but a far more radical proposition both in its intellectual demands of educators and in the organization of learning for late adolescents. That is, I argue that learning to work, learning about work, and experiencing a productive workplace should be integral to secondary-level education, since they offer particularly powerful ways to teach high-level content, collaboration, problem-solving, and other dimensions of deeper learning.

ENDNOTES

¹ There are numerous estimates for how many hours Americans spend working; 90,000 is at the low end. See <http://blog.tempoplugin.com/2013/7-time-consuming-things-an-average-joe-spends-in-a-lifetime/>. Other estimates go up to 1,000,000.

² And as Peter Levine & Kei Kawashima-Ginsberg (2015) argue in their paper in this series, “civic readiness,” too, has been treated as an afterthought in recent decades.

³ See for example *The Silent Epidemic: Perspectives of High School Dropouts*, which is available at <https://docs.gatesfoundation.org/Documents/TheSilentEpidemic3-06Final.pdf>. This study found that 47 percent of dropouts claimed that school was boring, and 69 percent said that school didn’t motivate or excite them. It is important to note, however, that “boredom” masks what a recent study calls “a cluster of factors,” many of which have to do with conditions in students’ lives external to school in regard to dropouts. In addition, many students who stay in school and graduate have questions about relevance but have learned to work through boredom. See also *Don’t Call Them Dropouts: Understanding the Experiences of Young People who Leave High School before Graduation*, a Report from America’s Promise Alliance and the Center for Promise at Tufts University, 2014.

⁴ Here is a typical statement from the California Department of Education (2012): “As you know, career technical education (CTE) is a powerful motivator for California’s young people and a valuable part of California’s economy. When students can see a pathway from classrooms to careers, they are much more likely to graduate high school with the skills and experience they need to succeed and to help our businesses succeed. That is a story we should tell, and I hope you will join me and the California Department of Education in doing just that in February 2013, when we celebrate Career and Technical Education Month.” <http://www.cde.ca.gov/nr/el/le/careerandtechnicaleducationmonth.asp>

⁵ And the reality is that most schools are missing guidance counselors, too. In much of the country, they’re in extraordinarily short supply, due mainly to funding cuts. Nationally, public schools average 1 counselor for every 477 students.

⁶ Thanks to Rafael Heller for these last sentences—and for astute and copious comments during the writing process.

⁷ See also: <http://www.northeastern.edu/clms/the-collapse-of-the-school-to-work-transition-for-young-high-school-graduates/>

⁸ My own post-high-school summer job in a 100-woman typing pool in the un-air-conditioned Newark, New Jersey, courthouse gave me great impetus to study hard in college and find a career as something other than a typist.

⁹ In addition, their lifetime earnings will be impaired. A substantial body of economic research concludes that late entry into the labor market tends to result in significant reductions in lifetime earnings.

¹⁰ For a more comprehensive account of strong vocational systems, see Hoffman (2011) and Hoffman & Schwartz (2014). This section draws substantially on the latter piece.

¹¹ These observations are based on numerous interviews, conducted mainly in 2014, with Swiss teenagers and parents.

¹² Observations based on interviews with human resources directors of apprenticeships at Swiss Com, Credit Suisse, and other major employers.

¹³ Much of the information in this section comes from personal notes from interviews with a group of executives, representing a number of major Swiss companies, in which I participated at the Swiss Economic Forum, June 2014, in Interlaken, Switzerland. The purpose of the interviews was to solicit their views on the role played by the country’s vocational and professional education system in Swiss economic success. Interview subjects included the president of the Swiss Employer Association, as well as CEOs of companies such as Price Waterhouse, UBS, the Swiss postal service, and Alpiq (an electrical power provider).

¹⁴ These are the averages usually cited. See the following for salaries for each profession. "Salaire Durant l'apprentissage-Etat juin 2014." <http://www.berufsberatung.ch/dyn/46447.aspx>

¹⁵ See Wolter (2009) and other studies by Stefan Wolter, Managing Director of the Swiss Coordination Centre for Research in Education and a Professor of Economics at the University of Bern.

¹⁶ Translated from French: "l'épanouissement de la personnalité des personnes en formation et les encouragent à prendre des responsabilités dans leur vie professionnelle, privée et sociale." p. 11/55 <http://www.sbf.admin.ch/bvz/grundbildung/index.html?lang=fr&detail=1&typ=EFZ&item=855>

¹⁷ Interview with a student, October 16, 2014 at the Center for Young Professionals Banking, the training and competence center for banking education, in Zurich.

¹⁸ Stefan Wolter slides (personal communication).

¹⁹ <http://www.sbf.admin.ch/bvz/grundbildung/index.html?lang=fr&detail=1&typ=EFZ&item=1469>. Translated from French: "Les polymécaniciens CFC se distinguent par une approche et une action économiques et écologiques. Ils exécutent les mandats et les projets qui leur ont été confiés de manière systématique et autonome. Ils ont l'habitude de travailler en groupe, ils sont flexibles et ouverts aux nouveautés. Ils respectent les principes de la sécurité au travail, de la protection de la santé et de la protection de l'environnement." <http://www.sbf.admin.ch/bvz/grundbildung/index.html?lang=fr&detail=1&typ=EFZ&item=855>

²⁰ The career academy movement, the largest "modern" CTE program, and now some 7,000 schools strong, helps graduates achieve higher earnings as adults. The academies introduce students to career themes and typically include workplace learning. Project Lead the Way introduces high school students to engineering using a rigorous, uniform curriculum; national assessments; professional development for teachers; and extensive project-based learning, and can be installed within a traditional high school. It has now spread to over 3,000 high schools. High Schools That Work, developed by the Southern Regional Education Board, has grown into the nation's largest effort to integrate challenging academics and CTE. Currently, SREB is working to develop new, high-quality career-focused "programs of study," taking advantage of funding available through a provision in the U.S. DOE's Perkins legislation.

²¹ For an update on the work thus far, see *The Pathways to Prosperity State Network: A Progress Report, 2012-2014*. Available at <http://www.jff.org/publications/pathways-prosperity-network-state-progress-report-2012-2014>

²² To compound the challenge, in the last several months, higher education systems have begun to set up career-specific internships responding to student and family complaints that while a Bachelor's degree is a nice (and expensive) acquisition, if it leaves the holder without job prospects, then the investment is less than wise.

²³ The PIC describes itself as follows:

The Boston Private Industry Council (PIC) is a nonprofit organization that connects business, the Boston Public Schools, higher education, government, labor, and community organizations to create innovative workforce and education solutions that benefit Boston residents and businesses alike. The PIC is the connection between education and workforce, between school and career, and between classroom and the workplace. PIC initiatives thrive on the synergy created when business and community needs overlap. The result is a win-win situation: Businesses develop the workforce they need and Boston residents gain access to career opportunities and higher incomes.

As an intermediary, the PIC (1) convenes local leadership around education and workforce priorities, (2) brokers employer partnerships, (3) connects youth and adults with education and employment opportunities, and (4) measures program impact, in terms of both quality and scale.

Although employers pay student wages, the PIC's connecting and "intermediating" work is enabled by a unique line item in the Massachusetts state budget called "Connecting Activities," a Department of Elementary and Secondary Education initiative that provides funding to the local Workforce Investment Boards—the PIC is 1 of 16 in the State—to offer work-based learning opportunities. Connecting Activities funding allows the WIBs to hire career counselors for the schools and employer account managers to design student positions in companies; all students have a work-based learning plan, and many schools do link the work students do during the summer with rich, intellectually challenging interdisciplinary projects during the school year.

²⁴ These include GenesysWorks, ConnectEd Studios associated with California’s Linked Learning Initiative, and the growing set of postsecondary institutions—Columbia University is a front-runner—that structures projects that students do for companies without leaving campus or their dorm rooms. www.genesysworks.org/twincities/About_Us

²⁵ For a description of how this strategy was developed at the award-winning Worcester Vocational High School in Worcester, Massachusetts, see *Worcester Tech: Not Your Grandfather’s Vocational School*. MassMEP, Manufacturing Extension Partnership: www.massmac.org/newsline/1210/worcester_tech_not_your_grandfathers_vocational_school.htm

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TEL 617.728.4446 FAX 617.728.4857 info@jff.org

88 Broad Street, 8th Floor, Boston, MA 02110 (HQ)
122 C Street, NW, Suite 650, Washington, DC 20001
505 14th Street, Suite 900, Oakland, CA 94612

WWW.JFF.ORG

